

Varazdin Development and Entrepreneurship Agency and University North  
in cooperation with  
Faculty of Management University of Warsaw  
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat  
Polytechnic of Medimurje in Cakovec



# Economic and Social Development

49<sup>th</sup> International Scientific Conference on Economic and Social Development Development –  
"Building Resilient Society"

## Book of Proceedings

Editors:

Darko Dukic, Tomasz Studzieniecki, Jasmina Grzanic



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Editors:

**Darko Dukic, Josip Juraj Strossmayer University of Osijek, Croatia**  
**Tomasz Studzieniecki, Gdynia Maritime University, Poland**  
**Jasmina Grzanic, Juraj Dobrila University of Pula, Croatia**

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# APPLICATION OF AGENT-BASED MODELING IN DECISION- MAKING MIGRATION POLICY

**Abramov Vladimir Ivanovich**

*Plekhanov Russian University of Economics, Moscow, Russian Federation  
117997, Moscow, Stremyanniy pereulok, 36  
vladimir.abramow@gmail.com*

**Volkova Maria Igorevna**

*Plekhanov Russian University of Economics, Moscow, Russian Federation  
117997, Moscow, Stremyanniy pereulok, 36  
frauwolf@gmail.com*

## ABSTRACT

*The article is devoted to the analysis of existing experience in the application of agent-based approach by modeling migration processes carried out for ongoing development of complex agent-based models to simulate processes in the field of migration policy. Analysis showed that despite the advantages demonstrated by the agent-based approach compared with traditional methods of demographic research simulation reveals various difficulties in terms of simulating migration processes that nevertheless do not underestimate advantages of agent and other existing modeling approaches. Hybrid population-based agent modeling is a new emerging field of study that showed advantages by implementing this approach. The explosive population growth around the world over the past few decades has had an enormous impact on the level of natural resources, the state of the environment and the structure of society in many countries. The study of demographic and migratory trends and the dynamics of changes in the population structure plays a key role in the formation of domestic as well as global policies to achieve sustainable social and environmental development.*

**Keywords:** *agent-based modeling, EU economy, migration, migration policy*

## 1. INTRODUCTION

Traditionally, demography is an empirical discipline in the social sciences, aimed at the study of long-term change processes at the population level (Burch, 2018). Nevertheless, in recent years, a growing level of criticism has been observed in this area in relation to the unsatisfactory level of theoretical substantiation and explanation of various demographic phenomena (Hobcraft, 2007). Modern demographic research faces three important issues (Silverman, 2013). Firstly, for the correct description of the demographic phenomena and the proper definition of political objectives, demographic analysis should be carried out at different levels of aggregation: from individuals, households and regions to society (Courgeau, 2016). Attempts to solve this problem have recently been undertaken by interlinking a multi-level statistical analysis of time series with micromodelling (Klabunde, 2015). However, the use of aggregation does not guarantee a high accuracy of the forecast, and an increase in the dimensionality in models reduces the quality of forecasting due to the increased sensitivity to the amount of source data, as well as their deficit. The second problem consists in conjunction with other statistical meaningful information for the identification of new trends in the context of demographic processes. Finally, the third task is to determine the level of detail of the developed demographic models, as well as the degree of use of empirical data. From the standpoint of potential in solving the above-mentioned problems, an agent-based modeling (hereinafter - ABM) differs substantially from statistical methods, because this approach allows considering the phenomena for which there is no clear analytical representation (Makarov, 2016). In this regard, the ABM is an effective tool for analyzing and explaining non-linear or complex

interactions, such as the social nature of behavior, including various difficult to formalize elements (for example, social context, networks of interpersonal relationships, etc.). This article is devoted to the analysis of the existing experience of using an agent-based approach to the modeling of migration processes, carried out with the aim of further developing a set of agent-based models that simulate the processes in the field of migration policy.

## **2. RETURN MIGRATION MODEL**

With the help of SESSL (Ewald, 2014) and ML3 (Warnke, 2015) technologies, a model simulating the process of return migration was developed in (Reinhardt, 2018). Migrants have several characteristics that affect their financial condition, as well as the desire to return to their homeland. The intensity of migration flows based on the statistics of the Office of National Statistics, UK. The age of migrants is of great importance during the simulation, since after reaching the retirement age, agents are excluded from the model. Simulated migrants are also endowed with a randomly defined "skill level" that affects their potential income level. In addition, the model has a network character, since each migrant has his own social network of connections. When the model is initialized, the intensity of the emergence of migrants depends on the difference between the current average earnings and the target earnings of agents (Harris, 1970). In addition, the total income of agents is influenced by social capital associated with the scale of the migrant network (Portes 1998), access to loans and mortgages, etc. During the simulation, migrant agents adhere to one of two strategies: permanent relocation to another country, or accumulation of capital enough for comfortable living at home (Constant, 2002). A series of multiple experiments showed that the SESSL language allowed us to implement and integrate a new experimental design method for demographic models. Combining regression metamodels and a Gaussian process emulator with the methods supported by SESSL showed that the nature of the distribution of migrant strategies and the nature of their network connections are crucial in the demographic development process.

## **3. NETWORK MODEL OF MIGRATION ADAPTATION**

Model (Simon, 2019) is implemented in a multi-agent, programmable simulation environment Netlogo. At initialization pattern generated population of agents 272, which is distributed over the cells in the space. As the source data was used the database "Mexican Migration Project"<sup>1</sup>, as well as data from alternative sources. Due to the inability to establish the nature of network connections of the Mexican communities, the researchers chose the network topology of the "close world", which has a high level of clustering, as well as a low distance between nodes (Watts, 1998). At the start of the simulation, agents make decisions about emigration depending on their current location and salary amount. In the course of the simulation, a comparison is made of indicators of wage levels in the "home" and "foreign" regions, which influence the decision-making of agents on emigration. In addition, immigrants engaged in labor activities can make remittances to their relatives in order to compensate for the costs of emigration. Agents located in the "home" region during emulation make decisions about emigration, and the change in the number of migrants influences their actual wages. However, as emigrants send information and monetary resources to their relatives, this also affects the expected incomes of non-migrants, and, consequently, their usefulness in terms of labor migration, as well as the amount of accumulated resources. The simulation results showed that, regardless of political restrictions, agents move most intensively to areas with a high concentration of emigrants ("Diasporas") on their territory. This tendency weakens only in the case of extremely unfavorable conditions for migration. Areas with no "Diasporas" absent in the territory become dominant from the point of view of emigration only in the event of a significant weakening of the policy of restraining migration flows.

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<sup>1</sup> mmp.opr.princeton.edu

According to the theory of social networks, the simulation results showed a tendency of migrant agents to move to areas with the presence of “Diasporas” even when political conditions are very favorable for moving to an alternative destination. However, in the event of a return migration, migration flows may vary depending on different political conditions. In this case, a liberal “alternative direction” may attract more migrants than a restrictive “traditional direction”. The simulation results also showed that the process of moving agents in space could become unstable in the case when both “directions” have similar political conditions. In that case, the model shows a decrease in the size of the diaspora as agents return and re-migrate, which, in turn, leads to the formation of more uniform migration flows between regions.

#### **4. HYBRID POPULATION AGENT-BASED MODELING**

The article discusses the advantages of applying a hybrid approach to modeling processes using micro- and agent-based modeling. Taking advantage of the two tools gives researchers an opportunity to study such complex population issues as the gender gap, welfare gap, migration, the relationship between the labor market and macroeconomic policies, epidemic diseases, etc. The construction of such models can be divided into 4 main stages: the collection of various data on the target population (gender and age structure, geographical distribution, etc.) (Moeckel, 2003); calculating missing data; building a behavioral model of agents; conducting scenario modeling and analysis. Hybrid population-based agent modeling is a new emerging field of study, but currently there are already advantages in implementing this approach. First, the agent-based approach allows for a more in-depth and detailed study of decision-making mechanisms. On the other hand, micromodelling has advantages in the context of collecting the data obtained in the course of modeling, with a view to their further presentation, evaluation and validation under empirical conditions. Thus, hybrid population simulation, which combines agent-based technologies with basic synthetic population data, can lay a solid foundation for social modeling.

#### **5. CONCLUSION**

An analysis of the existing experience of using an agent-based approach in the field of migration policy showed that, despite the advantages demonstrated by the agent-based approach compared with traditional methods of demographic research, modeling reveals various difficulties from the position of imitating migration processes (Morand, 2010). Firstly, modeling in the social sciences usually concentrates on very specific aspects of social behavior (Bahtizin, 2018). For example, in order to apply standard statistical analysis, which implies a “static” random connection between variables, it seems necessary to distinguish causal factors in social actions and social properties (so-called structuring factors). Algorithms of imitation of a particular social behavior should be initially simplified as much as possible in order to be able to add various structuring factors from the wider social environment. Current social theories, in a sense, do not represent adequate prerequisites for designing agent-oriented models. Thus, the set of statistical laws that sociologists use to predict the behavior of groups of the population turns out to be inapplicable in modeling individual agent-based behavior. Therefore, the agent modeling process cannot rely on existing theories, since they are either overly abstracted or empirically unrealistic. Because social interactions are always special in terms of context (including the time and place of their occurrence), consideration of this aspect is an integral part in the behavior of agents and has a high impact on their decisions. However, taking into account such contexts could with high popularity lead to significant non-linearity and clustering of information transfer flows between agents, which will require considerable complication of behavioral algorithms in the model and can be considered as contradicting the idea of initially having lightweight models. Modeling an agent with a complex nature of social interaction is also another extremely difficult task, in the context of providing agents with the ability to store

and use large amounts of statistical information. Finally, in many multi-agent systems, due attention is not paid to the data needed to calibrate the designed models. Currently, questionnaires are the dominant measure for gathering information about how people make decisions. However, the analysis of the principles of decision-making by people requires the development of new technologies to collect the necessary data. However, the above difficulties do not diminish the advantages of agent and other existing approaches to modeling. On the contrary, both agent-based models and their traditional statistical and mathematical analogs have both advantages and disadvantages in the context of a detailed presentation of the social behavior of the subjects studied.

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## INFLUENCE OF INNOVATION ON THE LINER SHIPPING CONNECTIVITY

**Adrianna Karas**

*Gdynia Maritime University, Poland*  
*a.karas@wpit.umg.edu.pl*

### ABSTRACT

*Globalization is a complex phenomenon of the modern world activating the development of the global economy and also maritime transport, which is exposed to the strong impact of internationalization processes. Interesting are the changes that have occurred in recent years in global maritime transport and are reflected in visible progress in the degree of integration of international economies. The degree of openness of economies to the use of trade by sea has been measured by the experts of the United Nations Conference on Trade and Development (UNCTAD) since 2006, since it is maritime trade that contributes to global economic development. Statistics show that a high degree of networking and openness of economies to the sea is the domain of strong and dynamically developing economies. The purpose of the following article is to analyze the relationship between the indicator determining the attractiveness of seaport ports for shipowners and shippers at the same time and showing what extent the ports of individual countries are connected with the global shipping network - Liner Shipping Connectivity Index and the innovation indicator - European Innovation Scoreboard. The article presents the results of a Spearman rank non-parametric correlation study. The analysis used the UNCTAD database published in 2018 and the European Innovation Ranking for 2018 published by the European Commission. The article analyzes the liner connectivity index on a sample of 28 selected maritime countries that are also members of the European Union and third countries included in the European Innovation Scoreboard.*

**Keywords:** *liner shipping connectivity index, innovation, seaports, correlation coefficient*

### 1. INTRODUCTION

Sea transport accounts for more than 80 percent of the volume of transport in world trade in goods and over 70 percent of their value. Total volume reached 10.7 billion tonnes in 2017 and volumes increased by 4 percent, which means the fastest growth over the past five years (UNCTAD, 2018). World maritime trade gained momentum and according to DNV GL (global classification society and recognized advisor to the maritime industry) until 2050, shipping will maintain centrality to global trade and the world's economy. DNV GL forecast a 39% rise in seaborne trade measured tonnes over the period 2016–2030, and a 2% rise for 2030–2050 (DNV GL, 2017) (Figure 1).

Cargo type	Trade (million tonnes/yr)			
	2016	2030	2040	2050
Crude oil	1,950	2,280	1,850	1,270
Oil products	1,070	1,320	1,250	1,020
Natural gas	360	640	770	790
Bulk	4,890	6,730	6,940	6,910
Container	1,730	2,850	3,400	3,740
Other cargo	1,150	1,630	1,860	2,010
Total	11,130	15,460	16,080	15,730

Figure 1: World seaborne trade (DNV GL, 2017)

Global cargo translocation processes are implemented using land-sea transport chains. The creation of an optimal global transport system consists of several factors (Nowosielski, 2012 p.53):

- optimal combination of individual transport stages, consisting of land and sea
- individual cells form a whole that adopts a serial structure
- the efficiency of individual links determines the efficiency of the entire chain
- all links involved in the chain are related to each other
- the operation of individual links is aimed at implementing efficient and effective transport processes.

The system that meets the above conditions is container transport, which through the standardization of containers has contributed to the creation of transport chains covering by its operation land and sea transport links. The above features of land-sea transport chains are typical of a container system, which covers intercontinental and global relations. In addition, the unification of containers as loading units resulted in complementarity of various modes of transport. Along with the development and integration of transport systems, there has also been a change in the role of sea ports. Currently, ports act as multimodal transport nodes that are links in land-sea transport chains (Grzelakowski, 2017). Seaports are a link that affects the efficiency of supply chain operations. In addition, four interrelated layers decide on the role of ports in the land-sea transport chain, which T. Notteboom describes by distinguishing (Kotowska, 2014, p. 543):

1. localization layer - refers to the geographical location of the port relative to major economic centers such as production and / or consumer centers
2. infrastructure layer - relates to ensuring basic transport infrastructure
3. transport layer - includes the organization of transport services between the port and other nodes as part of a multimodal transport system
4. logistics layer - includes the organization and management of transport chains and their integration in logistics chains.

## **2. LINER SHIPPING CONNECTIVITY INDEX**

The degree of openness of economies to the use of trade by sea has been measured by experts of the Conference on Trade and Development (UNCTAD) for several years. To measure the scale of economy opening, the Liner Shipping Connectivity Index (LSCI) composed by UNCTAD is used, which in loosely translated can be called the Sea Opening Index or the Networking Index. The Liner Shipping Connectivity Index captures how well countries are connected to global shipping networks. The LSCI is generated for all countries that are serviced by regular containerized liner shipping services.

The current (from 2019) version of the LSCI is generated from the following six components:

- a) the number of scheduled ship calls per week in the country;
  - b) deployed annual capacity in TEU: total deployed capacity offered at the country;
  - c) the number of regular liner shipping services from and to the country;
  - d) the number of liner shipping companies that provide services from and to the country;
  - e) the average size in TEU of the ships deployed by the scheduled service with the largest average vessel size;
- and additional points in the indicator from 2019 will be awarded to countries, which number of other countries that are connected to the country through direct liner shipping services (UNCTAD Stat, 2019).

For each component, divided is the country's value by the maximum value for the component in 2006 and then calculate the average of the six components for the country.



The country average is then again divided by the maximum value for the average in 2006 and multiplied with 100. The result is a maximum LSCI of 100 in the year 2006. This means that the index for China in 2006 is 100 and all other indices are in relation to this value (UNCTAD Stat, 2019). The latest measurement of the LSCI index for 2019 shows that China's position is still safe, while the top ten most open to the sea and networked countries in the world are China, Singapore, Korea, Malaysia, USA, Hong Kong, Belgium, Netherlands, United Kingdom and Spain (Figure 2). The advantage of China, which reached 151.9 points is very clear over the other countries. Interestingly, Poland in this ranking obtained 51.69 points and 27th place in the world out of 178 countries. However, Poland's place is better than many countries with larger economies than Sweden, Russia or Denmark. In the case of trade with overseas countries, maritime transport has been and will be the driving force in economies around the world, and Poland wants to be part of this trend. In 2006, Poland earned 94th place (UNCTAD Stat, 2019).

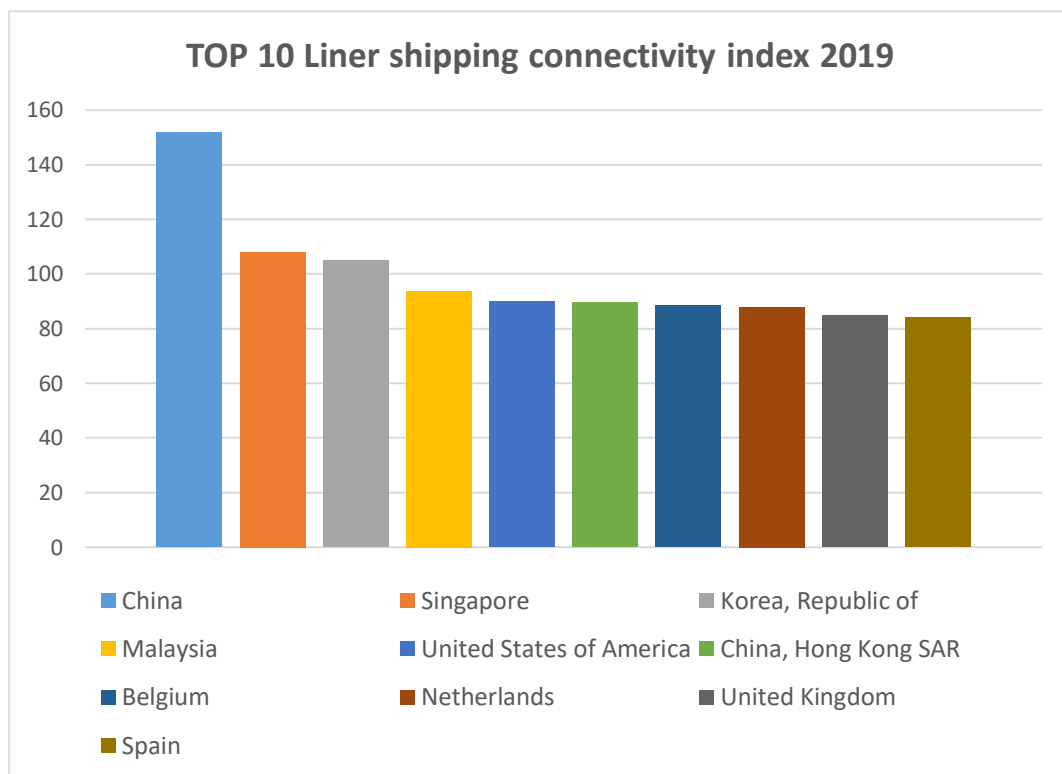


Figure 2: Top 10 Liner shipping connectivity index (own study based on UNCTAD Stat, 2019)

### 3. EUROPEAN INNOVATION SCOREBOARD

The European Innovation Scoreboard provides a comparative analysis of innovation performance in European Union countries, other European countries, and regional neighbours. The EIS measurement framework distinguishes between four main types of indicators and ten innovation dimensions, capturing in total 27 different indicators.

- Framework conditions capture the main drivers of innovation performance and cover three dimensions: Human resources, Attractive research systems, Innovation-friendly environment.
- Investments capture public and private investment in research and innovation and cover two dimensions: Finance and support and Firm investments.
- Innovation activities capture the innovation efforts at the level of the firm, grouped in three dimensions: Innovators, Linkages, and Intellectual assets.
- Impacts cover the effects of firms' innovation activities in two dimensions: Employment impacts and Sales impacts.

The measures are the innovative achievements of given countries, collected on the basis of various sources, primarily the international program of statistical innovation surveys (Community Innovation Survey), Eurostat and OECD (The Organisation for Economic Co-operation and Development). The results are presented in an EIS report issued each year by the European Commission. Performance of the EU innovation system, measured as the weighted average of the performance of the innovation systems of all 28 Member States. (Hollanders H., Es-Sadki N., Merkelbach I., 2019). Based on the results obtained, EU countries are divided into four groups: innovation leaders, strong innovators, moderate innovators and weak innovators (Figure 3). Sweden is the EU innovation leader in 2019, followed by Finland, Denmark and the Netherlands. The United Kingdom and Luxembourg have fallen from the highest rank of innovation leader to a group of strong innovators, and Estonia has for the first time found itself as a group of strong innovators. The data contained in the European Innovation Ranking and the innovation ranking of regions help Member States, regions and the EU as a whole identify areas where results are good, and areas where political reforms are needed to promote innovation.

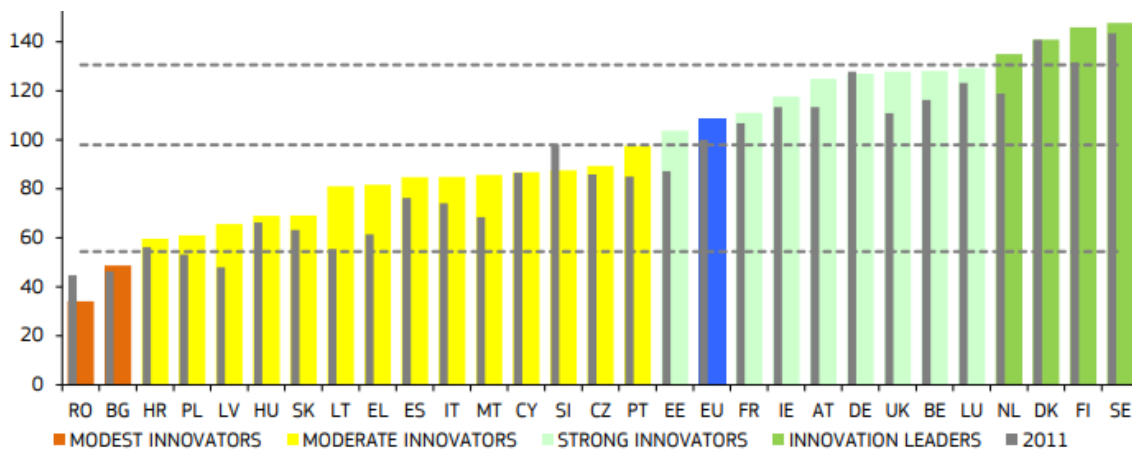


Figure 3: Performance of EU Member States innovation systems (European Commission, main report, 2019)

#### 4. RESEARCH METHODOLOGY

The goal of this research is to analyze correlation two variables - Liner Shipping Connectivity Index and European Innovation Scoreboard. The analysis used the UNCTAD database published in 2018 and the European Innovation Ranking for 2018 published by the European Commission. Research method is based on results of the key indicators that show how well countries are connected to global shipping networks and level of innovation in EU countries, other European countries, and regional neighbors. Spearman's correlation was used for the analysis, i.e. analysis that allows correlating variables at the ordinal and quantitative levels without a normal distribution. Spearman's correlation is a type of nonparametric correlation that is based on ranks, as in the case of this study. The main goal is to investigate: Is there a relationship between innovation and the opening up of economies to the sea and how is strength. A graphical interpretation of the correlation coefficient for the study is shown in the scatter chart. The statistical study was carried out using the Statistica program StatSoft Inc. and the results of the correlation analysis were presented graphically on the scatter plot (Figure 4). The correlation coefficient value was calculated using the Spearman rank correlation coefficient formula (StatSoft, 2019):

$$r_s = 1 - \frac{6 * \sum d_i^2}{n(n^2 - 1)}$$

$n$  – number of observations (X and Y have the same number of observations)  
 $d_i$  – difference between the ranks X and Y:  $RX_i - RY_i$

The value of the coefficient is 0.244335, which clearly indicates the weak strength of the correlation relationship, although there is a small relationship between the X and Y characteristics. Observations behave differently and the correlation between the innovation indicator and the indicator of openness of economies to the sea is small and positive.

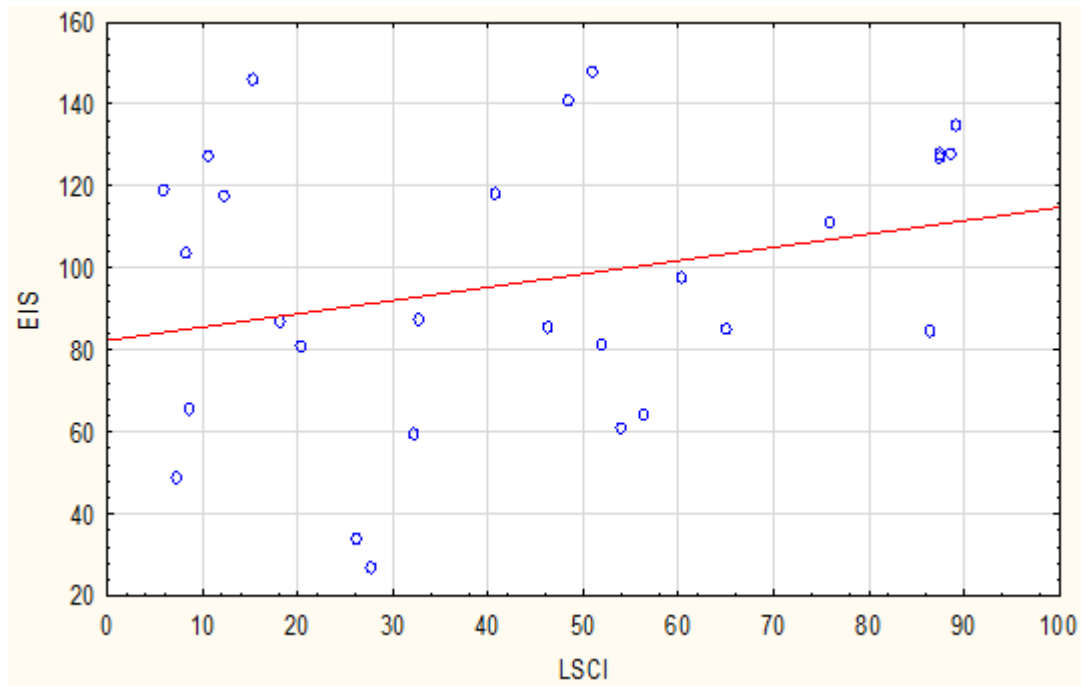


Figure 4: The scatter plot (own study)

## 5. CONCLUSION

From a theoretical point of view, the high level of networking and openness of the economy to the sea combined with the development of innovation can contribute to accelerating the growth rate. However, the above analysis shows that access to the sea is not a clear carrier of innovation. Although nowadays a number of innovative solutions implemented in industry and maritime transport can be noticed, they do not result from the access of economies to the sea. Certainly, maritime industries are incubators of innovative solutions, but there is no reason to say that the innovativeness of a given country's economy depends on the openness of economies to the sea and their degree of networking. Innovation carriers should be seen in the development of computer networks and information technologies. However, the networking of ports is influenced by many factors, including digitalization, sustainable development solutions, port modernization activities and port facilities, link domestic, regional and global networks. Although access to the sea and the geographical location of economies is undoubtedly a potential for the development of international trade, it should be remembered that trade is only one of the elements of the global economy. Unfortunately, geographical reasons despite the implementation of modern technologies and advanced solutions may prove to be one of the factors limiting the further possibilities of increasing the importance of maritime transport for a given country. The level of port accessibility for the shipping sector is also determined by the parameters of transport accessibility from the hinterland and foreground. The current investment race between ports in the near future will be reflected in the nearest LSC index.

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## INCREASING SUBJECT MOTIVATION OF STUDENTS THROUGH USE OF AUTHENTIC ADVERTISING MATERIALS

**Zemfira Aksyanova**

*Novosibirsk State University of economics and management, Russia  
sibzem@mail.com*

**Uiliia Ostrovaya**

*Novosibirsk State University of economics and management, Russia  
belovayuli@yandex.ru*

### **ABSTRACT**

*The article analyzes the impact of educational activities on the motivational dynamics in foreign language classroom. All spheres of society are associated with education. The increasing social role of education and the rapid progress of science and technology actualize the need for an integrated approach to student's educational and personal growth in terms of knowledge, skills, competencies, values and attitudes. Modern education should take into account the changed mentality of students as active learners and the new ways they use to obtain information. Currently, when pedagogical technologies, practices, methods, techniques and teaching aids are improving language training in Russian higher education is faced with new challenges. Foreign language teachers stress the need to form a positive attitude of the young generation to educational activities, the development of a success mechanism through the methods used within the subject, i.e. due to its specific teaching. Motivation, both internal and external, is one of the main conditions for success in learning a foreign language. The authors of the article distinguish between external and internal motivation, define communicative and professional motivation, and consider methods to stimulate it in learners. It is noted that when learning foreign languages, students are faced with several factors that motivate or demotivate them. At present, foreign language teachers should strive to maintain student's motivation to learn a foreign language, constantly studying motivational phenomena that affect the success of language training. The article discusses the use of authentic advertising materials as one of the factors for increasing educational motivation in the study of French as a second foreign language. If the advertising industry manages to attract the attention of young people, why not use its product in language classroom? Modern advertising texts, images and slogans use a wide variety of linguistic and semiotic means, so this material has a language value and a cultural orientation. Various types of advertising (social and commercial) contribute to developing student's communicative competence, which is paramount when learning a foreign language. The use of advertising materials in language classroom encourages (consciously or unconsciously) student's cognitive and communicative activities, increases efficiency and pace of language learning, and provides the variety of educational activities offered by a teacher.*

**Keywords:** *advertising materials, communicative competence, motivation, slogans, to stimulate*

### **1. INTRODUCTION**

The content and direction of the education system as part of the social whole are completely determined by social processes. In the modern world, with the growth of the social role of education and as a result of the high rates of development of scientific and technological progress, the need for the formation of deep and diverse knowledge among the subjects of education is becoming more and more relevant and this happens in unity with the development of personality. Today, a change in the mentality of the subjects of education, the emergence of new ways of obtaining information and its accessibility lead to the need to abandon the exclusively theoretical filling of knowledge in favor of the formation of a new type of thinking,

namely the ability to critique, make independent, non-standard decisions. Currently, the process of improving pedagogical technologies, the totality of methods, techniques and teaching aids, innovative pedagogical activity are one of the essential components of modern educational activity. Higher school teachers must quickly navigate and respond in the form of specific measures and actions to the new challenges of the time and the requirements for the quality of education of specialists. The formation of the language educational policy of higher educational institutions, the interconnection and interaction of the language and professional education of specialists ensure the quality of professional training of modern specialists.

## **2. CHAPTER 2**

One of the determinants of a foreign language successful learning is motivation. Motivating is to arouse interest, attract attention, develop a desire to learn a foreign language, create a comfortable atmosphere during classes. We should distinguish between internal and external motivation. Internal motivation is based on an individual's interest in solving a problem or performing a proposed activity. In this case, we can talk about personal interest. External motivation is based on concepts such as duty, coercion and reward. Interest in the process of teaching a foreign language is based on internal educational motivation, which is important to develop and maintain. In classes, a teacher encounters a group of trainees, which reflects the whole society, this is an amalgam of all social strata. In turn, the subject of learning is confronted with several parameters that motivate or demotivate students. When entering a university, future students are usually motivated to study, but in the process of studying their motivation is often reduced. In the formation of internal educational motivation, it is necessary to pay attention to such factors as features of the student, features of the pedagogical process in an organization, as well as the specifics of the subject itself. Thus, the teachers are faced with the paramount task - to develop methods that contribute to increasing the motivation of learning, and hence the intensification of the learning process. In the methodology of teaching a foreign language, there are numerous approaches and methods that help the teacher find effective ways that motivate students to learn new material. The study of motivation in teaching foreign languages is mainly based on two approaches: the socio-psychological approach of R. Gardner and W. Lambert [5], [6], who are interested in instrumental motivation and the cognitive approach that considers motivation as a dynamic process that changes in accordance with several factors [2], [3].

### **2.1. Types of motivation**

The following types of motivation are distinguished when studying foreign languages:

- Communicative motivation is determined by the desire to be open to the whole world, meeting people speaking another language, other cultures and other ways of life. The communicative function of foreign languages is essential in language teaching. Language is not just an object of study, it is a specific tool that is used daily by representatives of various cultural communities. The teacher promotes the development of communication skills and assistance in establishing emotional contacts between the subjects of training.
- Linguistic-cognitive and regional geographic motivations are caused by the desire to learn new language phenomena, culture, customs and traditions of the country of the language being studied.
- Professional motivation has recently become decisive, since knowledge of a foreign language is an advantage when hiring, ensures success in social and professional life.

One of the difficulties of teaching is to take into account and be able to manage the level of language competence within the group of students. Education should be differentiated and individualized for the best motivation, for this they must also be actively involved in the

learning process, it is necessary to encourage opportunities for interaction and exchange in language classes, offering learners a variety of language activities. Creating favorable conditions for the lesson and the application of teaching methods that stimulate the students' mental activity help to make the process of teaching a foreign (French) language effective, fascinating and interesting, thereby increasing various types of motivation. In the modern teaching methodology, the means of successfully mastering foreign languages are variable forms and teaching methods. The routine nature and the repetition of the same tasks every day can be the cause of demotivation of the student. Every teacher who uses active forms of training in the class (role-playing and business games, game modeling) knows that the game element brings variety, creativity and liveliness to the lesson, without which it is impossible to learn a foreign language productively. [7], which means to increase the internal motivation of students.

### *2.1.1. Game as a motivation factor*

Playing in a lesson in a foreign language allows the teacher to significantly diversify the learning process, making it more interesting and intense, helps increase students' motivation and enhances their speech-cognitive activity, effectively assimilates learning material, and also helps to increase the pace of the lesson. The use of gaming moments also helps students to overcome difficulties encountered in learning a foreign language. Games and game situations are used, first of all, at such stages of work as training and development of educational material. The choice of a game depends on the tasks of a particular occupation, the characteristics of a given age group, and the content of the material being studied. In order to captivate students, the teacher must first answer the following questions: the appropriateness of the game for practicing the French language in the lesson, the purpose of the game activity, the language material used for the game. The game or game situation in the lesson helps the teacher to see how freely students can feel in various proposed communication situations, what typical mistakes are made, what vocabulary they have mastered, etc. Every teacher who has learned to use games in the classroom and embed them in the learning process knows that games add variety, creativity and liveliness to the lesson, without which it is impossible to learn a foreign language productively.

## **3. CHAPTER 3**

Teaching French as a second foreign language goes beyond the scope of a purely linguistic education; it should develop the cultural and intercultural competencies of students. The use of authentic materials, diversity in subject and style increases the interest and educational motivation of students, as they familiarize themselves with the realities of everyday life, help to compare two cultures. The novelty of the material, its emotional coloring, familiarity with something new and unexpected, but at the same time simple and familiar, arouses the interest of students. Advertising can be used as materials that correspond to the above-mentioned criteria. That's what Blaise Cendrars said about advertising: "Advertising is the flower of contemporary life; it is an affirmation of optimism and gaiety; it distracts the eye and the mind. An art that appeals to internationalism, polyglotism, crowds psychology, and that disrupts all techniques static or dynamic, by making intensive, constantly renewed and effective use of new materials and novel processes " [4].

### **3.1. Advertising images as a motivation factor**

One of the types of authentic teaching materials is French advertising posters and texts that are not created specifically for the educational process, but having a cultural orientation, covering almost all areas of life, and linguistic value. The French language is evolving and many modern speech trends are reflected in advertising texts, which include various linguistic and paralinguistic forms, stylistic figures and paths, means of imagery that enhance the

expressiveness of speech, making it brighter. Advertising is part of the culture, reflecting the mentality of the people, it is a means of communication, linguistic pragmatics and sociolinguistics. When working with advertising material, you can introduce new lexical units, turns and grammatical structures in the situation, work out a variety of topics provided by the curriculum. In addition, it is a playful and creative type of activity that contributes to the development of students' imagination. When working with advertising, it is important to carefully select materials, as what matters is not the very fact of having bright illustrated pictures, but what function they perform. The selection criteria for advertising posters are: information content and originality, their subject matter, availability of details, taking into account the level of language and speech competence of students and the authenticity of the advertising text of their language competence, the possibility of interpretation and aesthetic pleasure. In particular, the use of social advertising aimed at changing patterns of social behavior and drawing attention to socially significant phenomena and problems of modern society is more a matter of discussion, rather than linguistic, encouraging reflection, stimulating students to produce monologues or dialogues, and expanding their horizons. Working with advertising pictures (posters) in the French language classes has three mandatory stages: preparatory, reproductive and productive, and creative. At each of the above stages of work, the advertising slogan or message is hidden from the students. The first step in working with advertising posters is to determine the type of advertising based on the proposed goals. Advertising may:

1. encourage to buy goods;
2. inform the consumer;
3. create needs;
4. to influence the habits of consumers;
5. introduce a new product or brand;
6. contribute to reflection;
7. make you think about a particular problem in society;

The second type of work at the preparatory stage is “brainstorming” - an operational method for solving the problem based on stimulating creative activity, in which the participants in the discussion are invited to express as many possible solutions around the word “advertising”. To facilitate the work of students, we suggest that they answer typical questions, such as: 1) How often and where do you see ads? What effect does she have on you? What advertising tools do you know? The reproductive-productive stage provides a detailed description of the advertising poster, as well as the statement of student hypotheses on the type of advertising, the topic and goals that this advertisement pursues, as well as its originality. The creative stage completes the work with advertising materials. Students need to come up with a slogan or text for an advertising picture, justifying their choice. Only after that, the original slogan or text of authentic advertising material is offered. Students compare their advertising slogans with the original ones and give them an assessment. Of particular interest to students is the contest of advertising slogans or texts, as well as the contest for the best advertising poster on the topic studied. For students of an advanced level in language, one of the types of group creativity, when their potential is revealed much better, can be the organization of debates or a round table on certain social topics. As a result of all stages of the work, students acquire linguistic, intercultural and communication skills that will allow them to create advertising texts themselves.

### **3.2. Advertising slogan - a means of increasing motivation**

The advertising slogan with its pronounced pragmatic orientation is one of the most complex objects for linguistic description, but can be used equally in the study and consolidation of some



grammatical phenomena, as it updates the main linguistic mechanisms involved in advertising communication. Working with advertising slogans allows you not only to understand a short advertising text, but also to learn the rules of the language, the peculiarity of the syntax, the brevity of sentences, the application of a grammar rule. For the development of the discursive competence in learning French and starting from the semiotic specificity of the advertising messages, the teacher of French as a foreign language will integrate the publicity announcement in language classes. This complex topic offers possibilities of varied pedagogical methods. So what is an advertising slogan? The concept of "slogan" was first used in its modern meaning. The original meaning of the word - 'battle cry' - is very accurate and very figuratively reflects the essence of this advertising constant: captivate the buyer and destroy competitors. Advertising slogans can be widely used in the lesson, as they abound in vivid expressions, neologisms, metaphors, borrowings, etc., which makes them bright and unique. The advertising slogan is of interest for the study and consolidation of, in particular, grammatical phenomena, since it updates the main language mechanisms involved in advertising communication. Working with advertising slogans, students learn not only to understand a short advertising text, but also learn the rules for the functioning of the language, namely the application of a grammar rule. It must be remembered that the study of advertising texts and slogans also contributes to the development of socio-cultural competence of students. To understand advertising materials and successful work with advertising texts, the preparatory stage is important, which includes the teacher's introductory conversation about what advertising is, its purpose and role in society. Further, various exercises for recognition and activation of the studied grammatical phenomenon may follow. And finally, students are offered speech exercises of a productive nature aimed at consolidating and applying the studied grammatical material. What type of advertising can be exploited in language learning? The answer is nearly all advertisements are likely to be pedagogically exploited in the course of French as a foreign language. The possible steps of advertisement materials using:

- Step 1 - Getting started
  - Activity 1. The activity aims to make learners aware of the theme of advertising (informative, argumentative, incentive) and understand the link between the slogan and the product.
- Step 2 - Conceptualization
  - Activity 1 aims to identify the main information of advertising slogans and guess at which product they relate to.  
Characterization of the chosen advertising image: type of image, presence or absence of text, type of text, possible play on words; image description (colors, plans, text position).
  - Activity 2 aims to recognize the target audience (the type of intended consumer (adults, children, adolescents) and the qualities of the product.  
To make assumptions and to comment: written and / or oral expression. Who is this advertising for? (adults, businessmen, all consumers, a certain clientele, a certain social class) / What is it aimed at? (make you want something, highlight a need, encourage purchase, manipulate the consumer, convince qualities of the product).
- Step 3 - Reproductive-productive step
  - Activity 1 aims to imagine an advertisement or to make up a story, a dialogue, the story of the character represented, the life of the owner of this object, etc.  
This type of tasks helps to control the understanding of what you see, consolidate lexical material and activate it, create monologic and dialogical statements based on the information received, develop and improve writing skills.

The choice of exercises is determined by the type of advertising material chosen, its language availability and relevance to a particular topic, as well as the level of students' foreign language proficiency.

#### 4. CONCLUSION

Viallon writes: "The visual message draws the learner's attention more to gestures and non-linguistic elements that make it possible to apprehend the situation more generally [11]. The image also plays on the humor which is a factor of motivation and implicitness seen as a start for expression ". However, the use of only promotional materials in the study of the French language does not always provide an effective and sufficient practice of a foreign language. It is important to skillfully combine educational materials and authentic texts in accordance with the purpose of each stage of training. Advertising offers multiple and varied educational opportunities that can encompass all skills and adapt to different teaching practices. In particular, it helps to develop learners' autonomy of expression and to differentiate the content of teaching in the course of French as a foreign language. Through its playfulness the image motivates the learner more and ensures a high level of understanding and memorization.

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## INCREASING COMPETITIVENESS IN HIGHER BUSINESS EDUCATION – THE CASE OF INTENSE PROJECT

**Mirna Leko Simic**

*Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatia  
mirna.leko.simic@efos.hr*

**Suncica Oberman Peterka**

*Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatia  
suncica.oberman.peterka@efos.hr*

**Aleksandar Erceg**

*Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatia  
aleksandar.erceg@efos.hr*

### ABSTRACT

*In the past few decades business higher education in Croatia is marked with increasing competition that is visible through several facts: increased number of institutions, both private and public, increasing government preference and support to STEM areas of studies relative to social sciences and negative demographic trends. Because of that, HEI needs to think about how to be more competitive. If we regard competitiveness in terms of the marketing concept and customer orientation as its core dimension, then Higher Education Institutions (HEI) competitiveness can be increased by improvements or changes in solution, access, value, and education to existing and potential customers. To understand expectations from HEI two questions need to be answered: how do they (employers, students) perceive the value they get from HEI and how can HEI deliver that value? Employers expect to get employees who are ready to work and solve business problems from the first day. Students, on the other side, expect to receive knowledge and skills that will ensure their employability without problems. This paper presents expectations, activities, and desired outputs of Erasmus+ INTENSE project and the possible effects of it. These project features are analyzed in the context of SAVE framework, which is an outcome-based approach and perceived to be a good guiding tool for changing the thinking of HEIs and their way of defining the product and its value to customers, thereby increasing its competitiveness.*

**Keywords:** *entrepreneurial skills, higher education institutions (HEIs) relevance, INTENSE project, SME competitiveness, students' employability*

### 1. INTRODUCTION

Since Croatia has opted for transitional processes to a market economy in the early 90ies, numerous challenges in terms of its development have appeared, not only in the economic but also in other social areas, including higher education. Moreover, higher education has faced numerous challenges related to the implementation of the Bologna system in 1995. In Croatia, it meant privatization of higher education as well as increased exposure to international competition of other HEIs, within the EU. However, for almost a decade, neither public sector HEIs nor related government bodies did not deal seriously with the changes occurring in the environment. The latest strategic plan of the Ministry of Science and Education for period 2017-2019 specifies some goals that are directly related to increasing higher education competitiveness (MZO, 2017):

- encouraging linking of science and higher education with the economy and society as a whole
- encouraging internationalization with emphasis on mobility and international cooperation

- creating a supportive framework for entrepreneurship development based on innovation and high technology.

Having in mind the above-mentioned strategic goals, the aim of this paper is to present a case study of the implementation of an international project INTENSE that aims to adequately respond to all the goals and thus increase the education service quality, market orientation and competitiveness of a public HEI in the dynamically changing environment.

## 2. THEORETICAL FRAMEWORKS

### 2.1. Higher education in Croatia

Higher education institutions structure in Croatia, like in other countries is undergoing significant changes. One of the most important changes is privatization. Altbach (2016) states that private higher education is the fastest-growing segment of postsecondary education worldwide. Today private higher education captures a major or fast-increasing portion of enrolments in Eastern and Central Europe, the Middle East and both North and Sub-Saharan Africa, East and South Asia, and Latin America (Levy, 2006). The dynamic growth of private sector in higher business education is due to the significantly higher demand and reduced supply caused by strong government preference for STEM fields of study and stagnating or decreasing public financing of higher education in general. Biomedicine, biotechnology, natural and technical sciences now receive a higher amount of funding per student than social sciences, humanities, and interdisciplinary fields. (EC, 2016). At the same time, studying in these fields don't require high additional investment in infrastructures like labs or materials or technical infrastructure in a STEM area. To a greater extent than their peers in other EU countries, students in Croatia mainly choose to study social sciences and humanities. This is especially the case for economics, business, and law, which are studied by 41 % in Croatia compared to 34 % in the EU (Eurostat, 2014). The data on higher education institutions structure change is shown in table 1.

*Table 1: Higher education institutions structure change in Croatia (adapted from Klemenčić & Zgaga, 2014; AZVO, 2018)*

	UNIVERSITIES		POLYTECHNICS AND COLLEGES	
	PUBLIC	PRIVATE	PUBLIC	PRIVATE
2010/2011	7	3	15	30
2017/2018	8	2	14	24

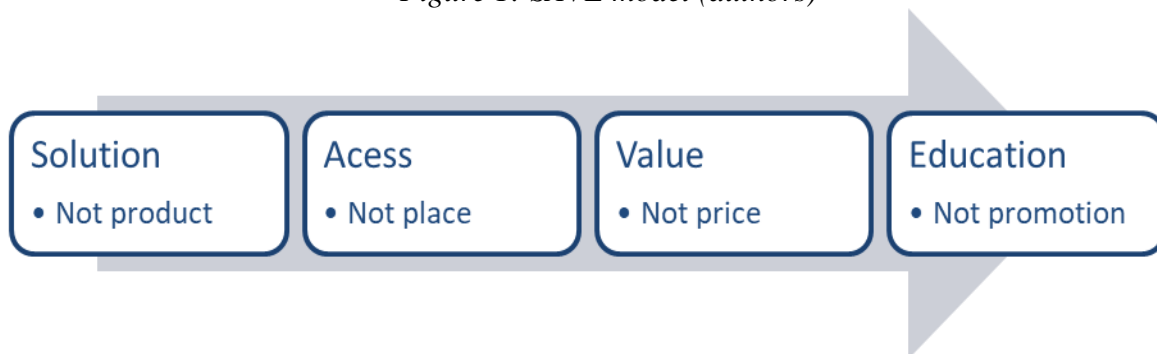
Moreover, the available data from AZVO (2018) show that the number of academic programs participants (students) in private sector has increased from 98 in 2008/9 to 744 in 2013/14, while at the same time the number of students has decreased from 128.669 to 122.882 in public sector. This decline in the number of students is a consequence of intensive emigration of young people from Croatia and the trend is constant. According to the National Statistics Bureau (DZS, 2017) only in 2016 altogether 9.977 young people in age 15-29 have emigrated from Croatia. They made 27.4% of the total number of emigrants. In the area of economics and business administration, there are altogether 43 programs offered by 17 private and 26 public higher education institutions. In economics and business education, we find the highest level of competition between private and public sector institutions and the number of private ones is increasing at a very dynamic pace. The distinction between public and private higher education concerns founding and ownership: institutions founded by the state are considered public, while institutions founded by private persons as well as institutions founded by the local (municipal) authorities or the church are effectively considered private. The major threat for public business higher education institutions coming from the private sector is the fact that teachers are usually

practitioners that provide more practical insights, especially for those that are planning their future in the business sector. Moreover, they provide direct contact with the business sector, which results in a higher rate of employability than in public sector institutions (Korda, 2015). However, according to Jahić (2014), private higher education institutions in Croatia are still faced with widespread mistrust over poor academic quality, poor conditions for study and serving as “degree mills” producing academic credentials without upholding rigorous academic standards. With regards to negative demographic trends, recent research (World Population Review, 2017) indicates that Croatia is in a demographic crisis and losing people each year. Its fertility rate is just 1.5 children per woman, one of the world's lowest, and its death rate has exceeded the birth rate since 1991. Natural growth is negative. Croatia is now ranked as the 14th fastest shrinking country in the world. According to Mizikaci and Baumgartl (2007) countries whose higher education systems are at risk because of negative demographic trends (low birth-rates and negative migration rates) in EU include Bulgaria, Czech Republic, Estonia, Italy, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia, and Croatia.

## 2.2. New theoretical approach to changes in HEI

Regarding the above-mentioned trends and changes in higher education, it is important for HEI to rethink its mission; to think how to change the way of doing things and how to change the communication with its stakeholders (students, the business community, etc.). When trying to find the answer to the questions how to respond to all changes that HEI are faced in today world, the need for (re)designing the (new) product and changing the way of communication with its stakeholders arise. Making the marketing plan should help in this process. A common way for developing a marketing plan was for decades 4P’s of marketing (product, place, price, and promotion), or somewhat newer 7P concept that includes three additional elements – people, processes and physical evidence. Recently, a new concept was developed, and it is especially very useful in the processes when thinking of a new business model (what is the situation with this case) and new ways of doing business. his new concept, known as SAVE, is focusing on Solution, Access, Value and Education of product and/or service (Ettenson, Eduardo & Knowles, 2013).

Figure 1: SAVE model (authors)



Instead of focusing on product, organizations need to focus on a solution that is trying to be solved by the product or service (“Define the offerings by the needs they meet”). Instead of being concentrate to how to distribute the product to the customer (thinking about location and channels of distribution) it is more important to think how to develop “an integrated cross-channel presence that considers customers’ entire purchase journey” (Ettenson, Eduardo & Knowles, 2013). Price is becoming less important; the focus is on the value that product/service brings to the customer. It becomes more important to “articulate the benefits relative to price” (Ettenson, Eduardo & Knowles, 2013).

And, in the end, instead of thinking how to promote the product to increase the volume of sales, the focus should be on education of the market on “providing information relevant to customers’ specific needs at each point” (Ettenson, Eduardo, & Knowles, 2013). (Table 2)

*Table 2: Traditional marketing mix vs SAVE marketing mix (adapted from Stojković, Stojkova & Geurtus, 2016)*

Traditional marketing mix	SAVE marketing mix
Product	The focus of the Solution, instead of the Product
Place	The focus of the Access, instead of the Place
Price	The focus of the Value, instead of the Price
Promotion	The focus of the Education, instead of the Promotion

This new concept in thinking about Marketing plan is more than a semantic change. It is more changing the way of doing things (“a change of mindset”), or to think about these 4 elements from the perspective of the buyer. Authors (Ettenson, Eduardo, & Knowles, 2013) of this concept were hoping to establish and adopt “an outcome-based approach” that frames everything from the perspective of the buyer/customer. Companies that maintain to embrace the 4 Ps model are could be going toward a significant risk of engaging themselves in a tedious and progressively inefficient technological arms chase. The today’s clients have more say in the seller-buyer relationship, and it is a right time for companies to start accepting structures that think more about what buyers want. The SAVE model allows companies to maintain this mindset at the front of their businesses, working as the cornerstone for this new strategy. The SAVE framework is more applicable in today’s Business-to-Business world for guiding marketing strategy. New framework presents the impact of new technologies for doing business and its influence on the marketing mix elements (Stojković. Stojkova & Geurts, 2016, p. 26) Research on SAVE framework is already gaining ground in the academic community (Table 3).

*Table 3: Research on the SAVE framework (authors)*

Authors	Research topic
Singh, 2016 Inanloo, Zarei, and Zeinolabedini, 2018	Creating Engaging Library Experiences through Effective Content Marketing
Ikechi, Chinenye and Chiyem, 2017	The demands of the contemporary marketer in the ever-changing environment
Stojković, Stojkova and Geurts, 2016	Modification of the international marketing mix in the e-environment
Araujo, Fernandes and Bastos, 2017	Relationship marketing

Thus, SAVE framework could be a good guiding tool for changing the thinking of HEIs and their way of defining the product and its value to customers.

### **3. THE CASE OF INTENSE PROJECT**

Higher Educational Institutions today have two principal customers: labor market (companies and employers) and potential and existing students. For HEI to be competitive they need to define expectations from their “customers” and these expectations can be found in answers to two questions: what value do they (employers, students) expect to get from HEI and how can HEI deliver that value? Students expect to receive skills and knowledge which will ensure their employability and on the other side employers and companies expect to find employees who will be ready to work and solve problems as soon as they start working. Numerous different projects and initiatives have been trying to find the answer to these two questions. One of those initiatives is project INTENSE. INTENSE – INTernational ENTrepreneurship Skills Europe is

a transnational project among European Higher Education Institutions (HEI) which is being funded by the EU program Erasmus+<sup>1</sup> and currently being implemented in five partner countries. The project promotes better collaboration between HEI, their students and small and medium-sized enterprises (SMEs). This collaboration should result in raising entrepreneurial behavior, innovation and internationalization skills of SMEs, HEI employees and most importantly students. The other expected outcome of the project is the development and implementation of the HEI teaching module on SMEs internationalization. The project is an answer to the needs of SMEs, students, and HEIs for new and innovative curricula and education methods that directly connects supply and demand (HEIs and SMEs). SMEs' needs for support when starting the process of internationalization are combined with the need for HEI students to gain international, entrepreneurial and innovation competencies that will raise their employability. Since universities don't have proper tools for measuring the development of the students' innovation competencies during their studies and assessing which teaching and learning methods are effective, and companies are lacking tools to assess these competencies in recruitment processes, the project will address this issue by developing an innovation competence measurement instrument (INCOCODE). The project corresponds to the targets set in the "Modernization of Europe's higher education systems" Agenda, by improving the quality and relevance of higher education and it stimulates innovative learning practices, combines face-to-face and online learning and improves technical skills and problem-solving abilities of students in real-life situations. The project will foster synergetic learning and tools which will be developed for moving from traditional classroom teaching to combine the real-life reality to learning to create a solution where everyone benefits. Since the project involves partners from 5 countries, international teamwork of students will help increase their awareness of intercultural challenges and will increase, together with input, students' language and intercultural competencies. With increasing entrepreneurial competencies among students, project INTENSE aims to contribute to fulfilling the EU2020 strategy indicator of more than 82% of HEI graduates being employed in no more than 3 years after their graduation. Andrews and Higson (2008) demonstrated that interpersonal competencies and work-based learning are major attributes employers seek in graduates. Their research showed that for SMEs the cooperation with HEI means specific actions done by students that complement the more common level advice offered by chambers of commerce and other public organizations. SMEs should internationalize both by existing resources but also hiring new coming professionals who have international business experience. Therefore, this project can act as a bridge for the employment of the students to SMEs who are thinking of internationalizing their business, but also as an encouragement for students to start their own business after graduation. The INTENSE project approach is innovative since it brings together teams of students, SMEs and HEI staff in different countries to help SMEs internationalize business and to raise internationalization importance awareness. In contrast to earlier internationalization programs, teams of students are working on real cases and concrete tasks, gather industry level information of certain markets and they have to connect them with real business cases and offer a suggestion for future business decisions. Thus, the student teams are acting as if they are real entrepreneurs, representing the concrete SME and making real business decisions. The SMEs don't just get support from their home country teams, but through the cross-border student teams, they also get information and support from the target market and contacts to business partners in the target markets (Jokniemi, 2017). This approach helps in developing transversal skills and competencies among students and with that contribute to entrepreneurial learning. It is important to state that project builds on previous experiences of the project partners and leads

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<sup>1</sup> Project leader: University of Applied Sciences (HTW) Berlin. Project partners: Hoogeschool Utrecht, NL; University Colleges (UC) Leuven-Limburg, BE; University of Applied Sciences Turku, FI; Faculty of Economics in Osijek, J.J. Strossmayer University of Osijek, HR. Financed with the support of EU under Erasmus+ fund.

to an exchange of best practice between the partner HEIs and that can be seen in building the bridge between HEIs, their students and SMEs, e-learning and blended learning and in building up and measuring competencies of all included stakeholders. Project outcomes are:

1. "Guidance to internationalization" and "Concrete Steps of internationalization" teaching materials - Multi-media compilation of teaching material relevant for internationalization of SMEs that can be used by any other HEI in the future
2. INTENSE Toolkit for SMEs - Collection/gathering/linking/adapting of relevant information for SMEs about business internationalization INTENSE Module Description/Teaching Manual - Development of a virtual teaching manual with a module description, including recommended ECTS points, for adaptation in any HEI
3. Tool for measuring innovation competencies in an international business context (redesigning the existing INCODE Barometer) on individual, interpersonal and team level.
4. INTENSE Recommendations catalogue - Policy recommendations derived from lessons learned through project activities, discussed with relevant stakeholders will be published. The goal of this publication is to offer specific policies, tools, and measures that can help in understanding the importance of SMEs internationalization and enhance it with concrete activities.

#### **4. PROJECT INTENSE AS A HIGH-QUALITY RESPONSE TO HEI CHALLENGES**

How INTENSE project fulfills the changing demands of the market (students and employers) of HEI? SAVE concept is used as a tool for giving the answer to this question.

##### **4.1. S (solution)**

As it was said before, project INTENSE is trying to fulfill the needs of two segments of HEI's market: student and employer. Students expect to get the skills and knowledge which will help them be more employable and employers expect to find employees who will be ready to work and solve problems as soon as they start working. INTENSE is combining theory and practice, making real case studies in which students are solving concrete problems of real companies, who are also participating in the project, is the way how this problem is approached. By working together, SMEs are getting twofold gain: they are getting concrete analyses and recommendations for a future business decision regarding internationalization to a certain foreign market and in the same time by working with students, they get to know them better, get more realistic expectation and in some cases, they could get future employees. Students are getting many advantages participating in this project: they are learning by doing on real business cases, getting international experiences, enhancing their international, language, entrepreneurial skills and they have the possibility to present themselves in the best light in front of the possible future employer.

##### **4.2. A (access)**

This project is offered to all students of project partners and its goal is to become part of the regular curriculum. All students, no matter of their majors should participate in the project. In making this available to more students, the web platform will be developed, as well as SME toolkit, for helping SMEs being more competitive in process of internationalization. Also, this will help all other HEIs who want to implement such programs to do it easy and fast. The network of the INTENSE project is growing since more and more universities are willing to join and apply this module to their curricular and extracurricular activities. The goal is to make this available to any HEI willing to apply in its program - through making an online tool it will be possible. This tool should be easy for access and apply for any HEI who is thinking of offering an international business course to the students.



#### **4.3. V (value)**

Value of this project is obvious; helping students being more employable, entrepreneurial and self-confident, SMEs more aware of their strengths and weaknesses, possibilities and needed changes in order to be more competitive, enhancing teaching skills of teachers and making them more confident in delivering theoretical parts of program and making HEI institution more relevant and competent in tackling the problems of businesses. A recent study on students' employability in Croatia found that one of the most important elements contributing to students' employability is the practical experience during studies (Pažur Aničić & Šimić, 2018). It seems to be even more important than study success (grades). This project is contributing to this goal.

#### **4.4. E (educate)**

Results of the INTENSE project should be used in promoting this project as a good example of how educational programs could be designed to fulfill the needs of the market. As a proof that it is on right track is the fact that more universities are willing to take part in the INTENSE network and to offer this program to their students, connecting them with real SMEs from their surroundings.

The aim of this example is to show one of the possible ways of redesigning the HEI programs to be more in line with changes in the environment in which they operate and more in line with the demands of different stakeholders (internal and external ones). This example could use as a trigger for redesigning any other program - it is a good guideline what needs to be done and what aspects need to take care of in order to design useful and competitive educational program.

### **5. CONCLUSION**

Business higher education in Croatia is marked with increasing competition that is visible through several facts: increased number of institutions, both private and public, increasing government preference and support to STEM areas of studies relative to social sciences and negative demographic trends. Because of that, HEI needs to think about how to be more competitive. If we regard competitiveness in terms of the marketing concept and customer orientation as its core dimension, then Higher Education Institutions (HEI) competitiveness can be increased by improvements or changes in solution, access, value, and education of existing and potential customers. The aim of this paper was to present a case study of the implementation of an international project INTENSE that aims to adequately respond to all the goals and thus increase the education service quality, market orientation and competitiveness of a public HEI in the dynamically changing environment. Moreover, it offsets the typically poor preparation for life after graduation in the majority of public HEIs in Croatia by building a strong entrepreneurial ecosystem through the development of professional relationships with business partners, enriching extracurricular (or curricular) experiences, exposure to real-life business challenges and provision of the international context of work. Main research limitation is using data only from one project and only in project partner countries and a small sample of students who were part of the project.

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# THE ROLE OF MANAGERIAL ACCOUNTING IN THE CROATIAN HOTEL INDUSTRY – EMPIRICAL RESEARCH

**Andreja Rudancic**

*Assistant Professor at Libertas International University, Zagreb, Croatia  
arudancic@hotmail.com*

**Sandra Sokcevic**

*Associate Professor at Libertas International University, Zagreb, Croatia  
sokcevicisandra@gmail.com*

**Marko Akmacic**

*Libertas International University, Zagreb, Croatia  
makmacic@libertas.hr*

## **ABSTRACT**

*Managerial accounting is a business function that encompasses techniques and processes for obtaining financial and non-financial information to make better decisions and to prevent and minimise business risks. This paper explores the role of managerial accounting in the quality and environmental management system in the Croatian hotels, since 21<sup>st</sup>-century hotel services require constant quality improvement while preserving the environment through sustainable development. However, improving the quality of services in the hotel industry is a cost that is difficult to categorise unambiguously in the framework of accounting. By contrast, environmental costs are measurable and mainly governed by regulations and standards, and the consequence of deviations from the regulation is also measurable. Therefore, in the spring of 2019, the authors conducted a survey and the respondents were members of boards of hotel companies, CEOs or managers in specific business areas. The empirical research was focused on exploring personal attitudes and reflections of relevant hotel management stakeholders on the functions of managerial accounting in the hotel industry in the quality and environmental management system. The survey results were processed using the IBM SPSS Statistics 24 programmes, and the general conclusion is that the accounting systems for monitoring all costs of quality and environmental protection management are indispensable management accounting factors without which it is difficult to manage a hotel in an increasingly demanding market and market competition.*

**Keywords:** *managerial accounting, quality accounting, environmental accounting, Croatian hotel industry*

## **1. INTRODUCTION**

Modern business management system requires from the management to use and process a number of information relevant for short-term and strategic business decision-making. Current ICT capabilities make accounting information available in real time, and there are numerous computer applications that support managerial decision-making and assist in forecasting cost trends, determining marginal costs, analysing costs by type, location, purpose, bearers, and their interaction with other accounting and financial indicators. In this context, managerial accounting should be observed as an indispensable support to the management without whose information business decision-making borders on hazard. By segmenting managerial accounting into cost management support sub-systems, short-term, and strategic business decision-making, there is a growing need for a sustainable hotel business to process information related to the quality of products and services and relationship to the environment. Therefore, accounting for all quality-related costs (of a product or a service) and preservation of the

environment are important, as well as estimation of future costs and acceptance of these costs as an investment in recognisability, positioning, and achieving competitive advantage on the market.

## **2. THE TERM AND CONCEPT OF MANAGERIAL ACCOUNTING**

Managerial accounting is a business function that encompasses techniques and processes of obtaining financial and non-financial information to make better decisions, prevent and minimise business risks, and to efficiently and effectively manage the organisation and business processes. It is intended for the users to understand the past, control the present and plan the future in the following manner (Nikšić, 2016, 32):

- Understand the correlation between the environment, business processes, and results achieved in the past and the present
- Define the strategic intentions and strategy of a business entity
- Plan the organisation, processes and business results in the long-, medium-, and short term
- Monitor and analyse whether and why activities and results deviate from the plan and the budget
- Evaluate achievements at multiple levels (strategic, operational, and tactical)
- Measure the realisation of assumed responsibilities
- Communicate accomplishments
- Make decisions on changes, improvements, and eliminate disruptions.

Managerial accounting (or accounting for management purposes) bases its activity on the tasks of preparing and using accounting information in the planning and control of business operations, i.e. business decision-making. Managerial accounting reports are intended for company management. The purpose of managerial accounting is to fulfill the management's information requirements at all hierarchical levels. The basic source of information is internal calculation in real time. Internal calculation provides partial results according to different coverage criteria: (1) according to MRS 14 and 34 (SFAS 131), (2) according to processes and activities, and (3) according to specific requirements of the management. Managerial accounting helps, i.e. facilitates managers' decision-making in determining company goals, evaluating the performance of departments and individuals, and making many other managerial decisions. The concept of managerial accounting, as stated by Gulin et al. (2011, str. 11) points to four fundamental goals of managerial accounting: (1) business decision-making process, (2) changing the competitive environment, (3) changing the product life cycle, and (4) focusing on clients' satisfaction.

1. A business decision-making process in business entities requires managerial accounting information related to (Gulin, i dr., 2011, str. 12): (a) costs and their allocation to products, in particular the allocation of indirect costs, (b) relevant information that are the basis for improved business decision-making by the management, (c) information necessary for planning and controlling the measurement of business performance.
2. Changing the competitive environment is necessary for a business entity to establish a strong link between costs, price, and quality of products and services. This requires managerial accounting information.
3. Changing the product life cycle, i.e. the speed at which a new product is introduced, depends on timely information obtained from managerial accounting.
4. Focus on clients' satisfaction is conditioned by development of managerial accounting areas and factors development set forth by (Deželjin et al., 1998, 59) and relating to: (a) customer satisfaction as the most important priority, (b) main success factors (quality, innovation time), (c) overall value chain analysis, (d) social responsibility and corporate ethics, and (e) constant improvements.

### 3. SPECIFICITIES OF MANAGERIAL ACCOUNTING IN THE HOTEL INDUSTRY

Hotel industry accounting is a comprehensive system in which production and services exist side by side, which places emphasis on organisation skills. An accounting system must have comprehensive information. In order to provide complete available information, the accounting system uses, besides accounting statements, also reports of internal, and, where appropriate, external controls. The optimal level of business system computerisation depends on the actual requirements of the systems, financial capabilities, level of computer literacy as well as the ICT level in the environment. However, it should be borne in mind that the success of computerisation primarily depends on the level of IT knowledge of the management and employees who must clearly express the requirements, but also the willingness of IT experts to understand the specific requirements of the business and the business system management process.

#### 3.1. Managerial Accounting in the Hotel Business

A hotel is a whole, and the person responsible for creating financial effects is hotel manager. A financial effect implies the achievement of an appropriate level of sales, which is the responsibility of all hotel departments, and which also implies proper management, control of all financial resources (Hayes and Ninemier 2005, 152). Hotels are often constantly monitored by the controller who identifies facts relevant for managers. The sources from which the controller draws information are internal and external and can be presented in a table by groups of data and information sources.

*Table 1: Information and Data Sources for Managerial Accounting*

<b>Accounting</b>
<ul style="list-style-type: none"> <li>• Centralised accounting system</li> <li>• Decentralised accounting system</li> </ul>
<b>Revenue forecast</b>
<ul style="list-style-type: none"> <li>• Revenue from guest rooms</li> <li>• Food and beverage revenue</li> <li>• Other revenues</li> </ul>
<b>Budget</b>
<ul style="list-style-type: none"> <li>• Long-term plans</li> <li>• Annual budgets</li> <li>• Monthly budgets</li> </ul>
<b>Financial statements</b>
<ul style="list-style-type: none"> <li>• Profit and loss account</li> <li>• Balance sheet</li> </ul>
<b>Daily business statistics</b>
<ul style="list-style-type: none"> <li>• Daily sales report</li> <li>• Detailed statistics on guest room revenue</li> <li>• Equalisations and deductions</li> </ul>
<b>Internal controls</b>
<ul style="list-style-type: none"> <li>• Cash</li> <li>• Hotel's receivables from guests</li> <li>• Hotel debt to suppliers</li> <li>• Procurement and receipt of goods</li> <li>• Inventory</li> <li>• Wages</li> </ul>
<b>Audits</b>
<ul style="list-style-type: none"> <li>• Internal audits</li> <li>• External audits</li> </ul>

Source: Hayes, D. K., Ninemeier, J. D.: *Upravljanje hotelskim poslovanjem 2005*, p. 152

Accounting, with a bookkeeping system for collecting and recording business vouchers, can be organised in a centralised or a decentralised manner. The centralised manner relies on information technology in the sense that all data are collected in a database where they are distributed, and management has real-time access to them and can analyse them when necessary. In a decentralised system, the manager has a significant role in preparing the report. In a decentralised system, an external accounting service may also be present, so that reports for the needs of the management structure are pre-arranged and part of the internal communication procedure. Revenue forecast involves being informed of how many guests the hotel will receive today and in the future. Depending on the occupancy intensity, other departments will also have to deliver certain outputs, so they may need to forecast, anticipate and plan procurement, for example, for restaurant needs. The hotel management should operate in the framework of budgeting. If the budget is well-prepared, hotel managers will confirm the plan through implementation within the set framework. Financial statements are a source of information because they indicate a past period that can be analysed, compared, but also used to create future activities (tactical plans), which also implies operational activities. In the hotel management practice, daily statistics are data considered a trade secret, because they indicate management quality, business efficiency, occupancy performance, and other elements the management is responsible for.

### **3.2. Quality Costs in the Hotel Industry**

Publicly announced quality of a hotel and hotel service based on the obtained category, quality label, and certificates makes the hotel recognisable to guests even before they use the services. Quality provides an additional competitive advantage and is a strategic element in market competition. Quality management is a set of actions of the general management function that defines quality policy, goals, and responsibilities, and accomplishes them within a quality system through planning, monitoring, ensuring, and improving quality. Furthermore, it is necessary to implement quality management in the hotel industry that will provide competitive advantage in market competition on the tourism market (Rudančić-Lugarić 2014, 332). In this regard, the ISO 9000 standard is the first guideline for the selection and implementation of quality management and the construction of a quality assurance system, and represents minimum requirements that a quality system must meet, prescribing guidelines for their implementation, as well as how to establish, document, and maintain a quality system in organisations. The standard is included in five requirements (Vrtiprah and Sladojev 2012, 100): Requirement 4: Quality Management System; Requirement 5: Management Responsibility; Requirement 6: Resource Management; Requirement 7: Product Realisation; Requirement 8: Measurement, Analysis and Improvements. In addition to the ISO 9000 standard, other ISO standards are also introduced into hotels: 1. The ISO 14001 environmental protection system ensures that all environmental impacts within the company are identified, monitored, and that they comply with legislation. 2. ISO 22000 and HACCP food safety system reduces the risk of delivering a product that could be hazardous to health; it is the most cost-effective food safety management, ensures compliance with product specifications, assures consistency in product quality and in identifying process improvements, has better understanding of food safety issues within the company, increases customer confidence and satisfaction, and complements quality management systems (ISO 9001, ISO 14001, etc.). 3. The health and safety system according to the BSI OHSAS 18001 international standard (refers to the health and safety protection system for the employees and customers/guests) and corporate social responsibility system according to SAI SA 8000 (it brings transparent, measurable, confidential requirements in several areas: children's and forced labour, health and safety, freedom of association, discrimination, disciplinary action, working hours, compensation for work and management). SAI SA 8000 complements and expands ISO 9000 and ISO 14000 quality standards.

### 3.3. Environmental Protection Costs

Environmental costs (eco costs) are conditioned by natural activity, approach to the creation of the range of offer, selection of the technological process, and equipment used to achieve sustainable development goals, taking into account systematic reduction of negative impacts on the environment, which must be balanced with the realisation of pursuit of profitable business (Peršić, 2005, 6). Environmental costs are a complex category and are not always easy to identify. The basis are always conventional environmental costs, i.e. cost positions that can be easily identified and linked to specific hotel activities related to improvement and protection of the environment, such as the costs of capital associated with eco-investment, cost of eco-friendly current and fixed assets, increased levies to improve the situation in a tourist destination (green tax, increased tourist tax...), depreciation and maintenance costs, and use of common devices at the destination level (e.g. for the disposal and treatment of wastewater, waste oils, waste incinerator, compost, sedimentation tanks, etc. Practical research indicates the potential and intensity of the impact on environmental cost structure, which in terms of hotel departments implies the following (Peršić and Janković, 2006):

a) Preparation and provision of accommodation services (hotel rooms, household...)	15%
b) Preparation of catering services (kitchen)	16%
c) Provision of food and beverage services (restaurant, bar...)	9%
d) Communication with the market (procurement reception department, sales...)	5%
e) Washing and cleaning laundry	4%
f) Green areas and swimming pool	8%
g) Maintenance department	43%

The costs reflect the impact of individual business activities on the possible cost structure which is different in every business system. Therefore, a managerial accountant has a great responsibility to identify these costs according to the specifics of business activities.

### 4. RESEARCH METHODOLOGY

In order to explore the importance of the application of managerial accounting principles in business practice in hotel companies, a survey was conducted in the spring of 2019. The respondents were board members of the hotel companies, CEOs or managers in specific business areas. The empirical research was focused on exploring personal attitudes and reflections of the relevant management factors in hotels on managerial accounting functions in the hotel industry. The questionnaire was created in the way that the respondents were presented with certain statements they needed to fully confirm (rating 5) or fully refute (rating 1). Considering that the respondent would thereby be limited by exclusivity, it was also possible to scale between these extremes (ratings 2, 3, and 4) which allow conditional confirmation (4) or conditional negation (2), and neutrality – neither true nor false (rating 3).

*Table following on the next page*

*Table 2: The Respondents' Structure According to the Type of Hotel They Represent*

CATEGORY		FUNCTION							
HOTEL SIZE	Group	Executive manager		Management team member		Managerial accountant		Total	
	Small	2	18%	0	0%	0	0%	2	7%
	Medium	4	36%	5	45%	0	0%	9	33%
	Large	5	45%	6	55%	5	100%	16	59%
	TOTAL	<b>11</b>	100%	<b>11</b>	100%	5	100%	<b>27</b>	100%
		CATEGORY							
HOTEL SIZE	Group	3*		4*		5*		Total	
	Small	1	33%	1	8%	0	0%	2	7%
	Medium	2	67%	4	33%	3	25%	9	33%
	Large	0	0%	7	58%	9	75%	16	59%
	TOTAL	<b>3</b>	100%	<b>12</b>	100%	12	100%	<b>27</b>	100%
		WORK EXPERIENCE							
HOTEL SIZE	Group	Up to 10 years		From 11 to 20 years		Over 20 years		Total	
	Small	0	0	2	12%	0	0	2	7%
	Medium	6	60%	0	0%	3	50%	9	33%
	Large	4	40%	9	82%	3	50%	16	59%
	TOTAL	<b>10</b>	100%	<b>11</b>	100%	<b>6</b>	100%	<b>27</b>	100%
		THE FUNCTION – WORK EXPERIENCE RELATIONSHIP							
Group		Up to 10 years		From 11 to 20 years		Over 20 years		Total	
Executive manager		1	10%	7	64%	3	50%	11	41%
Management team member		9	90%	0	0%	2	36%	11	41%
Managerial accountant		0	0%	4	36%	1	14%	5	18%
TOTAL		<b>10</b>	100%	<b>11</b>	100%	<b>6</b>	100%	<b>27</b>	100%

*Source: Authors' analysis according to filled-in questionnaires*

Through the questions posed in the questionnaire in the form of statements (1 to 10), evaluations of individual elements of managerial accounting functions were sought with the purpose of gaining insight into the current situation. In this regard, every statement set represents an element of the managerial accounting function. 27 respondents (100%) rated the above-mentioned statements that are analysed individually below. The calculated average values of individual statements according to the respondents' ratings are presented in the following table.

*Table following on the next page*



*Table 3: Average Ratings of the Set Statements*

ELEMENT	N	Range	$\Sigma$	$\bar{X}$	$\sigma$	$v$
Internal calculations provide sufficient information for accurate measurement and allocation of costs according to activities, processes, and product groups.	27	2	115	4.259	0.712	0.507
The hotel's accounting information system provides timely and reliable information for all internal business decision-makers	27	3	115	4.259	0.903	0.815
The hotel management is kept up-to-date on quality achievement costs (prevention and testing/evaluation costs)	27	3	113	4.185	0.962	0.926
The management has updated data on the costs of deviations from quality (costs of internally and externally identified quality deficiencies).	27	3	110	4.074	0.997	0.994
The management exhibits zero tolerance for the incidence of defects .	27	2	106	3.926	0.829	0.687
A timely quality cost reporting system is very important for projecting total business costs..	27	2	116	4.296	0.724	0.524
Environmental accounting enables transfer of data from financial accounting, cost accounting and records with the aim to reduce environmental protection costs.	27	3	110	4.074	0.958	0.917
Information provided by environmental accounting also include an estimate of future costs.	27	3	112	4.148	0.770	0.593
Allocation for the application of sustainable development principles in business practice are a source of competitive advantage.	27	2	118	4.370	0.688	0.473
The established environmental management system ISO 14001 contributes to the reputation or image of the hotel.	27	2	121	4.482	0.753	0.567
<b>TOTAL AVERAGE GRADE</b>	<b>4.207</b>					

*Source: Authors' analysis according to filled-in questionnaires, processed by SPSS Statistics*

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It is evident that there is a considerable difference in the respondents' attitudes in relation to some of the characteristics of their profile, which requires a more detailed analysis. However, the mean score of each element is fairly uniform and varies from 3.926. The overall average score of 4.207 when transformed into a school mark results in a more than solid 'very good' (4), which largely negates the often presented colloquial grades on insufficient implementation of managerial accounting in hotels. The aim of the questionnaire was to examine whether the hotel management was kept up-to-date on quality achievement costs (prevention and testing/evaluation costs). 27 responses were collected to the posed question, i.e. 100% (all respondents provided an answer to this statement). The mean rating is 4,18, the median is 4.0 with a standard deviation of 0.9625 and a variance of 0.926. The frequency, distribution, and statistics of the collected responses are presented in the following table.

*Table following on the next page*

*Table 4: Analysis of responses to the question whether the hotel management is kept up-to-date on quality achievement costs (prevention and testing/evaluation costs)*

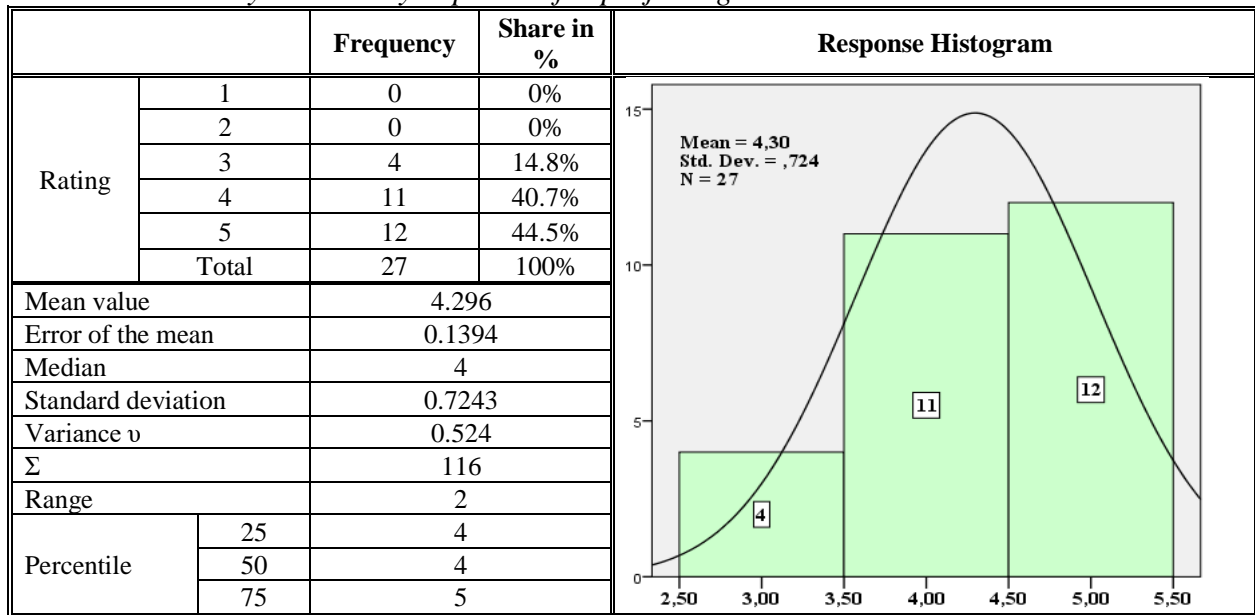
		Frequency	Share in %	Response Histogram	
Rating	1	0	0		
	2	2	7.4%		
	3	4	14.8%		
	4	8	29.6%		
	5	13	48.1%		
	Total	27	100		
Mean value		4,18			
Error of the mean		0,185			
Median		4			
Standard deviation $\sigma$		0,9625			
Variance $v$		0,926			
$\Sigma$		113			
Range		3			
Percentile	25	4			
	50	4			
	75	5			

*Source: Authors' analysis according to filled-in questionnaires, processed by SPSS Statistics*  
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The above table shows that 8 respondents rated the set statement as „mostly accurate“ (29.6%). If this is joined by those respondents who accepted the statement as „absolutely correct“ (48,1%), it can be concluded that there is a significant share (77,7%) of those who largely or fully support the above-mentioned issue. However, the share of neutrals (14,8%) should also be noted, which leaves room for a more detailed analysis of the causes of such an occurrence. Median is 4 and the percentiles are expressed as 4-4, 5. The following responses were obtained to the question whether a timely quality cost reporting system was important for projecting total business costs, and are presented in the following table.

*Table following on the next page*

Table 5: Analysis of the responses to the question whether a timely quality cost reporting system is very important for projecting total business costs

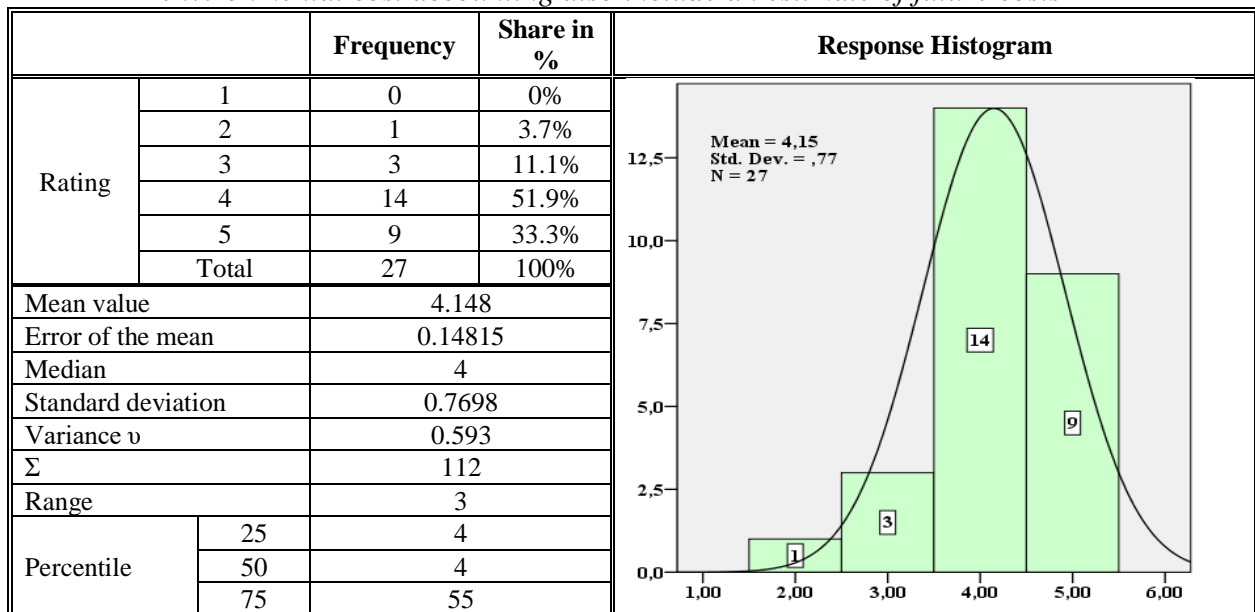


Source: Authors' analysis according to filled-in questionnaires, processed by SPSS Statistics

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The analysed responses show that 11 respondents rated the set statement as „mostly correct“ (40,7%). If this is joined by the respondents who accepted the statement as „absolutely correct“ (44,5%), it can be concluded that there is a significant share (85,2%) or those who largely or fully support the statement. However, the share of neutrals (14,8%) should also be noted, which leaves room for a more detailed analysis of the causes of such an occurrence. The median is 4, and the percentiles are expressed as 4-4, 5.

Table 6: Analysis of the responses to the posed question whether information provided by environmental cost accounting also include an estimate of future costs



Source: Authors' analysis according to filled-in questionnaires, processed by SPSS Statistics

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It is evident from the analysed responses that the majority of respondents rated the statement „mostly correct“ (51, 9%). 33,3% respondents accepted it as „absolutely correct“, and only one respondent rated the statement as „mostly incorrect“. There was 11,1% neutral responses, while nobody provided a fully negative answer. Median is 5, and the percentiles are expressed as 3-4, 5. The mean value of all ratings is 4, 14 which confirms the set statement.

## 5. CONCLUSION

All hotel managers holding an adequate education degree in tourism management are aware of the benefits of keeping up-to-date accounting information. They are also aware that, by incorporating quality management principles in hotels, it is possible to influence the quality of products and services and that environmental accounting provides a methodological basis that allows that all relevant costs and effects of investment into environmental protection and sustainable development are recorded in the business system. The research also found and statistically confirmed that relevant management factors in Croatian hotels think that internal calculations provide sufficient information that enable precise measuring and allocation of costs by activities, processes, and product groups. Furthermore, it is established that the hotel's accounting information system provides timely and reliable information for all internal business decision-makers. According to the results of the empirical research, it is concluded that the management exhibits zero tolerance for the incidence of deficiencies and that the system of timely reporting on quality costs is important for projecting total business costs. In conclusion, it can be stated that quality management systems, environmental protection management systems, and accounting systems of monitoring all costs and reporting are indispensable factors of managerial accounting without which it is difficult to manage a hotel in an increasingly demanding market and market competition.

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## RECALL OF DIGITAL CONTENT AS PART OF CONSUMER RESPONSE MODEL

**Anida Krajina**

*Masaryk University Brno, Czech Republic  
anida.krajina@gmail.com*

**Dusan Mladenovic**

*Masaryk University Brno, Czech Republic  
dusan.mladenovic.op@gmail.com*

### **ABSTRACT**

*It appears relatively easy for most of the people to answer the questions such as “what is today’s date” or “describe experiences when you first started your current job”. However, if someone asks “what is the color of the last advertisement you have seen” or “what was the title of the newspaper article you have read this morning”, the answers might differ, not only in content but also in the actual recalling. The fact that humans can store and retrieve much information is incontestably fascinating. However, the brain has limited capacities. The question is what makes the person remember some items and contexts and forget others. This study explores the connection between attention and recall by implementing combined eye tracking and laddering interview method. The attended and recalled elements are part of the simulated website in the form of images and text and presented to the generation cohorts Y and Z. The results show that in the short-term memory, the objects that receive the highest attention are remembered better with both cohorts despite the type of the content. However, in the longer time span, the evidence shows that the form of the content influences the remembered exposure with generation Z especially. The results of this study may alter managerial preferences for the optimal content presented on the websites that should correspond to their strategic goals, such as making content marketing more memorable.*

**Keywords:** *Consumer response, Online content, Recognition, Recall*

### **1. INTRODUCTION**

According to some theorists, there are two memory factors: (1) recognition, the ability to recognize the concept already seen before and (2) recall, the measure of understanding and remembering what the concept said or meant (Hanekom, Barker and Angelopulo, 2007). The brain areas involved in both are fairly similar, but free recall is associated with higher levels of brain activity in several areas for encoding and retrieval than successful recognition memory, which indicates that recall may be more difficult than recognition (Eysenck and Keane, 2010). Conscious recalling is related to the concept called explicit memory, when an individual remembers facts without the need of being involved in some action in order to remember (Anderson, 2015). Recall is important because it ignites the working memory, involved in language and sign processing, problem solving or planning (Cowan, 2010). The question is how some people remember and others do not. When an individual is able to recall a large amount of information without much effort, it is sometimes connected to the idea of superior memory. However, when researchers studied these extraordinary individuals (world-class memory performers), their memory was exceptional only for some materials that seem meaningless to most adults, like digits, unrelated words, or chess positions (Ericsson, 2003). The recognition and recalling memory is an important part of the online consumer response model. In the offline response model, the recognition memory is a part of the perception level; the recalling occurs when individuals are exposed to certain stimuli in the offline environment and it is an integral part of the consumer response cognitive level (Hanekom et al., 2007).

On the other hand, in the online consumer response model suggested by Hanekom et al. (2007), both recognition and recall occur on the conative/behavioural level. These researchers further explained that online consumers proceed through the recognition phase when they recognize elements from a web-based commercial communication message, and they reach the recall phase when they can assign the meanings to those elements and form new representations (Hanekom et al., 2007). The recognition and recall are the same in both offline and online environments, only the stimuli differ. By observing the effects of the online stimuli evidence was found proving that increased viewing time that visual objects receive when placed in non-competitive environments results in increased memory for those objects (Janiszewski, 1998). This means that the glance duration or fixation duration in some areas of interests may indicate a good chance that the web-based information inside Areas of Interest (AOIs) will be remembered. Janiszewski's study served as a basis for some later studies which observed competition for attention between items on a web page (Hong, Thing and Tam, 2004; Djamasbi, Hall-Phillips and Yang, 2013), but not how items that receive attention are remembered. Cowan (2010) argues that working memory capacity varies among people, and predicts individual differences in intellectual ability and changes across the life span. There is no clear evidence on how this applies to Generation Y and Generation Z, the generations exposed to online stimuli the most. As the online audience differs (Hanekom et al., 2007), we observed the visual attention and recall differences between Generation Y and Generation Z (as representatives of digital generations). These issues are tackled in the following research questions:

- a) Which type of content do generation Y participants recall more- text or images?
- b) Which type of content do generation Z participants recall more- text or images?

The memory may highly depend on the context in which the information is presented to us. Anderson (2015) explains this by highlighting that people show better memory in general if their external context and their internal states are the same at the time of study and the time of the test. There are some differences between the different types of the context too. When comparing memory for verbal and visual information, Anderson (2015) states that the human memory for visual information seems to be much better than the human memory for verbal information. However, the memory for visual elements depends on circumstances. According to Anderson (2015), these circumstances are meanings, proving that people attend to, recognize, and recall best those aspects that they consider meaningful. This study observes those differences- how different types of attained stimuli are stored in people's memory (if at all), through the following research questions:

- c) Which type of the content has stronger/weaker effect on memory?
- d) What is the reason behind stronger/weaker content types' influence on memory?

The general aim of this study is to explore the relation between the strength of the stimuli and the memory effect. In other words, the goal is to provide a deeper understanding of the influence (or relation) of the stimuli (picture vs. text) strength on the memory and whether the preferred content is positively related to the consumer's memory.

## 2. METHOD

The research design for this study is mixed. The initial research and the overall approach is exploratory in nature, as it does not include any hypothetical statements and it is rather qualitative. Narrowing it down, it is spread into the explanatory and confirmative parts. Therefore, mixed research design in this particular case means that explanatory research is undertaken by application of qualitative methods (retrospective interview) and the confirmative part is undertaken with quantitative methods (statistical interpretation of eye tracking data).

Looking at Creswell (2013), the present method can be marked as an explanatory sequential mixed method. The purpose of the mixed method sequential explanatory study is to:

- Identify the behaviour of the participants (Generation Y and Generation Z) in a controlled online setting by gathering eye tracking quantitative data;
- Explore the results in more depth through a qualitative individual case analysis. In other words, the eye tracking recording from the selected group of participants is extracted and based on this, the in-depth interview is conducted with the participants.

The eye tracking experiment was conducted using a remote SMI250 eye tracking (ET) device, a laptop with the attached remote eye tracker device, and Experiment Suite 360° (SMI Experiment Center™ and SMI BeGaze™) from SensoMotoric Instruments, which was used for stimuli presentation, movements recordings, and the analysis of the data. The lack of physical contact with a person increased the ecological validity of the study (Gidlöf et al., 2012). In the analysis stage of eye tracking data processing, the Areas of Interest (AOI) were defined. Within areas of interest, the author looked at a number of fixations, fixation time and dwell time. These three eye tracking measurements were processed and analyzed in statistical software and compared against demographic data and hierarchical value maps in interviews. The interview was used as a qualitative method to let the respondent explain and describe the experience and reasons why certain behavior occurred. The novelty in this approach is that the semi-structured interview guide is constructed following the laddering (Gutman, 1984). The laddering required questions about elements (stimuli, types of content), constructs (feelings and perceptions about the stimuli), and links and relationships among them. The network of these, set up in a hierarchical order leads to the means-end chain (Reynolds and Gutman, 1988) and Hierarchical Value Map. The author set up the retrospective interviews in two instances: the immediate retrospective interviews (right after the eye tracking experiment) and the postponed retrospective interviews (1-2 weeks after the eye tracking experiment) to also assess the recall by asking why behavior occurred. The interview transcripts were coded to form the Hierarchical Value Map, which was an interview analysis and interpretation tool. The main author conducted both phases of the study, including measuring, interviewing and analysis of the data from both eye tracking and qualitative research.

### **2.1. Data collection and experimental setting**

During the experiment, subjects were comfortably seated at the desk, at a distance of approximately 60 centimetres from a computer display. Upon introduction, they were given a Consent Form to sign and a short questionnaire to fill in the demographic data under the assigned code. Participants were then calibrated, using the two sessions of 4 points and the calibration was accepted if less than 1° of visual angle error (on both the y- and x-axis) was achieved. Stimuli were divided into areas of interest, drawn around the call to action areas to collect eye tracking measures within text or images on a simulated website. 69 purposively selected students participated in the study. The participation in the study was on the voluntary basis and students' motivation was participation in eye tracking research as such. The purposive sample predetermined criteria (Guest, Bunce and Johnson, 2006) was age, and sampling followed the minimum sample size suggested by previous eye tracking studies (Nielsen and Pernice, 2010; Holmqvist et al., 2011). 7 Y and 10 Z participants participated in the interview, based on their own willingness to continue with the interview after the eye tracking phase. Not many sources provide guidelines for actual interview sample sizes (Guest et al., 2006). However, Creswell, (1998) recommends between five and twenty-five interviews for phenomenological study. In the present study, the author deals with phenomenological qualitative research (Creswell, 2013). As this study required a fairly homogenous sample (Gen Y and Gen Z), the additional argumentation for an interview sample size can be found in

Kuzel's research, where he argues that there is a need for six to eight interviews for a homogeneous sample (Kuzel, 1999).

### 3. FINDINGS

#### 3.1. Recall analysis

Time of the interview (immediately after and 2 weeks later) was within generation factor. These two time stamps were marked as T1 (immediately after) and T2 (2 weeks later) and they are measured in relation to the T0 (eye tracking experiment). Information in one's working memory is lost quickly: according to Ericsson (2006), for tasks with response latencies of 5-10 seconds, people are able to recall their sequences of thoughts quite accurately. The actual length of T1 is 30-45 minutes on average, counting the experiment length and the length of the first part of the laddering interview. It is assumed that human memory is limited, especially the working memory. Information flows into the system incessantly; however, working-memory capacity is limited to approximately four "chunks," or combinations of items, at a time (Cowan, 2010). Some researchers have also investigated how well the stimuli remain in the brain in different time spans from the moment someone is exposed to the stimuli (Ericsson, 2003, 2006). The author in the present study observed the same within two generational cohorts. Descriptions were classified into into A (attributes), C (consequences), or V (values), based on which the ladders are constructed. This helped construction of a diagram to meaningfully represent the main implications of the study - the hierarchical value map (HVM).

##### 3.1.1. Recall in T1

In the observation of Gen Y, the participants who were asked about the stimuli recall immediately after the eye tracking experiment, mostly remembered the text. Out of four respondents who were interviewed immediately after, all of them recalled the text, while one of them recalled the specific image too. Participant *mrj* recalled the cemetery image which was present in one of the texts. She explained that it was a creative way to explain the topic of brands dying, but also expanded her explanation by recalling an associative memory from her own student trip. The image reminded her of her memory; she connected the two and recalled both the picture and the memory during the interview. The following ladder depicts the attributes, consequences and values of the T1 memory of text content.

- (V) better knowledge
- (C) surprising, new, unusual and brave
- (C) related to my job
- (C) interests me
- (A) text design
- (A) specific detail (phrase, date)
- (A) the specific topic of the text
- (A) the general topic of the text

Respondent 071284 explains that the topics of the text were interesting as he wanted to know more and was drawn to it because it could expand his knowledge. Another respondent, though, remembered the specific sentences in the text which she perceives as pretty brave to say, especially some firm statements within the text (e.g. brands die). Even though the retrospective interview happened only moments after the eye tracking study, many participants did not remember the exact details or were not able to retell what have they read. The memory can be very fragile and imperfect. People are left with durable and lasting traces of many events and yet they can forget other events just moments after their occurrence (Kensinger, 2009). According to Kensinger (2009), the major role in remembering is played by emotions.

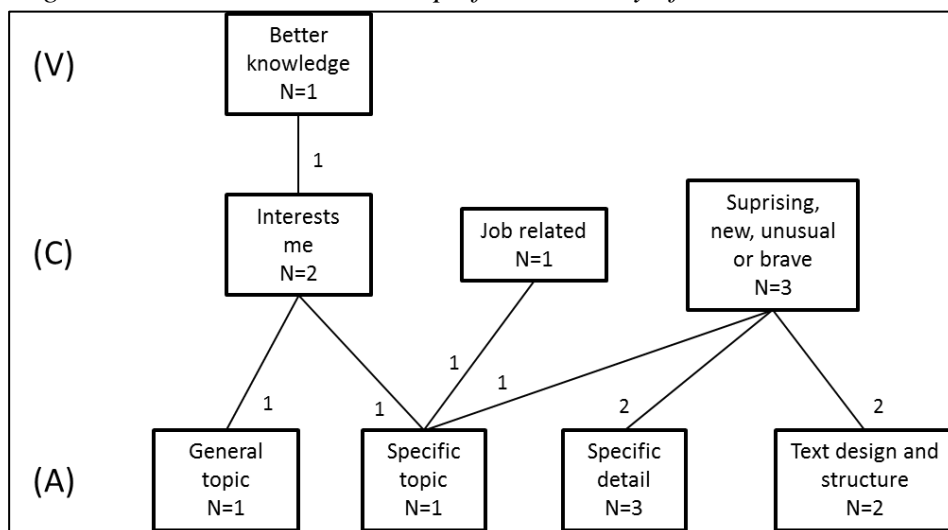


Within Gen Z, the results of the T1 retrospective interviews suggested something different. Five Generation Z respondents agreed to be interviewed immediately after. Firstly, most random recalls were related to images. Only two out of five participants reported recalling the text (while all five recalled at least one image). Two participants recalled two specific texts, because they appeared new for them and both participants expected to learn something new. A more important ladder in the T1 interview with Gen Z is generated for recalling the image, because, unlike with Gen Y, it is present with all the interviewed Gen Z participants. The ladder is below.

- (V) consistency
- (V) love towards art
- (C) hard to overlook
- (C) easy to recognize
- (C) don't like the resolution
- (C) makes me sad
- (C) cool
- (C) shocked me
- (A) colours
- (A) call-to-action images

Gen Z participants recall the images either with positive, familiar, or shocking feelings. No one mentioned call-to-action (CTA) pieces of information or buttons on the images, but they did talk about the images themselves. The only evidence of recalling the CTA was with participant 444463. He mentioned that he did not expect CTA buttons on images, because they did not provide any information and therefore seemed unimportant to him. We constructed two hierarchical value maps, to depict the attributes-consequences-values relations between the individual contexts. The HVMs are created for the content type remembered by all respondents in the T1 across the two generational cohorts. Figure 21 shows that Gen Y respondents in T1 most often remember specific detail in the text. Specifically, surprising, brave, unusual or new statements appear to be the most important between linkages of attributes and consequences. However, this consequence did not lead to any value satisfaction. The interest in the text was mentioned by two participants, and led to acquiring better knowledge, a value mentioned by one participant. Figure 1 indicates that in a short term, Gen Y participants will mostly remember a text that is unusual and new, and improves their knowledge largely.

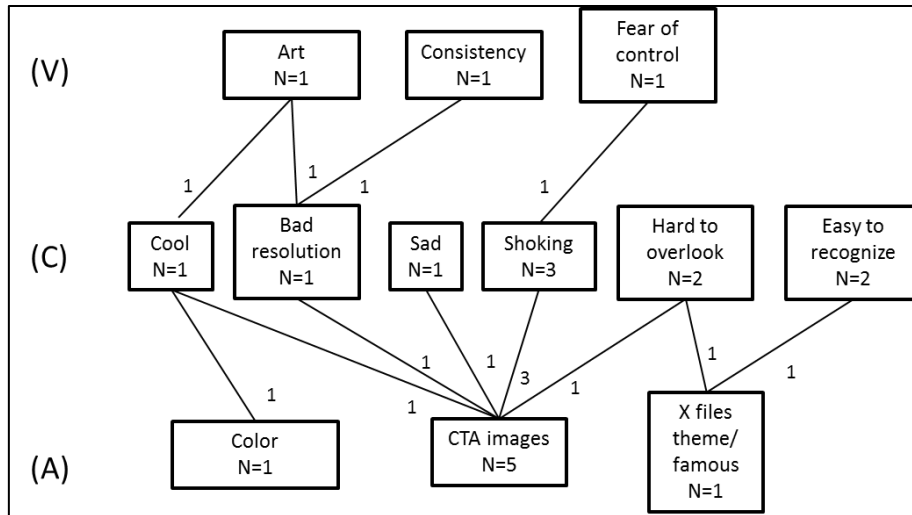
Figure 1: Hierarchical value map of text memory of Generation Y in T1



Source: authors

Figure 2 shows the HVM of the image memory of Generation Z in T1. The CTA labelled images were mentioned by the highest number of respondents, together with the feeling of shock. In observing linkages between attributes and consequences, the strongest relationship was noted between the image and the feeling of shock. The consequences that lead to reaching and satisfying the values of love for art, consistency and avoiding control are having a cool image with good resolution, and feeling of shock that an image may have caused. Figure 2 indicates that Gen Z participants will, in the short term, remember images that are aligned with their love for art, are consistent and make them fear something (dependent on the image content).

Figure 2: Hierarchical value map of the image memory of Generation Z in T1



Source: authors

### 3.1.2. Recall in T2

In the T2, none of the Gen Y respondents remember the images. However, all three respondents recall the text. Interestingly, the repetitive claim was that they remember the text that was repeated in the experiment design. The ladder is depicted below.

- (V) better knowledge
- (V) like to learn
- (C) relevant for the current experiment
- (C) unusual
- (C) did not understand the meaning
- (C) unknown/new content
- (A) repeated text
- (A) specific topic (eye tracking, neuromarketing, psychology)
- (A) abbreviation

Mostly, the participants remembered the repeated text, unknown abbreviation or the topic that was either relevant for the participant or for the current experiment (e.g. eye tracking). For instance, Flory says that she remembers something, but if asked what exactly was written in the text, she would not remember. However, she would remember the article about the experiment itself. She further explains that she normally forgets things easily, but she enjoyed the content because it could expand her knowledge. During the interview with Gen Y participants in T2, the author observed that it was hard for them to recall the actual content and the topics of the texts, while images were not recalled at all.

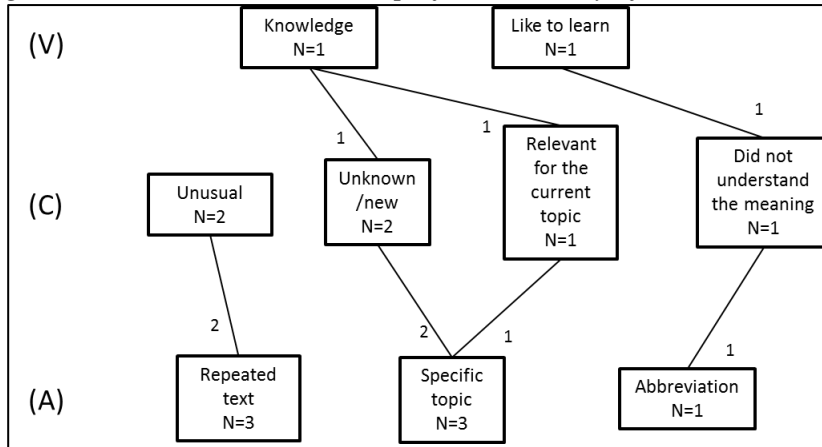
If looking at the T1 results for Gen Y, the general conclusion may arise that Gen Y participants remember the textual stimuli better than images, despite the period of the retrospective interview. On the other hand, Gen Z showed somewhat different behaviour. In the retrospective interviews conducted in T2, the evidence shows a much higher level of text recollection. In total, four Gen Z participants were invited for the T2 retrospective interview. All four of them remember some details from the text, and they did recall the test topics. The ladder for the text recall is shown below. The author decided not to depict the image ladder, only to show its insignificance in the HVM below.

- (V) better knowledge
- (V) reminds me of cultural background
- (V) better life
- (C) meaningful quote
- (C) familiar
- (C) funny joke
- (C) new content
- (A) specific detail
- (A) specific topic
- (A) general topic

Unlike the situation in T1, Gen Z participants remembered mostly textual stimuli in T2. Some of them recalled the specific topics. For instance, KIM explained that she was sceptical about the text that was explaining how neuromarketing can help understand consumers. It reminded her of psychology and she does not trust psychologists in general. This was the reason why the text remained in her memory. Other participants remembered some details, such as a joke that was in the text. Thus, CRLD mentioned that she recalls the joke about the Nokia cell phone because she comes from a country where this joke is extremely popular. The participant Deni was struck by the meaningful quote and she recalled it because she learned something new and understood that a person can do really big things if she gets out of her comfort zone. The HVMs are created for the content type remembered by all respondents in the T2 across two generational cohorts. Figure 3 indicates that Gen Y does not behave much differently in terms of the recalled content. They most often remember a specific topic and repeated text, while mostly mentioning new content (as a consequence) and improving knowledge and affinity to learning as satisfied values. The relation between the specific topic and reading about the unknown fields that satisfy the thirst for knowledge is moderate. A similar type of linkages of attributes and consequences is observed with repeated text and the perception of the unusual situation when the text was repeated. However, this linkage did not lead to satisfaction of any value. The willingness to learn something new was mentioned as a value by one of the participants (11) and it was satisfied through remembering the abbreviation and finding its understanding and meaning.

*Figure following on the next page*

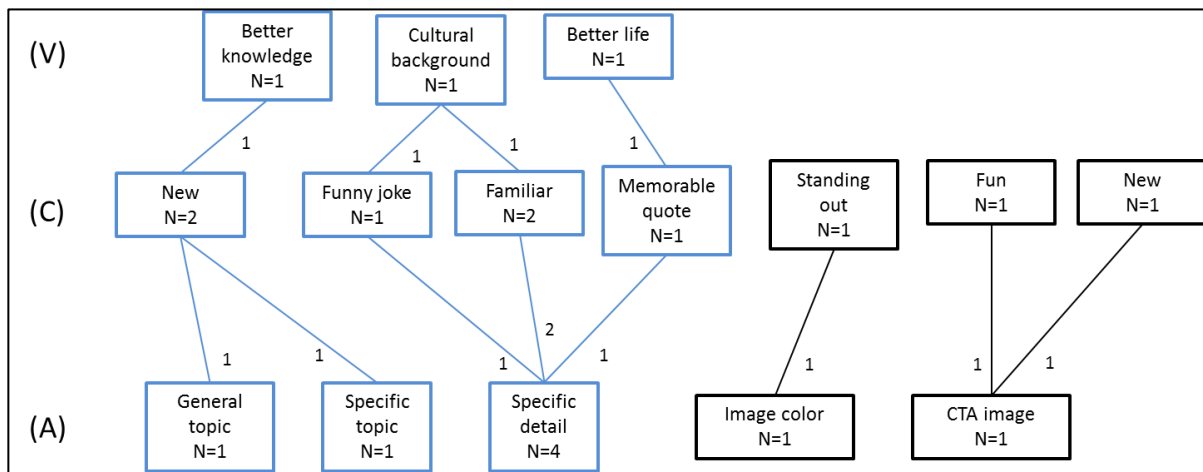
Figure 3: Hierarchical value map of text memory of Generation Y in T2



Source: authors

The evidence shows that in the longer term, the respondents from Gen Z recall textual stimuli better than images. Figure 4 depicts these numbers and linkages. It shows the ladders for both text and images, as two participants mentioned image. Gen Z respondents mostly mentioned specific details from the text that were remembered (name of the famous person, quote, joke or specific sentence). To most of them, they were either familiar or new. Remembering familiar and funny content leads to cultural background revelation and understanding its importance. Previous research has indicated a strong influence of culture on memory, explaining that culture operates as a lens that directs attention and filters the processing of the environment into memory (Gutchess and Indeck, 2009). Finally, one of the participants mentioned that remembering the meaningful quote made her life better.

Figure 4: Hierarchical value map of text and image memory of Generation Z in T2



Source: authors

#### 4. CONCLUSION

The conative or behavioural level is the last level in the online consumer response. This means that once someone has gone through the previous processes mentioned at the beginning of this chapter, they act or behave in a certain way. High-level systems are activated at this stage and their task is to engage contextualization, selective attention, emotional processing, and memory encoding (Barnett and Cerf, 2017). According to Hanekom et al. (2007), there are seven phases under this response level: memory: recognition, memory: recall, conviction and preference, action, trial, purchase, adoption, and commitment and loyalty.

The author explored the first two memory phases in the present study. When online consumers recognize elements from the web-based message they previously interacted with, they proceed through the memory: recognition phase. The following phase is the memory: recall phase, during which the consumer remembers what the web-based message said. This function is unique to the human brain. Unlike other organs whose functions are ephemeral, the brain continues to maintain, interpret and recall content even after it is no longer present (Barnett and Cerf, 2017). Previous research papers explain that when the customer recalls the message, it is a measure of learning and understanding and she/he can assign meaning to the elements of the message content and form new representations which are later stored in the memory (Hanekom et al., 2007). In T1, Gen Y looked at (and read) the text because it provided them meaning and satisfied the desire to learn. After processing a linguistic message, people usually remember just its meaning and not its exact wording (Anderson, 2015). The fixations were mostly noticed across the text Areas of Interest (AOIs), unlike within Gen Z where the AOI fixations were mostly allocated within images. Consequently, the Gen Z respondents mostly recalled images in the T1. Previous research discovered that the glance duration or fixation duration in some areas of interests might indicate a good chance that the web-based information inside AOIs will be remembered. The present study shows that in the short-term memory, the objects that receive the highest number of fixations are expected to be remembered better within both generational cohorts. In T2, none of the Gen Y respondents remembered the images. However, all three respondents recalled the text. Interestingly, the repetitive claim was that they remember the text that was repeated in the experiment design. Online consumers proceed through the recognition phase when they recognize elements from a web-based commercial communication message, and they reach the recall phase when they can assign the meanings to those elements and form new representations (Hanekom et al., 2007). In the absence of meaning for images, Gen Y remembered the text in both T1 and T2 better than images. When comparing the memory for verbal and visual information, Anderson (2015) states that human memory for visual information seems to be much better than human memory for verbal information. However, the memory for visual elements depends on circumstances. According to Anderson (2015) these circumstances are meanings, proving that people attend to and recognize and recall best those aspects that they consider meaningful. However, Gen Z showed different behaviour in T2. There was much higher level of text recalling. The retrospective interviews on perceived exposure indicated that the Gen Z participants liked the stories. The elements from these texts were not only perceived and attained, but also remembered. The past research claims that stories are central to the human cognitive system because they capture the essence of social interaction, the structure of human action (Read and Miller, 1995). Thus, social knowledge is at the centre of the cognitive system. Moreover, participants seem to seek personal connection when obtaining information. According to brain research, this marvellous organ does not make much of a distinction between reading about an experience and encountering it in real life; in each case, the same neurological regions are stimulated (Paul-Murphy, 2012). Gen Z therefore like stories because they help them identify with what they are reading or re-live the experience. Some studies hypothesize that certain content can be used not only to captivate attention, but also to produce emotional responses and generate memorable experience (Barnett and Cerf, 2017). In conclusion, the fixation count may indicate the remembered content in a short time after stimuli exposure. Even in advertising research, the cognition effect of advertising is measured through ad recall (Guixeres et al., 2017). Advertising research shows a positive relationship between recognition and attention; and attention and recall (Guixeres et al., 2017). In this case, the preferred and perceived content correspond to the remembered content. Moreover, the content has to be meaningful for the participant. However, in the longer time span, the younger generation does not stick to the same pattern. The form of the content influences the remembered exposure.

Therefore, the higher cognitive effort or dedicated time to process the content type (as observed within Gen Z and textual stimuli) may be an indication for recognition and recall. The reasons behind this are related to the essence of social interaction and the nature of human beings. Future research may develop this concept further and the same research design could be applied to a larger sample to improve the generalizability of the present results. The study is not without limitations, which are mainly due to its exploratory design and scope. The laddering was fairly challenging. Some participants found it hard to explain why an attribute was important, or what the consequence of an attribute was. We had to balance between pressing the respondents and making them feel comfortable. In this respect, in some cases the laddering may have been tedious for participants, especially when the response to Why was obvious. After experiencing this with a couple of participants at the beginning of the research, the author decided to inform the participants briefly about the technique, clarifying the importance of the Why questions. This helped alleviate potential tension between the participants and the author. Despite its limitation and the complex methodological approach, the present study delivers several contributions to the interdisciplinary research as well as the consumer knowledge. The uncompromising novelty and contribution of this research are in its methodological approach. It combines eye tracking methods, which provide the answer to “what” question, and the laddering qualitative interview approach that gives meaning to the constructs and answers to “why” and “how”. Even though both methods have been thoroughly used for ages, some systematic reviews advocate that combining eye tracking and verbal reports remains unexplored (Helle, 2017). The combination of eye tracking and laddering has not been thoroughly used yet either in eye tracking or consumer research. In terms of managerial application, there is a potential to apply the results in management decision making. For companies targeting Generation Y and Generation Z, the present research may provide insights for improving visual appeal and overall effectiveness of the online stimuli for these two important groups of online consumers. The research design for assessing online consumer response may serve as a tool for generating more effective content, be it in marketing, games, music, product design, website design or education.

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## DEMI MODELS' APPLICATION IN VARIANCE ANALYSIS

**Anita Grubisic**

*Polytechnic of Šibenik, Croatia  
anita@vus.hr*

**Frane Galzina**

*Klub kontrolera HUP-a, Croatia  
frane.galzina@gmail.com*

### **ABSTRACT**

*Variance analysis is a key task of controlling. The quality of this analysis is a key precondition for the manager to make decisions. The task of the controller is to produce analytical reviews of the variances in timely manners. Demi models, which perform variance analysis, are being developed and applied for such reviews. It is important to understand that the Demi model is an analytical comparison of two sets of the same structure. The synergic effects of the partnership between managers and controllers mostly depend on the quality of diagnosis provided by these models. In this paper, we will present two of the most important and complex models of classical deviation analysis: analysis of sales variance and direct material variance analysis. Business result distributions are a plan and a realization. On the basis of such diagnostics, the determination of therapy, which is expressed in the form of a corrective action plan, follows.*

**Keywords:** *diagnose, target, variance*

### **1. INTRODUCTION**

In the Mission of Control (ICV, 2013) it is emphasized that analyzing often means also the breakdown of individual deviations into their parts, eg review of deviation values (variables and deviation parameters). In doing so, the reporting rules that controlled for this segment of the control business were the following:

- Controllers give feedback on results achieved compared to planned values, past accomplishments, business "benchmarks".
- It allows data analysis and is a prerequisite for corrective action.
- Controllers inform in a decision- and problem-oriented manner.
- The manager should quickly get the essential information, identify and understand what the task and problem is, how to fix some discrepancy.
- Controllers provide recipients with relevant and corresponding fact information and factors:
  - which may be affected upon or
  - which can be held responsible for or
  - for which goals have been defined and agreed.
- Controllers create reports for managers (not against or about them).

Analyzing deviations, which includes determining the value of variance of individual factors and causes, in the process of controlling belongs to the stage of Diagnosis, that is, the group of controller jobs - Deviations. In practice, the analysis of the discrepancy between the achieved and the target, ie planned, dominates. Of course, in practice there are many other combinations whose application depends on the type of analysis. Deviation analysis uses models we have called Demi models.



## **2. DEFINITION OF VARIANCE ANALYSIS**

The results of applying the Demi model in the deviation analysis are analytical reviews of the values of the deviation variables of the two distributions of the unified structure. They are mathematically expressed both in absolute amounts and in relative (as a rule, percentage) values. These values are not only mathematical results or even numerical figures. They tell managers which are good, less good or bad positions. The Indian writer Rabindranath Tagore (the first non-European Nobel laureate in literature) said in wisdom: "You will only be able to remove a thorn if you know where it is." There is a positive correlation between the development and application of model analysis of deviations in the efficiency and effectiveness of business systems. The more sophisticated analysis models are and the more they are applied in life, the more established, diagnosed factors and variables are, the better the possibilities for effective therapeutic measures and interventions. With quality and timely analysis of deviations, the manager can make better decisions. And that leads to faster and better healing, ie better health and boosting immunity. The importance of applying the Demi model in the analysis of deviations is particularly great, but not so much in the historical dimension, but in the proactive (pro futuro) dimension (action plan, correction plans, improvement plans). Of course, controlling must also respect the principles of efficiency and economy of operations. In order to achieve this, controlling in its business is based on a quality information system (ITS). Informatics is the key to controlling success. Without quality ITS, there is no "real" controlling. That is why the controller must be the initiator, catalyst, co-creator, chief business analyst, moderator of system solutions in the IT system, which is based primarily on the philosophy and techniques of basic access and business intelligence. The analysis of variance models should be developed and applied within the framework of analysis of deviations in managerial, and preferably in financial reports. This paper presents examples of some of the most important Demi models (analysis of variance in sales and cost of materials), as part of the application of the Contribution calculation format in the Income Statement, which Deyhle calls MRA - Management Result Account (Blazek, Deyhle, Eiselmayer, 2011). This format corresponds to another of the options "offered" in paragraph 103 of International Financial Reporting Standards (IFRS, NN 136/2009), according to which in the statement of comprehensive income, expenses are calculated according to their cost function or "cost of sales method".

## **3. CLASSIFICATION OF DEVIATION ANALYSIS IN DEMI MODELS**

In the analysis of distribution deviations, four groups of individual variance analyses are most important:

1. Contribution margin variance analyses
  - a) Analysis of the variance in sales revenue
  - b) Analysis of direct material cost variance
  - c) Variance analysis of direct energy costs
  - d) Analysis of direct labor cost variance
  - e) Product variance cost analysis
  - f) Sales variance analysis of sales bonuses
2. Variance analyses of other net income positions
  - a) Analyses of the variance of operating margin positions I (production)
  - b) Analysis of the variance of operating margin positions (other operating income and expenses)
  - c) Analysis of variance in the position of the development margin
  - d) Analysis of the variance of the net financial result
3. Analysis of variance in balance sheet items
  - a) Asset variance analyses
  - b) Analysis of capital variance

- c) Commitment variance analyzes  
4. Analysis of cash flow variance

The syntheses and combinations of individual variance analyses create complex deviation analyses that can provide managers with excellent complete bases for good business decisions and thus better management of goals.

Typical examples of these complex variance analyses are:

- Analysis of variance in total revenues
- Contribution margin variance analysis
- Operating margin variance analysis
- Analysis of employee variance and labor costs
- Analysis of asset variance and cost of assets

In this paper, we will present two of the most important and complex models of classical deviation analysis:

- Analysis of variance in sales revenue
- Direct material variance analysis

Business result distributions are a plan and a realization.

### **3.1. Analysis of variance in sales revenue**

Sales revenue means operating income of the core business, in this case revenue from the sale of products. The quality of the variance analysis (analysis of variance) is essentially determined by the level (depth) of the sales data structure. In this case, the variance analysis model recommends applying a sales-level deviation analysis. In order to meet such level (depth) of analysis, there must be an appropriate data structure for each sales id that provides such analytical elaboration of the deviation with respect to:

- structure of the sales price that correlates with the structure of the profit and loss account (MRA concept): the selling price of production, the parts of the total selling price for: sold development, financing a specific investment, bonuses to customers based on labor productivity...);
- a statement of the sale price in the original currency in which the delivery is invoiced;
- local currency exchange rates against the original currencies (daily exchange rates);
- data on quantities of sales ids in comparative distributions (plans, forecasts, achievements, simulations).

Analysis of variance in sales revenue has three main factors (elements) of deviation:

- sales volume
- selling prices
- foreign exchange rates

#### *3.1.1. Impact value of sales volume*

The impact value of the sales volume is determined as the sum of the multiplications of the differences of the quantities of individual sales ids of the basic selling prices:

$$Qv = \sum [(qi1 - qi0) \times pi0]$$

Where it stands that:

*Qv* - the value of the impact of deviations in sales volume

*qi1* - the amount of idents *n* sales in period 1 (e.g., realized)

*qi0* - quantity of idents *n* sales in period 0 (eg planned)

*pi0* - sale price of idents *n* in period 0 (example: when we determine deviation achieved with the planned, as a rule, we use the planned sales as a weightprice).

### 3.1.2. The value of the impact of changes in selling prices

The value of the effect of changes in selling prices is determined as the sum of the multiplications of the quantities of period 1 and the difference in prices in the original currencies weighted at the base of exchange rate 0.

$$Psv = \sum \{qi1 \times [(pi1 - pi0) \times fo]\}$$

Where it stands that:

*Psv* - the value of the effect of a deviation of selling prices on sales revenues

*qi1* - amount of idents sales in period 1 (e.g., realized)

*pi1* - selling price of the ident *i* in period 1

*pi0* - selling price of ident *i* in period 0

*fo* - foreign exchange rate for period 0 (eg exchange rate)

For the purposes of deeper analysis of variance analysis, calculations of deviations by major elements of the sales price structure are used. The algorithm is identical, only the values of the individual elements of the selling prices are applied instead of the values of the total selling prices. In this way, we can determine what impact the change in net selling price had, and what effect the change in part of the development price or some other part (element) of the sales price had.

### 3.1.3. The value of the impact of foreign exchange rates

The value of the impact of foreign exchange rates is determined as the sum of the differences in the multiplication of quantities sold in period 1 by the prices of period 1 weighted by the exchange rates of period 1 and period 0.

$$Fsv = \sum_{i=1}^n \{(qi1 \times pi1 \times f1) - (qi1 \times pi1 \times f0)\}$$

Where it stands that:

*Fsv* - the value of the effect of changes in foreign exchange rates on sales revenues

*qi1* - amount of ident sales in period 1 (e.g., realized)

*pi1* - selling price of idents *k* in period 1

*f1* - foreign exchange rate of period 1 for each change (eg realized)

*fo* - foreign exchange rate for period 0 (eg exchange rate)

The sum of the values of these three factors gives the value of the total difference in sales revenue over two periods:

$$Bp = Qv + Psv + Fsv = S1 - S0$$

Where it stands that:

*S<sub>1</sub>* - Total revenue from the sale of period 1 (eg, realized)

*S<sub>0</sub>* - Total revenue from the sale of period 0 (eg planned)

*Table 1: Example of spreadsheet analysis of sales variance (program / product)*

ID Sales program ID Product	Planned S <sub>0</sub>	Realized S <sub>1</sub>	Difference S <sub>1</sub> -S <sub>0</sub>	Sales Bridge S <sub>1</sub> vs S <sub>0</sub> (in kkn)			
				Quant.	Price	Currency	Total
a	b	c	d=b-c=Bv	Q	P	F	Bv
Program 1	77,041	71,273	-5,768	-4,078	-721	-969	-5,768
Product 0101	22,342	20,224	-2,118	-1,583	-271	-264	-2,118
Product 0102	18,490	17,496	-994	-721	-153	-120	-994
Product 0103	26,964	23,869	-3,095	-2,351	-352	-392	-3,095
Product 0104	9,245	9,684	439	577	55	-192	439
<b>Total (*)</b>	<b>256,270</b>	<b>244,569</b>	<b>-11,701</b>	<b>-6,618</b>	<b>-1,796</b>	<b>-3,287</b>	<b>-11,701</b>

*Source: authors` work*

The quality and precision of analysis of the variance of the sales model depends on whether we apply an analytical or synthetic approach. In the analytical approach, the analysis of variance with the use of model variance analysis the calculation is based on the elements or factors of deviation by individual sales idents. Such an analytical approach, with the development of master data matrices (master data) ensures the highest quality diagnostics of any master data that is associated with the sales ident directly and indirectly. For example, we can determine how much a business result is affected by changes in the prices of individual products for a particular customer, and thus the sales manager for that customer. This creates arguments for negotiating with customers, but for realistically evaluating the achievement of individual goals (key performance indicators). The calculation with the use of aggregate quantities results in insufficiently precise diagnostics and gives an approximation of the influence values of individual variables in the analysis of variance. Namely, at the level of a group of sales ids (eg sales programs), we only have average values of the factors (variables) of a particular distribution. The problem is that there is almost always a different distribution structure, that is, a different weighting value (the amount of sales ids of a different structure).

### 3.2. Direct material cost variance analysis

This analysis of variance falls into the category of very demanding models, both methodologically and data-wise. The minimum requirements for a quality analysis of the variance of direct material and energy costs per sales are:

- The master data system, the most important of which are: norms, classifications, pricing structures and organization;
- Tactical plans (as a rule, annually and operationally), which provide a deep analytical structure and dynamic dimension (as a rule at the calendar month level);
- Application of work orders in the production management and monitoring system;
- A system of material goods business that provides all data on each input and output ident, and according to each work order, ie cost carrier;
- Up-to-date, orderly, accurate and credible postings in analytical (material) bookkeeping and financial accounting.

Direct material cost items are the most important part of the contribution margin. Since this is the position of the contribution margin, the calculation of the value impact using the relative values is methodologically determined.

The value statement of the impact of a change in the share of material is determined as the product of the difference between the share of direct material (dm%) and the realized sales revenue. Material cost share (dm%) is the ratio expressed in% between direct material cost (Dmv) and sales revenue (S):

$$dm\% = \frac{Dmv}{S}$$

Algorithm for determining the total value impact of direct material (value of total direct material cost variance analysis):

$$Bdv = (dm\%_{01} - dm\%_{00}) \times S1$$

Where it stands that:

*Bdv* - Value impact of change in direct material participation

*dm% 1* - share of direct material cost in the sale of period 1

*dm% 0* - share of direct material expense in the sales revenue of period 0

*S1* - income from the sale of period 1

The analysis of the variance of direct material costs is an analytical review of the deviations of two or more distributions, which, as a rule, represent specific periods. Most of the time, we make an analysis of the discrepancy between the realized and the planned or forecasted. However, it is often applied in the context of horizontal analysis and analysis of deviations of two or more periods in history (eg current period compared to the same period of the previous year). It is important to do these analysis always, even when the total direct material participation in the two periods is the same or similar. The reason is very simple. The same percentage of participation may result from a different combination of factors. For example, the assortment factor of sales can bring 2% positive effect, and on the other hand increased rejects and unfulfilled production savings can cause 2% negative effect. With a diagnosis like this one cannot and should not be calm, because the economy of production brings 2% pp of lost profits! The controller produces deeper analysis and is the main partner to the manager for adopting an action plan with elements of crisis management. And without applying the model of variance analysis, everything would look right. The structure of direct material cost variance analysis contains a number of factors that can, in different business combinations, affect the realization of discrepancies:

*Table following on the next page*

Table 2: Factors influencing the realization of deviations

<b>Group</b>	<b>Factors (variance analysis elements)</b>
<b>Sales</b>	Assortment of sale
	Selling prices
	Sales price production
	Sales price of financing development
	Sales price of financing investment
<b>Financial</b>	Impact of exchange rates on sales
	Impact of the course on procurement
<b>Production and technology</b>	Installation of regenerates
	Rejects in production
	Production savings
<b>Purchase</b>	Purchasing prices-suppliers
	Purchasing prices-logistics
	Purchase savings
	Purchase savings-prices
	Purchase savings-quantity bonuses
	Purchase savings-logistics
	New inputs
<b>Other</b>	Change of stock
	Mathematical gap
	Unknown

Source: authors` work

### 3.2.1. Direct material variance analysis - Impact of sales assortment

The sales assortment represents the composition (combination) of different sales ids (products) in the total sales. Often the term "sales mix" is used in business jargon. It is very unlikely that in two or more sales distributions they may have the same combination of sales ids. As not all sales idents have the same price structure, then as a rule differences in the structure of the contribution margin appear. For example, higher sales of products with above-average materials input result in a lower contribution margin. And vice versa. The value of the impact of the sales assortment is determined as the difference between the multiplications of the weighted mean of two or more distributions (product combinations) and the distribution sales revenue 1 (periods1).

Algorithm:

$$Bdmv = \left\{ \left[ \frac{[\sum_{i=1}^n s1i \times dm\%1i]}{[\sum_{i=1}^n s1i]} \right] - \left[ \frac{[\sum_{i=1}^n s0i \times dm\%0i]}{[\sum_{i=1}^n s0i]} \right] \right\} \times S1$$

$$Bdm\% = \frac{Bdmv}{S1}$$

Where it stands that:

*Bdmv* - the value impact of the sales assortment on the participation of direct material

*s1i* -sale of ident sales *i* in period 1 (sub-totals 1)

*s0i* -sale of ident sales *i* in period 0 (subtotals 0)

*dm% 1i* - share of direct material cost (%) of period 1 for the product *i*

*dm% 0i* - direct material cost share (%) of period 0 for product *i*

*S1* - income from the sale of period 1

*Bdm%* - relative impact of sales assortment changes on material participation

Table 3: Example of calculating the impact of the assortment of sales on material costs

Assortment of Sales	% mat.	Month 06 gg							Period S1gg						
		Plan 06ggpl	m06p %	Realiz. 06gg	m06r%	gap06 %pp	Bridge 06gg	gap sales 06 gg	Plan S1ggpl	ms1p%	Realiz. S1gg	ms1r%	gap s1%pp	gap sales	Bridge S1gg
a	m%	c	d=bc	e	f=exb	g=f-d	h	i=e-c	s0	m0%	s1	m1%	Δm%	s1-s0	Bmav
Program 01	42.9%	14,812	13.5%	12,214	12.9%	0.6%	(206)	(2,598)	77,041	12.9%	71,273	12.5%	0.4%	(5,768)	(1,234)
Program 02	43.6%	10,897	10.1%	8,259	8.9%	1.2%	(209)	(2,638)	57,859	9.8%	50,114	8.9%	0.9%	(7,745)	(1,657)
Program 03	78.5%	5,501	9.2%	6,109	11.8%	(2.7%)	48	607	34,579	10.6%	36,974	11.9%	(1.3%)	2,395	512
Program 04	42.8%	3,982	3.6%	3,583	3.8%	(0.2%)	(32)	(399)	20,162	3.4%	20,546	3.6%	(0.2%)	385	82
Program 05	42.3%	3,472	3.1%	2,718	2.8%	0.3%	(60)	(754)	18,554	3.1%	15,959	2.8%	0.3%	(2,595)	(555)
Program 06	46.2%	2,411	2.4%	2,400	2.7%	(0.4%)	(1)	(11)	15,602	2.8%	15,168	2.9%	(0.1%)	(434)	(93)
Program 07	75.0%	2,363	3.8%	1,720	3.2%	0.6%	(51)	(643)	12,111	3.5%	11,978	3.7%	(0.1%)	(133)	(28)
Program 08	67.4%	1,344	1.9%	1,192	2.0%	(0.1%)	(12)	(152)	7,289	1.9%	7,213	2.0%	(0.1%)	(77)	(16)
Program 09	66.5%	790	1.1%	654	1.1%	0.0%	(11)	(136)	5,449	1.4%	5,642	1.5%	(0.1%)	193	41
Program 10	66.9%	467	0.7%	307	0.5%	0.2%	(13)	(160)	2,478	0.6%	2,440	0.7%	(0.0%)	(38)	(8)
Program 11	76.7%	424	0.7%	583	1.1%	(0.4%)	13	159	2,544	0.8%	4,025	1.3%	(0.5%)	1,481	317
Program 12	64.5%	184	0.3%	700	1.1%	(0.9%)	41	516	998	0.3%	2,382	0.6%	(0.4%)	1,384	296
Program 13	60.1%	286	0.4%	23	0.0%	0.3%	(21)	(264)	286	0.1%	73	0.0%	0.0%	(214)	(46)
Program 14	49.3%	88	0.1%	37	0.0%	0.0%	(4)	(51)	485	0.1%	131	0.0%	0.1%	(355)	(76)
Program 15	49.6%	81	0.1%	61	0.1%	0.0%	(2)	(21)	472	0.1%	481	0.1%	(0.0%)	9	2
Program 16	45.0%	34	0.0%	19	0.0%	0.0%	(1)	(15)	194	0.0%	129	0.0%	0.0%	(65)	(14)
Program 17	49.9%	32	0.0%	13	0.0%	0.0%	(1)	(18)	165	0.0%	41	0.0%	0.0%	(124)	(27)
<b>Total</b>	<b>50.8%</b>	<b>47,170</b>	<b>50.8%</b>	<b>40,593</b>	<b>52.1%</b>	<b>-1.3%</b>	<b>(521)</b>	<b>(6,576)</b>	<b>256,270</b>	<b>51.4%</b>	<b>#####</b>	<b>52.4%</b>	<b>(1.0%)</b>	<b>(11,701)</b>	<b>(2,504)</b>

incurred  
 Source: authors' work

Interpreting individual columns:

% mat. - participation of materials in the planned selling price

m0%, m1% - unit (weighted) percentages of the planned share of materials by products whose sum gives the average material consumption

gap% pp (g, n) - difference of unit percentages realized and planned in percentage points

Bmav - the value of the impact of a change in the sales assortment on the share of materials

sales gap - variance of realized and planned sales in absolute terms

S1 - first semester

### 3.2.2. Direct material variance analysis - Impact of changes in foreign exchange rates

The value of the effect of changes in foreign exchange rates is the sum of the values of the effects of changes in foreign exchange rates on sales revenues and the effect of changes in foreign exchange rates on the cost of direct material (exchange differences in purchases).

$$Bdfv = Bdfsv + Bdfnv$$

The value of the effect of changes in foreign exchange rates on sales revenues on the share of direct material costs It is determined as the product of the value of the impact of changes in sales prices (Pv) and the planned share of direct material cost corrected for the percentage of assortment impact. Algorithm:

$$Bdfsv = Fv \times (dm\%0 + Bdm\%)$$

Where it stands that:

*Bdfsv* - effect of foreign currency exchange rate changes in sales revenue on share of direct material cost

*Fv* - Impact value of the impact of changes in foreign exchange rates on sales revenues

*dm% 0* - direct material cost share (%) of period 0

*Bdm%* - relative impact of sales assortment changes on direct material cost share

The value of the impact of changes in foreign exchange rates on direct material costs (foreign exchange differences in purchases). It is determined by multiplying the amount of consumption of direct material ids and multiplying the difference in the purchase prices of distributions 1 and 0 (eg realized - planned) at original prices (eg in €) and the exchange rate of foreign currencies in distribution 0 (eg plan).

Algorithm:

$$Bdfnv = \sum_{i=1}^n \{Qni \times pn1i\} \times (f1 - fo)$$

Where it stands that:

*Bdfnv* - the value of the impact of changes in purchase prices on material participation  
*i* - unit ident *k*

*Qn* - quantity of purchase

*pn1* - purchase price of direct distribution material 1 (period 1) in original currency

*f1* - foreign exchange rate for period 1 (eg realized exchange rate for direct material consumption)

*fo* - foreign exchange rate of period 0 (eg exchange rate)

### 3.2.3. Direct material variance analysis - other impacts

For other influences (o): Installation of regenerates, Rejects in production, Production savings, Purchase savings, Purchase savings-prices, Purchase savings-quantity bonuses, Purchase savings-logistics, New inputs a unique algorithm is applied. The impact on the cost of direct material is the product of the difference between the relative values of the distributions (share in% of individual impact in relation to sales revenues) and realized sales revenues.

Algorithm:

$$Bdmoi = \sum_{i=1}^n \left( \frac{Ui1}{S1} - \frac{Ui0}{S0} \right) \times S1$$

Where it stands that:

*Bdmoi* - Value of other impacts on direct material cost share

*Ui1* - Impact value *i* in distribution (period 1)

*S1* - Sales revenue in distribution 1 (period 1)

*Ui0* - Impact value *i* in distribution 0 (period 0)

*S0* - Sales revenue in distribution 0 (period 0)

### 3.2.4. Analysis of direct material variance - specific effects of changes in production inventories

The effect of the budget change of inventories of work in progress and finished goods (production inventories) on the share of direct material costs exists when the structural model of the calculation of inventories change is not applied.



The impact of the calculation of the change in production inventories on the cost of direct material is the multiplication of the difference between the relative values of the distributions (share in% of individual impact in relation to sales revenues) and realized sales revenues.

Algorithm:

$$Bdpz = \sum_{i=1}^n \left\{ \left[ \left( \frac{zdi1}{Zi1} - zds \right) \times \frac{Zi1}{Si1} \right] \times S1 \right\}$$

Where it stands that:

*Bdpz* - the value of the impact of production inventory change

*zdi1* - share of direct material value in the value of product inventories *i* in distribution 1 (period 1)

*Zi1* - value of product inventories *i* in distribution 1 (period 1)

*zds* - standard amount of direct material value share in product inventory value

*S1* - Distribution revenue 1 (Period 1)

*Si1* - Product sales and distribution revenues 1 (Period 1)

The incorrect statement of contribution margins will occur, as a rule, if we report a change in the value of inventories by function expenses based on some standard parameters.

For example, when 60% of the cost of direct material in the cost of inventory is predefined, and 65% of the cost of direct material is realized, the effect of 5% pp will be erroneous. This part may be mistakenly "shifted" to eg indirect labor costs. Therefore, it is recommended to work with a structural model of the calculation of the value of production inventories.

#### 3.2.4.1. Mathematical gap

This influence should be determined, as changes in material participation can also occur when all other impacts are "at zero". Namely, changing (+/-) the dividend and divisor for the same nominal amount, without any other changes, the quotient changes. For example, if the sales price from 100 is increased to 101, and for the same amount the purchase price is increased from 50 to 51, then the share of materials is no longer 50% but 50.5%.

#### 3.2.5. Unknown

As a rule, the sum of individual impacts will not produce 100% impact, and in that case we classify the difference as unknown. Of course, this number should not be significant (not more than  $\pm 0.1\%$ ).

*Table following on the next page*

Table 4: Example of recapitulation of material cost variance analyses

Code	Variance elements (bridge) Realized vs. Planned	Absolute (kkn)		Relative (%)	
		06 gg	S1gg	06 gg	S1gg
<b>B1</b>	<b>Assortment of sales</b>	<b>(521)</b>	<b>(2,504)</b>	<b>(1.3%)</b>	<b>(1.0%)</b>
<b>B2</b>	<b>Net price affect</b>	<b>(281)</b>	<b>(460)</b>	<b>(0.7%)</b>	<b>(0.2%)</b>
12	Sales prices	(562)	(920)	(1.4%)	(0.4%)
21	Purchasing price-suppliers	406	585	1.0%	0.2%
22	Purchasing price-logistics	(125)	(125)	(0.3%)	(0.1%)
<b>B3</b>	<b>Currency effect (fx)</b>	<b>(121)</b>	<b>(505)</b>	<b>(0.3%)</b>	<b>(0.2%)</b>
13	Currency effect on sales	(403)	(1,684)	(1.0%)	(0.7%)
23	Currency effect on procurement	282	1,178	0.7%	0.5%
<b>B4</b>	<b>Economic</b>	<b>404</b>	<b>(235)</b>	<b>1.0%</b>	<b>(0.1%)</b>
24	Procurement savings	82	(478)	0.2%	(0.2%)
31	New materials	(125)	(125)	(0.3%)	(0.1%)
32	Installation of regenerates	198	468	0.5%	0.2%
41	Scarce in production	75	(588)	0.2%	(0.2%)
42	Production savings	174	488	0.4%	0.2%
<b>B9</b>	<b>Other</b>	<b>0</b>	<b>0</b>	<b>0.0%</b>	<b>0.0%</b>
91	Mathematical gap	0	0	0.0%	0.0%
92	Change stock-gap	0	0	0.0%	0.0%
<b>Σ</b>	<b>Variance total</b>	<b>(519)</b>	<b>(3,704)</b>	<b>(1.3%)</b>	<b>(1.5%)</b>

06 gg – June next year

S1 gg – first semester of current year

kkn - in thousands of kn

Source: authors` work

On the basis of such diagnostics, the determination of therapy is outlined, which is expressed in the form of a plan of corrective measures, that is, a flax of continuous improvement, ie an Action plan (see the example below).

Table 5: Example of Action Plan (Control tower)

Ordinal number	Task	Responsible person	Deadline	First KT	Last KT	Deadline	Progress	Notes	Status
ct 0201	Negotiations with Program buyers 01.02.05 (with a more favorable sales contribution margin) to cover the negative effect by the end of the year. Develop a report and action plan.	Sales Manager	31.07.gg	15.07.gg	22.07.gg	31.07.gg		Conversations done. The report is expected in due time.	
ct 0202	Analyze the realized inventory turnover, identify weaknesses in procurement and logistics, and establish an action plan for measures that will amortize the negative variations in S1gg. Develop a report with an action plan.	Logistics Manager	15.08.gg	01.08.gg	08.08.gg	15.08.gg		Operational responsibility of the holder of responsibility and development of an action plan in progress.	
ct 0203	Analyze the acquisitions of procurement savings, identify the "weak points" in the implementation of the procurement savings plan and develop an action plan that will amortize the negative deviations in S1gg. Develop a report with an action plan.	Procurement Manager	31.07.gg	15.07.gg	22.07.gg	31.07.gg		Activity started but not of good quality. Interviewed with the Procurement Director, who requested that the activities be accelerated.	
ct 0204	Analyze the failure of the implementation of replacement materials in 06gg to adopt an action plan to ensure the installation of these replacement materials. Develop a report with an action plan.	Production Manager 2	15.09.gg	15.08.gg	01.09.gg	15.09.gg		Majority of the analysis done, a higher number of activities defined. An acceleration of activity is sought.	
ct 0205	Develop a production action plan to ensure continued write-offs decrease. The minimum goal is to cover the negative effect in Q1gg.	Production Manager 1	31.08.gg	15.08.gg	22.08.gg	31.08.gg		Measures initiated, more activities defined. It is expected to be completed on time and in good quality. Possible effect from the set goal.	

Source: authors` work

#### 4. CONCLUSION

Applying quality analysis of model variance in deviation analyses is of great importance in the process of managing and making decisions aimed at achieving the set goals. The lack of quality analysis of deviations results in poor diagnostics, which consequently results in poor therapy, that is, a poor action plan of corrective and improvement measures. And without proper therapy, the achievement of goals becomes only uncertainty and coincidence. The quality of model variance analysis in deviation analysis depends on IT solutions, and in particular on the quality of the database structure, as well as an orderly and up-to-date system of cost accounting, financial and managerial accounting. This is why controlling, as part of its process of continuous improvement, must:

- constantly develop its ability and skill in business diagnostics and concentrate creatively in developing and applying model variance analyses;
- be the moderator and catalyst for the development and implementation of orderly processes based on modern IT solutions with the use of a basic approach;
- be an accounting partner in the development of models and solutions in managerial, financial and cost accounting.

The excellent partnership of controlling, accounting and informatics creates the conditions for timely and quality diagnostics, which is crucial in maintaining and improving the company's health bulletin.

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## MODELLING OF MILITARY EXPENDITURE OF THE CZECH REPUBLIC

**Jakub Odehnal**

*University of Defence in Brno, Czech Republic*  
*jakub.odehnal@unob.cz*

**Jiri Neubauer**

*University of Defence in Brno, Czech Republic*  
*jiri.neubauer@unob.cz*

### **ABSTRACT**

*Within the EU, the economic environment of the Czech Republic belonged to dynamically developing environments characterized by an above-average speed of economic growth. The economic crisis affected the Czech Republic via a decline in domestic and foreign demand, reflecting in the slowing speed of economic growth. The growing deficit of public finances, together with growing indebtedness, made the government accept a number of anti-crisis measures lying in the regulation of the income and expense side of the state budget. The military expenses as a part of government expenditure were considerably reduced during the economic crisis and currently they form only 1.1% of the GDP. The current change in the security environment provoked a debate on long-term underfinancing of the department of defence in the Czech Republic and acknowledging the responsibility for the country's security. Measures accepted in consequence of the changing perception of security threats will contribute to increasing military expenses to at least 1.4% of the GDP in 2020. The contribution focuses on military expenditure modelling and its economic determinants using the Autoregressive Distributed Lag (ARDL) model. This model is applied to economic data of the Czech Republic over the period 1993–2018. To quantify the determinants of military expenditure, the authors selected data from the database of the Czech Statistical Office defining economic determinants of the military expenditure. For modelling, the following macroeconomic and fiscal variables were used: gross domestic product per capita, inflation, government deficit, government debt. According to the estimated model, the authors compute and simulate possible future development of Czech military expenditure.*

**Keywords:** ARDL model, Economic Determinants, Military Expenditure

### **1. INTRODUCTION**

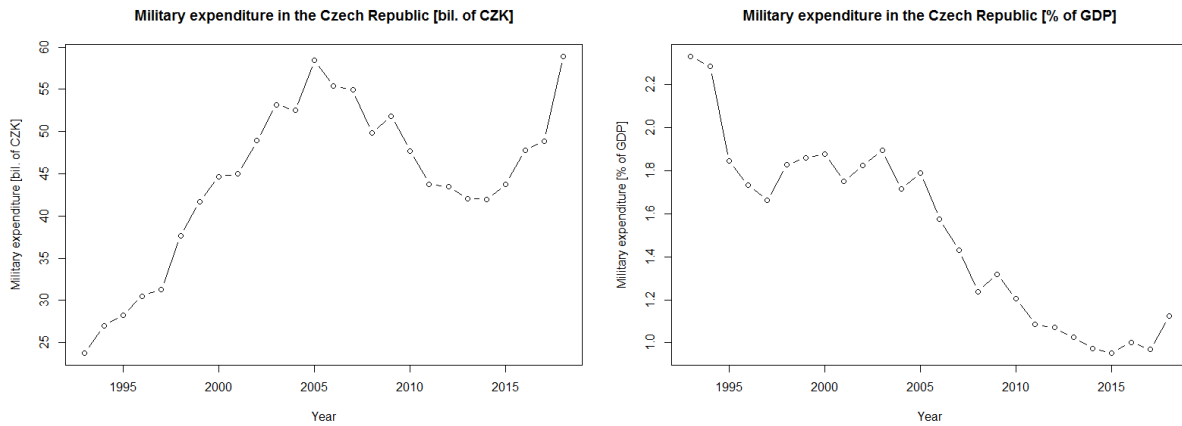
Since 1999 the Czech Republic has been a NATO member state enjoying security guarantees arising from the membership. In 2002 an armed forces reform was implemented. However, the reform was hindered by insufficient funding manifested in a significant decline in military expenses as a percentage of Gross Domestic Product and long-term failure to follow the Alliance recommendations. The economic crisis which affected the Czech Republic together with the increasing public finances deficit and the public debt intensified pressure for further reduction of expenditures. Therefore, military expenditure<sup>1</sup> fell especially in 2010 (see Figure 1 – left) and kept falling until 2013 (more detailed in Holcner and Olejnicek (2017)). This long-term underfinancing endangers the fulfilment of roles and functions of the armed forces of the

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<sup>1</sup> The SIPRI (Stockholm International Peace Research Institute) definition of military expenditure includes all current and capital expenditures on the following activities: the armed forces (including peace-keeping forces), the civil administration of the military sector (defence ministries and other government agencies engaged in defence activities), paramilitary forces (non-regular armed forces trained, equipped and available for military operations), military space activities. Such expenditure should include the following components: personnel, operations and maintenance, arms procurement, military research and development (R&D), military construction, military aid (in the military expenditure of the donor country).

Czech Republic. It is also evident that the decreasing trend in military expenses further increases investment deficit and prevents adherence to the 50–30–20 rule, i.e. spending 50% on mandatory expenses, 30% on common expenses, and 20% on investments in the department of defence.

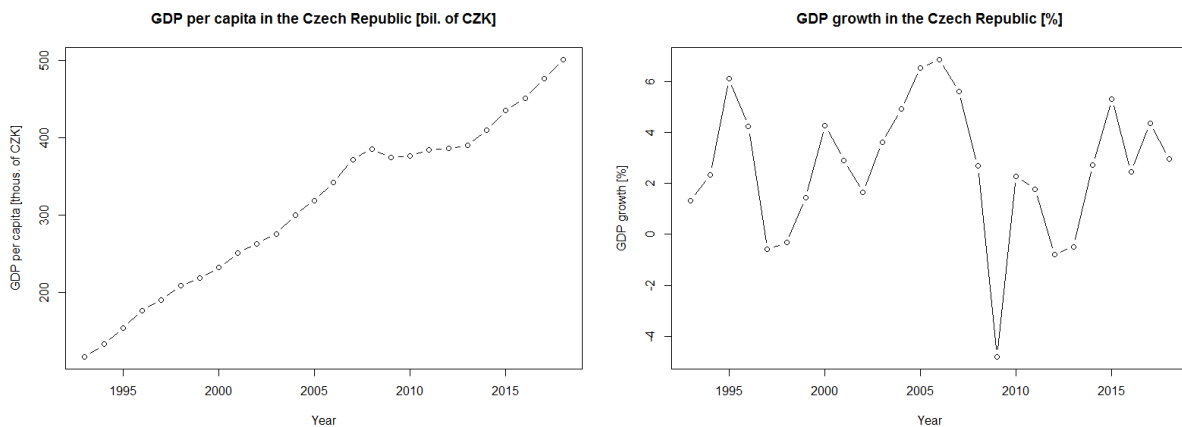
*Figure 1: Military expenditure in the Czech Republic in billions of CZK (left) and as a percentage of GDP (right)*



Source: SIPRI

Even the indicator showing the military burden as a percentage of military expenditure of GDP (see Figure 1 – right) points to significant underfinancing of defence. Long-term underfinancing of the department is apparent from the Figure 1 – the allocated amount of military expenses is lower than the amount recommended for NATO member countries in relation to GDP. Analogously, the indicator showing military expenses as a percentage of the state budget suggests decreasing trends where the biggest reduction took place during the economic crisis.

*Figure 2: GDP per capita in thousands of CZK (left) and GDP growth (right) in the Czech Republic*

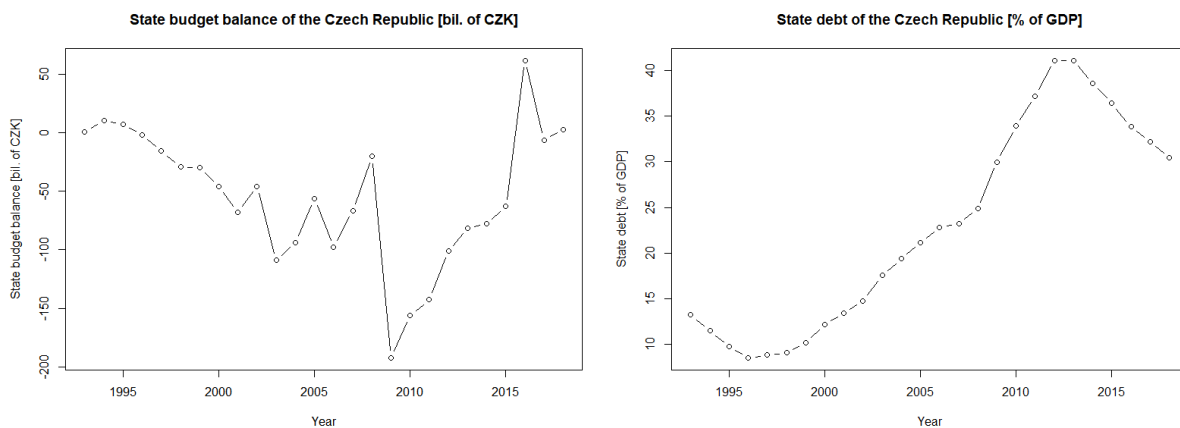


Source: Czech Statistical Office

The economic crisis which manifested itself in a significant decline in GDP was replaced by periods of economic growth during which the Czech Republic belonged to dynamically developing European economies characterized by an above-average pace of economic growth achieved in the European Union. The period of economic growth was replaced by a rapid decline in GDP in 2009 (Figure 2).

Within the analysed period the pace of GDP growth slackened in 2008, while in 2009 it slumped by almost 5% (−4,8%). In the following year GDP grew slightly; however, the Czech economy did not achieve the comparatively high GDP growth experienced before the economic crisis. The economic crisis which manifested itself, inter alia, in a growing public finance deficit (Figure 3) and mounting public debt exerted pressure on imposing economic measures influencing funds allocated for the defence<sup>2</sup> (Sezgin and Yildirim, 2002; Dunne and Nikolaidou, 2001). The development of the state budget deficit (the absolute value and a percentage of GDP) together with the government debt (the absolute value and a percentage of GDP) represent variables binding for the Czech Republic as the fiscal criterion for accepting the European currency. The state budget deficit in the Czech Republic increased even when the economy experienced economic growth. Considerable deficit growth was evident especially in 2009 when it represented more than 5% of GDP. Growing public finance deficits exert pressure on accumulating government debt that has been growing on a long-term basis since 2009. This involves considerable expenses on the accumulating debt service, which every year represents approximately an annual budget of the Ministry of Defence when taking into consideration the interest only. The downward trend is apparent for the variable describing the inflation rate. The figure 4 shows a significant decline between 1993 and 1997 related to the economic reforms resulting from the economic transition from a centrally planned economy to a market economy. Low inflation rate and the threat of deflation is evident from the figure after 2012. In order to ensure the price stability, the central bank started using the exchange rate as a tool of monetary policy in the Czech Republic. In 2013, after considering possible risks, the central bank initiated a targeted intervention on the monetary market and weakening the CZ crown (CZK) towards the Euro. The aim of this intervention was especially ensuring price stability and supporting the price competitiveness of exporters.

Figure 3: State debt of the Czech Republic in billions of CZK (left) and as a percentage of GDP (right)



Source: Czech Statistical Office

Figure following on the next page

<sup>2</sup> Empirical studies e.g. Sezgin, Yildirim (2002), Dunne, Nikolaidou (2001) aimed at identifying military expenditure determinants classify those determinants into groups of *economic* factors, *political* factors and *strategic* factors.

Figure 4: Inflation rate of the Czech Republic



Source: Czech Statistical Office

## 2. MODELS AND METHODS

Time series of military expenditure will be described by the autoregressive distributed lag model  $ARDL(p, q_1, q_2, \dots, q_k)$ , where  $p$  is the number of lags of the dependent variable  $Y_t$ ,  $q_1, q_2, \dots, q_k$  are numbers of lags of explanatory variables  $X_{it}$ ,  $i = 1, 2, \dots, k$ . The model can be written in the form

$$Y_t = \alpha + \sum_{i=1}^p \gamma_i Y_{t-i} + \sum_{j=1}^k \sum_{i=0}^{q_j} \beta_{j,i} X_{j,t-i} + \varepsilon_t,$$

where  $\varepsilon_t$  is a one-dimensional zero mean error term. The lag lengths in the model can be determined by the standard information criterion such as Akaike, Schwarz or Hannan-Quinn information criterion (Baltagi, 2011 or Hill, Griffiths and Judge, 2000). The ARDL model estimates the dynamic relationship between dependent and explanatory variables. It is possible to transform the model into a long-run representation showing the long-run response of the dependent variable to a change in the explanatory variables. The long run estimates are given by

$$\hat{\theta}_j = \frac{\sum_{i=1}^{q_j} \hat{\beta}_{j,i}}{1 - \sum_{i=1}^p \hat{\gamma}_i}.$$

Besides the dynamic description, the ARDL approach also enables testing of cointegration. The cointegrated system of time series can be estimated as ARDL model (Pesaran and Shin, 1999) with the advantage that variables in cointegrating relationship can be either  $I(0)$  or  $I(1)$  without having to specify which are  $I(0)$  or  $I(1)$ . For the purpose of a cointegration analysis the form of the model in differences is used

$$\Delta Y_t = \sum_{i=1}^{p-1} \gamma_i^* \Delta Y_{t-i} + \sum_{j=1}^k \sum_{i=0}^{q_j-1} \beta_{j,i}^* \Delta X_{j,t-i} - \hat{\phi} EC_{t-1} + \varepsilon_t,$$

where  $EC_t = Y_t - \hat{\alpha} - \sum_{j=1}^k \hat{\theta}_j X_{j,t}$ , and  $\hat{\phi} = 1 - \sum_{i=1}^p \hat{\gamma}_i$ . Pesaran, Shin and Smith (2001) proposed a methodology for testing the existence of a long-run relationship between an independent variable and regressors.

Predictions of military expenditure for 2019–2023 are based on the estimated ARDL model. To calculate these predictions, it is necessary to know the values of explanatory variables  $X_{it}$ . These values are apparently not available. We have decided to forecast these values by Holt-Winters filtering (Holt, 1957; Winters, 1960). Using these forecasts we obtain one possible scenario for future development. Based on the estimated ARDL model and forecasts of explanatory variables, we compute predictions with 95% confidence intervals (Demirhan, 2019). Besides these predictions, we simulate possible paths of forecasted military expenditure using covariance matrix of estimated parameters of ARDL models. Using this matrix and with the assumption of normality, we simulate parameters of ARDL model.

### 3. RESULTS

Analysed data are downloaded from the databases CZSO and SIPRI (data for the period 1993 to 2018). We introduce the following notation:

- MILEX military expenditure per capita in billions of CZK
- Debt state debt in billions of CZK
- GDPpc gross domestic product per capita in thousands of CZK
- Inflation inflation rate in percent
- Saldo state budget balance in billions of CZK

Table 1 contains estimation results for full model (due to the length of time series, the maximum lag is 1). The final model was selected by backward elimination. We obtain an estimate

$$\widehat{MILEX}_t = 0.486 MILEX_{t-1} - 0.014 Debt_t + 88.588 GDPpc_t - 0.659 Inflation_t.$$

Table 1: ARDL model (standard errors in parentheses)

	Dependent variable: MILEX	
	Full model	Final model
MILEX <sub>t-1</sub>	0.374 (0.232)	0.486 <sup>***</sup> (0.104)
Debt <sub>t</sub>	-0.003 (0.026)	-0.014 <sup>***</sup> (0.003)
Debt <sub>t-1</sub>	-0.014 (0.025)	
GDPpc <sub>t</sub>	118.081 (100.299)	88.588 <sup>***</sup> (20.421)
GDPpc <sub>t-1</sub>	-5.969 (94.395)	
Inflation <sub>t</sub>	-0.808 <sup>**</sup> (0.372)	-0.659 <sup>***</sup> (0.254)
Inflation <sub>t-1</sub>	0.189 (0.235)	
Saldo <sub>t</sub>	0.005 (0.023)	
Saldo <sub>t-1</sub>	-0.006 (0.017)	
Constant	9.054 (7.583)	10.451 <sup>**</sup> (4.231)
Observations	25	25
R <sup>2</sup>	0.942	0.936
Adjusted R <sup>2</sup>	0.907	0.924
Residual Std. Error	2.721	2.462
F Statistic	26.953 <sup>***</sup>	73.604 <sup>***</sup>

Note: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$



Table 2: ARDL model – long run coefficients (standard errors in parentheses)

	Dependent variable: MILEX	
	Full model	Final model
Debt <sub>t</sub>	-0.027*** (0.007)	-0.027*** (0.005)
GDPpc <sub>t</sub>	179.180*** (47.084)	172.256*** (29.733)
Inflation <sub>t</sub>	-0.990 (0.602)	-1.282*** (0.429)
Saldo <sub>t</sub>	-0.002 (0.050)	
Constant	14.470 (11.082)	20.323*** (4.231)

Note: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

The long run relationship for military expenditure is (see Table 2)

$$\widehat{EC}_t = MILEX_t - (-0.027 Debt_t + 172.256 GDPpc_t - 1.282 Inflation_t + 20.323).$$

The models are shown graphically in Figure 5. According to the test of cointegration, so called F-Bounds test (Pesaran, Shin and Smith, 2001), the analysed time series are cointegrated (F-statistic is 7.47 with critical values at the significance level 0.05 for  $I(0)$  processes 2.79 and for  $I(1)$  processes 3.67).

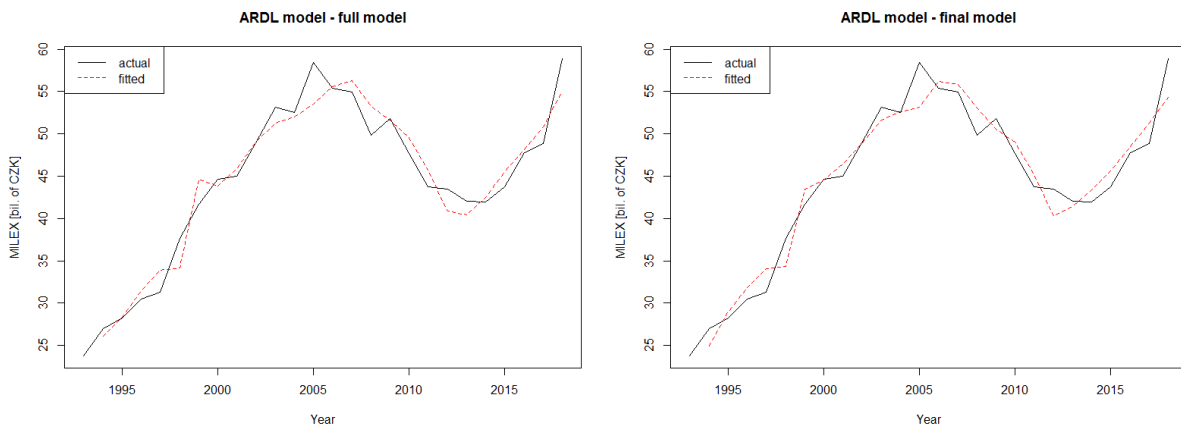


Figure 5: ARDL model of military expenditure in the Czech Republic

As the last step, we compute and simulate future development of military expenditure. A possible scenario is based on the estimated ARDL model and forecast of explanatory variables (Debt, GDPpc and Inflation). We apply Holt-Winters filtering to compute 5-step ahead forecast of given time series. Using these forecasts and estimated parameters of ARDL model, we compute the forecast of military expenditure and 95% confidence interval (Demirhan, 2019). The results are summarized in Table 3 and Figure 6 (left).

Table following on the next page

*Table 3: The results of forecasting*

<i>Year</i>	<i>Forecast</i>	<i>Lower 95% C.I.</i>	<i>Upper 95% C.I.</i>
2019	60.276	55.659	65.282
2020	62.114	56.489	68.162
2021	64.172	59.292	69.611
2022	66.337	60.891	71.996
2023	68.555	63.664	75.344

In addition to the computed forecasts, we simulate possible paths of forecasted military expenditure using covariance matrix of estimated parameters of ARDL models. Using this matrix and with the assumption of normality, we simulate parameters of ARDL model. We computed 1000 simulations of future development of military expenditure, see Figure 6 (right).



*Figure 6: Predictions of military expenditure in the Czech Republic*

#### 4. CONCLUSION

The military expenditure of the Czech Republic has been influenced by a number of factors including the NATO enlargement process, the professionalisation of the military, the effects of the economic crisis, and the development of the security environment. The economic environment characterized by selected macroeconomic variables is one of the determinants of military expenditure, defined by the indicator of gross domestic product per capita, inflation, state budget deficit, and government debt. The estimated ARDL model and the simulation model based on the original ARDL model were used for the prediction of the military spending based on the development of the economic environment. The results obtained in the form of short-term predictions for the 2019–2023 confirm the comparability of the results in both approaches and thus the expected increase in military expenditure in the forecast period.

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## MULTITASKING IN PUBLIC ORGANIZATIONS - THE CASE STUDY OF A POLISH UNIVERSITY

**Artur Gajdos**

*University of Lodz, Poland  
artur.gajdos@uni.lodz.pl*

**Malgorzata Marchewka**

*Cracow University of Economics, Poland  
marchewm@uek.krakow.pl*

**Ewa Stroinska**

*Academy of Social Science, Poland  
estroinska@spoleczna.pl*

**Justyna Trippner-Hrabi**

*University of Lodz, Poland  
justyna.hrabi@uni.lodz.pl*

### **ABSTRACT**

*A multi-threaded and simultaneous way of working and solving tasks is one of the challenges of modern management. Multitasking shapes the need for employees to have new skills, competences and a change in mentality, as well as to introduce a management system that will increase the efficiency of employees' activities. Skilful coping with multitasking contributes to a more harmonious and balanced functioning of the organization. The problem of multitasking is usually analysed in the context of private enterprises, whose flexibility and capabilities are much greater than in the case of public organizations. Therefore, the purpose of the publication is to diagnose the phenomenon of multitasking among administrative employees of state universities in Poland (on the example of the city of Lodz). Three following hypotheses arise from the adopted main objective:*

- *Hypothesis 1: Multitasking is a tool that modifies the intensity and quality of tasks performed by the employees.*
- *Hypothesis 2: Multitasking is determined by the variety of employee attributes and tasks.*
- *Hypothesis 3: Employees are aware that multitasking changes the efficiency of their tasks.*

*Verification of a specific research hypothesis as well as inference in the context of the set goal determines the use of appropriate research methods and techniques in both qualitative and quantitative research. Empirical material was obtained using the questionnaire tool by the means of the CAWI technique and direct observation and desk research were used for qualitative research. The theoretical part of the article was based on the qualitative method, i.e. a review of the literature on the subject. Initial studies were conducted at the Faculty of Economics and Sociology of the University of Lodz. They are of pilot character and test the tool used. Subsequently, nationwide research is planned to be carried out at all state universities in Poland.*

**Keywords:** *competences, multitasking, public organization*

### **1. INTRODUCTION**

Growing complexity and flexibility of organizations implies the optimization of allocation of human resources between many, often very diversified tasks. As a consequence employees are expected to accomplish various tasks simultaneously, i.e. to multitask.

Multitasking is understood as the ability to simultaneously perform several tasks. In a broader sense it regards transferring attention between tasks (task switching), and in a narrow sense – physical performance of two activities at the same time (for example, talking on the phone and checking e-mail). Parallel work on many tasks enables employees the access to more extensive knowledge and sources of various ideas, which results in boost of their creativity (Buser and Peter, 2011, p. 652), the development of knowledge and skills, and helps to prevent monotony at work. On the other hand, continuous transfer of attention between tasks results in high costs and can lead to work fragmentation (Bendoly, Swink, and Simpson III, 2013, p. 847), as well as to subjectively experienced overload having a negative impact on productivity, professional development and the level of perceived stress (Zika-Viktorsson, Sundström and Engwall, 2006, p. 388). That is why one of the current challenges in management is to ensure effective operations, i.e. to allocate risk, motivate work, and direct employees' efforts among their various activities (Holmstrom and Milgrom, 2012, p. 43), despite changes in working environment, and multitasking as one of them. The effect of multitasking on performance is determined by various factors. The identification of these factors and understanding of the mechanisms of their impact help in better work organization both at individual and organizational level. This issue is widely discussed in case of private companies (ex. González and Mark, 2005; Nannerup and Olsen, 2014; Cai and Guinote, 2017), but not in the case of public organizations, which makes it an interesting problem for an empirical investigation.

## 2. CHARACTERISTICS OF MULTITASKING IN PUBLIC ORGANIZATIONS

The results of multitasking depend on individual predispositions and organizational determinants (Figure 1). As this article concerns multitasking in public organizations, the focus will be on the latter.

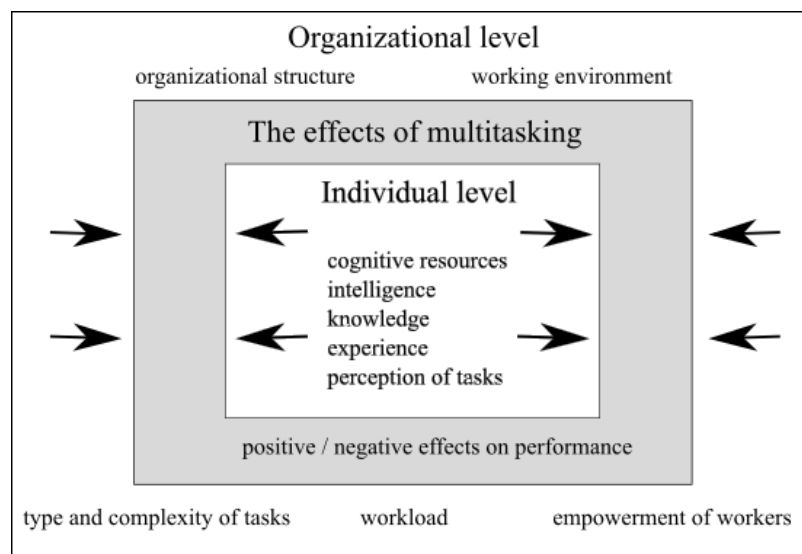


Figure 1: The main determinants of multitasking (Marchewka, 2018)

First of all, general characteristics of the organization itself, such as its size, industry and organizational culture have a great importance for multitasking (Sońta-Drączkowska, 2012, p. 25). Still, one of the most significant organizational determinants of the effects of multitasking is organizational structure and its flexibility in particular. In private companies the organizational structure is more often decentralized and the burden of work is transferred to project teams (Appelbaum, Marchionni, and Fernandez, 2008, p. 1315). The majority of current studies are conducted in private sector where the process adjusting to turbulent environment is easier to observe.

In public companies organizational structure is naturally more rigid and centralized and the problem of multitasking still requires elementary diagnosis. Another determinant of the effects of multitasking is a type and complexity of tasks. On the basis of this criteria three types of tasks may be distinguished (Busarovs, 2011, p. 54):

- routine task, typical of the organization, easy to predict,
- repeated tasks, i.e. regularly implemented by the organization, differing from routine tasks with a certain degree of novelty and slightly greater complexity,
- innovative/creative tasks performed in the organization for the first time.

The lower the complexity of tasks, the less multitasking due to repetitive nature of activities. In the case of routine tasks, the simultaneous participation of employees in many tasks may improve effectiveness, while parallel work on several creative, more difficult tasks may deteriorate the quality of their performance and extend their duration (Adler and Benbunan-Fich, 2014). It is worth mentioning, that in case of administrative work in public organizations, employees deal more often with routine and repeated tasks rather than innovative or creative tasks. Finally, the effects of multitasking depend on how much freedom employees have in coping with it. When they are more empowered to organize their own work, multitasking has positive impact on the performance (Cai and Guinote, 2017). On the contrary, if the organization of individual work is imposed, which usually is the case of more centralized public organizations, multitasking will deteriorate the performance. Moreover, work organization and workload determine multitasking intensity, i.e. the frequency of changes of tasks. It may occur every couple of minutes, every hour or every month. The more often it happens, the higher the cost of task switching.

*Table following on the next page*

*Table1: Studies of the impact of multitasking on performance (own work based on the literature review)*

Authors (year)	Main constructs	Results
González and Mark, 2005	-task switching - working Spheres	One of the most challenging aspects of switching between tasks is managing transitions between different contexts of these tasks.
Takahashi, 2011	- overlapping tasks	Multitasking boosts performance by the elimination of redundancies.
Aral, Brynjolfsson, and Van Alstyne, 2012	- multitasking - project-level and individual-level performance - productivity	There is an inverted-U shaped relationship between multitasking and productivity.
Adler and Benbunan-Fich 2014	- multitasking - self-interruption - external interruption	While performing difficult tasks, forced multitasking resulted in significantly lower performance compared with subjects who did not multitask and the subjects who were able to multitask at their discretion (self-interruption).
Mesmer-Magnus, Bruk-Lee and Sanderson, 2014	- work-related personality correlates	People with high levels of sociability, energy, and self-reliance cope better with multitasking than these who are detail-oriented and prefer more organization.
Nannerup and Olsen, 2014	- performance measurements	In case of multitasking motivation system based on performance measurements brings better results than monitoring.
Ghaffari and Emsley, 2016	- good and bad multitasking - multi-project environment	A boundary between good and bad multitasking can be established on the basis of the rate of resource availability.
Kurapati, Lukosch, Eckerd, Verbraeck, and Corsi, 2017	- planner task performance - multitasking ability	Multitasking ability directly impacts performance in a positive and significant way.
Cai and Guinote, 2017	- multitasking - lack of power	In comparison of control and powerful employees, powerless employees are less able to effectively multitask.
Srna, Schrift, and Zauberman, 2018	- multitasking - performance - perception	The mere perception of multitasking has positive effect on performance.

Given the specifics of public organizations and the results of current studies, the impact of multitasking on the employees' performance is ambiguous and requires empirical verification.

### 3. METHODOLOGY

#### 3.1. Research approach

The main objective of this study was the diagnosis and analysis of the problem of multitasking in case of public organizations. The first research question regards a very general issue, if in public organizations employees have to cope with multitasking and the main hypothesis is as follows:

- Multitasking is a tool that modifies the intensity and quality of tasks performed by the employees (H1). The hypothesis assumes that the phenomenon of multitasking affects the qualitative as well as the quantitative change of tasks performed by the University's administrative staff. This influence is determined by the turbulence of the distant and closer environment, the consequence of which is, among others, the ability to adapt employees to the challenges in terms of the intensity and quality of their duties.

- The second hypothesis states that: Multitasking is determined by the variety of employee attributes and tasks(H2). The authors of the article, based on knowledge in the field of diversity management, have attempted to answer the question whether employee diversity affects the way employees perceive multitasking. It was also considered whether the specificity of the tasks performed (resulting from the position held) could affect the understanding of the phenomenon of multitasking.
- The last hypothesis assumes that Employees are aware that multitasking changes the efficiency of their tasks (H3). The issue of what has the greatest impact on changing this efficiency and how employees evaluate individual variables determining this phenomenon has been discussed.

After studying these three hypotheses our research follows the four basic stages outlined in Figure 2.

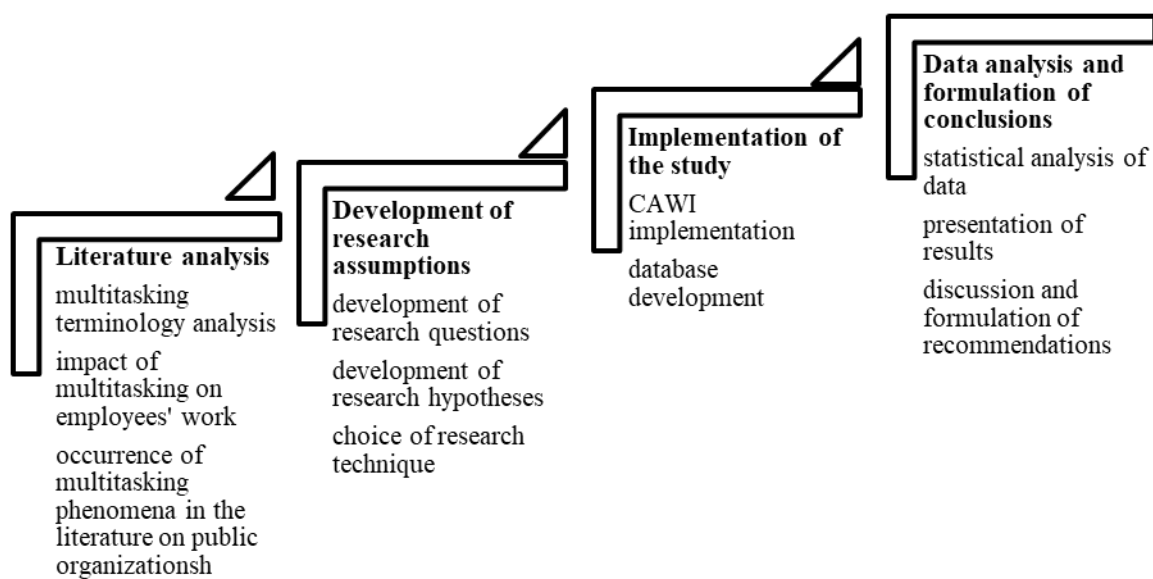


Figure 2: Research stages (own study)

The literature review was carried out in stage number 1. Afterwards, three main hypotheses verifying the adopted goal were proposed and it was determined which research methods were appropriate for their analysis (stage 2). In stage 3, a survey based on the CAWI technique was conducted and in stage 4, the collected data was subjected to statistical analysis, the results of which were presented and subsequently final discussion and recommendations were formulated.

### 3.2. Data collection

Based on the literature review the authors constructed a survey containing open and closed questions. The data was obtained in the course of a quantitative study carried out using an interview questionnaire by the means of the CAWI (*Computer-Assisted Web Interview*) technique. The survey was sent to more than 80 employees and a return of 31 responses was obtained. The research was conducted in August-September 2019 among 31 respondents - administrative employees of the Faculty of Economics and Sociology at University of Lodz. All responses were received from all respondents. Based on the obtained statistical information, summary tables and cross tables were generated. The results are visualized on the charts. Average values of scores were determined using a weighted average.



#### 4. ANALYSIS OF THE RESULTS

Below is a statistical interpretation of the most important questions that were used to verify the adopted goal and research hypotheses.

Table 2: Interpretation of terminology - multitasking (own research)

In your opinion, which of the following sentences apply to multitasking?	
Multitasking means doing two things at the same time, e.g. talking on the phone and checking e-mail.	6
Multitasking contributes to a lower level of task performance and a decrease in efficiency.	9
Multitasking contributes to the growth of creativity and quality of work results.	12
Multitasking means shifting attention between several different tasks.	22
Multitasking is understood as the ability to simultaneously perform several tasks.	27

Less than 20% of respondents believe that multitasking means performing two activities at the same time, almost 30% believe that multitasking contributes to lowering the level of task performance and decreases efficiency, about 40% think that multitasking contributes to the increase of creativity and quality of work results, over 70% believe that multitasking means shifting attention between several different tasks, and almost 90% understand multitasking as the ability to accomplish several tasks simultaneously.

In your opinion, which area generates most activities in the system of work?

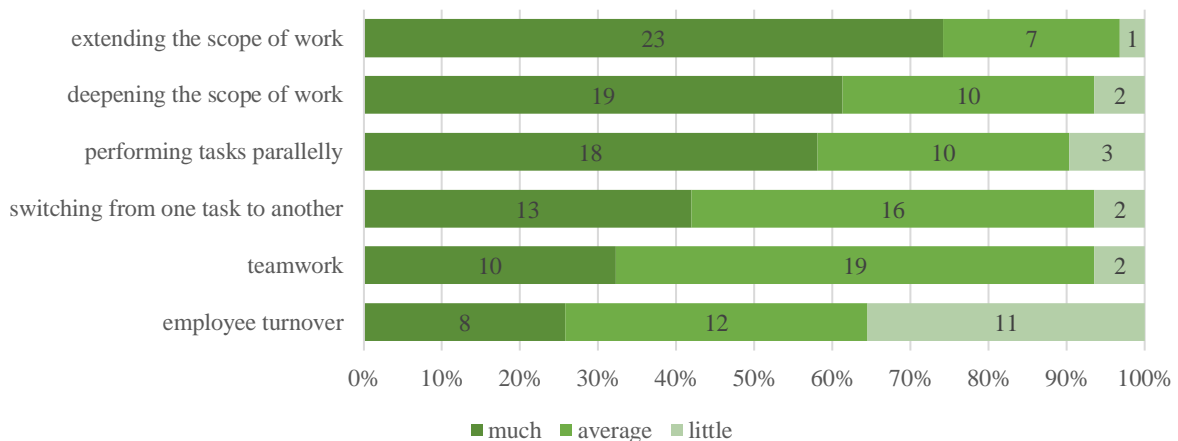


Figure 3: Areas for generating multitasking at work (own research)

The largest number of tasks in the work system is generated by extending and deepening the scope of work and performing various tasks parallelly. The average number of tasks is generated by switching from one task to another and teamwork, while the least – by employee turnover.

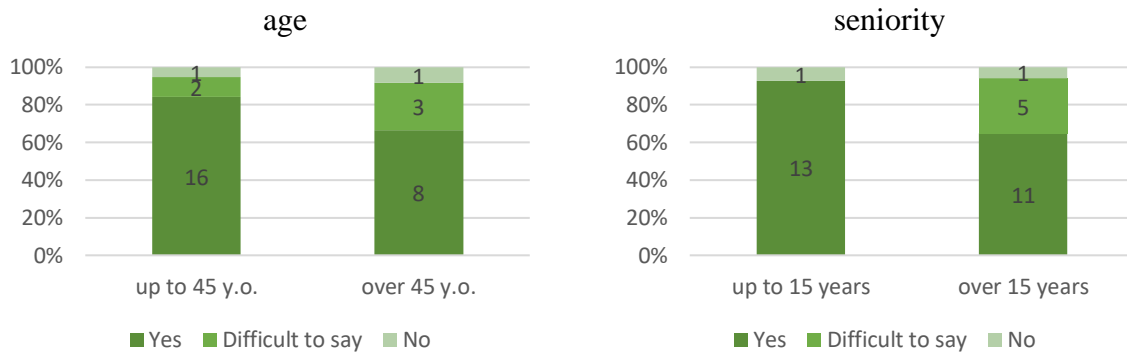


Figure 4: Penetration of multitasking (own research)

Almost 80% of respondents notice the phenomenon of interpenetration of performed tasks. More young people and almost everyone with less experience feel this way. There are more undecided people among older and higher seniority people.

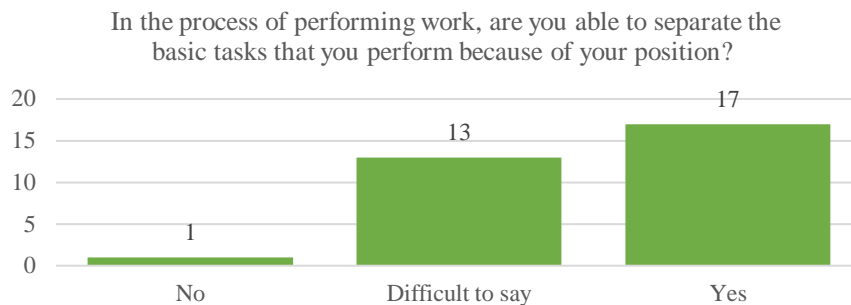


Figure 5: Task separation (own research)

Over half of the respondents are able to separate the basic tasks they perform because of their position, but more than 40% are unable to clearly state this fact. It is not affected by the age, seniority, position or department.

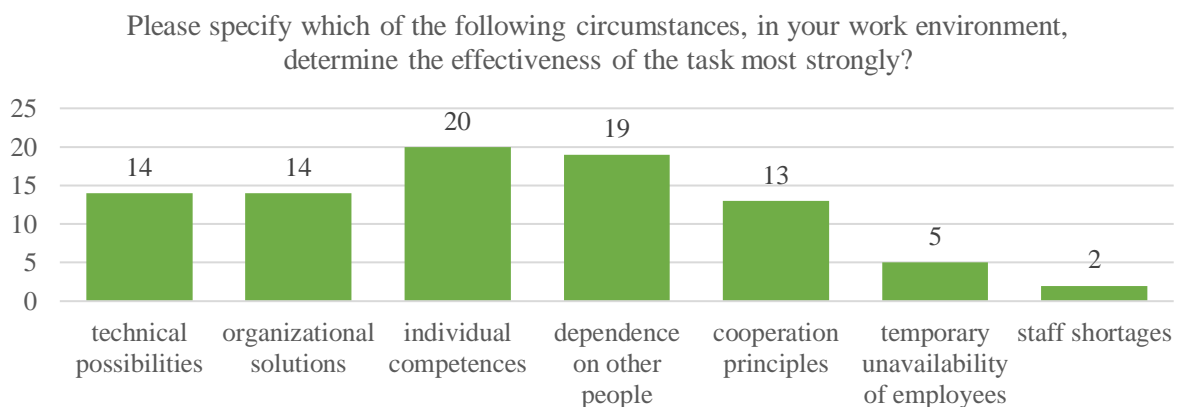


Figure 6: Determinants of work efficiency (own research)

Almost two-thirds of respondents believe that individual competences and dependence on other people determine performance efficiency most. Less than half indicate that these are technical possibilities, organizational solutions (working time) and cooperation principles resulting from the division of responsibilities. Temporary unavailability of employees and staff shortages were indicated the least often.

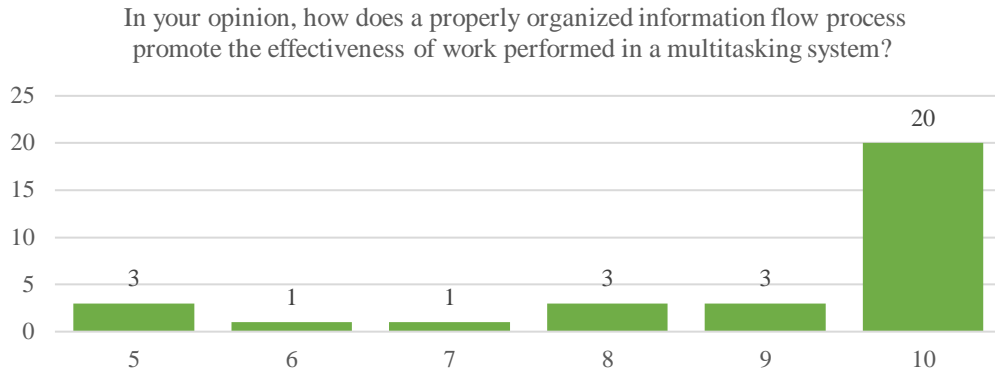


Figure 7: Information flow and multitasking (own research)

Almost two-thirds of respondents indicated that a properly organized information flow process is very conducive to the effectiveness of work performed in a multitasking system. The lowest score on a scale of 0-10 is 5. Slightly more than a third of respondents indicated below 10. On average it was 9. The age does not differentiate the result. People with lower seniority indicated an average of 9.7, while staff with a higher seniority indicated 8.4. The position held also differentiated the result (librarian: 9.8; administrative: 9.5; specialist and manager: 8.4). Employees of the Student Service Office, Library and Secretariats indicated stronger influence (9.8 on average) than the Administration and Other departments (8.6 on average).

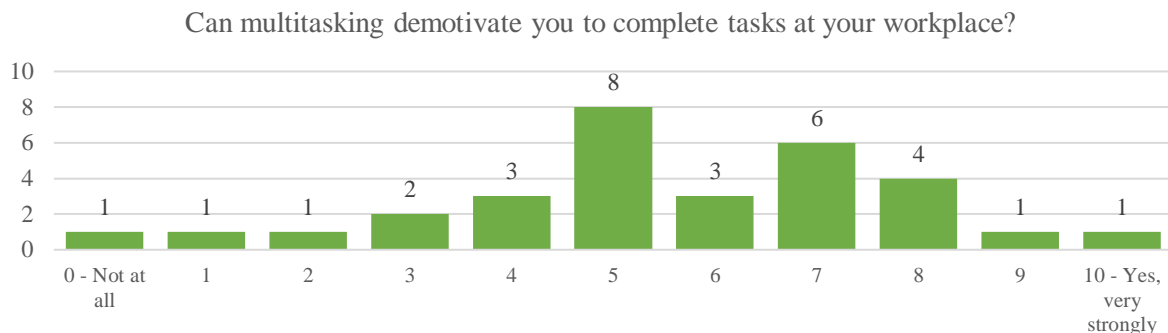


Figure 8: Multitasking and employee demotivation (own research)

Most respondents assess the impact of multitasking on motivation to work in a given position as average (5, on a scale of 0 - not at all, 10 - very strongly). The average rating is between 5 and 6 (average 5.5). On average, respondents up to 45 years of age show greater (5.9 on average) demotivational force of multitasking than respondents over 45 (4.9 on average), similarly, respondents with seniority up to 15 years (average 6.1) compared to respondents with seniority over 15 years (average 5.1). There are no significant differences in the influence due to the position, (administrative: 5.7; librarian: 5.6; specialist and manager: 5.4). On the other hand, higher impact was indicated by employees of the administrative and other departments (5.8 on average) than employees of the Student Service Office, Library and Secretariats (5.1 on average).

## 5. CONCLUSION

Multitasking treated as a method of work organization in modern entities is increasingly used. Many sectors use it as a form of making the organization more flexible, increasing its ability to adapt to changes. Some organizations use multitasking as a tool to reduce costs. It seems interesting that multitasking is also present in the area of public organizations as evidenced by

the gathered research material. The authors are aware of the limitations of the collected material due to the small research sample. However, they treat the obtained data as a pilot for further in-depth explorations indicating the significance of the analyzed process. The pilot was aimed at diagnosing the occurrence of the phenomenon of multitasking in a selected public organization and testing the questionnaire tool. Based on the data received, the authors indicate that the adopted research goal has been achieved. Employees in the examined organization confirm the occurrence of this process and are able to describe what its essence is in the organization by defining it as performing many tasks as part of their activities. The first hypothesis, which assumes that the phenomenon of multitasking affects the qualitative as well as the quantitative change of tasks performed by the university's administrative employees, and the third hypothesis indicating that the employees are aware that multitasking affects the change in the effectiveness of performed tasks have been positively verified. The respondents indicated that multitasking has an impact on the implementation of tasks, both in terms of increasing efficiency and reducing it. A significant part also emphasized that they are able to diagnose activities not resulting directly from basic employee tasks and these are additional activities imposed on employees. Regardless of the multitasking assessment, it seems important that they are able to see the impact on the work process. The respondents also indicate that they are looking for different solutions that help them in mitigating conflicts as part of their diverse activities. The second hypothesis indicating the impact of the importance of employee diversity on the way employees perceive multitasking has also been confirmed. Such independent variables as the age or seniority of employees indicate differences in multitasking assessment and approach. Based on the collected material, the authors conclude that multitasking will be used in the area of public organizations in a larger and broader sense. Its utilitarian character will be seen in many areas of activity of entities similar to the studied one. It can be assumed that the goal of multitasking will be to enrich work content, prevent burnout or increased employee fluctuation. In the situation of analyzing the profitability of public organizations, employee retention costs, speed of responding to changes in the environment and expanding organizational flexibility, multitasking is a possible determinant in shaping both work processes and human resources. It can also significantly contribute to increasing the efficiency of work and satisfaction with its implementation, seeing opportunities for employee development, shaping key competences or knowledge of the staff in this process. Therefore, the authors conclude that well-managed and controlled multitasking gives many opportunities to both managers and employees, strengthening responsibility for work and a sense of agency and performance in the implementation of important organizational activities.

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## THE IMPACT OF FISCAL DECENTRALIZATION ON ECONOMIC GROWTH IN THE CEE COUNTRIES

**Suzana Makreshanska Mladenovska**

*Ss. Cyril and Methodius University in Skopje,  
Faculty of Economics, Skopje, Republic of Macedonia  
suzana@eccf.ukim.edu.mk*

**Biljana Tashevskaa**

*Ss. Cyril and Methodius University in Skopje,  
Faculty of Economics, Skopje, Republic of Macedonia  
biljana@eccf.ukim.edu.mk*

### ABSTRACT

*There has been a global trend of public sector decentralization over the last few decades, justified by the fact that transferring public revenues and expenditures from central to local government level is expected to deliver greater public sector efficiency, higher economic growth rates and better overall macroeconomic performance. In this paper, we empirically investigate if fiscal decentralization enhances or hinders economic growth in Central and European (CEE) member countries of the European Union. Using panel data for the period 1992-2012, we try to determine whether fiscal decentralization, measured as the share of local government revenues/expenditures in general government revenues/expenditures has a positive effect on the GDP per capita growth rate. According to our findings, fiscal decentralization has an adverse effect on the economic growth rate in the CEE countries. This is in line with the argument that in developing countries decentralization could fail to deliver the expected positive impulse on growth if certain economic and institutional preconditions are absent. A negative impact is also found to come from the size of the public sector and inflation. On the other hand, the improvement of the fiscal balance and the openness of the economy have a positive impact on growth.*

**Keywords:** *CEE countries, Economic growth, Fiscal decentralization*

### 1. INTRODUCTION

There has been a global trend of public sector decentralization over the last few decades, with the expectation that transferring public revenues and expenditures from central to local governments would deliver greater public sector efficiency, higher economic growth and better overall macroeconomic performance. Developed countries were first to give their local authorities greater fiscal power, autonomy and functions. Emerging countries followed, however challenged by their institutional framework and capacity. Some authors find a positive correlation between a country's level of economic development and the level of public sector decentralization (Pommerehne, 1976; Panizza 1999). Oates (1993) shows that larger and more developed countries (with higher GDP per capita) have a higher level of fiscal decentralization. Why is this the case? One view sees decentralization as a luxury good, hence the increase in GDP p.c. increases the "demand" for decentralization. Decentralization becomes more attractive for taxpayers, since the advantages and benefits of this process begin to surpass the potential problems and disadvantages, present in less developed countries (Bahl and Linn, 1992). Another explanation is that most developing countries that implement intensive decentralization reforms have inherited highly centralized systems in the moment of gaining independence. Conyers (1990) claims that a country's decentralization depends on the length of the time period from its independence and the size of centralization of the previous administrative system.

Many authors agree that fiscal decentralization could in turn have a positive impact on growth, through enhancing public sector efficiency, resource allocation and transparency (Oates, 1993; Martinez-Vazquez and McNab, 2006 etc.). According to Oates (1972), local governments are more efficient in resource allocation in the public sector, because they are better in identifying citizens' preferences for public goods and services (allocative efficiency) and are at the same time in a position to provide public goods and services with lower costs (productive efficiency) than central governments. Some argue that the positive effects of decentralization of economic growth are more pronounced in developing than in developed countries, due to their institutional characteristics. In these countries, decentralization is expected to induce larger efficiency gains, resulting from the high transaction and administrative costs inherited from the centralized political and administrative systems (Shah, 1994; 1999). However, the positive impact on growth might not realize, if there is no well-designed and implemented process of decentralization and if local governments and institutions have insufficient capacity for an effective realization of the decentralized functions (Prud'Homme, 1995). Rodriguez-Pose and Kroijer (2009) argue that in countries lacking appropriate institutions, instead of enhancing economic growth and human capital, fiscal decentralization could have an inverse effect on economic growth. Other authors argue that there is a positive, yet nonlinear link between decentralization and economic growth (Wallis and Oates, 1988). Instead of a linear relationship, it is more realistic to expect that there is a certain optimal level of public sector decentralization, which has the strongest positive impact on economic growth (Thiessen, 2003). Thus, according to Blochliger and Egert (2013), countries with lower initial level of public sector decentralization can expect more pronounced positive effects of decentralization on economic growth, compared to countries that have already reached a higher level of fiscal decentralization. This paper aims to contribute to the scarce literature on the effects of fiscal decentralization on economic growth in the Central and East European countries by exploring this relationship for the period 1992-2012. Previous studies of the CEE countries include: Ebel and Yilmaz (2002), Enikolopov and Zhuravskaya (2003), Rodriguez-Pose and Kroijer (2009), Aristovnik (2012), Slavinskaite (2017). The rest of the paper is structured as follows. The second section gives a brief review of the empirical literature on the effects of fiscal decentralization on economic growth. The third section presents the applied data and methodology, followed by a discussion of the empirical results and concluding remarks.

## **2. EMPIRICAL LITERATURE REVIEW**

There is a growing body of literature focused on assessing the effects of fiscal decentralization on economic growth in the last several decades.<sup>1</sup> However, it has produced ambiguous results, as there are many studies that find evidence for a positive, a negative, or no significant impact of decentralization on growth (for an extensive review of studies see Szabo, 2017, or the meta-analysis of empirical studies provided by Baskaran, Feld and Schnellenbach, 2014). The existing empirical literature on the impact of decentralization on economic growth is dominated by studies based on large and heterogeneous samples of developed and developing countries (Davoodi and Zou, 1998; Woller and Phillips, 1998; Thiessen, 2003; Enikolopov and Zhuravskaya, 2003; Iimi, 2005; Martinez-Vasquez and McNab, 2006; Thornton, 2007; Rodriguez – Pose and Kroijer, 2009; Im, 2010; Rodriguez – Pose and Ezcurra, 2011; Blochliger and Egert, 2013), whereas a smaller number of studies explore this link on a single country case, mostly exploring China (e.g. Zhang and Zou, 1998; Lin and Liu, 2000; Jin and Zou, 2005) or the USA (e.g. Xie et al., 1999; Akai and Sakata, 2002).

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<sup>1</sup> It is still far smaller (especially for the CEE countries) than the vast empirical literature testing the relationship between decentralization and the size and efficiency of the public sector. This might be related to the fact that economic growth is not of special interest in the public finance theory, because the public sector does not have a direct role in increasing growth, but its role is mainly to provide favorable conditions and not hinder growth.

There is no consensus among authors about the direction in which decentralization affects the economic growth. Numerous studies confirm the existence of a significant positive relationship between fiscal decentralization and economic growth (Lin and Liu, 2000; Akai and Sakata, 2002; Thiessen, 2003; Iimi, 2005; Buser, 2011; Blochliger and Egert, 2013; Slavinskaite, 2017). Yet, some studies show that decentralization slows economic growth (Davoodi and Zou, 1998; Zhang and Zou, 1998; Enikolopov and Zhuravskaya, 2003; Jin and Zou, 2005; Rodriguez – Pose and Ezcurra, 2011; Baskaran and Feld, 2013), or that it does not have any impact on growth (Woller and Phillips, 1998; Thornton, 2007; Asatryan and Feld, 2015). Unlike most studies that assume the existence of a linear relationship between decentralization and economic growth, Thiessen (2003) shows that although positive, the link is not linear, but has an inverse “U” shape. This means that decentralization has a positive effect on growth up until the country reaches a certain (optimal) level of decentralization, but above that level it begins to hinder economic growth. The diminishing returns on decentralization are confirmed by Blochliger and Egert (2013), who find that countries with a lower level of decentralization can expect more pronounced positive effects on economic growth. Some studies find a different impact of fiscal decentralization on growth in developed and developing countries. Davoodi and Zou (1998), Im (2010) and Slavinskaite (2017) find no significant relation in developed countries and provide mixed results for developing countries: Davoodi and Zou (1998) find a negative effect, Im (2010) finds a negative effect in semi-developed countries and no significant effect in developing countries and Slavinskaite (2017) finds a positive effect in less developed EU countries (significant at the 10% confidence level). Canavire-Bacarreza et al. (2019) found a small, but positive effect of revenue and expenditure decentralization in developed countries and no significant effect in developing countries. If we analyze separately the effects of decentralization of public revenues, public expenditures and the vertical imbalance, recent studies conclude that revenue decentralization has more pronounced stimulating effects on economic growth (Rodriguez – Pose and Kroijer, 2009; Blochliger and Egert, 2013; Gemmel et al., 2013), while the vertical fiscal imbalance has pronounced adverse effects on growth (Rodriguez – Pose and Kroijer, 2009). Finally, decentralization can have different effects on economic growth depending on the influence of other institutional and political factors in a country (Iimi, 2005; Enikolopov and Zhuravskaya, 2003; Buser, 2011). For example, Enikolopov and Zhuravskaya (2003) conclude that decentralization can stimulate or hinder economic growth in developing countries, depending on the quality of political parties and the political governance in the country. Aristovnik (2012) relies on Buser’s (2011) finding that decentralization has a greater positive effect on promoting growth in the presence of a sound institutional environment, to try to explain the smaller success of fiscal decentralization in the Eastern European economies.

### **3. DATA AND METHODOLOGY**

#### **3.1. Model**

In the specification of the empirical model for investigation of the effects of decentralization on economic growth we start from the classical model of exogenous economic growth (Solow, 1956), according to which growth is a function of two production factors: (labour (population) and physical capital). Further, in the empirical model the human capital is added. According to many authors, the countries that invest more in human capital have higher innovation rates (new products and technologies), and thus have a tendency to grow faster than other countries (Romer, 1994). In the end, we include in the model macroeconomic policy variables, following Barro’s (1991) model of endogenous growth and the Levine и Renelt (1992) model. These variables are: size of the public sector, macroeconomic stability (fiscal balance, inflation rate), openness of the economy etc.



Hence, the empirical model takes the following general form:

$$\text{economic growth}_{it} = \beta_0 + \beta_1 \text{physical capital}_{it} + \beta_2 \text{human capital}_{it} + \beta_3 \text{population}_{it} + \beta_4 \text{macroeconomic variables}_{it} + \beta_5 \text{decentralization}_{it} + u_{it}$$

We estimate an unbalanced (due to data availability) panel regression model, which allows us to use a larger number of observations for multiple countries and multiple periods. A fixed effects model was used, as suggested by the Hausmann. White cross-section weights and first order autoregression component (AR1) were used in order to correct heteroscedasticity and serial correlation, respectively.

### 3.2. Data and variables

The empirical investigation was conducted on a sample of 11 countries from Central and Eastern Europe (CEE countries), over the period 1992–2012. Due to data limitations, the sample includes only the CEE countries that are EU members: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. A restraining factor of our research is the fact that, unlike the case of old EU member states, for the new EU member states, the time series are relatively short and macroeconomic data cannot be found before the 1990s. On the other hand, we used the decentralization data series from the Fiscal Decentralization Database of the World Bank that only provides decentralization data until 2012. Therefore, due to the limited and short time series, in this paper we do not examine the long-term effects of fiscal decentralization. The dependent variable in the regression model is the economic growth rate, measured by the annual real growth rate of GDP per capita. The main explanatory variable in the model is fiscal decentralization, measured by two main indicators: government expenditure decentralization (share of local government expenditures in total government expenditures) and government revenue decentralization (share of local government revenues in total government revenues). The physical capital is captured by two variables: the ratio of gross savings to GDP and the gross fixed capital formation to GDP. The choice of the appropriate indicators of human capital was not simple, taking that most of the tested variables proved to be statistically insignificant. On the other hand, it is hard to assume that human capital is not important to economic growth, so probably the reason for the statistical insignificance of these variables comes from the limitations and discontinuity of the time series. Out of the tested variables, we decided to include: secondary school enrollment ratio and the public expenditures for education. Other tested variables include: tertiary education enrollment rate, public revenues for science and research, as well as the number of patent applications and researchers per million citizens. The impact of the macroeconomic policy is presented in the model with the following indicators: public sector size i.e. government expenditures to GDP, budget balance to GDP, inflation (annual growth rate of CPI), and the trade openness (ratio of imports and exports of goods and services to GDP). In order to increase the explaining power of the model, we include several demographic variables that are most often found in existing empirical studies of economic growth, such as: population growth, urban population and dependent population ratio. A detailed description of data and their sources are given in the Annex. The tables below provide descriptive statistics for the variables there are our main focus and refer to the level of economic growth and the level of fiscal decentralization. The descriptive statistic for GDP per capita and GDP per capita growth rate (table 1) shows that, among the CEE countries, the lowest average level of GDP p.c. is recorded in Bulgaria (3 131 USD), Romania (4 241 USD) and Latvia (5 238 USD), and the highest average level of GDP p.c. in Slovenia (15 637 USD), Czech Republic (11 447 USD) and Slovakia (10 205 USD). As for the economic growth rate, measured by GDP p.c. annual growth, over the analyzed period, Estonia recorded the highest

average growth rate (5.07%), followed by Poland (3.68%), Latvia (2.87%) and Croatia (2.72%), while Romania, Czech Republic and Slovenia recorded the lowest growth rates (all below 2%).

*Table 1: Descriptive statistics for GDP per capita (authors' calculations)*

Country	GDP per capita, US \$				GDP per capita, growth rate			
	Mean	Std. Dev.	Min.	Max	Mean	Std. Dev.	Min.	Max
Bulgaria	3131	829	2218	4692	2.42	4.94	-8.56	10.82
Croatia	9309	1499	6532	11375	2.72	3.99	-6.83	10.04
Czech Rep.	11447	2200	8606	14612	1.68	4.09	-11.40	6.73
Estonia	8626	2706	4637	12275	5.07	6.10	-13.93	13.02
Hungary	8482	1745	5230	11534	2.01	3.49	-11.89	7.10
Latvia	5238	1734	3166	8999	2.87	7.87	-31.18	13.27
Lithuania	6780	2221	3819	10549	2.40	9.17	-21.17	11.15
Poland	7271	2119	4380	10753	3.68	3.03	-7.34	7.02
Romania	4241	922	3088	6073	1.66	5.55	-12.14	9.75
Slovakia	10205	2637	6822	15065	2.19	5.05	-14.64	10.46
Slovenia	15637	3182	10787	20683	1.77	4.35	-8.96	6.36

Descriptive statistics for the decentralization variables are presented in table 2. Over the analyzed period, the most decentralized CEE countries (above 20% share of local government expenditures in total government expenditures) are: Poland, Latvia, Hungary, Lithuania and Estonia, while the least decentralized countries (below 15% share of local government expenditures in total government expenditures) are: Croatia, Slovakia, Bulgaria and Slovenia. The same conclusion stands for the revenue decentralization. CEE countries with a higher level of expenditure decentralization also have a higher level of revenue decentralization and vice versa. If we analyze the standard deviation, we can see that Slovakia, Romania and Poland recorded the largest increase in expenditure and revenue decentralization (above 5 p.p.).

*Table 2: Descriptive statistics for fiscal decentralization variables (Authors' calculation)*

Country	Expenditure Decentralization				Revenue Decentralization			
	Mean	Std. Dev.	Min.	Max	Mean	Std. Dev.	Min.	Max
Bulgaria	14.94	1.87	11.25	18.62	15.86	1.73	12.42	18.19
Croatia	9.32	0.54	8.47	10.13	11.69	0.53	10.81	12.34
Czech Rep.	17.95	1.86	15.16	19.98	22.85	2.31	19.58	25.94
Estonia	21.47	2.54	17.58	24.35	21.87	1.98	17.70	25.06
Hungary	21.75	1.10	19.85	23.32	23.84	1.64	19.81	26.57
Latvia	22.32	1.84	18.01	24.94	24.91	0.81	23.46	26.40
Lithuania	21.58	2.31	18.35	27.65	22.92	3.20	18.84	30.64
Poland	23.56	4.45	13.81	28.95	27.43	5.05	16.61	33.02
Romania	15.97	5.12	8.74	22.90	19.44	4.97	11.95	26.64
Slovakia	11.36	5.03	4.55	16.18	13.09	5.46	5.59	18.40
Slovenia	13.46	2.99	8.37	16.35	16.16	3.38	10.76	19.92

#### 4. RESULTS AND DISCUSSION

Table 3 summarizes the results of the estimated panel regressions. The regression equations (1) and (3) refer to the effects of decentralization of government expenditures on the GDP growth rate, while the equation (2) and (4) refer to the effects of decentralization of government revenues. The equations (3) and (4) result from a process of individual testing and exclusion of insignificant variables, which allowed for an additional testing and confirming the validity of the relationship between decentralization and growth.

*Table 3: Panel regression results (Authors' calculations)*

Dependent variable: GDP per capita, annual growth rate				
Independent variables:				
	(1)	(2)	(3)	(4)
Exp decentralization	-0.313*** (0.092)		-0.200* (0.113)	
Rev decentralization		-0.288*** (0.083)		-0.226** (0.115)
Government expenditures	-0.364** (0.144)	-0.355*** (0.133)		
Budget balance	0.529*** (0.133)	0.479*** (0.117)	0.581** (0.230)	0.567*** (0.216)
Inflation	-0.381*** (0.113)	-0.359*** (0.100)	-0.003* (0.002)	-0.004*** (0.001)
Openness	0.254*** (0.064)	0.248*** (0.066)	0.118*** (0.042)	0.105*** (0.039)
Savings	-0.265 (0.291)	-0.316 (0.272)		
Capital	0.662** (0.306)	0.603** (0.287)	0.434*** (0.160)	0.387*** (0.144)
School	-0.104 (0.099)	-0.139 (0.094)		
Education expenditures	0.134 (0.216)	0.133 (0.193)		
Population	-1.501*** (0.543)	-1.558*** (0.590)	-1.506*** (0.330)	-1.611*** (0.355)
Urbanization	-2.066** (0.814)	-1.911** (0.753)	-1.289*** (0.597)	-1.211** (0.576)
Dependency	1.637*** (0.347)	1.584*** (0.330)		
Constant	54.103 (39.909)	52.784 (35.359)	66.004** (32.626)	64.727** (32.697)
AR(1)	0.443*** (0.105)	0.420*** (0.115)	0.424*** (0.126)	0.375*** (0.119)
R <sup>2</sup>	0.746	0.753	0.539	0.538
F-statistic	10.394***	10.943***	10.536***	10.612***
Durbin-Watson statistics	2.086	2.159	2.013	1.972
Cross - section	11	11	11	11
Sample	1996-2012	1996-2012	1992-2012	1992-2012
Observations	110	110	181	181

*Note: The White heteroskedasticity consistent standard errors are given below the coefficients.*

*\*10% level significance, \*\*5% level significance, \*\*\*1% level significance.*

The regression results indicate that decentralization of government revenues and government expenditures, ceteris paribus, has a statistically significant negative effect on economic growth rates in CEE countries, confirming the results of Davoodi and Zou (1998), Rodriguez-Pose and

Krojjer<sup>2</sup> (2009), Im (2010). These finding is in line with some authors' skepticism that decentralization in developing countries, where certain economic, political and institutional preconditions are not met, can ultimately have an adverse instead of a positive effect on growth (Litvack et al., 1998; Dabla-Norris, 2006 etc.). Namely, decentralization is a multi-dimensional process and its effects on macroeconomic performances do not depend solely on the level of decentralization of public revenues and expenditures, but also on other factors, like the quality and functioning of institutions, the public administration and the entire political system in general. Such results are a motivation for further research of the macroeconomic implications of decentralization, where beside fiscal decentralization, indicators of the administrative and political dimensions of the decentralization process of the CEE countries will be included. The results also indicate that the size of the public sector, i.e. the ratio of total general expenditures to GDP, also exhibits a statistically significant adverse effect on growth. On the other hand, higher public saving, i.e. improvement of the budget balance, is, as expected, growth enhancing. Among the statistically significant variables with a positive impact is also the physical capital, measured by the gross fixed capital formation to GDP. Unlike it, none of the tested human capital variables had a statistically significant effect. Contrary to expectations, the secondary school enrollment ratio even showed a negative coefficient, while a positive effect on the human capital variable is provided only by the size of the public expenditures in education. Since it is difficult to believe that human capital has no influence or has a negative influence on growth, we believe this is attributed to the weakness of the chosen indicators and even more to the limitations of the data series. As for the tested demographic variables, we found that population growth rate and urban population share in total population have a significant negative effect, while the dependency ratio has a significant positive effect to economic growth. Regarding the other tested variables, in line with expectations, the inflation rate proved to have a significant negative effect on growth, while the trade openness of the economy has a positive impact on growth.

## 5. CONCLUSION

The main purpose of the paper was to contribute to the empirical literature on fiscal decentralization, by estimating the impact of fiscal decentralization on economic growth in the Central and Eastern European countries for the period 1992-2012. The existing body of research provides mixed results regarding the positive or negative impact of fiscal decentralization on economic growth. The empirical assessment in this paper showed that fiscal decentralization, measured both by the share of local government revenues in total government revenues and by the share of local government expenditures in total government expenditures, has an adverse effect on economic growth in the Central and Eastern European countries. These findings are in line with the argument that in developing countries decentralization could fail to deliver the expected positive impulse on growth if certain economic and institutional preconditions are absent. Namely, in developing and former centrally planned economies, the quality of institutions, public administration and the political system in general, are less developed than in developed countries and could prevent fiscal decentralization from delivering a positive impulse on growth. Concerning the other independent variables, a negative impact is also found to come from the size of the public sector and inflation. On the other hand, the improvement of the fiscal balance and the openness of the economy have a growth-enhancing effect. Such results are a motivation for future research of the macroeconomic implications of decentralization for a larger sample of all EU countries, divided in two sub-samples (new EU member states and old EU member states) in order to see if the macroeconomic implications of decentralization differ in the two groups.

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<sup>2</sup> For public expenditure and transfers.

Additionally, because longer data series are available for the old EU member states, we would be able to investigate if the link between decentralization and growth is linear or parabolic, as some authors suggest.

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**APPENDIX**

*Table A.1: Variables: description and sources*

<b>Variable</b>	<b>Description</b>	<b>Source</b>
Economic growth	GDP per capita growth (annual %)	World Development Indicators, World Bank
Expenditure decentralization	Local expenditures, % of general government expenditures	Fiscal Decentralization Database, World Bank
Revenue decentralization	Local revenues, % of general government revenues	Fiscal Decentralization Database, World Bank
Government expenditures	General government expenditures, % of GDP	World Economic Outlook Database, IMF
Budget	Budget balance (surplus/deficit), % of GDP	World Economic Outlook Database, IMF
Inflation	Inflation, consumer prices (annual %)	World Economic Outlook Database, IMF
Openness	Trade (sum of exports and imports of goods and services, % of GDP)	World Development Indicators, World Bank
Savings	Gross savings, % of GDP	World Development Indicators, World Bank
Capital	Gross fixed capital formation, % of GDP	World Development Indicators, World Bank
Patents	Patent applications, residents and nonresidents	World Development Indicators, World Bank
Researchers	Researchers in R&D (per million people)	World Development Indicators, World Bank
School	School enrollment, secondary (ratio of total enrollment to the population of the age group)	World Development Indicators, World Bank
University	School enrollment, tertiary (ratio of total enrollment to the population of the age group)	World Development Indicators, World Bank
Education expenditures	Public spending on education, % of government expenditure	World Development Indicators, World Bank
Research Expenditures	Public spending on research and development, % of government expenditure	World Development Indicators, World Bank
Population	Population growth (annual %)	World Development Indicators, World Bank
Urbanization	Urban population, % of total population	World Development Indicators, World Bank
Dependency	Age dependency ratio (people younger than 15 or older than 64, % of working-age population)	World Development Indicators, World Bank

# FORECASTING CORRECTNESS OF INCURRING CREDIT WITH THE AID OF E.I. ALTMAN'S, J. GAJDKA'S AND D. STOS'S DISCRIMINANT ANALYSIS MODELS ON THE EXAMPLE OF 200 STUDIED COMPANIES FROM OPOLE AND SILESIA PROVINCES WITHIN 2010-2018

**Rafal Parvi**

*WSB University in Wroclaw, Faculty of Economics in Opole  
Wroclaw, Poland  
rafalp4@o2.pl*

## **ABSTRACT**

*The credit risk related to issuing credit for a company is mostly the result of too high amount of the incurred credit, wrong prediction of future periods and repayment of the incurred liability. In order to minimize risk, as part of information about a credited company, there should be technical and economic information enabling to conduct "collective evaluation of the company's activity" with the use of E.I. Altman's, J. Gajdka's and D. Stos's models. Both models were used in the group of the studied companies of Opole and Silesian provinces. The research showed that incurred credit contributed to improvement of the financial liquidity in both groups. However, credits of greater worth led to the lessened increase of net profit and contributed to the small decrease of companies showing net loss. On the other hand, the group of companies, in which credits of lower worth were incurred, could decrease the number of companies suffering from net loss.*

**Keywords:** *company, financial liquidity, credit, discriminant analysis, net profit*

## **1. INTRODUCTION**

Using the J. Gajdka's and D. Stos's model in practice, it should be noted that the model proves to be perfect for Polish conditions because it reflects the realities of the Polish market, and demonstrates correctness of incurred credit of studied companies. The E.I. Altman's model was also used in research because the research results had to be compared in terms of a difference from the Polish market because this ratio was created for the American market and its needs. 200 micro, small and medium-sized companies were studied in the research, including 100 companies from the Opole province and 100 companies from the Silesian province. Such a big group of the studied companies was used to indicate correctness of the company's decision on incurring credit. The goal was to indicate that the company, which did not have the financial liquidity, or was operating on the border of its maintenance, could improve or regain the financial liquidity after incurring credit (Gabusiewicz, 2014, pp. 245-261; Jaworski, 2001, pp. 638-641; pp. Nowak, 2014, pp. 185-194; Rutkowski, 2007, pp. 420-429). However, the amount of properly incurred credit and the period of its duration were additionally taken into account because they had significant influence on the company's financial liquidity. Used models also enabled to indicate that the incurred credit influenced development of the subject's running a business positively, and even contributed to improve its financial condition. Nevertheless, it had to be incurred in a proper amount and for a proper period.

## **2. J. GAJDKA'S, D. STOS'S AND E.I. ALTMAN'S DISCRIMINANT MODELS**

The J. Gajdka's and D. Stos's model reflects the best research results because it was developed in Poland, where Polish companies underwent discriminant analysis. The J. Gajdka's, D. Stos's and E.I. Altman's models are comparable, but were developed for different economic realities.



When both models were compared, differences between them were indicated (Parvi, 2015, pp. 141-149; Zarzecki, 2003, pp. 173-181). The E.I. Altman's model has been used for dozens of years. It may distort a picture and a result of the research because it was used as early as in the 1970s. The credit risk related to issuing credit for investments is mostly the result of the credited company's wrong prediction of its realization (Czekaj, 2008, pp. 10-17; Dowgiałło, 2002, pp. 122-124), and as it can also be noticed in the conducted research, the wrong credit amount, either too low, or too high, and the time period, for which it was incurred. The E.I. Altman's model enables to forecast the course of economic events happening in the company within subsequent two years of its operation. The "Z" value, calculated on the basis of 5 economic and financial ratios, is the basis of this model (Czerwiński, 1980, pp. 44-55; Rutkowski, 2007, pp. 420-429):

*Table 1: E.I. Altman's guidelines for the company's classification (Source: E.I. Altman)*

<b>The "Z" ratio's value</b>	<b>The chance of the company's bankruptcy</b>
Z ≤ 1.8	Very high
1.8 < Z < 3	Indefinite, but significant
Z ≥ 3	Low

$$Z = 1.2 x_1 + 1.4 x_2 + 3.3 x_3 + 0.6 x_4 + 0,999 x_5$$

where:

X1 - working capital / assets in total

X2 – net income / assets in total

X3 – EBIT / assets in total

X4 – net market value of the company/liabilities in total

X5 – trade (net sale) / assets in total

These ratios are statistical assessment of performance of not only the manufacturing company, but also other kinds of the company. If the result of "Z" value's calculations is below three, it means that credit ratings of the company's need to be examined and assessed thoroughly because the indefinite or low chance of the company's bankruptcy, or its ability to overcome such situation, should be expected. In calculations of the E.I. Altman's "Z" ratio, attention should be paid on the X<sub>5</sub> ratio's value, which is trade (net sale) to assets in total, if the denominator shows low value in relation to the numerator. It may mean that the company is underfunded. That is why values not exceeding three that is X<sub>5</sub> ≤ 3 are considered to be the proper level of this ratio because, otherwise, the general assessment may be distorted. By the use of the "Z" ratio, we can predict c. 80-90% of accurate forecasts of the companies' bankruptcy, or occurring problems with companies' maintenance of the financial liquidity. It concerns both one- and two-year periods. E.I. Altman, in his original model, took a sample consisting of 66 companies operating in the same period and sector of economy. Half of these companies was insolvent. At the beginning, he estimated values of 22 financial ratios. Later, the number of these ratios, after conducting statistical tests and verification of their meanings (values), was lessened to 5. These 5 ratios reflect economic and financial situation and predicted credit rating best. The cut-off point in the E.I. Altman's model amounts to 2.675. It is the discriminatory line separating the set of companies into two groups that is companies with high (below 2.675) and low likelihood of insolvency (above the cut-off point). According to E.I. Altman's research, the error of wrong companies' qualification to the set was then the smallest – as many as 94% of companies, which bankrupted in the previous year, reached the "Z" function's value below 2.675. In the same period, the studied value of 97% of solvent companies was above the cut-off point.

Correctness of the classification a year prior to bankruptcy amounted to 95%, and, by analogy, results of the whole sample amounted to 82% two years prior to insolvency. In Poland, D. Zarzecki undertook verification of discriminant analysis's models in 2003. The result of the analysis of these models conducted by D. Zarzecki shows that the J. Gajdek's and D. Stos's model brings the best research results (Parvi, 2015, pp. 141-149; Zarzecki, 2003, pp. 173-181):

$$Z = 0,7732059 - 0,0856425 \times X_1 + 0,0007747 \times X_2 + 0,9220985 \times X_3 + 0,6535995 \times X_4 - 0,594687 \times X_5$$

where:

- X1 – revenues from the sale/assets in total,
- X2 – (short-term liabilities/cost of production sold) x 360,
- X3 – net profit/assets in total,
- X4 – gross profit from the sale/net revenues,
- X5 – liabilities in total/assets in total.

In this model, the cut-off point is 0.45, which means that a studied company is not endangered with bankruptcy, if the above value is reached. This cut-off point is different from the one given by E.I. Altman, but it is related to the used ratios, which are different in particular models. A comparison of these two research methods by E.I. Alrman, J. Gajdka and D. Stos leads to clear conclusions and gives an opportunity to consider both studied methods – the one developed and functioning in the world, and the one used in Polish companies and adjusted to the Polish market's conditions. The other method is a little bit more correlated with Polish companies. However, ratios show that both methods are close to each other, and comply in indicating these companies, which can be included either to the group of companies endangered with bankruptcy, or the one, in which there are successful companies able to compete on the market with incurring credit. Strengths of the discriminant analysis are:

- the system's easy functioning,
- the assessment's objectivity, in which measurable financial information is the basis,
- effectiveness measured with the forecasts' regularities scale,
- providing early warnings about credit risk.

Weaknesses are:

- effectiveness dependent on the quality of financial data set necessary to estimate values of particular ratios,
- only selected, not complex, quantitative information is taken into account in the model's construction,
- quantitative information is static.

During the study of companies with the use of both models, the method enabling to compare them in a way presenting their financial capabilities unambiguously was constructed. Depicted values of the "Z" ratios were present in conjunction with several variables presenting what differences occur at the chosen amount of contracted credit and its period (Antonowicz, 2013, pp. 11-20; Parvi, 2015, pp. 141-149). Used models are very useful in assessment of the companies' crediting and are often used in practice (Czerwiński, 1980, pp. 44-55). Nonetheless, conducted analyses are not attempts to estimate specific worth of credit and the period for which the company should go in debt, but the credit's maximum worth and period. It may lead to issuing credit to a company, which may not be able to repay it in future.

### 3. THE USE OF E.I. ALTMAN'S, J. GAJKAS'S AND D. STOS'S DISCRIMINANT ANALYSIS MODELS IN ORDER TO INDICATE CORRECTNESS OF A DECISION ON INCURRING CREDIT ON THE EXAMPLE OF 200 STUDIED COMPANIES FROM OPOLE AND SILESIAN PROVINCES WITHIN 2010-2018

In the Opole province, companies were studied with a comparison of the net profit in following years: a year prior to issuing credit, in the year of issuing credit and two years after issuing credit. The net income (division into following groups: from PLN 0 to PLN 100,000, from PLN 100,100 to PLN 200,000, from PLN 200,100 to PLN 500,000, and from PLN 501,000 to 1,000,000) and net loss were taken into account. The goal of such an analysis was to study range and opportunities of the obtained credit's amount in relation to the net profit and owned capital. The net profit, or net loss, indicated whether credit contributed to maintenance and improvement of the companies' financial liquidity, or it led to their bankruptcy. In 2010-2015, in the Opole province, companies of lower net profit (from PLN 0 to PLN 100,000 and from PLN 100,100 to PLN 200,000) were the most numerous – there were 80 such companies. In the Silesian province, ranges between PLN 0 and PLN 100,000, and between PLN 100,100 and PLN 200,000 were dominant – there were 61 such companies. It should be noted that the studied companies tended to maintain net profit. Moreover, incurring credit even led to decrease of the number of companies, in which the loss occurred – from 20 to 3 in the Opole province, and from 25 to 12 in the Silesian province. It proves that the decision on incurring credit, which contributed to improvement of the financial liquidity, was correct. These data were summarized in tables 2 and 3. In tables 4 and 5, the average net profit, average long-term and current assets, average worth of issued credit, and average loss of the companies that do not have the financial liquidity were presented.

*Table 2: Profit or loss of studied companies of the Opole province examined, 100 examined companies (Source: own development based on 100 studied companies of the Opole province)*

Year	Profit 0-100,000	Profit 100,100 – 200,000	Profit 200,100 – 500,000	Profit 500,100 – 1,000,000	Net loss
2010	28	33	15	4	20
2011	33	35	11	3	18
2012	35	37	10	3	15
2013	38	42	10	3	7
2014	37	41	12	5	5
2015	35	43	11	6	5
2016	36	44	11	5	4
2017	37	43	11	6	3
2018	37	44	10	6	3

*Table 3: Profit or loss of studied companies of the Silesian province examined, 100 examined companies (Source: own development based on 100 studied companies of the Silesian province)*

Year	Profit 0-100,000	Profit 100,100 – 200,000	Profit 200,100 – 500,000	Profit 500,100 – 1,000,000	Loss
2010	18	25	22	10	25
2011	17	26	21	11	25
2012	16	26	22	12	24
2013	16	27	24	15	18
2014	17	28	24	15	16
2015	17	28	24	17	14
2016	17	29	24	17	13
2017	17	29	25	17	12
2018	16	29	25	18	12

In the table 4, it should be noted that the average value of issued credit amounts to PLN 251,425. It is the working capital facility, revolving in subsequent years, and issued in 2011. The value of credit constitutes c. 1/3 of average values of current assets that is c. 33%. It is the evidence that credit, which is c. 30% of current assets, causes maintenance of the financial liquidity, and does not cause financial destabilization. While analysing the table 5, it should be noted that the average value of issued credit amounts to PLN 425,694. It is the working capital facility, revolving in subsequent years, and issued in 2011 as well.

*Table 4: Average net profit in relation to value of long-term and current assets of studied companies of the Opole province in PLN thousands (Source: own development based on 100 studied companies of the Opole province)*

Year	Average Net profit	Average value of Long-term assets	Average value of Current assets	Average value of assets in total	Average value of the issued credit	Average Loss
Before issuing credit						
2010	199,875 (80 companies)	450,456	658,475	1,108,931	X	225,154 (20 companies)
The year of issuing credit						
2011	205,895 (82 companies)	552,326	798,459	1,350,785	251,425	289,478 (18 companies)
After issuing credit						
2012	245,425 (85 companies)	582,954	821,258	1,404,212	X	198,487 (15 companies)
2013	263,125 (93 companies)	623,745	836,547	1,460,292	X	125,158 (7 companies)
2014	266,254 (95 companies)	639,532	840,128	1,479,660	X	134,578 (5 companies)
2015	295,365 (95 companies)	644,588	855,655	1,500,243	X	134,578 (5 companies)
2016	301,431 (96 companies)	668,602	884,286	1,552,888	X	130,884 (4 companies)
2017	301,431 (97 companies)	695,632	880,025	1,575,657	X	133,295 (3 companies)
2018	301,431 (97 companies)	722,548	888,365	1,610,913	X	132,654 (3 companies)

However, in case of companies of the Silesian province, its worth in relation to current assets is c. 1/2, so it is 46% of the credit's worth in relation to current assets. In this case, it can be seen clearly that companies maintain the financial liquidity harder with such debts. Moreover, the group of companies suffering loss enlarged from 14 to 9 in the year of incurring credit. As late as in 2012-2018, the group decreased to 10 companies. But in the Opole province, the number of companies suffering loss decreased four times – from 20 to 5 with 30% relation of incurred credit to current assets, while in the Silesian province, the number of such companies decreased from 25 to 12 with c. 50% relation of incurred credit to current asserts. In conclusion, too heavy burden with debt and relying on foreign capital (over 46% of the current assets' value) leads to disturbance of the company's financial liquidity because the company is not able to pay such debt and use obtained funds properly and sensibly. Only these companies where foreign capital is 30% of current assets will use them sensibly and in accordance with their financial opportunities. The credit risk taken by a bank due to granting funds was minimal in case of companies with less credit. It is demonstrated by another calculations and use of E.I. Altman's, J. Gajdka's and D. Stos's methods. Nevertheless, granting funds constituting c. 50% of the company's current assets was too dangerous both for the bank and the company.

*Table following on the next page*

*Table 5: Average net profit in relation to value of long-term and current assets of studied companies of the Silesian province in PLN thousands (Source: own development based on 100 studied companies of the Silesian province)*

Year	Average Net profit	Average value of Long-term assets	Average value of Current assets	Average value of assets in total	Average value of the issued credit	Average Loss
Before issuing credit						
2010	325,564 (75 companies)	685,547	788,654	1,474,201	X	387,659 (25 companies)
The year of issuing credit						
2011	358,697 (75 companies)	697,321	795,145	1,492,466	425,694	421,364 (25 companies)
After issuing credit						
2012	381,362 (76 companies)	705,364	805,942	1,511,306	X	452,869 (24 companies)
2013	400,637 (82 companies)	725,634	834,327	1,584,585	X	489,314 (18 companies)
2014	425,565 (84 companies)	763,124	855,951	1,597,961	X	411,365 (16 companies)
2015	468,790 (86 companies)	788,302	889,607	1,677,909	X	399,457 (14 companies)
2016	488,548 (87 companies)	792,547	890,564	1,683,111	X	400,4589 (13 companies)
2017	499,623 (88 companies)	799,154	895,780	1,694,934	X	422,478 (12 companies)
2018	501,254 (88 companies)	802,654	899,324	1,701,978	X	421,658 (12 companies)

Analysing course of economical events since the moment preceding issuing credit (Pomykalska, 2007, pp. 178-189) and subsequent years of the activity's duration, five selected ratios corresponding to particular models were used. The cut-off points for two chosen discriminant analysis models were obtained.

*Table 6: The use of E.I. Altman's, J. Gajdka's and D. Stos's discriminant analysis models on the example of 100 studied companies from the Opole province (Source: Own development on the basis of data of 100 selected companies from the Opole province)*

<b>E.I. Altman's model</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
The number of companies showing profit	80	82	85	93	95
The average "Z" ratio for companies	<b>3.12</b>	<b>3.45</b>	<b>3.32</b>	<b>4.11</b>	<b>4.15</b>
Absence of risk, values close to and above 3.0	low	absence	absence	absence	absence
The number of companies showing loss	20	18	15	7	5
The average "Z" ratio for companies	<b>1.98</b>	<b>2.36</b>	<b>1.95</b>	<b>1.72</b>	<b>1.80</b>
Absence of risk, values close to and above 3.0	<b>high</b>	<b>medium</b>	<b>high</b>	<b>high</b>	<b>high</b>
<b>The J. Gajdka and D. Stos's model</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
The number of companies showing profit	80	82	85	93	95
The average "Z" ratio for companies	<b>0.79</b>	<b>0.93</b>	<b>0.88</b>	<b>1.02</b>	<b>1.05</b>
Absence of risk, values close to and above 0.45	absence	absence	absence	absence	absence
The number of companies showing loss	20	18	15	7	5
The average "Z" ratio for companies	<b>0.31</b>	<b>0.39</b>	<b>0.37</b>	<b>0.34</b>	<b>0.33</b>
Absence of risk, values close to and above 0.45	<b>high</b>	<b>medium</b>	<b>high</b>	<b>high</b>	<b>high</b>

*Table following on the next page*

*Table 7: The use of E.I. Altman's, J. Gajdka's and D. Stos's discriminant analysis models on the example of 100 studied companies from the Opole province (Source: Own development on the basis of data of 100 selected companies from the Opole province)*

<b>E.I. Altman's model</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
The number of companies showing profit	95	96	97	97
The average "Z" ratio for companies	<b>4.17</b>	<b>4.20</b>	<b>4.21</b>	<b>4.25</b>
Absence of risk, values close to and above 3.0	absence	absence	absence	absence
The number of companies showing loss	5	4	3	3
The average "Z" ratio for companies	<b>1.83</b>	<b>1.95</b>	<b>1.96</b>	<b>1.97</b>
Absence of risk, values close to and above 3.0	<b>high</b>	<b>high</b>	<b>high</b>	<b>high</b>
<b>The J. Gajdka and D. Stos's model</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
The number of companies showing profit	95	96	97	97
The average "Z" ratio for companies	<b>1.06</b>	<b>1.12</b>	<b>1.13</b>	<b>1.15</b>
Absence of risk, values close to and above 0.45	absence	absence	absence	absence
The number of companies showing loss	5	4	3	3
The average "Z" ratio for companies	<b>0.35</b>	<b>0.38</b>	<b>0.39</b>	<b>0.39</b>
Absence of risk, values close to and above 0.45	<b>high</b>	<b>high</b>	<b>high</b>	<b>high</b>

*Table 8: The use of E.I. Altman's, J. Gajdka's and D. Stos's discriminant analysis models on the example of 100 studied companies from the Silesian province (Source: Own development on the basis of data of 100 selected companies from the Silesian province)*

<b>E.I. Altman's model</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
The number of companies showing profit	75	75	76	82	84
The average "Z" ratio for companies	<b>3.00</b>	<b>3.05</b>	<b>3.10</b>	<b>3.34</b>	<b>3.67</b>
Absence of risk, values close to and above 3.0	absence	absence	absence	absence	absence
The number of companies showing loss	25	25	24	18	16
The average "Z" ratio for companies	<b>0.80</b>	<b>0.85</b>	<b>0.92</b>	<b>1.01</b>	<b>1.05</b>
Absence of risk, values close to and above 3.0	<b>high</b>	<b>high</b>	<b>high</b>	<b>high</b>	<b>high</b>
<b>The J. Gajdka and D. Stos's model</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
The number of companies showing profit	75	75	76	82	84
The average "Z" ratio for companies	<b>0.59</b>	<b>0.55</b>	<b>0.67</b>	<b>0.80</b>	<b>0.85</b>
Absence of risk, values close to and above 0.45	absence	absence	absence	absence	absence
The number of companies showing loss	25	25	24	18	16
The average "Z" ratio for companies	<b>0.28</b>	<b>0.31</b>	<b>0.35</b>	<b>0.35</b>	<b>0.39</b>
Absence of risk, values close to and above 0.45	<b>medium</b>	<b>medium</b>	<b>high</b>	<b>high</b>	<b>high</b>

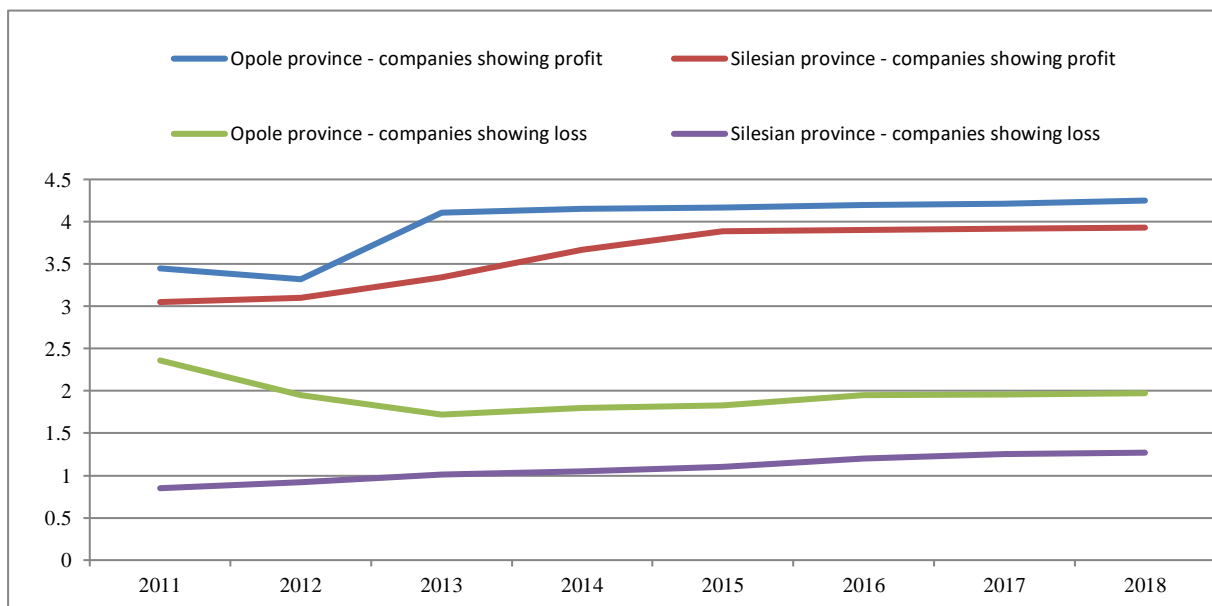
On the example of the studied companies of the Opole province, the Altman's model shows significant improvement of the ratio in 2011 (3.45), when companies incurred credit, in relation to 2010 (3.12). Improvement of the selected companies' financial condition proves the above. In subsequent years, this value is the same, and in 2018, increases to 4.25. The J. Gajdka's and D. Stos's model also indicates values above the cut-off point from 0.79 to 1.15 in 2010-2018. Only in companies suffering from loss the cut-off's ratio tends to deteriorate with the use of both methods, which proves that even properly selected credit does not improve the companies' financial liquidity. The values described above present research included in the table 6-7.

*Table following on the next page*

*Table 9: The use of E.I. Altman's, J. Gajdka's and D. Stos's discriminant analysis models on the example of 100 studied companies from the Silesian province (Source: Own development on the basis of data of 100 selected companies from the Silesian province)*

<b>E.I. Altman's model</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
The number of companies showing profit		86	87	88	88
The average "Z" ratio for companies		<b>3.89</b>	<b>3.90</b>	<b>3.92</b>	<b>3.93</b>
Absence of risk, values close to and above 3.0		absence	absence	absence	absence
The number of companies showing loss		14	13	12	12
The average "Z" ratio for companies		<b>1.10</b>	<b>1.20</b>	<b>1.25</b>	<b>1.27</b>
Absence of risk, values close to and above 3.0		<b>High</b>	<b>high</b>	<b>high</b>	<b>high</b>
<b>The J. Gajdka and D. Stos's model</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
The number of companies showing profit		86	87	88	88
The average "Z" ratio for companies		<b>0.93</b>	<b>0.95</b>	<b>0.95</b>	<b>0.96</b>
Absence of risk, values close to and above 0.45		absence	absence	absence	absence
The number of companies showing loss		14	13	12	12
The average "Z" ratio for companies		<b>0.40</b>	<b>0.42</b>	<b>0.43</b>	<b>0.45</b>
Absence of risk, values close to and above 0.45		<b>high</b>	<b>high</b>	<b>high</b>	<b>high</b>

In turn, in the table 8-9, E.I. Altman's, J. Gajdka's and D. Stos's models were also used during research of companies of the Silesian province. The above research shows that companies, which maintained the financial liquidity with incurring credit, improved their financial condition, but their cut-off point's ratio are different from ones noted in the Opole province.



*Figure 1: The use of E.I. Altman's model in the analysis of 200 companies of Opole and Silesian provinces showing profit and loss in 2010-2018 (Source: own development on the basis of data of selected companies from Opole and Silesian provinces)*

In the E.I. Altman's model, improvement can be seen in 2010-2018 – ratio's value increased from 3.00 to 3.93. Whereas in the J. Gajdka's and D. Stos's model, the ratio's values increased from 0.59 to 0.96. It means that credit's worth constituting 45% of the current assets' worth is too heavy burden, and prevents from significant improvement of the financial liquidity. Moreover, it does not show the ratio similar to the one obtained in research in the Opole province.

Furthermore, the cut-off points' values of the companies showing net loss in the Silesian province do not show significant improvement of the financial liquidity, but they slightly vary in 2010-2018. In the E.I. Altman's method, they vary from 0.80 to 1.27, and in the J. Gajdka's and D. Stos's method – from 0.28 to 0.45.

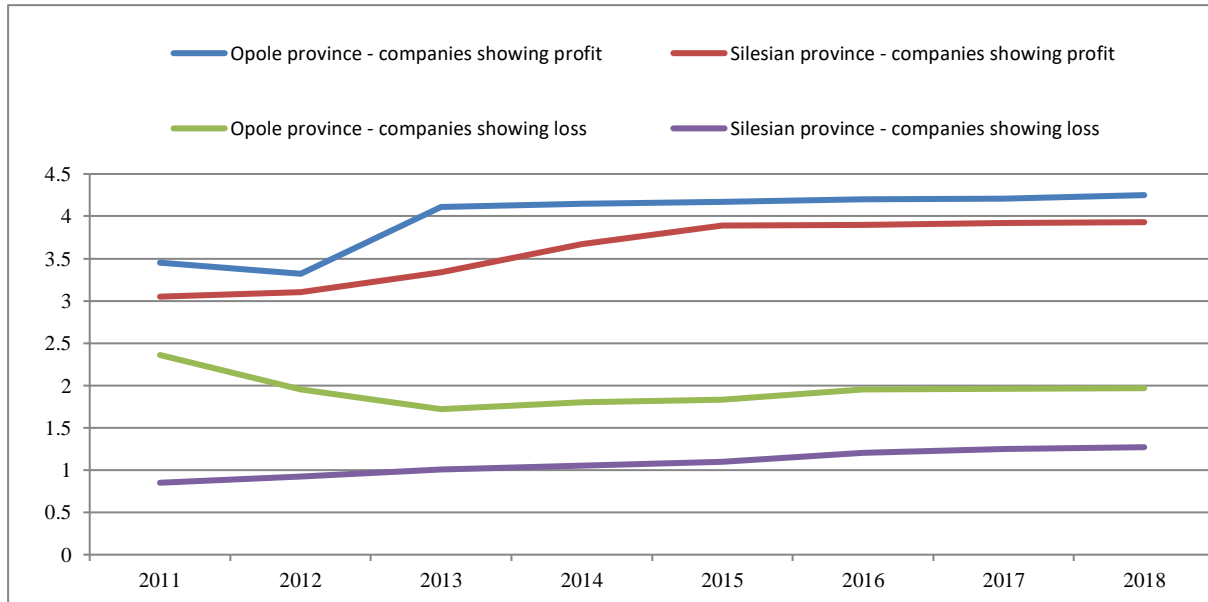


Figure 2: The use of the J. Gajdka's and D. Stos's model in the analysis of 200 companies of Opole and Silesian provinces showing profit and loss in 2010-2018 (Source: own development on the basis of data of selected companies from Opole and Silesian provinces)

It evidences that greater worth of credit could not ensure companies satisfactory improvement of the financial liquidity, but worsened their situation. Analysing net profit of the companies, it can be noted that issued credit influenced their development positively. There, its huge influence on the companies' net income can be seen. Thanks to opportunity to incur credit, companies could develop dynamically and as they planned in their assumptions with credit constituting 30% of the current assets' worth. Only credit constituting 46% of the current assets' worth did not cause major changes in many companies and did not lead to improvement of the financial liquidity of the greater number of companies showing net loss. The sensibly selected credit resulted in the greater increase of net profit and contributed to the increase of net income and profit, without which the company could not develop and reach significant results.

#### 4. CONCLUSIONS

It should be emphasised that contracted credit in studied companies contributed to improvement of the financial liquidity. However, it was mostly in case of companies, whose credits were c. 30% of the current assets' worth. Furthermore, in case of companies of the Silesian province, whose credits were 46% of the current assets' worth, the financial liquidity was not improved as much as in case of lower credits incurred by the studied companies of the Opole province. Nevertheless, credits enabled companies to settle current liabilities, which is proven by lessened number of companies suffering from net loss because such a phenomenon occurred in the group of 100 studied companies in 2010-2018. Therefore, companies maintained good financial condition after issuing credit. It should be stated clearly that the decision on incurring credit was, indeed, correct. But it should be borne in mind that the amount of incurred credit must not exceed specific worth preventing from repaying incurred credit and settling liabilities, which could lead to the company's inability to debt service. That is why c. 30% of the company's current assets' value, resulting from research of the companies, is the optimal amount.



The period, for which credit was incurred, is highly significant, but the studied companies contracted the working capital facility for one year with the possibility to renew it in subsequent years, which did not affect research and cause its distortion. The companies that had unevenly balanced liquidity or needed additional financial resources for the functioning on the market, and that took up a credit above the value exceeding 45% of the external funds in relation to their current assets, did not maintain the liquidity, and only 13 companies improved it in relation to 25 companies that were at risk of bankruptcy, which was reported in the Silesian Voivodeship. While the number of companies in Opole Voivodeship, which improved their liquidity, is 15, that is several times more than in Silesian Voivodeship, but the improvement occurred thanks to a taken credit, however the debt amounted only to 30% of the external funds in relation to their current assets. Therefore, there must be a firm answer that the credits that are incurred in the form of cash and account for more than 46% of the external funds in respect of current assets will not have a good impact on the financial condition of the studied companies, since such a capital obligation and interest liability constitutes a major burden for the company, which must within next months, after a credit was incurred, pay it back to the bank. The research was conducted based on 100 companies in the Opole province and 100 companies from the Silesian province. The E.I. Altman's model was also applied in the paper and it was demonstrated that the value of the credit and the period for which it was incurred as well as the ratio of the amount of external funds to the working capital are of great importance to a company and its liquidity. The companies that were subject to the research, voluntarily made the research data available, i.e. the balance sheet and income statement.

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## EFFECTIVE CORPORATE INCOME TAX RATE FOR FIRMS ON ZAGREB STOCK EXCHANGE

**Jasenska Bubic**

*University Department of Professional Studies, Croatia  
jbubic@oss.unist.hr*

**Jelena Vidovic**

*University Department of Professional Studies, Croatia  
jvidovic@oss.unist.hr*

### **ABSTRACT**

*This paper deals with differences between book and tax reporting by observing nominal and effective income tax rate for companies that are listed on Zagreb Stock Exchange in period from 2014 to 2017. Problem arises from the book income and income tax base which is derived from book income by applying tax regulations. Based on the financial reports effective corporate income tax rate was estimated. Roughly, it can be said that there exist two parallel reporting systems, book system which is available for investors and general public and tax system which is not available for general public. Results showed unexpectedly large differences between nominal and effective corporate income tax rate and what is most surprising results showed that large number of firms reported negative financial results continuously in observed period. Despite general picture there exist sectors which reported profit and paid effective income tax rate which is above prescribed nominal tax rate. This paper opens large number of questions; does tax system allow managers to change strongly corporate income tax base, structural macroeconomic question - is it fair that only few sectors pay vast amount of income tax and are real information on firm's operations hidden in corporate income tax related report which is publicly unavailable.*

**Keywords:** *corporate income tax, effective tax rate, tax base, Zagreb Stock Exchange*

### **1. INTRODUCTION**

Aim of this paper is to gain general information on taxation of large companies in Croatia. In this paper we observe financial reports of 99 stocks listed on Zagreb Stock Exchange (ZSE) for four years in period from 2014 to 2017. Based on the data from Income statement we estimate effective corporate income tax rate for all firms in observed period. The idea for this research comes from continuous changes in tax environment for companies that perform its business activities in Croatia. Tax changes are very frequent and suddenly change rules of the game for business subjects. This frequent »tax reforms« always come with the idea of providing tax relief to business subjects or business activity, they should produce economic development etc. Frequent tax reforms only bring frustration to business subjects and additional administrative burden. The main problem that is addressed in this paper is difference between gross profit and actual tax base that is finally used for calculation of final value of corporate income tax. Tax authorities prescribe different tax deductions as well as unrecognized tax expenses that must be added to the gross profit. Gross profit plus unrecognized tax expenses minus deductions results in tax base that is final number on which percentage of income tax rate is applied. The main problem arises that this procedure of forming tax base is not publicly available because "Corporate income tax application form" is prepared mainly for tax purposes and it is submitted to the tax authority in Croatia. Result of this situation is that nominal tax rate is meaningless number and as results show, effective tax rate significantly differs from nominal tax rate. Problem becomes even more complicated when we observe firms according to their sectorial classification.

Some sectors pay vast amounts of corporate tax while others thanks to tax regulations pay small amounts of corporate income tax. "Corporate income tax application form" hides serious number of relevant information regarding company's costs and investments. These information could be interesting to potential investors while these companies are listed on ZSE regulated market. The paper is organized in four sections. This paper brings original research that was not addressed before so section related to previous researches was not predicted in this paper. In the second part of the paper we discuss data and methodology. Results are presented in the third part of the paper and in the final fourth part of the paper main conclusions are drawn.

## 2. DATA AND METHODOLOGY

Data for this analysis were obtained from Zagreb Stock Exchange. Data on gross profit, corporate income tax and profit after taxation were extracted from the financial reports of firms that were listed on ZSE regulated market. The data were gathered for 99 companies for four years: 2014, 2015, 2016 and 2017. Based on the data on gross profit and corporate income tax effective tax rate was estimated using following expression:

$$\text{Effective Corporate Income Tax Rate} = \text{Tax paid} / \text{Gross Profit} \quad (1)$$

Average effective income tax rate for the sector was estimated as weighted average. Average effective income tax rate was calculated as total taxes paid in observed period over total gross profit in the same period. We calculate average effective income tax rate for each year separately and for each sector separately using following expression:

$$\text{Effective Corporate Tax Rate for sector X} = \frac{\text{Total corporate income tax paid in sector X}}{\text{Total Gross Profit declared in sector X}} \quad (2)$$

Observed firms are divided in 19 sectors, sectors do not have the same number of listed companies; Manufacture of wood and paper products, printing (2), Construction (3), Accommodation and food preparation services (24), Legal, accounting, management, architectural and engineering activities and technical testing and analysis (3), Publishing (1), Real estate business (3), Agriculture, fishing and forestry (6), Manufacture of electrical equipment (2), Manufacture of food products, beverages and tobacco (16), Manufacture of coke and refined petroleum products (1), Transport and storage (10), Manufacture of chemicals and chemical products (2), Manufacture of computers and electronic and optical products (2), Manufacture of transport equipment (4), Recreation (1), Manufacture of textiles, clothing, leather and related products (5), Telecommunications (2), Wholesale and retail trade, repair of motor vehicles and motorcycles (10), Scientific research and development (1). Firms which reported loss in their financial statements and firms that reported negative tax obligation in observed period were excluded from the analysis in that year. Result on effective corporate income tax rate were compared with nominal tax rate in Croatia. For the years 2014-2016 nominal corporate profit tax rate was 20%. In 2017 for large companies which revenues exceeded 3.000.000,00 kn, corporate income tax rate was 18%. Quality of estimation of effective corporate income tax rate has many obstacles. First problem is that tax rate is applied on tax base instead of on gross profit. Firms in Croatia can use a large number of legal opportunities in order to lower their tax base. These deductions are based primarily on the Profit Tax Act, and various other related acts where different deductions for investment, education, research and development, etc. can be found. Second possibility that influences the quality of estimation of Effective corporate income tax rate comes from IAS 12 – Income Taxes. This standard allows firms to state deferred tax assets and liabilities by applying actual tax rate.

A deferred tax asset is recognized for an unused tax loss carryforward or unused tax credit only if it is expected that there will be sufficient profit in the future against which the loss or credit carryforward can be utilized.

### 3. RESULTS

Results on calculated effective corporate income tax rate for each observed sector are presented in following tables.

*Table 1: Effective corporate income tax rate - Manufacture of wood and paper products, printing (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
BLKL	Negative tax	43%	24%	23%
SPVA	18%	12%	Negative tax	Negative tax
Average rate	18%	17%	5%	5%

In wood sector only in 2017 effective corporate income tax rate (18%) was same as nominal tax rate (18%) while in all other periods was lower than nominal (nominal corporate income tax rate in years before 2017 was 20%).

*Table 2: Effective corporate income tax rate - Construction (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
THNK	Loss	20%	42%	27%
DLKV	40%	34%	20%	39%
VDZG	0%	0%	0%	0%
Average rate	26%	26%	19%	35%

Effective corporate income tax rate in construction sector was above nominal corporate income tax rate in all observed years.

*Table following on the next page*

*Table 3: Effective corporate income tax rate - Accommodation and food preparation services  
 (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
RIVP	Negative tax	Negative tax	17%	13%
HZVG	Negative tax	Negative tax	Loss/ Negative tax	Negative tax
HTPK	Negative tax	0%	Loss	0%
HTPO	Negative tax	Negative tax	Loss	Loss
HVDC	Loss/ Negative tax	Loss/ Negative tax	Loss/ Negative tax	Negative tax
HZLA	Negative tax	0%	0%	Loss
HHLD	Loss	Loss	Loss	Loss
OLVD	48%	23%	8%	0%
SLRS	27%	35%	35%	32%
HMST	24%	27%	18%	0%
LRH	20%	32%	70%	0%
ILRA	19%	2%	16%	9%
HBRL	19%	21%	21%	21%
HTCP	18%	21%	20%	20%
ARNT	18%	Loss/ Negative tax	24%	Loss
HJDR	18%	9%	0%	0%
HIMR	18%	21%	20%	20%
PLAG	18%	11%	10%	3%
PLCH	17%	16%	0%	Loss
MAIS	12%	Negative tax	20%	20%
TUHO	0%	0%	0%	0%
HPDG	0%	Loss	22%	25%
JLSA	0%	0%	0%	Loss
Average rate	10%	5%	19%	19%

In accommodation and food preparation services sector only in 2014 and 2015 average effective corporate income tax rate (19%) was close to nominal tax rate (20%) while in all other periods was lower than nominal. In 2016 and 2017 some firms reported substantial profit (RIVP, 217 mil. HRK profit in 2017 and 265 mil. profit in 2016) but did not pay income tax what resulted in small effective rate.

*Table 4: Effective corporate income tax rate - Legal, accounting, management, architectural and engineering activities and technical testing and analysis (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
ADRS2	37%	25%	20%	0%
INGR	0%	0%	0%	0%
DDJ	0%	0%	0%	0%
Average rate	22%	24%	20%	0,4%

Effective corporate income tax rate in Legal, accounting, management, architectural and engineering activities and technical testing and analysis sector was above nominal corporate income tax rate in 2016 and 2017 while in 2014 it was only 0,4%.

*Table 5: Effective corporate income tax rate – Publishing (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
VJSN	0%	Loss	Loss	Loss

*Table 6: Effective corporate income tax rate – Real estate business (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
ATLN	18%	18%	20%	10%
TRFM	Loss	Loss	Loss	Loss
TRMD	Loss	Loss	Loss	Loss

*Table 7: Effective corporate income tax rate – Agriculture, fishing and forestry (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
VPIK	Loss	Loss	Loss	Loss
PIVK	Loss	Loss	Loss	23%
BLJE	Loss	Loss	Loss	Loss
KOKA	32%	31%	22%	23%
KTJV	22%	46%	35%	0%
AGMM	0%	Loss	Loss	Loss
Average rate	26%	37%	27%	22%

Majority firms from publishing, real estate business and agriculture, fishing and forestry sector reported losses. In entire observed period effective corporate income tax rate in fishing and forestry sector was above nominal tax rate.

*Table 8: Effective corporate income tax rate – Manufacture of electrical equipment (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
KODT	4%	4%	3%	2%
KOEI	0%	0%	0%	0%

*Table following on the next page*

*Table 9: Effective corporate income tax rate – Manufacture of food products, beverages and tobacco (author's calculations according to data from ZSE)*

<i>Effective income tax rate</i>				
<i>Firm</i>	<i>2017</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
PODR	Negative tax	12%	Negative tax	0%
IPKK	Loss	5%	Loss	Loss
PIKR	Loss	Loss/ Negative tax	Loss/ Negative tax	21%
ZVCV	Loss	Loss	Loss	Loss
VIRO	Loss	0%	Loss	Loss
GRNL	Loss	44%	18%	Loss
LEDO	Loss	Loss	16%	15%
ZVZD	Loss	Loss	21%	20%
KRAS	24%	28%	26%	32%
KOES	19%	7%	0%	0%
BD62	19%	Negative tax	Negative tax	Loss/ Negative tax
LURA	14%	8%	11%	15%
CKML	14%	0%	17%	1%
JMNC	Loss	Loss	13%	16%
MRSK	0%	0%	0%	Loss
BRNK	0%	0%	0%	0%
ZPKL	0%	Loss	Loss	Loss
Average rate	39%	30%	12%	12%

In manufacture of food products, beverages and tobacco sector in 2016 and 2017 extremely high Effective corporate income tax rate was calculated mainly because firms LEDO, JMNC and ZVZD reported large amounts of corporate income tax although reported losses. This situation may be connected to the financial problems that encountered *Agrokor Group* that they belonged to.

*Table 10: Effective corporate income tax rate - Manufacture of coke and refined petroleum products (author's calculations according to data from ZSE)*

<i>Effective income tax rate</i>				
<i>Firm</i>	<i>2017</i>	<i>2016</i>	<i>2015</i>	<i>2014</i>
INA	20%	68%	Loss/ Negative tax	Negative tax

*Table following on the next page*

*Table 11: Effective corporate income tax rate - Transport and storage (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
LKPC	Loss/ Negative tax	0%	0%	0%
LKRI	Loss	78%	Loss/ Negative tax	Loss/ Negative tax
JDPL	Loss	Loss	Loss	Loss
JDGT	18%	17%	20%	15%
JNAF	18%	14%	20%	15%
ULPL	4%	4%	1%	1%
ATPL	0%	Loss	Loss	Loss
TPNG	0%	0%	0%	0%
CRAL	0%	0%	0%	0%
LPLH	0%	0%	Loss	29%
Average rate	13%	12%	15%	10%

Effective corporate income tax rates for Transport and storage sector in entire period were lower than nominal rate. Various tax reliefs could be reason for lower tax rate than nominal rate. Low effective corporate income tax rates also appear in Table 13 - Manufacture of computers and electronic and optical products and Table 14 -Manufacture of transport equipment.

*Table 12: Effective corporate income tax rate - Manufacture of chemicals and chemical products (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
PTKM	Loss	Loss	Loss	Loss
SAPN	19%	21%	1%	0%
Average rate	19%	21%	1%	0%

*Table 13: Effective corporate income tax rate - Manufacture of computers and electronic and optical products (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
RIZO	Loss	0%	0%	0%
ERNT	6%	7%	0%	0%
Average rate	6%	7%	0%	0%

*Table 14: Effective corporate income tax rate - Manufacture of transport equipment (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
ULJN	Loss	Loss	21%	21%
VLEN	19%	30%	5%	0%
ADPL	4%	1%	Negative tax	1%
3MAJ	0%	0%	0%	Loss
Average rate	10%	2%	2%	7%



*Table 15: Effective corporate income tax rate - Recreation (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
ACI	19%	23%	22%	21%

*Table 16: Effective corporate income tax rate - Manufacture of textiles, clothing, leather and related products (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
DTR	Loss	Loss	Loss	Loss
VART	Loss	Loss	Loss	Loss
CTKS	0%	0%	0%	Loss
JDCT	Negative tax	Loss/ Negative tax	Loss/ Negative tax	Loss/ Negative tax
PUNT	0%	Loss	Loss	Loss

Manufacture of textiles is sector shows worst results, majority of firms reported losses in entire observed period.

*Table 17: Effective corporate income tax rate - Telecommunications (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
OPTE	Negative tax	0%	0%	0%
HT	18%	20%	20%	4%
Average rate	18%	20%	20%	4%

*Table 18: Effective corporate income tax rate - Wholesale and retail trade, repair of motor vehicles and motorcycles (author's calculations according to data from ZSE)*

Effective income tax rate				
Firm	2017	2016	2015	2014
MDKA	Negative tax	19%	19%	3%
ISTR	Loss/ Negative tax	0%	Loss	Loss
TISK	Loss/ Negative tax	Loss/ Negative tax	Negative tax	Negative tax
ELPR	Loss	Loss	Loss	Loss
ZTNJ	Loss	Loss	12%	0%
KTKS	18%	0%	0%	0%
ATGR	12%	Negative tax	Negative tax	Loss
AUHR	0%	0%	0%	0%
BDMR	0%	Loss	Loss	Loss
TKPR	0%	0%	0%	Loss
Average rate	10%	2%	2%	7%

Wholesale and retail trade sector paid effective corporate income tax rate that was lower than nominal rate in entire period.

Table 19: Effective corporate tax rate - Scientific research and development (author's calculations according to data from ZSE)

Effective income tax rate				
Firm	2017	2016	2015	2014
IGH	Loss/ Negative tax	Loss/ Negative tax	Loss/ Negative tax	Negative tax

#### 4. CONSLUSION

In this paper effective corporate income tax rate was calculated for 99 firms listed on ZSE regulated market in period from 2014 to 2017. General conclusions must be avoided since all firms have different tax rate in observed period and generally all sectors have different average tax rate in observed period. In 2017, 2016 and 2015, 31 out of 99 firms reported losses while in 2014, 34 out of 99 reported losses. Two largest sectors are Accommodation and food preparation services (24 firms) and Manufacture of food products, beverages and tobacco (16 firms). Accommodation and food preparation services sector in 2014 and 2015 had effective corporate income tax rate 19% what is under nominal tax rate (20%), while in 2016 it was 5% and in 2017 - 10% (in 2017 nominal tax rate was 18%). Manufacture of food products, beverages and tobacco sector in 2014 and 2015 had effective corporate income tax rate 12% that is under nominal tax rate (20%), while in 2016 and 2107 it was above nominal tax rate, in 2017 - 39% and in 2016 – 30%. Agriculture, fishing and forestry is one of the sectors in Croatia that has tremendous potential and political attention but in reality 4 out of total 6 listed firms continuously reported losses in observed period. Only two firms paid income tax, their average effective corporate income tax rate was above nominal rate continuously (in period from 2014 to 2017, tax rates were 22%, 27%, 37%, and 26% respectively). Another sector that has high average effective corporate income tax rate is construction sector (in period from 2014 to 2017, tax rates were 26%, 26%, 39%, and 35% respectively) but these results are very hard to interpret while only two firms in this sector pay income tax. Two sectors: Manufacture of textiles, clothing, leather and related products (5 firms) and Publishing (1 firm) did not report income tax. Presented results indicate that firms in Croatia have many legal opportunities to lower their corporate income tax obligation. What deductions are actually applied cannot be seen from Income statement, these information can be seen in Corporate income tax application form which is not publically available. It can be seen that many firms apply IAS 12 in order to manage their tax obligation. Further researches should be done in order explore instruments of tax management that listed firms use.

#### LITERATURE:

1. Deloitte, *IAS 12 — Income Taxes*, Retrieved 20.11.2019. from: <https://www.iasplus.com/en/standards/ias/ias12>

## INTEROPERABILITY OF MACHINE LEARNING SERVICES: A USE CASE

**Darko Androcec**

*Faculty of Organization and Informatics, University of Zagreb, Croatia  
dandrocec@foi.hr*

**Andrea Tikvica**

*Faculty of Organization and Informatics, University of Zagreb, Croatia  
andtikvic@foi.hr*

### **ABSTRACT**

*Machine learning has become very popular because the supporting infrastructure is now available for reasonable price and most companies have big data sources for solving problems in a high-dimensional space. There are many business use cases that show successful application of machine learning methods. However, machine learning methods are complex, so many cloud providers (e.g. Google, Amazon, Microsoft) have recently started to offer different machine learning services. SMEs often want to use multiple machine learning services of different cloud providers. In this work, we present current state-of-the-art of machine learning services interoperability research. Additionally, a real use case is implemented to show how SMEs can use two machine learning services of two different cloud providers in one application. Concretely, a web application has been developed by implementing machine learning services of two different cloud service providers. The following services are used within the practical example: text detection with the support of the Google Cloud Platform and text translation services with the support of Microsoft Azure. The idea of the practical example is to show the interoperability of the mentioned platforms.*

**Keywords:** *cloud, interoperability, machine learning, services*

### **1. INTRODUCTION**

Many companies nowadays use or plan to use some machine learning applications or methods to achieve competitive advantages. Machine learning is a subfield of the artificial intelligence that works with the algorithms needed to make certain decisions. The machines are designed to process a large number of learned data, information and algorithms for the purpose of performing the assigned tasks. There are three types of machine learning by learning style: supervised, unsupervised, and reinforcement learning. Machine-based learning programs are automated, so no human intervention is required. Continuous improvement is provided as algorithms gain new experience over time, thus improving accuracy and efficiency. In a dynamic environment, machine learning can handle multidimensional datasets. Most of the machine learning algorithms require a large data set to initiate training and this data should be of good quality. There are many use cases of using machine learning to help businesses improve their business and reduce costs significantly. User behavior analytics, natural language processing, and fraud detection are some of the cases that can enhance your applications or your entire business. Additional machine learning use cases are voice and sound recognition; image or video recognition; text recognition; and fraud detection in real time. The most used machine learning algorithms are linear regression, logistic regression, support vector machines, decision trees, gradient boosting machines and various types of artificial neural networks (convolutional neural networks, recurrent neural networks, multilayer perceptrons, etc.). Data organization in companies is an important segment for their business. It is therefore essential to ensure access to the data in a simple and secure manner. Traditional access to data is inflexible, as content and programs are installed locally on the devices of users or employees.

For these reasons, we began to strive for centralization of data, where all data is in one place. This is precisely what the cloud provides us with, because a collaborative work on real-time documents and data is present there. Machine learning methods and their usage are often complex, so many cloud providers have recently started to offer different machine learning services. There are currently three leading cloud service providers on the market, namely Amazon Web Services, Google Cloud Platform and Microsoft Azure. In addition to these systems, there are many other providers that offer machine learning services, such as: IBM, Oracle, etc. Small and medium enterprises (SMEs) often want to use multiple machine learning services of different cloud providers, so interoperability of these systems is very important issue. Interoperability can be defined in several ways. One of the simplest definitions is credited to IEEE that defines this term as “the ability of two or more systems or components to exchange information and to use the information that has been exchanged” (IEEE, 1991). There are only two alternative technical solutions to interoperability problems: bridging and homogenization (Naudet et al., 2010). Bridging uses an intermediate system (often called an adapter) between systems having interoperability problems. The intermediate system relies on the translation protocol (for example, using mappings) to achieve interoperability between interacting systems. Homogenization implies the unified model and acts directly on models or their representations. It requires either syntactic or semantic transformations that used the defined unified model (Naudet et al., 2010). In this work, we present current state-of-the-art of machine learning services interoperability research. Additionally, a real use case is implemented to show how SMEs can use two machine learning services of two different cloud providers in one application. The remainder of the paper is structured as follows. Next section brings brief review of relevant related work on service interoperability, cloud interoperability, and machine learning services. The third section explains our use case. The last section outlines the conclusions and proposes possible future research directions.

## **2. RELATED WORK**

Machine learning as a service is new offer of prominent and some new cloud providers. Cloud interoperability is a well investigated topic in a current literature, and most insights can be used also for interoperability of cloud machine learning services. For example, an approach based on Semantic Web services and AI planning to tackle cloud vendor data lock-in problem was proposed (Andročec and Vrček, 2018). To complete the mentioned task, data structures and data type mapping rules between different types of cloud storage systems were defined. Migration of data between different offers of platform as a service is the main focus of the mentioned work. The same approach was applied to software as a service model, where authors (Andročec and Vrček, 2018) have chosen to migrate data between two cloud customer relationship management (CRM) systems: Zoho CRM and Salesforce. Andročec et al. (Andročec et al., 2015) identify and address service-level interoperability issues when using APIs from different commercial providers of platform as a service. Remote vendors' APIs are implemented as web services. Resulting web operations and their inputs/outputs are semantically annotated using cross-PaaS concepts from the developed platform as a service OWL ontology. Next, SAWSDL and XSLT are used to define service type mappings. Some existing papers are focused on machine learning and their connection with service computing, cloud and fog. In the work by (Samreen et al., 2016), machine learning techniques were employed to determine the most suitable cloud instance. An adaptive deployment policy was developed to provide an optimal match between the client's demand and available cloud service offerings to find the optimal infrastructure as a service (IaaS) deployment strategy. Daleel (Samreen et al., 2016) is framework that outputs evidence-based knowledge of the IaaS setup specification that is optimal for cloud customer's particular application. The principles that guide the realization of machine learning services for Internet of things are described in the

work by (Bacciu et al., 2017). In the mentioned paper, authors define services offered by IoT devices providing access to their learning capabilities to self-organize into a distributed learning network. Empirical-based methodology of using machine learning techniques for automatically identifying conceptual interoperability constraints is presented in the work (Abukwaik et al., 2016). Here we will list some works on machine learning services interoperability. With the increasing number of machine learning platforms and services, interoperability is arising as a main issue (Elshawi et al., 2018). Cloud computing represents a practical and cost-effective solution for storages of big data, processing by machine learning algorithms, and for sophisticated business intelligence applications. Standard formats and models are required to enable interoperability among different machine learning services (Elshawi et al., 2018) such as Microsoft Azure ML, Google platform with pre-trained models, IBM Watson Analytics, BigML, Kognitio, Hunk, etc. The building blocks of big data science as a service are cloud computing resources, cloud-based big data processing frameworks, and machine learning frameworks as a service (Elshawi et al., 2018). Diversity in machine learning application programming interfaces works against realizing its full potential, so the Protocols and Structures for Inference (PSI) service architecture and specification was defined in the paper (Montgomery et al., 2016). PSI architecture consists of inferential entities – relations, attributes, learners and predictors as RESTful web resources. Esteves et al. introduced their methodology that combines Semantic web concepts and reflection to automate machine learning metadata generation (Esteves et al., 2016). Due to the existence of different machine learning platforms, each platform has a specific conceptualization for representing data and metadata. The patent (Narayanan et al., 2016) propose the platform for achieving interoperability between data formats, metadata schema and interfaces to machine learning functions and trained machine learning models. A cloud runtime environment can be provided where composed workflows can be hosted as REST APIs (Narayanan et al., 2016).

### **3. PRACTICAL USE CASE**

A Java web application has been developed by implementing machine learning services of two systems: Google Cloud Platform (Krishnan and Gonzalez, 2015) and Microsoft Azure (Barga et al., 2015). The idea of the practical example is to show the interoperability of the mentioned platforms. The application was developed in Java programming language in the NetBeans tool using technologies such as: Java Server Faces, REST API and Apache Tomcat. As mentioned earlier, both platforms offer a large portfolio of machine learning services. The following services are used within the practical example: text detection with the support of the Google Cloud Platform and text translation services with the support of Microsoft Azure.

#### **3.1. Technologies used**

The Java programming language in the NetBeans development tool was used to develop the application. Within the Java programming language, the program has been implemented by the Java Server Faces (JSF) framework because it runs on the basis of sending and receiving HTTP requests/responses and because it applies the MVC (Model-View-Controller) pattern. Apache Tomcat, which is a web application server, is used to run the program. Considering that the program works with cloud systems, their implementation is done through their Application Program Interface (API) and in this case via the REST API. The following paragraphs give a brief description of the technologies mentioned and applied into application.

#### **3.2. Configuration service providers**

To develop the program, it was necessary to set up the configurations of the systems. As mentioned above, machine learning services from Microsoft Azure and the Google Cloud Platform have been implemented.

Each system or platform has its own website with a portfolio of services that can be integrated into applications of different programming languages. Some of the services that can be integrated are: anomaly detection, face recognition, image analysis, forecasting, prediction, translator, etc. The services used in the practical example are the detection of text from an image taken from a URL and the translation of the detected text in the selected language. Setting up configurations for Google Cloud Platforms begins in the Google Cloud Console by allowing access to the Cloud Vision API. Then it is necessary to generate the API key via credentials and store it in the application's configuration file. That enables us a direct access to the service from the Google Cloud Platform, which is also linked to a user account where no username and password are required. The Cloud Vision API offers many image analysis features such as: face detection, text detection, logo detection, image properties, etc. Text detection is used for the purposes of this work from the Google Cloud Platform. Google also has Cloud Storage in which it is possible to store files in buckets. In this case, Cloud Storage service is used since we want to analyze our own image. With Microsoft Azure, it is necessary to create a workspace in which the payment model is specified according to the chosen package (in this case, with free 5000 requests). Once the workspace has been created, it is necessary to activate the Cognitive Service. Furthermore, Microsoft Azure has a wide directory of cognitive services such as: speech to text conversion, automatic suggestion, text translation, face detection, grammar checking, etc. By activating the service, we gain access to the entire service with the appropriate subscription key required to connect to the service through the application.

### **3.3. Program solution structure**

In the NetBeans tool, the project was created in the form of "Maven Web application" to create pom.xml file for dependencies. This is important when enabling libraries to work with Google Cloud but also to include other libraries needed to run the application. Since this is a web application, when creating a project, it was necessary to select the desired server. In this case, it was Apache Tomcat for the Java EE 7 Web. The Java Server Faces environment was also required in the project settings. Since web application needs to send and receive REST requests and responses, it was necessary to implement a listener in the application that initializes and invalidates the context of the application. The web listener function is implemented in the AppListener.java class that implements the ServletContextListener interface. When the application is started, the contextInitialized method is triggered, which retrieves the context of the application and saves the attribute to access the WEB-INF directory. This step was necessary to access the configuration file in the WEB-INF directory to retrieve the API and subscriber key of the selected systems. The contextDestroyed method starts when the application is terminated or closed. The MainInitiator.java class is the main class that initiates connection and communication with Google and Microsoft systems. It retrieves the configuration settings via the servlet context before connecting. Then, JSON data is sent as system-specific requests. Once the Google Cloud Platform returns the response, it is processed and retrieved information about the recognized languages in the text. The detected text is sent to the Microsoft system as a request for translation, and a response is returned that indicates the successful completion of the request. GoogleML.java operates by an analyze method that receives information about the API key and the JSON request. Requests with the API key parameter and JSON as the request body are sent using the appropriate URI to run the Cloud Vision API. The answer from the system is also in JSON format where all the details of the text detection in the image are listed. Due to this, information such as the xy position of each word in the image, the detected text, and the percentage of presence of all detected languages are available in the response. Furthermore, AzureML.java runs using the translate method, which receives subscriber key and JSON request information. It works on the same principle as Google using REST requests by sending a JSON request containing the detected text for

translation. A request is sent with the parameters: API version and selected languages for translation. The service sends a JSON response text translation in selected languages. Each translation, with the appropriate language code, is stored in a translation list of type Translation.

### 3.4. Detailed description of functionality

The application opens in the web browser as shown in Figure 1. Then enter the URL of the selected image with the text, and then clicking the "START" button starts the image analysis on the Google platform. Since it is about accessing the service using the API, an API key is retrieved which is stored in the configuration file. The file is included in the application package and is accessed through the Servlet Context. Below the entered link, in the "Preview" section, the selected image is displayed. The application connects to the system and sends a REST request in JSON format. The details of the request are shown in Table 1. When submitting a request, except API key, you must select the service type (in this case TEXT\_DETECTION) and enter the URI of the selected image in it. The response also comes in JSON format and displays the success of the request being processed.

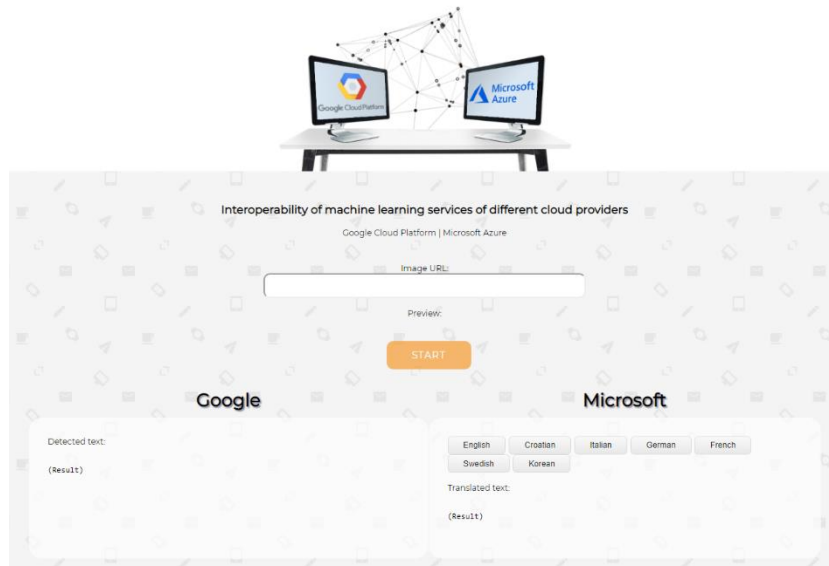


Figure 1: Web application home page

Table 7: REST request for Google Cloud Platform

<b>URI request</b>	https://vision.googleapis.com/v1/images:annotate
<b>Header</b>	Content-type = application/json
<b>Parameters</b>	api = [API key]
<b>Request body</b>	<pre>                 "{\"requests\": [{                   \"image\": {                     \"source\":                       {\"imageUri\": \"\" + image_url + \"\"}                   },                   \"features\": [                     \"type\": \"TEXT_DETECTION\",                     \"maxResults\": 1                   ]                 ]}";             </pre>

After processing the image, the Google section displays the detected text or prints a JSON response if an error occurs. The most common reasons for this error are: there is no text on the image or the system is currently unable to execute the request. In addition to the detected text, the percentage of all recognized languages is also displayed. Figure 2 shows the selected image for detection and the response from the Google Platform. The application, after receiving a response from Google, connects to the Microsoft Azure platform and sends a REST request. Like Google, a key is required to connect to the system, so in this case it reads the subscription key available in the configuration file. The request also sends JSON containing the text to be translated into the following languages: English, Croatian, Italian, German, French, Swedish and Korean. Table 2 shows details of REST requests to the Microsoft Azure system.

Table 8: REST request for Microsoft Azure

<b>URI request</b>	https://api.cognitive.microsofttranslator.com/translate
<b>Header</b>	Content-type = application/json Ocp-Apim-Subscription-Key = [Subscription Key]
<b>Parameters</b>	api-version = 3.0 to = de,it,hr,en,es,fr,sv,ko
<b>Request body</b>	"[{"Text": \" + some_text + \"}]"

Figure 2 also shows Microsoft section with translation in the selected language. The text translation is saved in the translation list with the appropriate language code. Pressing the button of the selected language reads the corresponding translation from the list and displays it on the web page.

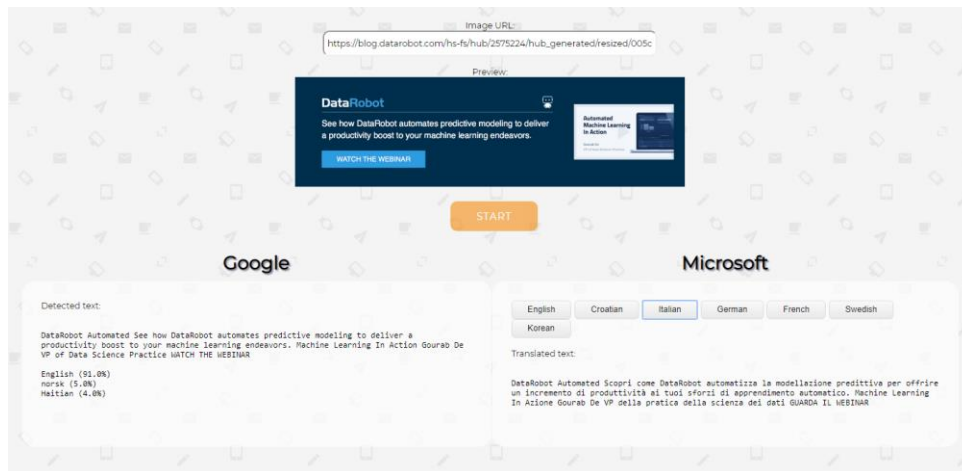


Figure 2: Detected and translated text from selected image

#### 4. CONCLUSION

Great variety of applications can be achieved with the help of interoperability, which gives interesting opportunities for further development of cloud computing. Sometimes interoperability is necessary if one system needs to be complemented by the functionality of another system, thus allowing access to the desired functionality in one place. An example of interoperability implementation was a case of consolidation of Microsoft and ONNX (Open Neural Network Exchange), resulting with new development environments, compilers, and other tools that promoted machine learning. Google Cloud Platform and Microsoft Azure have proven to be compatible systems for communication and collaboration. Because of its wide range of services, there are many options for other interesting combinations and collaborations



of functionality. Ease of implementation was present in both systems, accompanied by necessary documentation and extensive examples. Machine learning is very popular nowadays, there are many existing applications in organizations, so we expect to see more machine learning services from prominent and new cloud providers. When we want to use more than one machine learning services providers, we need to find out their interoperability options. Wide range of machine learning services are available now, but each service has its own distinct API. Their interoperability can provide federated machine learning solutions. Interoperability of services in general and cloud machine learning services is a complex research and practical problem. Two prominent commercial offers of machine learning as a service (Microsoft Azure and the Google Cloud Platform) were used in use case presented in this work. It would be certainly beneficial to also include other providers. There is still no work to semantically annotate cloud machine learning services (e.g. ontology for machine learning as a service is missing) with aim to enable their automatic or semi-automatic interoperability. In our future work, we plan to investigate some real (industrial) case studies on interoperability of machine learning services.

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# USE OF PERFORMANCE MEASUREMENT METHODS IN CROATIAN FIRMS

**Ana Roso**

*University of Zagreb, Faculty of Economics and Business, Croatia  
arosl@net.efzg.hr*

**Davor Labas**

*University of Zagreb, Faculty of Economics and Business, Croatia  
dlabas@efzg.hr*

## **ABSTRACT**

*Performance measurement methods are important ways in communicating vision, mission and long-term goals. In today's changing environment it is imperative for organizations to be able to rapidly and efficiently respond to any unpredictable changes on the market, without rising costs, sacrificing quality, or slowing down the processes. Since it is important for every organization to monitor its goals and respond in swift and agile manner to the changes in the environment, this study aims to understand if Croatian firms are measuring their performance in achieving goals. Also, this exploratory research provides insights into relationship between the size of the firm and their goals, use of control and corrective activities, as well as primary reasons for implementing methods. The research found that Croatian firms mainly measure their goals and that they have implemented the performance measurement methods, but there is still considerable room for progress in their use.*

**Keywords:** *performance measurement, agile management, performance management, goal setting*

## **1. INTRODUCTION**

Due to the advancements in the areas of social development, major technological breakthroughs and constant changes in the environment, it is relevant to evaluate to what extent have firms adjusted their use of performance measurement systems. It is especially worth exploring in the light of increasing agility as a central focus in the organizations, i.e. the possibility of an enterprise to swiftly and adequately adjust to the changes in the environment (Ganguly, Nilchiani, Farr, 2009, p. 410). McKinsey defines agile organization as a shift from hierarchical, pre-set planning designed for relatively stable environment, to focus on groups of employees which use advanced technologies to improve learning and faster decision making, i.e. "such an agile operating model has the ability to quickly and efficiently reconfigure strategy, structure, processes, people, and technology toward value-creating and value-protecting opportunities" (McKinsey Agile Tribe, 2017, p. 3). The characteristics of agile enterprises are innovating potential, which enables new breakthroughs and competitiveness edge with available resources and structures. An agile enterprise has to continuously adapt to environmental changes, and seek chances in order to be competitive on the market, whereas an important element of improving agility are internal efficiency, continuous strategic planning and transformation, as well as information technology support (Cummins, 2027, p.1-2). According to research conducted in 2014 (Bazigos, De Smet, Gagnon, 2015), important traits of agile enterprises and what sets them apart from other, more traditional organizations are clear distinction and deliniation of employee's roles and efficiently operating structures, whereas such organizations need to be able to swiftly adjust to changing environment by using innovative approach, coupled with learning, knowledge sharing and adequate motivation. Benefits of agile enterprise include better customer and employee satisfaction, adaptive organizational structures, alignment of IT and organizational activities with customers needs (Brockmann, Nagel, Kahl,

Biermann, 2019). With respect to improving organizational agility and performance measurement systems, for instance use of The Balanced Scorecard (BSC), as a performance measurement and management tool which helps organizations detect the issues in the existing processes, and through resolving identified challenges enable learning and sooner execution of strategies (Nejatian, Zarei, 2013). Since Balanced Scorecard is considered a dynamic and adaptive instrument for continuous improvement, it is desirable to have regular evaluation of objectives, indicators and targets in relation to strategy, at least once a year in order to be able to adjust to the changes in the environment (Niven, 2002, p. 287). According to survey conducted in Croatia (Lončarević, 2006) on the sample of 400 most successful firms, only 23% of the firms used the Balanced Scorecard. Empirical research has indicated that by application of BSC, Croatian organizations can overcome their issues in strategic managing and that it has a positive impact on business performance. By comparing experiences of firms, it was concluded that surveyed firms that apply the system of balanced goals and perspectives continuously measure the performance of financial and non financial indicators and subsequently align their vision and strategy in accordance with the changes in the environment. Furthermore, empirical research conducted in 2012, on the sample of Croatian firms has concluded that 27% of the firms have implemented Balanced Scorecard, whereas even though majority of surveyed firms/ employees are knowledgeable of the concept, vast majority of the surveyed firms which did not implement the BSC do not have the intention to do so in the future (Podrug, Vrdoljak Raguž, Pavković, 2012, p. 5). Even though Balanced Scorecard is not flexible enough to quickly adapt to changes in the environment, agility could be achieved with the use of additional performance measurement instruments (Gurd, B., Ifandoudas, P., 2014, p. 3). Some of the other performance measurement methods which have different controls and level of employee engagement in goals setting and execution include: Management by Objectives, Management by Exceptions, Objectives and Key Results (OKR). The problem that prompted writing of this paper is the lack of awareness and importance of use of performance measurement methods in light of enhancing agility in Croatian firms. Purpose of this paper was to analyze the inadequately explored use of performance measurement methods and their application in Croatian firms, as well as the main goals, implications where they are implemented and reasons for non-implementation. Also, this paper shows opinions of employees about this topic and their motivation for achieving goals of the firms they work for. The rest of the paper consists of the following: after the introductory part, the methodology, results, implications of the research conducted in Croatian firms are presented, followed by the conclusion.

## **2. RESEARCH**

For the purpose of this paper, research was conducted to determine which performance measurement practices are used for managing goals in Croatian firms.

### **2.1. Methodology**

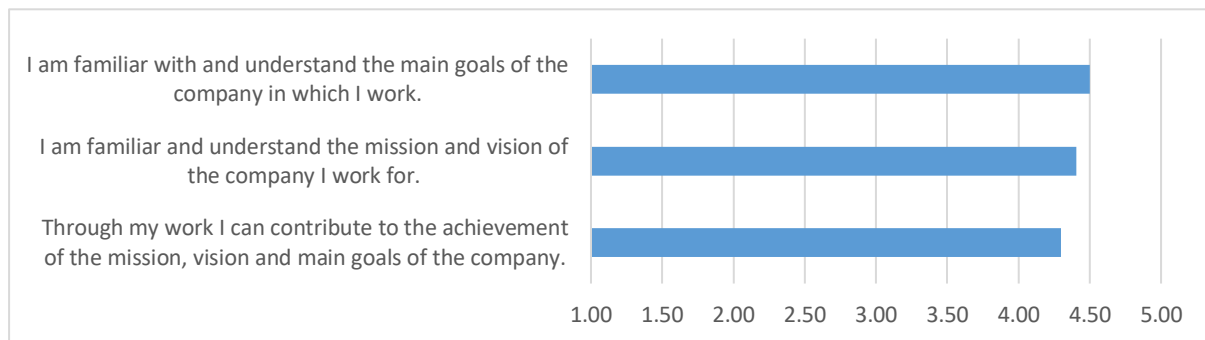
Primary sources of data were used in this empirical study. Data for empirical research were collected through a survey conducted during June and July 2019. The survey was distributed through the Business Effectiveness Ltd. newsletter, their website and social networks. Accordingly, the questionnaire was sent to over 9,000 e-mail addresses and to individuals who are employed and work within management, finance or controlling. The questionnaire was completed by 64 respondents. The questionnaire consisted of 18 questions, parts of which were based on research survey conducted by Podrug, Vrdoljak Raguž, Pavković (2012). Questions had one or more possible answers, a Likert scale on which 1 indicated "low" and 5 "high" agreement with the statement. The first few questions describe the sample. Also, two questions related to the size of the firm and the industry in which it is located.

After the introductory part, the questions examined the respondents' familiarity with the mission, vision and goals of the firm in which they are employed, followed by the part of questions that were related to a description of how to define, measure and control goals. At the end, questions examined the impact of the (non) implementation of the performance measurement systems on the business of the firm in which the respondents are employed.

## 2.2. Research results

Most (26.56%) of the respondents are employed in enterprises engaged in wholesale and retail trade, followed by financial services (15.63%), accounting, auditing and consulting (14.06%) in the third place, and fourth place are enterprises in food industry (9.38%). The fifth place is shared by gas, electricity and water supply firms, and firms whose main activity are education and culture, transport and telecommunications with 6.25%. The smallest number of respondents from the collected sample (4.69%) are employed in enterprises whose main activity is construction, catering and tourism. 51.56% of respondents are employed in large enterprises, 20.31% in medium-sized enterprises, 18.75% in small sized enterprises and the least in micro enterprises (9.38%).

*Figure 1: Average grades about the familiarity of the respondents with the mission, vision and goals of the firm*

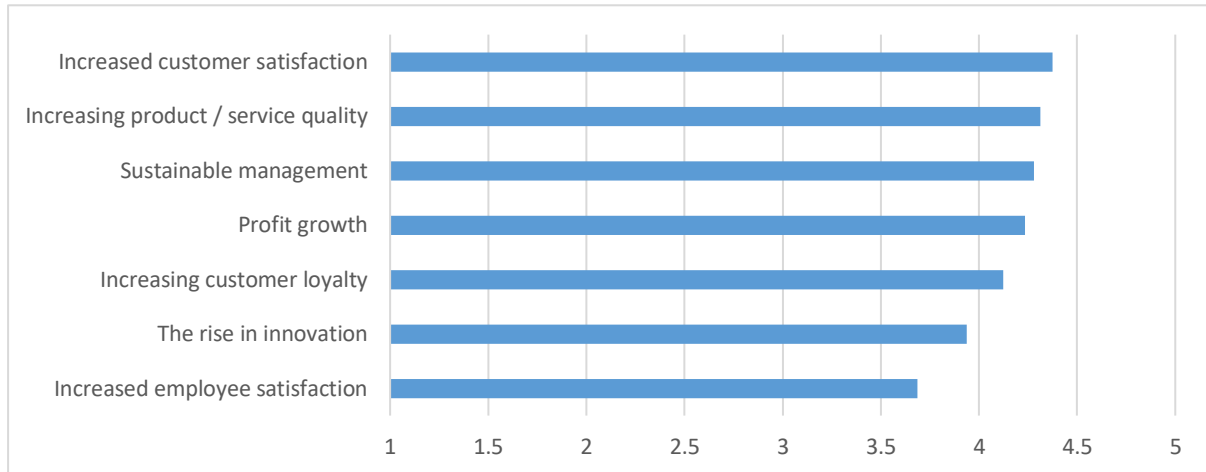


*Source: Authors research*

With a Likert scale on which 1 indicates a low and 5 a high agreement with the assertion, the average rating of the respondents' familiarity with the main goals of the firm is 4.50, with a mission and vision 4.41. The average rating of thinking that they can contribute to the mission, vision and main goals of the firm is 4.30. If only those respondents who rated the main goals, mission and vision of the firm with the highest rating are considered, the average contribution to their achievement rises to 4.60. From the obtained results, it is notable that respondents are well aware of the mission, vision and main goals of their firm.

*Figure following on the next page*

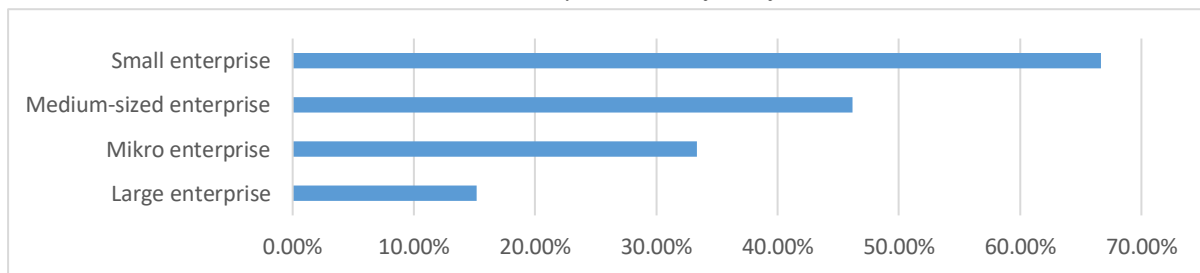
*Figure 2: Average rating of the main goals of the firm*



*Source: Authors research*

According to Figure 2, which shows the average ratings of the main goals of the firm by importance, the highest average rating has an increase in customer satisfaction (4.38), an increase in product / service quality 4.31, sustainable management 4.28, an increase in profits 4.23, an increase in loyalty customers 4.13, innovation increase 3.94 and the lowest rating is the increase in employee satisfaction (3.69).

*Figure 3: Percentage of firms that rated employee satisfaction with the highest score as measured by the size of the firm*

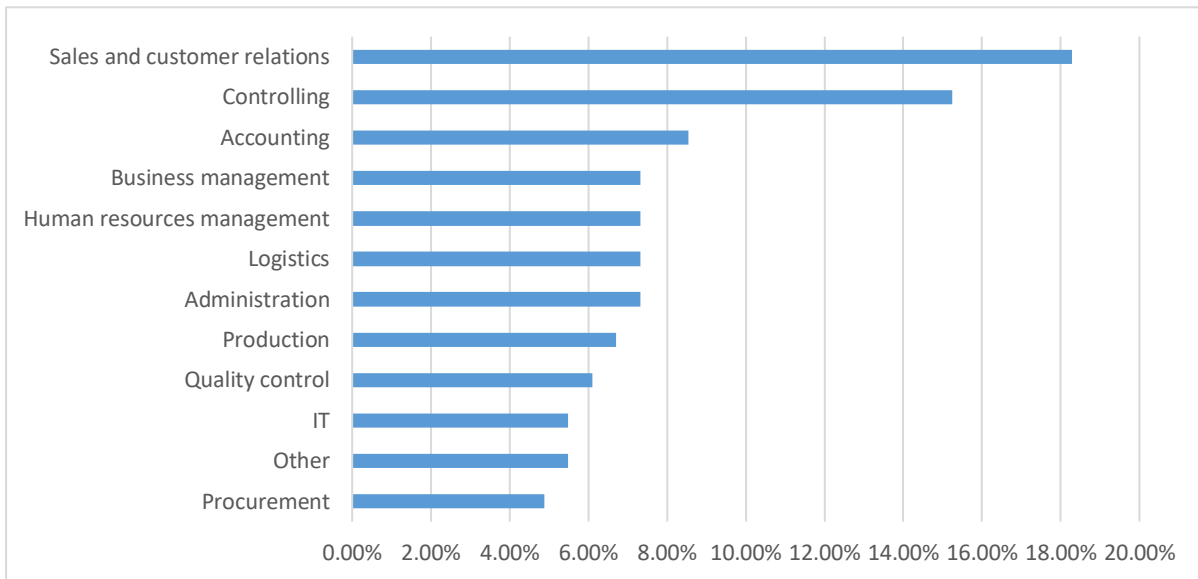


*Source: Authors research*

If we look at the average assessment of the importance of enterprises to increase employee satisfaction by the size of the firm, it can be seen in Figure 3 that as many as 66.67% of small enterprises gave the highest rating for the main goal of the firm, while the lowest number of employees, ie 15.15% gave this rating in large firms.

*Figure following on the next page*

*Figure 41: Business area in which the goals and results are measured*



*Source: Authors research*

When asked about the business area in which the goals and results are measured, respondents were able to choose multiple answers. Most respondents (46,88%) showed that goals and results in their businesses are measured in the sales area. This result is in line with Figure 2, which shows that for majority of businesses, the most important goal is to increase customer satisfaction. 39,06% respondents selected the controlling area, followed by the accounting area with 21,88% of respondents. Fourth place with 18,75% of respondents share firm management, human resources management, logistics and administration. 17,19% of respondents selected manufacturing, 15,63% quality management, 14,63% IT and others, and the fewest respondents (12,5%) selected procurement.

*Figure 5: Reasons for implementing performance measurement systems*

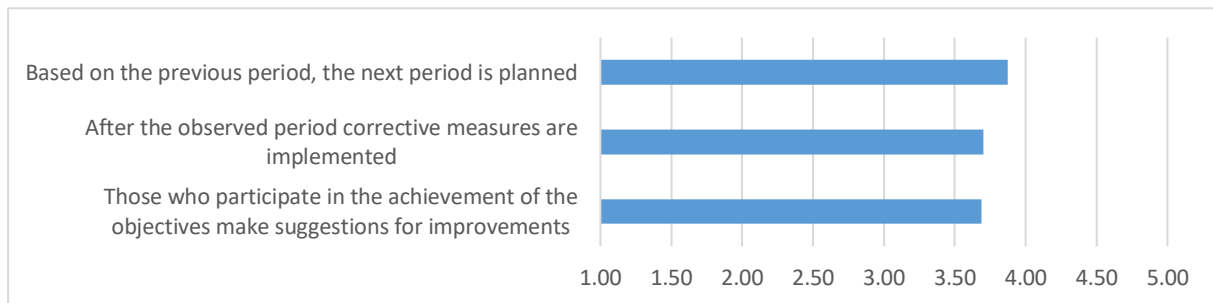


*Source: Authors research*

In the following survey questions, the respondents were asked to evaluate the reasons for the implementation, i.e. not implementation of performance measurement systems. Respondents were advised not to answer both questions at the same time. The reasons for implementation were evaluated by 71,88% of respondents. As the reasons for implementation, the highest score (4.22) was given to the improvement of the business operations of the firm, then the compliance of the whole firm with the strategy (3.98), identifying key business processes (3.93), the achievement of business transparency (3.78), and the lowest grade (3.72) employee motivation

and satisfaction. These results corroborate Figure 2, according to which employee satisfaction as the target of the firm received the lowest average grade. Only 21,88% of respondents rated the reasons for not implementing performance measurement system, while 6,24% did not answer these questions. The highest rating for non-implementation of the performance measurement system was received by the lack of interest and resistance of managers and participants (3,57), insufficient knowledge of ways and methods (3,36), fear of excessive costs and potential problems during implementation (3,14), and the lowest rated was the claim that the implementation of the performance measurement system would not contribute to the business of the enterprise (2,43). Since 71,88% of respondents answered this question about implementation of the performance measurement system, we can conclude that most firms have implemented a system of monitoring and management of goals / results. Also, it is good that in the part of the firms that did not implemented it, most of them are aware that implementation would contribute to the improvement of the enterprise according to reasons for non-implementation.

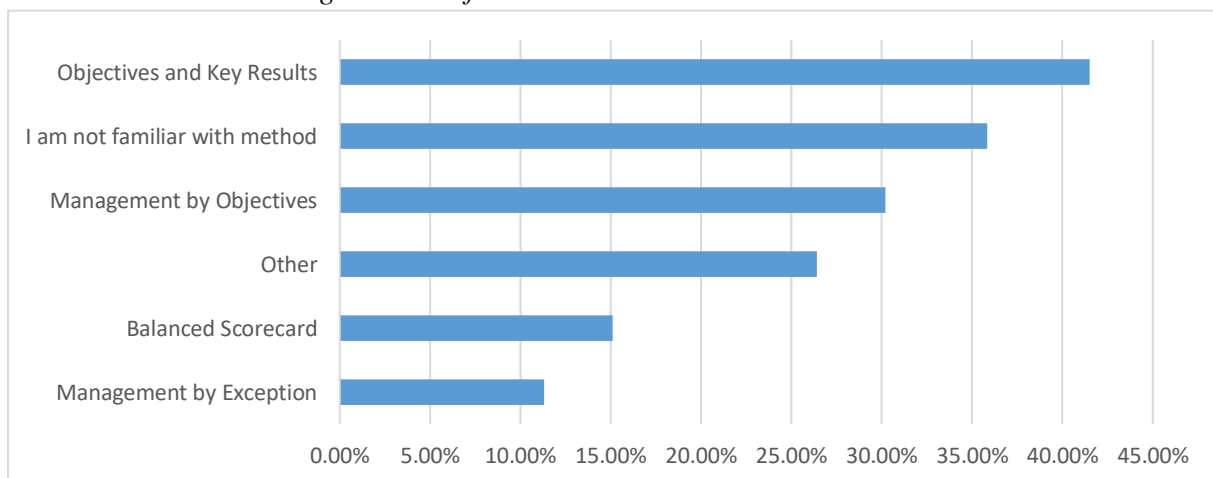
Figure 6: Ways of control or corrective actions



Source: Authors research

Figure 6 shows the average grade for the ways of control or corrective actions. The overall average rating of all the above methods is 3.76, which shows that even if firms monitor their results, most of them perform average in corrective actions and need to improve them in the coming period. The highest average mark (3.88) has the claim that the next period is planned on the basis of the previous period, then the mark 3.70 has the claim that corrective measures are implemented after the observed period, and the lowest 3.69 has the claim that those who participate in the achievement of the goals make suggestions for improvements.

Figure 7: Performance measurement methods use



Source: Authors research



In the last presented survey question multiple answers were possible. A total of 53 respondents answered this question. 22 respondents chose the Objectives and Key Results method (41.51%), followed by respondents who are unfamiliar with the proposed methods (35.85%), then Management by Objectives (30.19%), 26.42% of the respondents use another method, 15.09% use the Balanced Scorecard and at least (11.32%) use the Management by Exception method. Since the respondents were able to choose more than one answer, it is worth mentioning that the most (18.87%) chose the Objectives and Key Results method only. Of all the answers, 56.47% referred to only one method, while the others chose a combination of two or more answers.

### **2.3. Implications**

The survey found that Croatian firms mostly set and follow the goals and apply the methods for managing the goals, but there is a lot of room for progress in their use. As expected, in most firms, targets are set in the areas of sales / customer relations and controlling. For most firms, the main goals are to increase customer satisfaction, quality of products and services, or increase revenue and profit. Also, the reason for implementing a performance measurement system for most firms are costumers. In addition, it has been shown that in firms where the performance measurement system is implemented, the lowest marks indicate improvements in the area of employee satisfaction and their motivation to work and the relationship of employees with management. According to the employees' answers, the respondents who work in small firms rated significantly higher the importance of employee satisfaction than those working in medium-sized and large ones. This may be due to the more direct, personal interaction of senior employees with employees in smaller enterprises, and a more important focus on each individual employee in a firm with only a few employees, and thus the care of senior employees for their satisfaction. Although employees are familiar with the mission, vision and goals of the firms in which they work, they have given a low mark to the possibility of contributing to their achievement. Employees of firms that have not implemented a performance measurement system have highlighted the indifference and resistance of senior employees and employees as key issue. Also, the question of how the corrective measures that are implemented after each period are evaluated are below the average mark for all corrective measures, which means that although the firms follow the goals and results, they do not always undertake activities to correct them in the next period if such activities are required. In summary, by better informing employees of the benefits of goal tracking, introducing a system of motivation and reward for their results, the shortcomings in performance measurement methods in Croatian firms would be greatly improved. Hence, it is important to make employees knowledgeable of the ways in which their own goals contribute to success of the main goals of the firm and accordingly to the mission and vision of the firm.

### **2.4. Limitations and recommendations**

The research survey was conducted at the time of the vacations, and the limitation of the online survey was smaller number of respondents. Another limitation concerns the representativeness of the sample where the research survey questionnaire was sent to the consulting firm Business Effectiveness Ltd. Database, which primarily comprised of Croatian firms attending controlling, management and/ or finance education. These firms generally have a controlling function and therefore this sample of respondents does not fully represent the actual situation in all firms in Croatia. Therefore, the data obtained from this study can be considered as only indicative and specific for this particular sample. Also, due to the social desirability bias it is likely that larger number of employees who are knowledgeable of and who already use performance measurement systems have answered the research survey questions, as opposed to the ones that do not have performance measurement systems in place and might have decided not to respond.

The survey provided an insight into the application of the performance measurement methods in Croatian firms. In order to obtain deeper insight into the situation of managing goals in Croatia, it would be necessary to including a larger number of medium-sized, small and micro enterprises. It would also be useful to analyze and compare results with other countries and to monitor progress in this area over several years through longitudinal study.

### 3. CONCLUSION

In the current business conditions, firms are constantly exposed to changes in the market and turbulence of the environment, hence it is important to adjust the business goals accordingly. Hence, for the successful management of each firm, it is important to keep track of changes that are occurring in the behavior of customers and competitors. In order to sustain the business challenges, every firm should constantly adapt its strategies and operational goals. Accordingly, it is important to qualitatively define goals, monitor progress, periodically measure and make process adjustments in accordance with the achieved results. Such activities can contribute to improving organizational agility. In practice, there are methods that are used to manage goals, and the choice of performance measurement method depends on the firm's strategy and resources available to the firm. Croatian firms are very familiar with the necessity of measuring and managing goals. However, the survey identified several shortcomings in the implementation of performance measurement methods. For successful implementation and desired results to be achieved by performance measurement system, more attention should be given to the satisfaction and motivation of employees who participate in activities by which certain goals are achieved. Also, firms should better plan and more closely monitor the implemented activities and the corrective measures that will achieve the desired goals in the next observed period.

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# DEVELOPING EPICUREAN HERITAGE TOURISM: THE ROLE OF LOCAL FOOD AS A COMPONENT OF TOURISM IN BANGLADESH

**Islam Mohammad Hashanat**

*Co-Founder and Chairman,*

*Bangla Culinary Heritage Foundation, Professor of English & Tourism*

*Dhaka, Bangladesh*

*hashanat@gmail.com*

## **ABSTRACT**

*Bangladesh has very rich cultural heritage which is partially explored but the epicurean heritage remains completely unexplored. The culinary culture has been an area that has been ignored until recently. However, culinary culture is always the longest-surviving part of a culture and tradition. Cuisines, where many different identities of a society merge together, are a mirror of daily life styles, religious beliefs, habits, traditions and customs. Changes of eating style in societies and rising the value of eating socially have been one of the reasons for movements in tourism activities. Epicurean tourism has become a rapidly growing component of the fascination of tourism destination in recent years worldwide. In Bangladesh, the promotion of local food as a component of its destination attractiveness is in its infancy both at international and domestic level. Tourists' wishes to experience the local tastes in the destinations and accommodation facilities have prepared the ground for the development of epicurean tourism. The marketing opportunities to epicurean tourism are being developed by the countries given importance to that issue. This paper will attempt to address the heritage value of Bangladeshi cuisine and opportunities of Bangla food heritage promotion to attract epicurean tourists. The role of local communities in promoting culinary tourism as a part of country's epicurean heritage development will also be analysed.*

**Keywords:** *Epicurean heritage, culture, food, community tourism, Bangladesh*

## **1. INTRODUCTION**

Epicurean tourism has become a rapidly growing component of the attraction of tourism destination in recent years worldwide. Epicurean tourism is the pursuit of unique and memorable eating and drinking experiences. By combining travel with these edible experiences, culinary tourism offers both locals and tourists an authentic taste of place. Epicurean tourism refers to trips in which local cuisine plays an important role. The World Food Travel Association (WFTA) defines culinary tourism as 'the pursuit and enjoyment of unique and memorable food and drink experiences'. Culinary travellers are looking for a genuine and memorable experience. They become foodie during the travelling experience. A foodie is the person who has a great interest in food and beverages and his/her main objective is to seek new experiences rather than eating out of hunger. A foodie savours the taste and aroma of special made dishes and drinks. Culinary travellers truly appreciate the culinary experience. Culinary tourism refers to trips in which local cuisine plays an important role. Food choices and motivations differ across travellers. Hall and Sharples (2004) argue that when defining food tourism there must be a differentiation among those tourist behaviours who consume food as a part of their travel experience and those who select destinations solely influenced by their interest of food. Local cuisine gives travellers a direct and authentic connection with their destination. They experience local heritage, culture and people through food and drink. The ultimate goal of culinary tourism is to educate the tourists about the food history, techniques and trends of an area. Every community has a different culture of cooking. It depends on the environment, economy, culture and tradition of the specific area. For instance, different spices are used in different areas during cooking, more spicy in the southern districts and more sour

in north-eastern in Bangladesh. Due to this variation, the taste, texture, colour and smell of the food are changed. Many commercial industries have developed because of the different food culture. Many people are involved economically. Besides local cuisine, the different traits of ethnic food we see available in Bangladesh are: Chinese, Italian, French, Mexican, Arabic, Indian, Thai, Japanese, etc. Considering the varieties of cooking culture, it can be seen that the Bangla culinary has largely been circulating on the very common issues of the traditional cooking method. In the cooking method, many Persian and Arabic cooking elements, along with materials and the reflection of the involvement of the Indian state of West Bengal is particularly noticeable. Crossing the territorial boundaries, this cooking style is spread throughout the world. Bangladeshi cuisine is also famous in the United States of America, United Kingdom, Canada, Australia and other countries around the world.

## **2. WHAT IS EPICUREAN TOURISM?**

World Food Travel Association (WFTA) mentioned epicurean tourism as “the act of travelling for a taste of place in order to get a sense of place.” The term epicurean is newly introduced with tourism. The pursuit for food while travelling was named as ‘Food Tourism’. Both ‘Food Travel’ and ‘Food Tourism’ terms have been in use in the initial days till 2001. Then the term was replaced by ‘Culinary Tourism’ and used until 2012. People began with this phrase when the industry was young, but it was realized that native English speakers found the phrase a bit pretentious. Particularly the snobbish natives thought the term ‘Culinary’ echoed with professional training to become a chef. They went back to the previous term of ‘Food Tourism’ and till 2018 it is the most commonly used term for tourism industry. In the meantime, in Europe the term ‘Gastronomy Tourism’ became more popularly used; to them the term ‘Food Tourism’ sounded very ordinary, just like caveman hunting for food. I like to quote Greg Richards, Professor of Leisure Studies at the University of Tilburg in The Netherlands who is also the President, International Institute for Gastronomy, Culture, Arts and Tourism (IGCAT): “Gastronomy has been raised to the status of creative art by ‘gastrostars’ such as Ferran Adria Acosta, Joan Roca and Carme Ruscalleda. In particular Ferran Adria sees gastronomy much more as a creative process than as the act of preparing food. The most dramatic illustration of this attitude was his decision to close the world famous elBulli restaurant in order to dedicate himself to exploring the creativity of gastronomy. His elBulli Laboratory recently opened in Barcelona.” Gastronomy is a “creative process with the creative articulation between landscapes, the peoples who inhabit them, the food they produce, the customs they have developed and the staging of meals for residents and visitors alike.” (Richards, 2014). ‘Gastronomy’ is the term to explain the culinary culture of an area and to them ‘gastronomy tourism’ made the most sense, though to native English the term did not sound elitist. So, they ended up with the new term ‘epicurean tourism’ – the edible experience in tourism. As the eating and drinking experience in tourism industry is rapidly growing, professional, academics and others continue to put forward their own definitions of epicurean tourism, but I like to end up saying all these are synonyms (food tourism, culinary tourism, gastronomy tourism or gourmet tourism), in the same tourism sector.

### **2.1. Who are Foodies and what they share?**

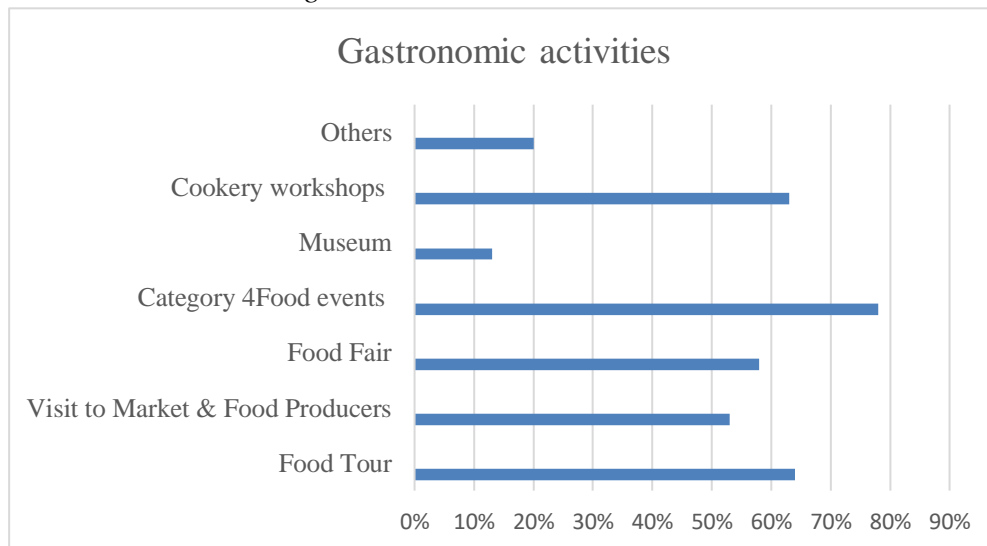
Foodies are persons who have remarkable interests in food and beverages and their main objective is to seek new experiences rather than eating out of hunger. A foodie truly appreciates the culinary experience. Research (Food Travel Monitor, 2016) shows that 93% of tourists can now be considered as food travellers who participated in food and beverage experience other than dining out, at some time in a year. They may have visited a food or beverage factory, participated in food or beverage tasting (particularly wine tasting) visited a cooking school, participated in a food tour, gone for shopping in a local grocery or gourmet store, and of course,

eaten out in unique and memorable food service establishments - all these are types of activities epicurean tourists are engaged in. The survey result of the Food Travel Monitor shows that 93% of travelers are foodies who generate long-lasting and much loved memories based on their experiences with an area's food and beverages. For the tourist returned home, often the story telling starts with "dining by the sea-beach/lake", continues on with "a long and relaxed lunch at the Green Corner" and ends with "a typical local breakfast at the Tea Garden". Unsurprisingly, it may be noticed that these experiences of local food and dining always criss-crosses or overlaps with one or more non-food elements of the local culture, traditions and festivities.

## 2.2. Why Epicurean Tourism?

Throughout the history of travel and tourism food has always been a major aspect of travel and seeking out authentic food experiences has become an increasingly noticeable motivator for travel. According to the Global Report on Food Tourism by the United Nations World Tourism Organization (2016), the average tourist spends more than a third (36%) of their holiday budget on food. This shows the degree to which this sector is involved with a visitor's in-destination experience. However, it is worth emphasising that not all visitors arrive at a destination solely to enjoy gourmet food, nor do all culinary businesses offer this experience. According to the Ontario Culinary Tourism Alliance (OCTA), culinary tourism refers to "any tourism experience in which one learns about, appreciates, and/or consumes food and drink that reflects the local, regional, or national cuisine, heritage, culture, tradition or culinary techniques of a place". The concept suggests people pursue a memorable food or drink experience by developing a better understanding and/or consuming local food or drink with the essence of culture in them. It is considered first-hand cultural experience and it is on top of the tourist attraction list. In his findings Iñaki Gaztelumendi (2012) about the activities that gastronomy tourists are involved is shown below in the chart:

Figure 1: Gastronomic activities



It shows that to the culinary tourist participating in the food event is the most important part of their activities (79%) followed by food tours (63%) and cooking classes (62%). About 59% of the culinary tourist responded for food fairs and 53% liked to visit market and food producers. Visiting food museums (12%) and other presentation got the lowest weight in the types of activities they like to be involved.

### **2.3. Role of Local Food in Epicurean Tourism**

OCTA observes that epicurean (food) tourism can play a significant role in preserving local heritage while building on existing tourism assets and driving innovation. By increasing visitor demand for local food and drink, food tourism contributes to the long-term sustainability of local agriculture, food systems, communities, and culture. Public interest in food has been steadily increasing, ultimately transforming food tourism into the new global trend, even more so fuelled by countless unique food experiences posted on social media sites. Unlike common tourism, food tourism focuses on culinary experience - food and drink that are locally sourced, rather than mere sightseeing. Culinary tourists are not only interested in the food they are enjoying - which must be locally sourced, of course - but also want to know more about its history, its production and its journey to the plate. A clear example of this is the growing success of wine tourism. Thousands of tourists are travelling Italy, France, Spain or USA just to have the experience of wine tasting and wine producing mechanism. Through these experiences, visitors taste great wine as well as discover its origin, participate in the grape harvest and even buy the product they helped to make. In this context, food tourism becomes *the* defining characteristic of a region's identity. Hjalager (2003) categorized culinary tourist into four different groups as existential, experimental, diversionary and recreational. Among these the existential gastronomy tourists think their gastronomy knowledge is improved by experiencing local food and beverages. For these tourists, consuming local food, of the region means gaining in-depth knowledge about the destination's culture. Therefore existential gastronomy tourists eat where only locals eat and value the food that is prepared according to the traditions and avoid high priced restaurants because of their commercial and non-authentic environment. The experimental gastronomy tourists seek trendy and fashionable foods matched with their lifestyles. They prefer designer cafes and restaurants and consider food consumption as a way of satisfying their needs associated with prestige. The recreational gastronomy tourists do not seek local food and fancy, they dishearten by that. The diversionary gastronomy tourists seek quantity and accessibility of food with familiar menu items. They prefer international chain restaurants and avoid unfamiliar food.

### **3. BANGLA EPICUREAN HERITAGE**

Historically, Bangladesh has earned the reputation of being, a land full of nature's bounties as evident from the vast expanses of its lush crop fields, borderland hills thickly covered with virgin forests and innumerable rivers and their tributaries, making it the world's largest delta. Ancient chroniclers have described Bengal of that time in many ways; to Ibne Batuta – the Moroccan trotter, Bangladesh was a "hell full of bounties and wealthiest and cheapest land of the world." So great were the attractions of Bangladesh that to quote Bernier "it has a hundred gates open for entrance but not one for departure", "a land of emerald and silver"(Hiuen Tsang), "a garden fit for kings", or as "a paradise among countries". This is the reason for which Bangladesh has always attracted settlers, traders, and conquerors who turned the land into a vast melting pot of diverse races and cultures. Food and beverage practices not only play a major role in Bangladesh's cultural identity, but they also offer valuable insights into the country's past and present environment, economy, and social structures. Thus, understanding when, where, and how Bangla food and beverage practices have developed allows for a more complete understanding of Bangladesh's culture and history. Mapping the origins and development of Bangladesh's complex culinary traditions is a daunting task, and as of yet, there has been no concerted effort to do so. To begin the important process of recording Bangladesh's extensive and delicious food ways Bangla Culinary Heritage Foundation has been established recently. Hopefully the Foundation will be able to preserve and promote culinary culture and heritage through hospitality and tourism initiatives. Traditional Bangla cuisine is a comprehensive cultural model comprising of farming, ritual practices, seasonal

variations, age-old skills, culinary techniques and ancestral community customs and manners. It is made possible by collective participation in the entire traditional food chain: from planting and harvesting to cooking and eating. The epicurean seeds are from agriculture! From the culinary point of view, some major historical trends influenced Bangla food.

### **3.1. History of Bangladeshi Food Culture**

The people of the ancient Bengal did not differ much from the present day people in their food habits, social rites and rituals. Their main food at the time were rice, fish, meat, vegetables, fruit, milk, etc. Bangla food has inherited a large number of influences, arising from historical and strong trade links with many parts of the world. Bengal of that time fell under the sway of various rulers including Turks, Mughals, from the early thirteenth century onwards and was then governed by the British for two hundred years. Hence, the Jews brought bakeries to Bangla, the Marwaris contributed their sweet-making skills, and also the exiled families of Wajid Ali Shah and Tipu Sultan brought different flavours of Mughlai cuisine. British patronage and the Babu Renaissance fuelled the development of these different culinary strands into a distinct heritage. Furthermore, collectives of female cooks and other practitioners are devoted to cooking traditional cuisine which is found in the villages across Bangladesh. Their knowledge and techniques express community identity, reinforce social bonds, as well as building stronger local, regional and national identities. Those efforts in the region also underline the importance of traditional cuisine as a means of sustainable development. Ancient Bangla diets included rice, fish, meat, dairy, vegetables and fruits. As mentioned before, the region was an administrative and commercial citadel in South Asia during early Hindu and Buddhist kingdoms and consequently the later Muslim sultanates. Mughlai cuisine developed in Bangla following the establishment of the Mughal province of Bengal in 1576, as part of the Mughal Empire. The city of Dhaka played an important role in influencing Bangla food that encompasses Mughal elements. The British Empire ruled the region for nearly two hundred years between the 18th and 20th centuries, during the time whereby, Bangla Renaissance shaped the emergence of modern Bangla cuisine. During the British Raj (Britain's rule over India) period, West Bengal particularly Kolkata influenced many Bangla Dishes. In the southeast, Arakan cuisine from Burma influenced dishes in Chittagong, particularly dried fish. The Partition of Bengal in 1947 resulted in the separation of the Hindu majority West Bengal from the Muslim-majority East Bengal, thus causing many shifts in demographics and culinary styles. Today, as opposed to the largely vegetarian cuisine in West Bengal, there is a greater emphasis on meat in Bangladesh. Bangladeshi cuisine incorporates a large number of cosmopolitan influences, a legacy of the region's historic trade links with the Arab world, Persia, Portugal, the United Kingdom and Burma. The Portuguese in Dhaka developed cheese, whilst the British introduced bakeries and tea.

### **3.2. Main features of Bangla Food Culture**

The culinary culture of the Bangladeshi people arises from the influences of the indigenous population (33 indigenous communities) within the territory of the country, the neighbouring Bangla community of India and the foreign settlers from medieval period. Rice and fish are traditional favourites with vegetables and lentils also forming a part of their staple diet. Fish as a staple diet is largely influenced by the rivers Padma, Meghna and Brahmaputra, and hundreds of rivulutes. Some food items are popular across the entire of Bangladesh, while some are regional favourites. For instance, the use of freshwater fish is huge in Rajshahi and Rangpur regions. The town of Comilla (now spelled as Cumilla) is famous for its food culture, most notably the Tehari or Biryani, a rice-based dish, and of course, Rosh Malai – the most renowned sweet dish of the country. Saltwater fish are commonly found in Barisal, Khulna as well as Chittagong regions, which are also famous for their heavy use of the spice.



Bangladeshi cuisine also has a rich tradition of sweets. Mishtidoi, or baked sweet yogurt, is one of the common desserts. Other common sweets and desserts are roshogolla, sandesh, roshmalai, phirni, jorda etc. These are typically made during festivals and other special occasions, like weddings. Pitha (handmade cake) is also a special Bangladeshi sweet made from rice flour and sugar/molasses. Bangladeshi cuisine is known for the diversity of its cuisines from different geographical regions of Bangladesh. Each area has its own method of preparing food by using an assortment of local herbs and spices, as well as vegetables and fruit.

Figure 2: Geographical regions of Bangladesh



The western areas mainly include the greater Khulna and Jessore region. Furthermore, it is very close to the West Bengal of India. The cuisines of these areas are known as authentic Bangla recipes. Mug dal with hilsha fish head, dalna, chachchari, luchipayesh, hilsha with mustard, etc. are very popular in both the east and west parts of Bangla. One notable aspect of cooking in this region is use of Piper chaba - a flowering vine in the family Piperaceae. It is called "Chui Jhal" in Bangladesh. It is a very expensive spice in Bangladesh, it has great medicinal value and tastes somewhat like horseradish (drum stick). People in Khulna, Bagerhat and Shatkhira cut down the stem, roots, peel the skin and cut it into small pieces. Then they cook them with meat and fishes, especially with mutton. The 'Chui Jhal Gosto' (meat prepared with chuijhal) is now the most popular dish representing the region. People love the spicy pungent flavour of spice all year round. The northern part of Bangladesh has strong influences from Eastern Indian states, such as Assam and Manipur. The main characteristic of the food here is that it is mainly sweet and has a lot of uses of banana throats, raw papaya fruit, raw mango, lentils and grilled or smoked vegetables. The capital Dhaka and its territory region make up the central region, where fresh water fish are much more popular.

Due to different ruling periods, the cuisine of this region is versatile. The Old Dhaka area is famous for the Nawabi cuisine. In Old Dhaka, kebabs, nans, bakarkhani, kachchi and pakki biriyani, haleem, mutton bhunakichuri (hotchpotch), and speciality mutton tehari and nehari (both beef and mutton) are examples of dishes that became popular in other parts of the country. The staples of Sylhet and eastern region people are mainly rice and fish. Their choice and method of cooking is distinctly different to non-Sylhetis. Traditional foods include sour dishes, such as tenga (or tok) cooked with vegetables, including amra (hog plum), jolpai (olives), dewa (Mahkotadewa also known as God's crown), amshi, aamchoti (mango), kul or boroi (Jujube), shatkora (one kind of citrus fruit), adazamir (adalembu) and any other sour lemon-like tasty vegetable. There are many types of meat dishes, including chicken. Chittagong and the Southern region of Bangladesh include the tribal (indigenous people) areas that have their own style of cooking methods and ideas. Other than that, the most southern part of this region is mainly influenced by the Arakan cuisine of Burma. Ziafat or Mezban feasts (grand feasts of social gathering) are popular throughout the greater Chittagong area, where characteristic "heavy" dishes—dishes rich in animal fat and dairy—are featured. They use lots of spicy flavours and coconuts in their food preparations. 'Shutki' (dried fish), bamboo shoots, sea fish and many more are the specialties. Bangladesh's Southern region is also popular worldwide for its fisheries industries with over 100 types of fishes exported every day from this region. At weddings and on important holidays, food plays a key role; guests are encouraged to eat to their capacity. At weddings, a common food is biryani, a rice dish with lamb or beef and a blend of spices, particularly saffron. If biryani is not eaten, a complete multicourse meal is served: foods are brought out sequentially and added to one's rice bowl after the previous course is finished. A complete dinner may include pilau rice, chicken, fish, vegetable, mutton or beef curries and dal and ended up with a sweet dish.

### **3.3. Main Ingredients of Bangla Cuisine**

"Machhe vate bangalee" – fish and rice is what makes a Bengali (Bangladeshi). The staples of Bangladeshi cuisine include rice, which is a common component of most everyday meals and to a lesser extent, "attaruti" (a handmade bread from ground wheat flour) which is also used for making luchi, porota, pitha, etc. Another staple food of sweet water fish comes from this riverine region. The rivers of Bangladesh are filled with various types of fishes including- Ilish (Hilsha), Ruhi, Catol (Indian carp), Koi (climbing fish), Papda (butter fish), Boal (trout), Chital (humped feather back), Aayir (gigantic goonch), Magur (cat fish), Sing (barbell fish), Baim (eel), Chingri (prawn and lobster), Koral (red snapper), Rupchanda (pomfret), etc. are favourites to all. Bangladesh's Hilsha (from Padma) now patented as most favourite item of Bangla cuisine. It is Bangladesh's national fish. The fish contributes about 12% of the total fish production and about 1.15% of GDP in Bangladesh. On 6 August 2017, Department of Patents, Designs and Trademarks (DPDT) under the Ministry of Industries of Bangladesh has declared the recognition of Hilsha as the product of Bangladesh. 65% of total produced Hilsha in the world is produced in Bangladesh. Lentils/Pulses include at least five dozen varieties; the most important of which are mashoor (red lentil), chhola (Bengal gram), orohoro (pigeon peas), mash kolai (black gram) and moog (green gram). Pulses are used almost exclusively in the form of 'dal', except 'chhola', which is often cooked whole for breakfast and is processed into 'beshon' (gram flour).

### **3.4. Bangladeshi Meals**

Each dish is to be eaten separately with a small amount of rice or ruti, so that individual flavours can be enjoyed. The typical Bangladeshi meal includes certain sequences of food. Two sequences are commonly followed, one for ceremonial dinners, such as a wedding and the other for day-to-day sequence.

Both sequences have regional variations, and sometimes there are significant differences in a particular course in Bangladesh. Ceremonial occasions, such as weddings, use to have elaborate serving rituals, but professional catering and buffet-style dining can be seen now. The traditions have not disappeared; large family occasions and the more lavish ceremonial feasts will still have the same traditional rituals.

#### **4. COMMUNITY INVOLVEMENT IN BANGLA EPICUREAN TOURISM**

Epicurean tourism offers new opportunities for communities to develop themselves by integrating tourism and local food systems in order to promote economic development. This is in response to the demand for quality food and dining experiences and help building on the cultural heritage of the region. Tourists enjoy meeting local foodies, seeing the places and scenery where the food is grown, learning about food, enhancing their skills, sharing their food experience with other food lovers and having fun and entertainment, they are rejuvenated. Food culture is an integral part of the Bangladeshi identity. Unfortunately, this healthy culinary heritage is fading away in the face of globalization and fast food chains' expansion. The country seeks to reconcile the new generation and urban population with their food traditions to preserve their culinary heritage and empower small producers and farmers – key holders of these traditions. It seeks to create jobs for the Bangladeshi rural population, namely women and small producers, by reviving the market for healthy home-cooked local cuisine and organic products. Bangladesh can work on a sustainable model (following different States of USA, Peru, Kenya, Malaysia or Nepal) that makes epicurean tourism a point of distinction by:

- a) developing new culinary tourism products as well as bringing the heritage recipes and preserving them,
- b) creating partnership opportunities with diverse group of businesses and organizations to work for promoting, developing and obtaining benefits from epicurean tourism,
- c) providing training on heritage cooking round the countries food destinations,
- d) creating job opportunities among the local destination communities providing them with training and all necessary support to be an entrepreneur,
- e) planning for the sustainability and economic development of the locality, and
- f) introducing village tourism/agro-tourism along with culinary tourism.

The whole community can be involved while managing epicurean tourism in the destination.

#### **5. PROMOTING EPICUREAN TOURISM**

To promote epicurean tourism Bangladesh should know what are the common culinary destinations in the world and how they promote these destinations. Peru has won the title of World's Leading Culinary Destination from 2012 till 2018 consecutively. Peru is famous for its food, like ceviche, quinoa, and potatoes. But also for its drink – Pisco Sour, the Peruvian national drink. Among other regularly nominated culinary destinations are countries like: Malaysia, Mexico, China, Thailand, Brazil, Indonesia, India, Morocco and South Africa. Spain, Japan, Sri Lanka, Vietnam even Myanmar is in the nomination list now. Where is Bangladesh? Not in the picture at all. Why should Bangla epicurean tourism be promoted? Because it is the way to allow travellers to have a unique and authentic experience of local food. They are interested in typical local food culture of the destination. In recent years, authenticity has become a major factor in tourism. Also this will allow tourist to interact with the local people. They think of eating at local people's homes, helping them in harvest, or participating in cooking classes run by locals. This trend towards interaction with locals is expected to continue in the coming years. European culinary tourists value sustainability. They are interested in where their food and drink comes from and value to local products. Similarly offering organic option is an advantage that what Nepal (among the neighbouring countries)

is doing nicely at present. For promotion now-a-days, media plays a vital role. In electronic media (both on TV and on-line) cooking programmes like Master Chef, are immensely popular. From baking show to professional competitions to food travel programmes introduce viewers with different and exciting food and drink cultures. This inspire people to travel abroad and experience the local cuisines. Another very important factor to promote is on-line presence of the local cuisine of Bangladesh. Most of the European culinary tourists research and plan their trip online. To obtain information and share their experiences they use sites like:

- Trip Advisor, Zoover, Booking.com for peer review
- Lonely Planet, Thorn Tree Forum for travel information
- YouTube, Instagram, Facebook, Twitter, food bloggers as social media

Internet to search for tourism destination will remain as the most important search channel for years to come. So, to promote Bangla culinary, there is no alternative of remaining present online with all latest updates and details to draw attention of the epicurean tourists. It should be noted that there is a 'new generation' - may be considered as fourth generation, who are looking for experiences and sharing experiences. With the advent of social networks they develop a 'community' and remain in touch with one another constantly. As Boswijk, et al. (2005) point out, "With the advent of the Internet and the possibilities it offers we see a huge rise in the number of spontaneous communities of people who find each other according to a common interest. Some communities revolve around the use of certain products, while others relate to hobbies, or are concerned with learning settings. Communities are both physical and virtual". There is growing evidence of communities springing up around food experiences. Creative tourism, which includes participation in food experiences and learning about food and gastronomy, is a clear example of the trend (Richards, 2011). The consumers of food increasingly want to become involved in the production and preparation of food, including in their tourism experiences. Examples of emerging food communities include Slow Food, CookEatShare.com, SeriousEats, foodbuzz.com, foodiez.com.bd, yumit.com, nourishlife.org, craigfreshley.com, etc.

## **6. MARKETING AND PROMOTIONAL INITIATIVES NEEDED AND BENEFITS FOR THE INDUSTRY**

- a) Organizing regular tours focusing certain cuisine along with local food fair, cooking classes and workshops – very recently Bangla culinary started drawing attention while presenting them in special occasions like Eid festival, puja festival, Bangla New Year celebration, etc. Dhaka Regency Hotel organized a weeklong Bangla food festival in this September with 9 course meals and presented it by creating a local ambience. This created an opportunity for the locals and visitors to taste the authentic Bangla food, though it didn't provide a complete epicurean experience (seeing the cultivation or fish culture, and how those brought to kitchen and prepared the food). This is nicely managed in Hangzhou, China. Four Seasons Hotel in Hangzhou, China, runs a private dinner and tour where tourists will be taken to the local food market where they can enjoy authentic Shanghainese and Cantonese cuisine. Cooking sessions are quite common in a number of countries including Japan, France and Italy, where tourists are able to visit local villages or gardens to collect ingredients and later on, cook meals from scratch accompanied by the locals. It is a whole new culinary tourism experience as it is not the same as watching cooking shows on television at home, rather it is an authentic experience in a place where a certain cuisine originates.
- b) Making regular and meaningful presence online – as mentioned earlier there is no alternative of remaining present online. Some food bloggers have a massive online following, which would contribute to increasing a hotel or a restaurant's publicity.

By allowing food bloggers to write reviews (I did it not only for Bangla but also for Indonesian food), take stunning photos of the food, and share their experiences with visual content from the restaurants. Social media examiner published a social media marketing report in 2016, which shows that 37% of marketers considered visual marketing to be the most significant form of content, with blogging following after. Furthermore, social networking sites such as Instagram and Snapchat that primarily covers visual content (photos and videos), can be considered tools to use in visual marketing.

- c) Destination marketing through specific foods and drinks—it is already mentioned about certain foods from specific regions of Bangladesh, such as: ‘chuijhalgusto’ of Khulna, ‘satorafish’ of Sylhet, ‘mezban beef’ of Chittagong, ‘monda’ (sweet) of Muktagachha, ‘rosmalai’ of Cumilla, ‘saatronger cha’ (7-colour tea) of Sri Mangal, etc. Every single destination can be highlighted and focused for its unique culinary product.

Culinary experience is becoming more and more a focus for traveling. As a new trend with a high amount of interest among the new generation, there are quite a number of digital marketing trends that tour destinations, hotels, restaurants, and tour agencies need to catch up, focus on content development and set strategies. Moreover, as some tourist believe that dining is not the final destination for food tourists, rather, it is learning about where the food comes from and how it was produced - is the future of food tourism. This means there is an increasing appeal for a memorable cooking experience, and it is crucial for the tour operators to expand their culinary tourism choices in order to meet their customers’ demands and provide quality food tourism experiences in Bangladesh. Ultimately by promoting culinary tourism the country (Bangladesh) can be more engaged in a sustainable food and drink tourism strategy, as there will be:

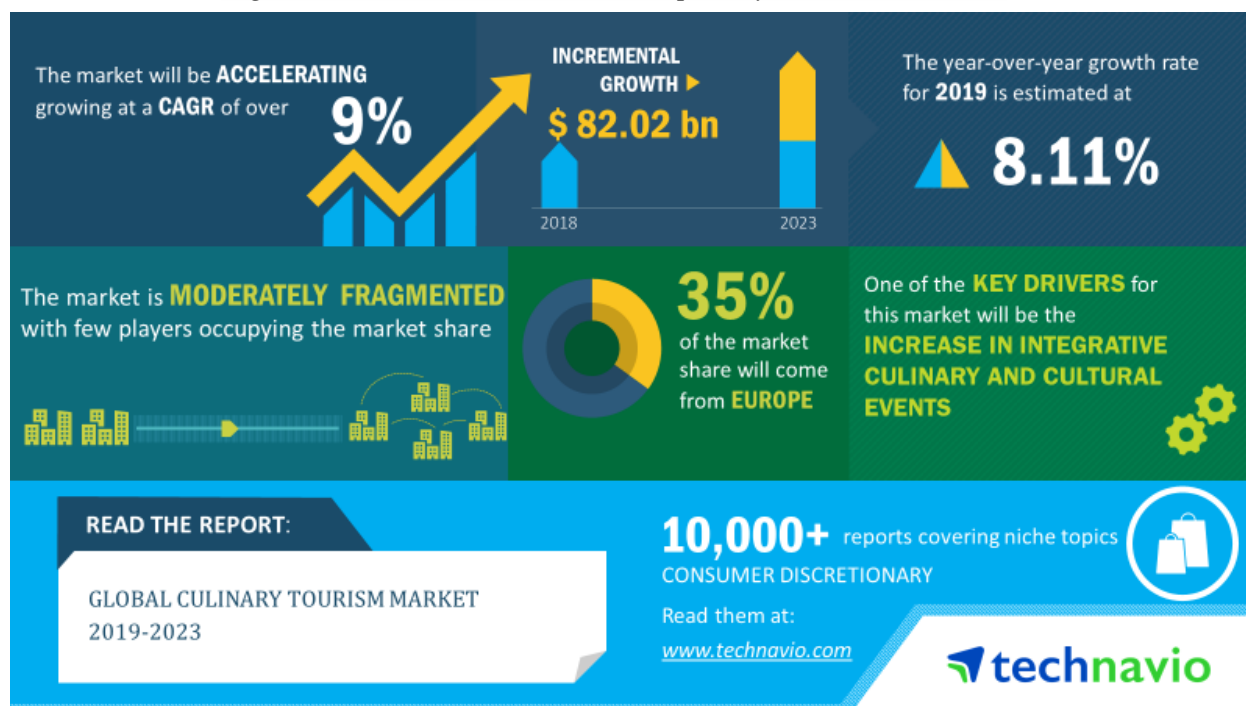
- a) more visitors arrival
- b) more sales of all tourism components (air tickets, accommodation, food, souvenirs etc.)
- c) more exposure to the global culinary tourism (as visitors will share their experience)
- d) more media coverage (both print and electronic)
- e) more revenue to government (more VAT and taxes to obtain)
- f) more community involvement resulting more sustainability
- g) more unique selling propositions to have (mentioning unique food and drinks)

## 7. CONCLUSION

So far the attempt is made to look at the importance of epicurean tourism in promoting food and cultural heritage of Bangladesh. The diversity in culture (with 33 indigenous group) should be viewed as a strength in marketing of epicurean tourism in Bangladesh. In recent years, epicurean tourism has grown considerably and has become one of the most dynamic and creative segments of tourism. Both destinations and tourism companies are aware of the importance of gastronomy in order to diversify tourism and stimulate local, regional and national economic development. Furthermore, this includes ethical and sustainable values based on the territory, the landscape, local culture, local products, authenticity, which is something it has in common with current trends of cultural consumption. The impact of epicurean tourism is enormous and this can improve the overall economy of any country like Bangladesh. Tourists are more inclined to demand more traditional food as this allows access to cultural heritage and make it more authentic. Some destinations have already taken the sustainability concept and to a new level and started offering a healthy food options to consumers.

As a result epicurean tourism gets more importance and draws priority among certain social groups. Of course, the food and drink must be of high standard, hygienic and well prepared as health and hygiene issues are serious concerns to tourists. Epicurean tourism is a growing market, and food is one of the fastest growing interests among travellers according to the International Culinary Tourism Association. It is one of the most dynamic segments within the tourism market. The global culinary tourism market is expected to post a CAGR of over 9% during the period 2019-2023, according to the latest market research report by Technavio (2019). The culinary tourism market size will grow by USD 82.02 billion during 2019-2023.

Figure 3: Latest market research report by Technavio (2019)



This report offers an analysis of the market based on both domestic and international culinary tourist. The increase in integrative culinary and cultural events is one of the critical factors that will trigger the growth of the global culinary tourism market in the upcoming years. The growing number of local culinary programs introduced at music and arts festivals offer opportunities to food service providers and other culinary tourism suppliers to gain access to a potential customer base. As a result, culinary tourism is gaining popularity among consumers. Also, destination management organization (DMOs) are taking initiatives to leverage the growth of several art events and festivals to explore the role of food in them. The report shows that the major culinary tourism market share is enjoyed by the Europeans (35%), soon this will be more evenly shared by culinary tourist from the rest of the part of the world. If Bangladesh is now seriously looking forward to promote epicurean tourism and market it globally, we are sure to have the first bite in our piece of cake soon.

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## *APPENDIX*

### **ANNEXURE: A**

#### **Bangla Meal Courses and Etiquette**

Bangladeshi families are very particular about the way the food will be served and in which order. In the main meal each dish is to be eaten separately with a little rice so that the individual flavours can be enjoyed. The starter can be of soup (local style), or green leafy vegetables which is locally called 'shak' or different mash items. Again, based on locality, family background and religion, people take different types of appetisers. Sometimes, it could be even with some bitter tastes like 'Korola' (bitter gourd) is used to bring taste in before the main course. In Bangla menu the most common local soup is lentil or 'dal', but instances are there that it is also taken at the end of the main course! 'Bharta' and 'bhaja' (mashed and fried) vegetables are very common as the first course and depending on the season the vegetables may be different. Among the mash the 'taki' (spotted snakehead) fish mash is the most popular though. Next, the main course. Very truly the main food of the main course is rice. Whatever is taken, rice is the staple food in any form. Rice can be of plain rice, pilau, khichuri (hotchpotch with beef or mutton or chicken), biriyani (with chicken or mutton) or kachchi biriyani (mutton), tehari (usually with beef). Plain rice is taken with fish (curry or fry), or meat or even eggs. There could be more items in the main course and combination of several fishes, meat or vegetables. Finally, the dessert. It is told that Bangladeshis have sweet tongues. They love desserts and there are many different types of desserts available all over the country. Dessert items include: mistidoi (sweet yoghurt), pitha (handmade cakes), jorda (sweetened rice with nuts, raisin and other sweet spices), firni (rice flour cooked in milk, sugar and flavouring), payesh (rice cooked in milk, molasses, grind coconut, and flavouring), halua (a common dessert ranging from egg halua to carrot halua, Suji or wheat cream, almond, pistachio, nuts and so on), or pure sweets like: rosmalai, rosogolla, chamcham, chhanamukhi, monda and many more to name. The meal supposed to be completed with desserts, but many occasions it ends up with 'paan' (betel leaf) which is considered to be an aid to digestion. Traditionally the people in the village or suburban areas eat seated on the floor on mats spread over for each person to sit on and the meal is served on a thala (large plate) and the various items of food are placed in batis (bowls). People mostly eat with the fingers of the right hand and strict etiquette is observed with regard to this. This is the typical sequence of Bangla food, with regional variations, and sometimes there are significant differences in a particular course between different religious sects in Bangladesh.

#### **Contemporary Bangla meal etiquette shift**

In the recent time, the food habit and etiquette of the Bangladeshi families, particularly in the urban areas have been shifted. Usual dining habits of the Bangla families were a reflection of the attention the housewives paid to the kitchen. But in modern times, because of the globalization and availability of internet and direct western influence, this is rarely followed anymore. Courses are frequently skipped or combined with everyday meals. Meals were usually served course by course to the diners by the housewives, but increasing influence of nuclear families and urbanisation has replaced this. It is now common to place everything on platters in the centre of the table, and each diner serves him/herself. Ceremonial occasions such as weddings used to have elaborate serving rituals, but professional catering and buffet-style dining is now commonplace. The traditions are far from dead, though; large family occasions and the more lavish ceremonial feasts still make sure that these rituals are observed.

#### **The daily Bangla meal in detail:**

The daily meals are usually simpler, geared to balanced nutrition and makes extensive use of rice with fish, meat and vegetables. The courses progress broadly from lighter to richer and



heavier and go through various tastes and taste cleansers. Rice remains common throughout the meal and is the main constituent of the meal, until the dessert.

a) **Appetiser or starter:** Appetisers usually are the salty and tasty items, but in case of pure Bangla appetisers, it does not reflect the same. It can be of salty and tasty items, but it can be of bitter as well! The starter can be of soup (local style), or green leafy vegetables which is locally called 'shak' or different mash items. Again, based on locality, family background and religion, people take different types of appetisers. The starting bitter course is made from bitter gourd or herbs, often deep fried in oil or steamed with tiny cubed potatoes. Portions are usually small - a spoonful or so to be had with rice - and this course is considered to be both a palate-cleanser and of great medicinal value. In Bangla menu the most common local soup is lentil or 'dal' though soup of tomato, green olives, palm, red amaranth are also quite common. Among the green leafy vegetables there are spinach, amaranth, red amaranth, fenugreek, chard, basil, bind-weed, radish-leaf all are very common and mostly found round the year. Others 'shak's on the list are: laushak (gourd leaf), kumroshak (pumpkin leaf), shorsheshak (mustard leaf), kochushak (arum leaf) etc. Usually the green leafy vegetables are steamed or cooked in light oil. There are many mash items are now prepared not only at home, but also in good number of Bangla restaurants and the demand is increasing day by day. Among mash items – potato, green banana, beans, tomato, egg-plant, shuki (dried fish), egg, and various fish mashed are very popular.

b) **Main course in Bangla menu:** It is mentioned earlier that rice is the main food, whatever the form it may prepare. But plain rice is the most common one that people take every day at home, with exceptions at urban areas. Younger generation is more inclined to take other forms of rice like biriyani or kachchi or kichuri or pilau. Biriyani is the scented rice cooked with spices and chicken, mutton or beef, where askachchi biriyani is one of the forms of preparing rice with mutton in the steam. Pilau (often called in Bangla as Pulao) is spiced like biriyani but cooked without meat, sometimes with vegetable like peas and known as Peas Pulao. Kichuri is one of the form of rice preparation that liked by most people particularly during the rainy season. This is rice cooked with pulses of any or mixed kind and served with meat (most cases beef), with pickles, eggs, livers, etc. Everyday common preparation of the rice is called Vaat – just plain or steamed rice. Plain rice has many accompaniments – commonly fishes, vegetables, meats and eggs those are locally known as 'torkari' sometimes synonym of only vegetables. Sometimes fish and vegetables curry is prepared with mixed fishes and vegetables, sometimes individual fishes are prepared with certain vegetable that goes with that fish taste. One of the most common vegetable items is called 'Labra' – a mixed vegetable of pure Bangla style. In the original labra recipe vegetables include aubergine, pumpkin, string beans, ridge gourd, perbol, potato, green banana, green papaya, basil leaf and a bit of pulses. It cooks in a wok with water, oil, spices like turmeric, cumin, onion, garlic, green or whole red chilli etc. Fishes of both sweet water and saline water are very common accompaniments of rice in Bangla menu. In villages, presence of fishes is must in every day meal, where as in urban areas now-a-days fishes are dear. It may prepared once a day meal based or on occasions. Fishes are prepared either as fried or as curry with or without vegetables. Younger generation tends to take more meat than fish or vegetables in Bangladesh now. Meat is consumed in the urban parts nearly every day in Bangladesh. Beef is the most consumed meat but because of the proliferation of the poultry farms chicken is less expensive alternatives for many and also chicken is fatless compared to beef. Mutton is more consumed in the feasts and in special dishes like Kachchi biriyani.

One of the additional accompaniments is pickles mainly made from green mangoes, green olives, tamarinds, lemons, and shatkora (a kind of citrus). Another format of pickles is called 'chatney' – which is a bit of tangy and sweet.

- c) **Dessert:** All Bangladeshis have sweet tooth and many sugar-loaded desserts are made here to satisfy the palate. Even the yoghurt, known as 'mistidoi'- is sweetened. It is virtually impossible to get normal fresh yoghurt. Other common dessert items include: sweets of various types – rosmalai, rosogolla, laddu, sandesh, mihidana, golabjamon, kalojam, monad, rosomonjoree, jilapee, what not! Different districts have their own and original recipe of sweets and all of them are popular. For social ceremonies sweet are must to serve. Moreover, sweet items from the rice firni, payesh, jorda are regularly consumed as desserts in occasions.

It must be noted that there is a long heritage of serving 'Pitha' (handmade cakes) as desserts. There are huge varieties of pithas prepared in Bangladesh. Some of them are more available in winter though, with some exception mostly pithas are now made available round the year. Pithas include: vapapitha, chitaipitha, dudhchitai, patisapta, dhupipitha, pulipitha, puapitha, phoolpitha all are equally popular.

#### **ANNEXURE B: COMMON BANGLA COOKING STYLE:**

- Bhaji: It is frying anything in the oil like vegetable fry.
- Bhapa: A kind of preparation in the steam like Bhapapitha or smoked Hilsha.
- Bhuna: It's frying for a long time with ground and whole spices over high heat. Usually meat is prepared as beef bhuna.
- Chorchari: Chorchari is prepared usually with one or more varieties of vegetables cutting in the longer strips and sometimes with stalks of leafy green leaves cooked in seasoned lightly spices like mustard and poppy seeds and panchphoron (mixer of 5 different spice).
- Dom: Vegetables, especially potatoes, or mutton and chicken are cooked over a covered pot slowly over a low heat for long time. It's a simmering method of cooking.
- Kalia: A very rich preparation of fish, meat or vegetables using a lot of oil and ghee with a sauce usually based on ground ginger and onion paste and groom mashalla.
- Kofta: Ground meat or vegetable croquettes bound together by spices and/or eggs served alone or in savoury gravy.
- Korma: Cooking meat or chicken in a mild yoghurt (sour) based sauce with ghee instead of oil.
- Rezala: Rezala is neither too sweet, nor sour nor very spicy, it's a semi-gravy dish gently teases one's palate and makes it want more of it again
- Vorta: Vegetables, eggs or fishes, first boiled and mashed and seasoned with mustard oil or ghee and spices

#### **ANNEXURE C: ORIGINAL BANGLA RECIPE OF:**

##### **Smoked Hilsha**

Hilsha (locally called Ilish) is the king of fishes for Bangla cuisine. Hilsha is generally found in sweet river water in Padma and Meghna, though sea water Hilsha is also available. But, if you love to taste it as Hilsha, a Hilsha from Padma River will be the best. It possess a distinctive silvery shining body. What sets it apart from all the other fishes is its supreme unbeatable taste which however comes at the cost of innumerable thin bones in the flesh. But as it said, the more bones a fish has, the more tastier it becomes. When the soft Hilsha flesh melts in the mouth of food lover, it gives a feeling nothing other than which should be called absolute 'divine'.

Although Hilsha can be prepared in many different ways, the following is a smoked Hilsha recipe. Its smoky flavour imparts a Bar-B-Q taste. This can be prepared as a family meal or on special occasions.

### **Ingredients**

10 slices hilsha fish  
½ tsp turmeric powder  
½ tsp red chilli powder  
2 tsp tomato sauce  
1tsp vinegar  
1 tsp ginger paste  
2 tbsp onions paste  
¼ cup oil  
Salt to taste  
Charcoal and foil

### **Method**

In a pan, marinate the fish with all the spices and set aside for 2-3 hours. Next, place the pan on a stove and cook it on low heat for 1 hour. When the broth dries up and releases a charred smell, take the pan off the heat. Serve in a dish with a glass lid.

*Photo courtesy: Khaled Sarker*



Now make little bowls with foils and place on top of the fish slices. Heat the charcoal and when it becomes red hot, put it inside the foil bowls. Add a little bit of butter over the charcoal and cover with a lid. Cast off the charcoal and foil after a few minutes and the smoked Hilsha is ready to serve.

### **Mutton Dak Bungalow**

Established in India in the 1840s by the travelling British, Dak Bungalows were these government buildings set up along the main roads, perpetually changing how people travel in India. They served both as lodgings for travellers (usually British officials) as well as post offices for the British mailing system. Even today, CPWD-run Dak bungalows continue to occupy an important place in the lives of India's civil servants.

Back in the day, dak bungalows used to be pretty basic houses with bare minimum supplies, usually taken care of by a *Khansama* (house-steward) or *durwan* (security guard) who also cooked meals for the travellers. That is how this dish gets its funny name. Dak Bungalow (or Bangla) cuisine, sadly, is a near-forgotten culinary treasure that survives among a few remaining khansama families and Anglo Indian households. At that time the Care-taker had their own Poultry, Goat at Dak Bungalows for easy milk and meat supplies. This kind of curries are always be the only Dinner/Lunch item. So it is always cooked along with potato, egg and freshly ground spices, as that time store bought spices were not being used in cooking. A dak bungalow mutton signifies a mutton typically cooked in a dak bungalow. Given that these structures were present all over the country, it is fair to assume that the dak bungalow mutton recipe was not consistent and depended largely on the location of a dak bungalow as well as the availability of ingredients. It is possible that eggs and potatoes, the characteristic elements of this dish, were included because they were easily available, even during the wars, which is also how eggs and potatoes sneaked into the Bengali Biryani.

Mutton Dak Bungalow: Serves 4

Prep Time: 4 hr

Cook Time: 45 min

Total Time: 4 hr 45 min

### Ingredients

1. 500 grams bone-in goat/lamb meat

### For marinate

1. 2 tbsp yogurt
2. 1 tbsp ginger paste
3. 1 tbsp garlic paste
4. 1/2 tsp red chili powder
5. 1/2 tsp turmeric powder
6. 2 tbsp mustard oil
7. 1/2 tsp salt

*Photo courtesy: Daily Observer*



### **For special dak bungalow spice**

1. 1 inch cinnamon
2. 8-10 black peppercorns
3. 6 green cardamoms
4. 6 cloves
5. 1 blade of mace
6. 1/4 tsp nutmeg
7. 1 tbsp coriander seeds
8. 2-4 whole dry red chilies

### **For sauce**

1. 4 hardboiled eggs
2. 2-3 medium potatoes, washed, peeled and halved
3. 2 tbsp mustard oil
4. 1 tbsp ghee
5. 1/2 tsp radhuni (optional)
6. 1/2 tsp cumin seeds
7. 1-2 bay leaves
8. 1 cup sliced onions
9. 1 tbsp chopped garlic
10. 1 tbsp chopped ginger
11. 2 green chilies, slit
12. 1 tsp cumin powder
13. 1 tsp coriander powder
14. 1 tsp kashmiri red chili powder
15. 1/2 cup chopped tomato
16. 1/2 tsp sugar
17. salt to taste

### **Instructions**

#### **Marinate the meat:**

Take the goat meat under the water at room temperature, and clean very well. Now put the meat in a large pasta strainer for 30 minutes to drain all the excess water. Now put the clean meat in a large bowl, add sour curd, ginger garlic paste, red chili powder, Kashmiri red chili powder, turmeric powder & mustard oil and marinate all together very well. Rub the pieces of meat with the marinating. Cover the pan and leave the marinated meat for overnight or 6-8 hours. Remove the marinated meat 2 hours before cooking. In the meantime make the "special spice powder" by dry grinding all the ingredients under the heading of "Special Spice Powder", in a spice grinder. Pour the "Special Spice Powder" in an airtight container and keep aside.

#### **Preparing the gravy:**

Take the boiled egg and prick the skin of the egg to prevent from bursting while frying. Now marinate the boiled eggs and potatoes with some salt and turmeric powder and keep aside for 10 minutes. Heat oil and ghee in a large non-stick pan, fry the marinated eggs and potatoes till they are golden brown, take them out of the pan and keep aside. Now in the same pan add Bay leaf, Radhuni & Methi and fry for few seconds, but be careful, do not let the Methi burn. Add sliced onion and some salt and cover the pan for 2 minutes. Open the lid after 2 minutes and fry the onion till golden brown. Add ginger garlic paste to the pan and fry again for 1 minutes. Add sliced tomatoes and fry till the tomatoes are pulpy.

Now add the marinated meat and the "special spice powder" to the pan and cover it for 5 minutes. After 5 minutes open the lid, and start frying on medium heat for 30 minutes. If the masala starts burning at the bottom, sprinkle some water and again fry. Add the fried potatoes to the pan and 2 cups of water. Here you can cook the meat in Pressure Cooker or in the same pan. If you are using a pressure cooker, then add all the meat along with the spices into the cooker, close the lid and cook for 10 minutes or up to 4 whistles. Let release all the pressures of the cooker by itself, and open the cooker and add the fried eggs now. Boil the curry for 5 minutes and turn off the heat and serve with plain rice & cucumber salad. If you are cooking the meat in the pan, then cover the pan, lower the heat and let the gravy boil for 20-30 minutes or till the meat is soft and tender. When the meat is well cooked, open the lid and serve hot with rice and salad.

# METHODS OF INTERCONNECTION PRICING SYSTEMS AND TECHNICAL DRAWING SOFTWARE

**Vojtech Domansky**

*Brno University of Technology, Faculty of Civil Engineering  
Veveří 95, 602 00 Brno, Czech Republic  
Vojtech.Domansky@vut.cz*

**Miloslav Vyskala**

*Brno University of Technology, Faculty of Civil Engineering  
Veveří 95, 602 00 Brno, Czech Republic  
vyskala.m@fce.vut.cz*

## **ABSTRACT**

*The paper is focused on the analysis of the possibilities of interconnection of price systems for creating construction costs and software for technical drawing, in which they create BIM models, in order to achieve automation of valuation of BIM models of building objects. The article outlines the basics and principles of these methods and the current state of their implementation. The aim of the paper is to evaluate individual methods and analyze their potential.*

**Keywords:** *BIM, Drawing Software, Pricing Systems*

## **1. INTRODUCTION**

Contemporary technologies are developing rapidly and offer new possibilities for many sectors of the economy. Their utilisation, however, depends on the initiative of people within these sectors. Construction is generally considered to be rather conservative. Every building is more or less unique, which is why it is not completely possible to set up processes that would be universally applicable to any building in a series. This is one of the features differentiating construction from machine engineering and is also reflected in the slower pace of digitalisation and automation in the construction industry. At present, we are witnessing a gradual but significant transformation of the entire sector towards a broader utilisation of the available technologies. Building Information Modelling (BIM) lies at the centre of the transformation, comprising not just new ways of designing buildings, but a change of the overall approach to construction processes. The Czech Republic is not an exception from this trend as various governmental and non-governmental initiatives affect the field of construction both in terms of the public and private sectors. Starting from 2022, the use of BIM will be obligatory in the Czech Republic for above-the-threshold public contracts (i.e. contracts worth over CZK 149,224,000. [1] [2] As a result of these changes, it is necessary to find and develop new solutions pushing the use of BIM further. This article follows up on the author's previous research dealing with the possibilities for data interconnection between architectural design software and software tools used to evaluate the costs of construction works, introducing his own proposed solution. [3] [4] This article presents a functional solution for costing of building structures implemented in a commercial software used to create BIM models. This solution is demonstrated on an example of a reinforced concrete wall.

## **2. LITERATURE REVIEW**

Building Information Modelling (BIM) is a digital representation of the physical and functional characteristics of a building. BIM represents a shared source of knowledge and information on the building, offering a reliable underlying basis for decision-making over the entire life cycle of the building, from the early concept stage until final disposal and demolition [6].

The essential function of the BIM consists not so much in an existing 3D model of the building, but rather its parameters and a database of information [7] that can be accessed by all stakeholders involved at any stage of the building's life cycle. This article concerns cost-estimation based on a BIM model. Budgeting has several distinct features in the Czech Republic. The main source used for building cost-estimation consists in the TSKP classification (Czech Classification of Structural Components and Construction Works). TSKP is a database comprising over 100,000 items including various structural units and materials, but even this comprehensive source does not cover all works involved in the construction process. [5] This creates a dilemma as to how to estimate the cost of given elements in order for the structure to be sufficiently compatible in order to allow data interconnection with the software in which the BIM model is made. Generally speaking, we need a multi-level classification system of elements where each classification is assigned with relevant element parameters (characteristics) that need to be costed. This means that when the given element is classified and specified using certain parameters, its cost can be estimated. Each parameter is defined by its individual data type. [3]

### **3. PROPOSED SOLUTION AND IMPLEMENTATION INTO BIM SOFTWARE**

The objective of the proposed system is to devise a solution which will be a part of the software used to design buildings – a solution which, after classification and inputting of pre-defined parameters of the individual elements, will automatically and dynamically estimate the cost of the elements. "Automatically" means immediately returning the value of the characteristic of the element price when all required characteristics of the given element are put in. "Dynamically" means automatic re-calculation of the element price when the geometry of the given element changes, i.e. a change in the value of its quantity according to the measurement unit.

#### **3.1. Predispositions**

The following predispositions must be met in order to achieve full functionality of the solution as described above:

- **Classification**

The individual elements of the BIM model and the building as such serve different functions, are located in different parts of the building and comprise various materials. These elements all need to be classified. The characteristics of the individual elements are created based on their classification. Therefore, the system has to enable creating any sort of classification and thus classify the model's elements.

- **Characteristics**

Each classified element is assigned parameters that specify it in more detail. The host software calls these parameters "characteristics", which is why this term is used in this paper. The more detailed information about an element is available, the more accurate the cost estimation can get. Cost estimation requires that the element is sufficiently well-described. However, it is not desirable to "overload" the element being described with characteristics which are irrelevant for the given purpose. At the same time, it is necessary for each characteristic to be defined by a data type, i.e. there has to be a specification of the type of values it can take. The value can, e.g., be a simple number, or it can represent a selection from a list of options.

- **Relations between characteristics**

To enable a partial automation of cost-estimation, it is necessary to have a possibility to define logical and mathematical relations between the characteristics in order for them to mutually influence their values based on pre-defined formulas.



- **Host software**

To implement the solution, a commercial BIM modelling software that is widely used for design work and enables working with the above-mentioned predispositions was sought. These requirements were met by ArchiCAD 22, which was consequently selected for implementation of the solution.

- **Price data**

Price data are an integral part of cost-estimation of building elements. For the purposes of the proposed solution, the price system issued by ÚRS CZ a.s. is used.

- **Dynamic parameter of the element measuring unit**

Finally, to ensure the functionality and dynamic re-calculation based on the building model, the unit of measurement parameter is important. These parameters are already part of the host software and ArchiCAD automatically evaluates them when geometric changes in the model occur. In this case, the parameter of “net volume” of the wall being costed given in cubic metres (m<sup>3</sup>) will be employed.

### 3.2. Classification of elements

It is necessary to determine how the individual model elements will be classified. This demonstrative example proposes a classification oriented towards the source of the price information, i.e. the ÚRS price system.

#### 3.2.1. Element classification in the ArchiCAD software

The selected software enables to set custom classifications through the Options – Classifications Manager tab, where it is possible to create the necessary multi-level element classification system.

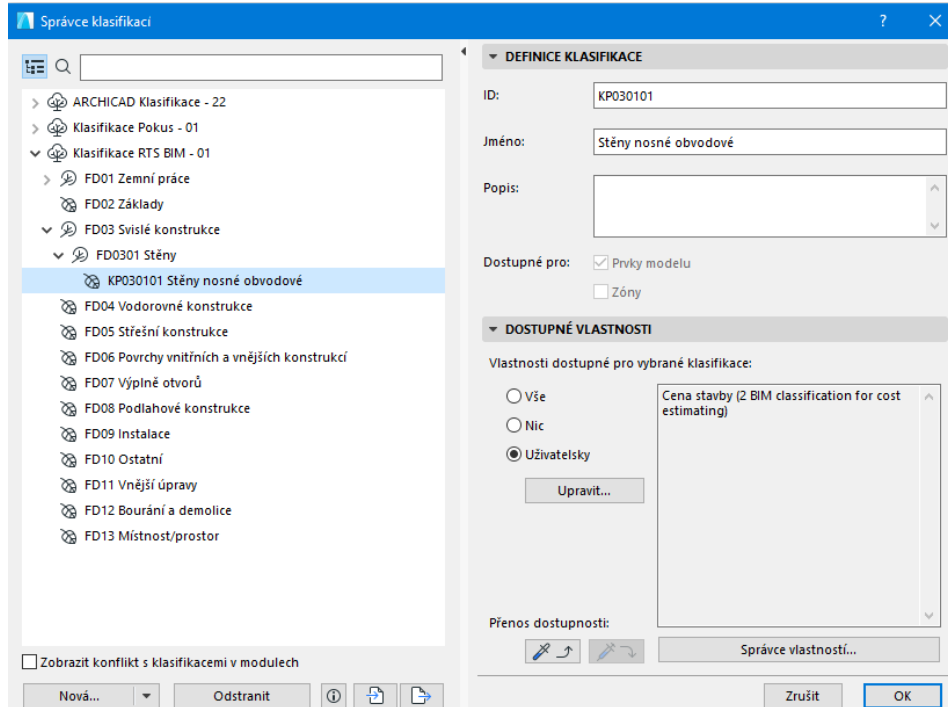


Figure 1: Classifications Manager in the software (created by the author)

### 3.3. Element characteristics

Each of the characteristics must be uniquely named and defined. The characteristic then takes various values based on its data type.

### 3.3.1. Creating element characteristics in the design software

The necessary setup of element attributes is initiated by selecting Options – Characteristics Manager. In a new window, the “create new characteristics group” option is selected, which enables creating individual characteristics within the created groups. When a specific characteristic is created, it is necessary to select the elements for which it will be available, i.e. in which classifications it will be possible to operate with that particular characteristic. To give an example, it is not desirable for the “Type of RC wall” characteristic to be available also for roofing elements. This characteristic is only relevant for load-bearing elements of reinforced concrete walls. The selected software allows to choose the classifications where the individual characteristic will be available through the “Availability for Classification” tab.

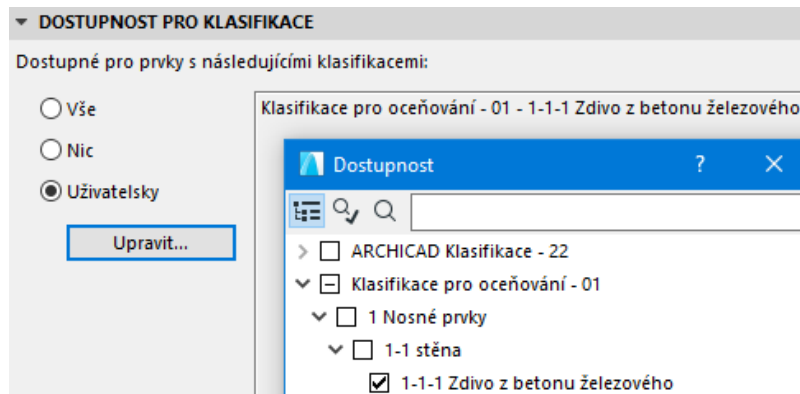


Figure 2: Selecting availability for classification in the software (created by the author)

### 3.3.2. Data types of characteristics in the software

The characteristics (parameters) must be defined by a data type, which could be understood as a “format” of the value of the given characteristic. A data type and its definition must be chosen in order for the relations among the characteristics to work. The host software enables to determine and define these data types.

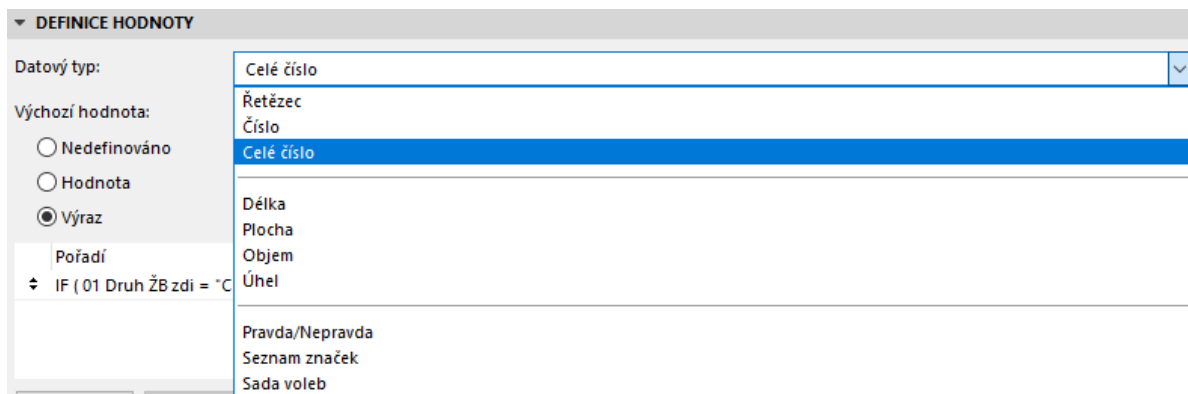


Figure 3: Selecting the data type of a characteristic in the software (created by the author)

Data types in the costing example take the following values:

- **“String”**

The most basic format is a basic “string”, i.e. text or numerical value. For instance, the “material” characteristic of an element defined as a wall can simply be described by adding the “reinforced concrete” text string). This data type is usually not suitable for characteristics systems using mutual relations, as it can take any value and contain any character and cannot be classified.

- **“Number” and “integer”**  
 A simple numerical value of a characteristic. This data type is necessary for mathematical operations according to various formulas.
- **“Set of options”**  
 In parameters with the “set of options” data type, it is necessary to pre-set which values can the set of options take. When modifying the characteristics of an element, the user can choose from among the pre-set values. These values are then linked by formulas to other characteristics and their selection thus affects the price of the element.

### 3.3.3. Characteristics settings

It is then necessary to set the default value of the characteristic. It can be left empty as “undefined”, given a fixed default value, or an “expression” can be chosen. This option is used in characteristics where an automatic calculation based on pre-defined formula is required.

#### 3.3.3.1. Creating characteristics for cost-estimation of a reinforced concrete load-bearing wall

The price system (i.e. the ÚRS price system in this case) serves as the basis for the code of the expression for the designations of wall types, rebars, their codes and unit prices. To enable creating a costing algorithm, it is necessary to create characteristics (parameters) defining the structural elements being costed and based on which the price of the given element will be established. For the purposes of cost-estimation of elements classified as reinforced concrete, the below-indicated characteristics were created. They are always defined by their name, data type and the default value.

- **“RC wall type”**  
 The first characteristic defines the concrete mixture material used using a selection from a list of values.

Table 1: Parameters of the “RC wall type” characteristic (created by the author)

Data type	Set of options	C 12/15 Without special requirements on the type of environment
		C 16/20 Without special requirements on the type of environment
		C 20/25 Without special requirements on the type of environment
		C 25/30 Without special requirements on the type of environment
		C 30/37 Without special requirements on the type of environment
		C 35/45 Without special requirements on the type of environment
		C 40/50 Without special requirements on the type of environment
		C 16/20 for board-based sacrificial formwork
Default value	Undefined	

- **“Unreinforced wall code”**  
 Another characteristic is determined automatically after selecting the value of the “RC wall type” characteristic, being linked to it via a predefined formula. It returns a value in the form of a numerical code of an unreinforced wall based on the ÚRS price system.

Table 2: Parameters of the “Unreinforced wall code” characteristic (created by the author)

Data type	Number	
Default value	Expression	IF (RC wall type = "C 12/15 Without special requirements on the type of environment"; 311321211; IF (RC wall type = "C 16/20 Without special requirements on the type of environment"; 311321311; IF (RC wall type = "C 20/25 Without special requirements on the type of environment"; 311321511; IF (RC wall type = "C 25/30 Without special requirements on the type of environment"; 311321411; IF (RC wall type = "C 30/37 Without special requirements on the type of environment"; 311321611; IF (RC wall type = "C 35/45 Without special requirements on the type of environment"; 311321711; IF (RC wall type = "C 40/50 Without special requirements on the type of environment"; 311321712; 0))))))

- **“Unit price of unreinforced wall”**

The unit price of unreinforced wall is directly necessary for a price calculation. A conditional expression returns a unit price based on the value of the characteristic of “unreinforced wall code”.

Table 3: Parameters of the “Unit price of unreinforced wall” characteristic (created by the author)

Data type	Number	
Default value	Expression	IF (Wall code = 311321211; 2700; IF (Wall code = 311321311; 2840; IF (Wall code = 311321511; 2970; IF (Wall code = 311321411; 3070; IF (Wall code = 311321611; 3380; IF (Wall code = 311321711; 3550; IF (Wall code = 311321712; 3730; 0))))))

- **“Unreinforced wall price”**

Based on the price system’s methodology, reinforced concrete wall is costed by separating its elements into an unreinforced wall and the reinforcement itself (rebar). Therefore, in order to establish the total price, it is first necessary to determine the price of an unreinforced wall. The formula uses the value of net volume of the element automatically evaluated by the software. In the formula, the value is multiplied by the unit price, i.e. a different characteristic.

Table 4: Parameters of the “Unreinforced wall price” characteristic (created by the author)

Data type	Number	
Default value	Expression	STRTONUM ( STRCALCUNIT ( {Property:General parameters/Net volume} ) ) * {Property:Characteristics for costing/Wall unit price}

- **“Rebar weight”**

The user inputs an arbitrary value of this characteristic. The rebar weight within a reinforced concrete wall must be entered in tonnes. The input weight of the rebar also affects the resulting price of the element.

Table 5: Parameters of the “Rebar weight” characteristic (created by the author)

Data type	Number
Default value	Undefined

- **“Rebar type”**

It is then necessary for the user to select the type of rebar of the reinforced concrete wall from among a pre-determined set of options.

Table 6: Parameters of the “Rebar type” characteristic (created by the author)

Data type	Set of options	10 216 (E)
		11 373 (EZ)
		10 505 (R) or BSt 500
		KARI
Default value	Undefined	

- **“Rebar code”**

Similarly as with the characteristic of the unreinforced wall code, the code for rebar also has to be evaluated based on the price system. This characteristic is not put in by the user, but the formula automatically returns a value based on the type of rebar selected for the previous characteristic.

Table 7: Parameters of the “Rebar code” characteristic (created by the author)

Data type	Integer	
Default value	Expression	IF (Rebar type = "10 216 (E)"; 312361221; IF (Rebar type = "11 373 (EZ)"; 312361321; IF (Rebar type = "10 505 (EZ) or BSt 500"; 312361821; IF (Rebar type = "KARI"; 312362021; 0))))

- **“Rebar price”**

The rebar price also has to be established separately. This characteristic already contains unit prices for a tonne of the selected type of rebar. The formula evaluates the price of rebar based on its code by multiplying the weight in tonnes by the unit price.

Table 8: Parameters of the “Rebar price” characteristic (created by the author)

Data type	Number	
Default value	Expression	IF (Rebar code = 312361221; Rebar weight * 42300; IF (Rebar code = 312361321; Rebar weight * 43900; IF (Rebar code = 312361821; Rebar weight * 40600; IF (Rebar code = 312362021; Rebar weight * 32200; 0))))

- **“RC wall price”**

The final characteristic determining the total price of the reinforced concrete load-bearing wall is established based on a simple sum of the characteristics of “unreinforced wall price” and “rebar price”.

Table 9: Parameters of the “RC wall price” characteristic (created by the author)

Data type	Number	
Default value	Expression	Unreinforced wall price + Rebar price

### 3.4. Creating and setting up expressions

The ArchiCAD software uses tables to display the individual lists of elements and characteristics. These tables need to be set up to enable easy overview of the elements being examined. A new table was created for the demonstrative element of RC wall and assigned for the “elements” group as the examined element falls within this category. Creating the table enables to choose the displayed characteristics, formats etc.

### 3.5. Testing

When all classifications, characteristics and output tables are set up, the solution needs to be tested. For a selected storey, a simple element of a wall is created using the “Wall” tool. Subsequently, the element’s parameters need to be adjusted in the “Wall cross-section settings”. In the “Classifications and Characteristics” tab, the correct classification (“1-1-1 Reinforced concrete walling”) of the element is chosen based on a previously created system.

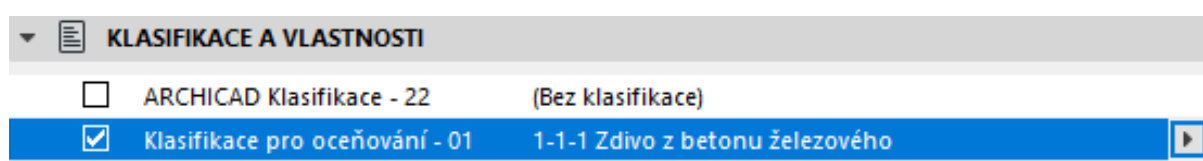


Figure 4: Selection of the element’s classification (created by the author)

Consequently, the necessary data are selected in the pre-defined characteristics assigned to this classification. It is immediately obvious in which characteristics user input is required. These are:

- “RC wall type”
- “Rebar weight”
- “Rebar type”

For these characteristics, data are selected from a list or entered as a number, depending on the particular characteristic’s data type. In other characteristics, the value <expression> is pre-set, meaning that the resulting value of characteristics is determined by a predetermined relationship.

Vlastnosti pro oceňování		
	Druh ŽB zdi	C 12/15 Bez zvláštních nároků na typ prostředí
	Kód nevyztužené zdi	<Výraz>
	Jednotková cena zdi	<Výraz>
	Cena prvku	<Výraz>
	Hmotnost výztuže	0,10
	Druh výztuže	10 216 (E)
	Kód výztuže	<Výraz>
	Cena výztuže	<Výraz>
	Cena ŽB zdí	<Výraz>

Figure 5: Adjusting the values of an element’s characteristics (created by the author)

This concludes the preparatory stage. Finally, the resulting price of the element is checked in the in the pre-set table “Cost estimation – RC wall”.

Oceňování – ŽB stěny										
Celé ID	Čistý objem [m <sup>3</sup> ]	Druh ŽB zdi	Kód nevyztužené zdi	Jednotková cena zdi [Kč]	Cena prvku [Kč]	Druh výztuže	Hmotnost výztuže [t]	Kód výztuže	Cena výztuže [Kč]	Cena ŽB zdi [Kč]
Z001	9,20	C 12/15 Bez zvláštních nároků na typ prostředí	311321211	2700,00	24840,00	10 216 (E)	0,10	312361221	4230,00	29070,00

Figure 6: Resulting table of characteristics (created by the author)

The table provides a clear information on the element being costed. The price of a reinforced concrete wall with a volume of 9.2 m<sup>3</sup> is thus estimated to equal CZK 29,070. Its characteristics (geometric and non-geometric) can be changed at any time and its resulting cost will be automatically recalculated. If the whole building with a number of various elements was being costed, the system would be expanded to include the characteristic of “building price”, which would be linked to the prices of all individual elements of the model.

#### 4. CONCLUSION

The proposed solution is user-friendly and provides the essence of BIM-based budgeting as outlined in the introduction to this paper. The user creates a BIM model and then classifies the individual elements of the model based on the relevant price system by assigning pre-determined characteristics. These characteristics are divided into those supplied by the user and those with pre-determined values or values calculated according to a specific formula. Individual characteristics are linked using mathematical and logical relationships (formulas). By putting in or selecting the necessary values, the user specifies the given elements and the solution then calculates the price of an individual element or the model as a whole. The main advantage of this solution is achieving the principles of BIM-based costing. In other words, the user gets an information on the current price of the designed building in “real time” as the modelled elements are being created and specified. Another important feature is the possibility to use the proposed solution in other installations of the ArchiCAD software without the need to set it up from scratch. The host software enables to export and re-import sets of created characteristics and classifications. A certain disadvantage consists in a rather difficult process of setting up this solution if it were to cover the entirety of the building being modelled. Another obstacle lies in keeping the already created system up to date, since the codes of the formulas are linked to price systems which are constantly being updated. The solution as proposed can be developed further. It should be possible to create a software to keep the system up to date when price systems are updated since manual updating would be very time-consuming and inefficient. The proposed solution could also be linked to a classification different from those based on commercial price systems.

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## ENTRY EFFECTS UNDER STRATEGIC TRADE POLICY WITH UNIONIZED FIRMS

**Luciano Fanti**

*Department of Economics and Management, University of Pisa, Italy  
luciano.fanti@unipi.it*

**Domenico Buccella**

*Department of Economics, Kozminski University in Warsaw, Poland  
buccella@kozminski.edu.pl*

### **ABSTRACT**

*The presence of unionised firms, especially in oligopolistic contexts, as well as the increasing importance of international trade are evident stylized facts of the contemporary world economy. In the last decades, international trade restrictions have been largely reduced through economic agreements associated with World Trade Organization and regional economic integration agreements such as the European Union. The implications of increased trade for labour market outcomes become progressively important. Therefore, the international trade literature, making use of a game-theoretical approach, has considered the case of trade in imperfectly competitive product markets between economies with unionized labour markets. In this paper we investigate the effect of entry of a firm in a standard third-market model with strategic trade policy and Cournot duopolistic competition, when firms are unionized under alternative labour market institutions, i.e. Right-To-Manage (RTM) and Efficient Bargaining (EB). The features of these negotiations are that wages are negotiated i) sequentially, that is before output decisions, in case of RTM; or ii) simultaneously with employment in case of EB. As regards the relationship between unionization under the two arrangements and the possibility of entry of a firm, it is shown that the presence of unions plays an opposite as structural barrier to entry, depending on whether the bargaining agenda is RTM or EB: in the former (latter) case unions tend to impede (incentivize) entry of a firm. This means that the market structure and the shape of competition in international markets may depend on the prevailing labour market institutions. More precisely, it is shown that the competitive structure of the unionized industry strictly and necessarily depends on the incumbent and potential entrant's negotiation agendas.*

**Keywords:** Cournot duopoly, Efficient Bargaining, Export subsidy, Right-to-Manage

### **1. INTRODUCTION**

The presence of unionized firms, especially in oligopolistic contexts<sup>1</sup>, as well as the increasing importance of international trade are evident stylized facts of the contemporary world economy. Acknowledging that "as international trade restrictions are increasingly removed through economic agreements associated with GATT, NAFTA and economic integration within the European Union, the implications of increased trade for labour market outcomes become increasingly important" (Naylor, 1998, p. 1251), the international trade literature in imperfectly competitive product markets (progressed remarkably in terms of the game-theoretical approach in the 1980s; see Brander, 1981) has considered the case of trade between economies with unionized labour markets, see Brander and Spencer (1988) and Mezzetti and Dinopoulos (1991) who extended the basic cornerstone model of Brander and Spencer (1985). The latter adopted a two-stage game: in the first stage, the governments determine the specific subsidies, and in

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<sup>1</sup> As Booth (1995) notes, "It appears to be an empirical regularity that imperfections in the labour market are correlated with imperfections in the product market."

the subsequent stage, the firms compete in a Cournot fashion in the third market. Their important result is that strategic export subsidization may enhance the exporting country's welfare. This is due to a rent-shifting effect of the strategic subsidy, acting through the firms' distorted objective functions: Government subsidization induces the firms to maximize the subsidy-inclusive profits and become Stackelberg-leader in the quantity game, thus improving their own welfare.<sup>2</sup> Brander and Spencer (1988) considered the case in which wages in one of the two countries are not exogenously given but instead are the result of a union-firm wage bargain. Mezzetti and Dinopoulos (1991) take this analysis further, by also considering the union's relative preferences between wages and employment.<sup>3</sup> However, this literature has integrated only a part of the unionized oligopoly literature with the international trade literature. Indeed, the impact of the presence of unions and the selected firm-union bargaining agenda on entry of a firm in an international market have caught less attention. Therefore in the current paper, we attempt to integrate the latter issue in the international trade literature, developing a third-market model à la Brander and Spencer (1985) where firms engage themselves in providing quantity – under either monopoly or duopolistic quantity competition - in a third country market and Governments of exporting countries finds optimal to subsidize exports. In particular, we focus on the effects of the labour market arrangements on entry. The standard bargaining models in labour negotiations, considered in this paper, are two: bargaining over wages alone (Right-To-Manage bargain, RTM, e.g. Nickell and Andrews, 1983) or negotiations also over employment (Efficient Bargaining, EB, e.g. McDonald and Solow, 1981). The features of these negotiations are that wages are negotiated *i*) sequentially, that is before output decisions, in case of RTM; or *ii*) simultaneously with employment in case of EB. Those different bargaining institutions can arise due to “different historical traditions and structural characteristics of different economies, different wage-setting institutions” (Calmfors, 1993). For example, an OECD economic outlook (OECD, 2012, Ch. 2) states that a first group of countries in Europe appears to be characterised by flexible labour markets, low levels of collective wage bargaining coverage, and a predominance of firm-level bargaining such as Estonia, Poland and the United Kingdom, all elements consistent with the RTM model. On the other hand, a second group of countries, such as Belgium, France, Italy and Spain, appears to have less flexible labour markets, high levels of collective wage bargaining coverage, and a prevalence of bargaining at the industry or country levels; all those aspects are specific features of the bargaining process typical of the EB model. As regards the relationship between unionization under the two arrangements and the possibility of entry of a firm, it is shown that the presence of unions plays an opposite role with respect to entry, depending on whether the bargaining agenda is RTM or EB: in the former (latter) case unions tend to impede (incentivise) entry of a firm. This means that the market structure and the shape of competition in international markets may depend on the prevailing labour market institutions. More precisely, it is shown that the competitive structure of the unionized industry strictly and necessarily depends on the incumbent and potential entrant's negotiation agendas. The rest of the paper is organized as follows. Section 2 presents the monopoly and duopoly models and provides with the equilibrium outcomes under the EB and RTM institutions. Section 3 presents the key propositions as regards the effects of the firms and unions' type of agreement on entry. Section 4 closes the paper with a brief discussion of the results.

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<sup>2</sup> As known, Eaton and Grossman (1986) showed that the same mechanism acts through a tax (instead of a subsidy) in the case of price (instead of quantity) competition.

<sup>3</sup> Note that both works consider the case in which a union is present in only the 'domestic' market. Other articles deal with economies each with unionised labour markets but, for example, focusing on the issue of direct foreign intra-industry investment (Zhao, 1995), or on the occurrence of reciprocal dumping despite the presence of trade costs (Naylor, 1998), rather than on trade.

## 2. MODEL SET-UP

We begin developing the model of an exporting country in which a monopolist produces and sells all the output in a third country, an importing country. Then, following the approach of the Brander-Spencer (1985) model, we consider two exporting countries, each with a firm producing a homogeneous product and selling it to a third country. Both firms compete between them on quantity (i.e. a duopolistic Cournot market).

### 2.1. Monopoly model

The standard linear inverse demand is given by

$$p = a - q, \quad (1)$$

where  $p$  and  $q$  denote the monopolist's price and output level, respectively. We assume the following production function with constant (marginal) returns to labour:

$$q = L \quad (2)$$

where  $L$  represents the labor force employed by the monopolist. The monopolist faces an average and marginal cost  $w_i \geq 0$  for every unit of output produced, where  $w_i$  is the wage per unit of labour. The country's government may provide specific export subsidies,  $s$ , to its monopoly. Therefore, the monopoly's cost function is linear and described by:

$$C(q) = wL_i - sq = (w - s)q. \quad (3)$$

The monopolist's profits are as follows:

$$\Pi = (a - w - q + s)q \quad (4)$$

We propose a two/three-stage game, depending on whether the labour negotiations are of the EB or RTM type, respectively. The timing is as follows. In both cases, in the first stage, the exporting country's government decides the optimal subsidy to maximize the domestic welfare ( $SW$ ):

$$SW = \Pi - sq = (a - w - q)q. \quad (5)$$

As known, under monopoly the final outcomes are the same both in the EB case - where in the second stage the firm-union pair negotiates on wages simultaneously with employment (output) - and in the RTM case - where in the second stage only wages are negotiated and then, in the third stage, the monopolist choose employment (output). We assume that the firms – monopolist or duopoly firms - choose wage and output levels following the policy decisions that are committed by their respective governments. We solve the game by backward induction from the last stage of the game to obtain a Subgame Perfect Nash Equilibrium (SPNE). We assume that the union has the following utility function:<sup>4</sup>

<sup>4</sup> This is a specific case of the more general Stone-Geary utility function, i.e., Pencavel (1984, 1985):

$$V = (w - w^0)^\theta L,$$

$$V = wL. \quad (6)$$

Therefore, by recalling that  $q = L$ , eq. (6) becomes:

$$V = wq, \quad (7)$$

that is, unions aim to maximise the total wage bill.

### 2.1.1. Right-to-manage institution

First we build the three-stage game (RTM case). From the usual maximisation of (4) with respect to quantity we obtain output, for given  $w$ :

$$q(w, s) = \frac{a - w + s}{2} \quad (8)$$

Then, in the second stage, union bargains with the monopolist over wages selecting  $w$  to maximise the following generalised Nash product,

$$\underbrace{\max}_{w.r.t. w} N = (\Pi)^{1-b} (V)^b = [(a - w - q + s)q]^{1-b} (wq)^b, \quad (9)$$

where  $b$  represents the union's bargaining power. Maximising eq. (9) with respect to  $w$ , after substitution of eq. (8) in (9), we get the sub-game perfect equilibrium wages, output and profit:

$$w(s) = \frac{b(a + s)}{2} \quad (10)$$

$$q(s) = \frac{(2 - b)(a + s)}{4} \quad (11)$$

$$\Pi(s) = \frac{(2 - b)^2 (a + s)^2}{16} \quad (12)$$

As known, social welfare of the exporter country is given by

$$SW = \Pi + V - sq \quad (13)$$

The government maximises social welfare with respect to its subsidy and the following optimal subsidy rate is obtained:<sup>5</sup>

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where  $w^\circ$  is the reservation or competitive wage. A value of  $\theta = 1$  gives the rent-maximising case (i.e., the union seeks to maximise the total rent); values of  $\theta$  smaller (higher) than 1 imply that the union is less (more) concerned about wages and more (less) concerned about jobs. Moreover, the unions aim to maximise the wage bill when  $\theta = 1$  and  $w^\circ = 0$ .

<sup>5</sup> The apex RTM denotes the choice of the type of bargaining arrangement by monopoly firm (M).

$$s^{M/RTM} = \frac{ab}{2-b}. \quad (14)$$

Table 1: Monopoly outcomes (authors' own calculations)

	quantity	wage	profits	union utility	social welfare
RTM	$q^{M/RTM} = \frac{a}{2}$	$w^{M/RTM} = \frac{ab}{2-b}$	$\Pi^{M/RTM} = \frac{a^2}{4}$	$V^{M/RTM} = \frac{a^2b}{2(2-b)}$	$SW^{M/RTM} = \frac{a^2}{4}$
EB	$q^{M/EB} = \frac{a}{2}$	$w^{M/EB} = \frac{ab}{2}$	$\Pi^{M/EB} = \frac{a^2(1-b)}{4}$	$V^{M/EB} = \frac{a^2b}{4}$	$SW^{M/EB} = \frac{a^2}{4}$

From (14) we see that it is always optimal to set a positive subsidy rate, provided that a union exists. By exploiting (14) and substituting backwards, after the usual calculations, the equilibrium values of wages, output, profit, union's utility and social welfare are derived and reported in Table 1.

### 2.1.2. Efficient Bargaining institution

Under EB we have that the firm-union bargaining unit selects  $w$  and  $L$ , or equivalently  $q$ , to maximise the following generalised Nash product:

$$\underbrace{\max}_{w, q} N = (\Pi)^{1-b} (V)^b = [(a-w-q+s)q]^{1-b} (wq)^b \quad (15)$$

From the system of FOCs of the EB game between firm and union, the following contract as well as rent sharing curves are obtained

$$q(w, s) = \frac{a-w+s}{2-b}, \quad (16)$$

$$w(q, s) = ab + b(s-q) \quad (17)$$

From eq. (17), we obtain output, for given  $w, s$ :

$$q(w, s) = \frac{a+s}{2} \quad (18)$$

After substitution of eq. (16) in (17), we obtain

$$w(s) = \frac{b(a+s)}{2} \quad (19)$$

After substitution of (18) and (19) in (4), we get profits as function of  $s$ :

$$\Pi(s) = \frac{(1-b)(a+s)^2}{4} \quad (20)$$

Simple algebra reveals that the Government's optimal subsidy rate is zero:

$$s^{M/EB} = 0. \quad (21)$$

From (21) we note that, as expected given the efficiency property of the EB arrangement, Government has not to intervene. By exploiting (21) and substituting backwards, after the usual calculations, the equilibrium values of wages, output, profit, union's utility and social welfare are derived and reported in Table 1.

## 2.2. Duopoly model

Let us consider now the case of duopoly. There is a homogeneous product and its standard linear inverse demand is given by

$$p = a - q_i - q_j \quad (22)$$

where  $p$  denotes price,  $q_i$  and  $q_j$  are the output levels of the two firms. As in the monopoly case presented in the preceding section, the production function is identical for both firms - with constant (marginal) returns to labour:

$$q_i = L_i \quad (23)$$

where  $L_i$  represents the labour force employed by firm  $i$ . The  $i$ -th firm faces an average and marginal cost  $w_i \geq 0$  for every unit of output produced, where  $w_i$  is the wage per unit of labour. Country 1 and 2's governments provide specific export subsidies,  $s_i$ , to their producers. Therefore, the firm  $i$ 's linear cost function is described by:

$$C_i(q_i) = w_i L_i + s_i q_i = (w_i + s_i) q_i. \quad (24)$$

The firms' profits are

$$\Pi_1 = (p - w_1 + s_1)q_1 - T, \quad (25)$$

$$\Pi_2 = (p - w_2 + s_2)q_2 - E, \quad (26)$$

for the incumbent and the entrant respectively.  $T$  is a fixed cost that the monopolist has to pay to establish a barrier to entry, such as lobby expenditures to regulate the industry.  $E$  is an exogenous fixed cost the entrant faces to sell products in the third market such as a license fee to be paid to the government of the importing country. As usual, we apply the backward induction method to obtain a sub-game perfect equilibrium. We set the following assumptions: 1) unions are firm-specific and identical; 2) as in monopoly, the firms choose wage and output levels following the policy decisions that are committed by their respective governments; 3) a two/three-stage game, depending on whether the labour negotiations are of the EB or RTM type, respectively; 4) in both cases in the first stage, the exporting countries decide on the optimal subsidy to maximize their own welfare. As usual, we apply the backward induction method to obtain a SPNE of the game.

### 2.2.1. Right-to-manage institution

First, we build the three-stage game in the case of RTM. An equilibrium of the third stage of the game (the market game), where firms simultaneously choose their output (given wages chosen by unions and export subsidies chosen by governments), satisfies the system of FOCs

$$\frac{\partial \Pi_i}{\partial q_i} = 0 \Leftrightarrow (a - w_i - 2q_i - q_j + s_i) = 0, \quad i, j = 1, 2; i \neq j \quad (27)$$

Therefore, the firms' reaction functions are given by:

$$q_i(q_j, w_i, s_j) = \frac{1}{2}(a - w_i - q_j + s_i), \quad i, j = 1, 2; i \neq j \quad (28)$$

From (28) we obtain output by firm  $i$ , for given  $w_i, w_j$ :

$$q_i(w_i, w_j, s_i, s_j) = \frac{[a + (w_j - s_j) + 2(s_i - w_i)]}{3} \quad (29)$$

Then, in the second stage each firm-union bargaining unit  $i$  selects  $w_i$  to maximise the following generalised Nash product:

$$\max_{w_i} N_i = (\Pi_i)^{1-b} (V_i)^b = [(a - w_i - Q + s_i)q_i]^{1-b} (w_i q_i)^b, \quad (30)$$

where  $b$  represents the bargaining union's power and  $Q$  is total output. Maximising eq. (30) with respect to  $w_i$ , after substitution of eq. (29) in (30), we get the sub-game perfect best-reply function in wages of union-firm pair  $i$  - i.e.  $w_i(w_j)$  - under the assumption of a non-cooperative Cournot-Nash equilibrium in the product market. Solving the system composed by  $w_i(w_j)$  and its counterpart for  $j$ , we obtain the sub-game perfect equilibrium wages:<sup>6</sup>

$$w_i(w_j, s_i, s_j) = \frac{b[a + (w_j - s_j) + 2s_i]}{4} \quad (31)$$

$$w_i = w_j = w(s_i, s_j) = \frac{b[a(b+4) + b(s_i - 2s_j) + 4(s_j - 2s_i)]}{16 - b^2} \quad (32)$$

$$q_i = q_j = q(s_i, s_j) = \frac{2(b-2)[a(b+4) + b(s_i - 2s_j) + 4(s_j - 2s_i)]}{3(b^2 - 16)} \quad (33)$$

$$\Pi_i = \Pi_j = \Pi(s_i, s_j) = \frac{4(2-b)^2 [a(b+4) + b(s_i - 2s_j) + 4(s_j - 2s_i)]^2}{9(b^2 - 16)} \quad (34)$$

<sup>6</sup> The apex - e.g. RTM/RTM - denotes the choice of the type of bargaining arrangement by firms  $i$  and  $j$ , respectively.

As known, social welfare of each exporter country is given by

$$SW_i = \Pi_i + V_i - s_i q_i. \quad (35)$$

Each government maximizes social welfare<sup>7</sup> with respect to its subsidy rate for a given subsidy rate of the other government. As a consequence, the following reaction function in subsidy rates are obtained:

$$s_i(s_j) = \frac{(b+4)[a(b+4) - 2s_j(b-2)]}{4(b-8)(b-2)} \quad (36)$$

$$s_i = s_j = s^{RTM/RTM} = \frac{a(b+4)^2}{[2(b-2)(b-20)]} \quad (37)$$

Using (36) and (37), after the usual algebra, the equilibrium values of output, wages, profits, union's utility and welfare are derived and reported in Table 2:

### 2.2.2. Efficient Bargaining institution

Under EB we have that the firm-union bargaining unit  $i$  selects  $w_i$  and  $L_i$ , or equivalently  $q_i$ , to maximise the following generalised Nash product:

$$\underbrace{\max}_{w_i, q_i} N_i = (\Pi_i)^{1-b} (V_i)^b = [(a - w_i - Q + s_i)q_i]^{1-b} (w_i q_i)^b. \quad (38)$$

From the system of FOCs of the EB game between firms and unions, the firms' reaction functions in output as well as unions' wages functions are the following:

$$q_i(q_j, w_i) = \frac{a - w_i - q_j + s_i}{2 - b}, \quad (39)$$

$$w_i(q_i, q_j) = b(a - q_i - q_j + s_i) \quad (40)$$

From eq. (39), and its counterpart for  $j$ , we obtain output, respectively, by firm  $i$ , for given  $w_i, w_j$  ( $i, j = 1, 2; i \neq j$ ):

$$q_i(w_i, w_j, s_i, s_j) = \frac{[a(b-1) + (s_j - w_j) - (2-b)(s_i - w_i)]}{4b - b^2 - 3} \quad (41)$$

After substitution of eq. (41) in (40), we obtain

$$w_i(w_j, s_i, s_j) = \frac{b[a(b-1) + (s_j - w_j) - (2-b)s_i]}{2b - 3} \quad (42)$$

<sup>7</sup> The expression for SW is too long and is omitted here for brevity.



which defines the sub-game perfect best-reply function in wages of union–firm pair  $i$ . Solving the system composed by (42) and its counterpart for  $j$ , we obtain the sub-game perfect equilibrium wages

$$w_i = w_j = w^{EB/EB}(s_i, s_j) = \frac{b(a - s_j + 2s_i)}{3} \quad (43)$$

By substituting (43) in (41) we obtain output:

$$q_i = q_j = q^{EB/EB}(s_i, s_j) = \frac{a - s_j + 2s_i}{3} \quad (44)$$

Table 2: Duopoly outcomes (authors' own calculations)

	quantity	wage	profits	union utility	social welfare
RTM/RTM	$q^{RTM/RTM} = \frac{a^2(b-8)}{(b-20)}$	$w^{RTM/RTM} = \frac{3ab(8-b)}{[2(b-2)(b-20)]}$	$\Pi^{RTM/RTM} = \frac{a^2(b-8)^2}{(b-20)^2}$	$V^{RTM/RTM} = \frac{3a^2b(b-8)}{2(b-2)(b-20)^2}$	$SW^{RTM/RTM} = \frac{a^2(b+4)(b-8)}{(b-20)^2}$
EB/EB	$q^{EB/EB} = \frac{2a}{5}$	$w^{EB/EB} = \frac{2ab}{5}$	$\Pi^{EB/EB} = \frac{4a^2(1-b)}{25}$	$V^{EB/EB} = \frac{4a^2b}{25}$	$SW^{EB/EB} = \frac{6a^2}{75}$
RTM/EB	$q_1^{EB/RTM} = \frac{a}{3+b}$ $q_2^{EB/RTM} = \frac{3a(2+b)}{4(3+b)}$	$w_1^{EB/RTM} = \frac{ab}{2(3+b)}$ $w_2^{EB/RTM} = \frac{ab(2+b)}{2(3+b)(2-b)}$	$\Pi_1^{EB/RTM} = \frac{a^2(1-b)}{2(b+3)^2}$ $\Pi_2^{EB/RTM} = \frac{9a^2(2+b)^2}{16(b+3)^2}$	$V_1^{EB/RTM} = \frac{a^2b}{2(b+3)^2}$ $V_2^{EB/RTM} = \frac{3a^2b(b+2)^2}{8(2-b)(b+3)^2}$	$SW_1^{EB/RTM} = \frac{a^2(b+2)}{4(b+3)^2}$ $SW_2^{EB/RTM} = \frac{3a^2(b+2)^2}{16(b+3)^2}$

Finally by substituting both eq. (43) and eq. (44) in eq. (25) we obtain profits:

$$\Pi_i = \Pi_j = \Pi^{EB/EB}(s_i, s_j) = \frac{(1-b)(a - s_j + 2s_i)^2}{9} \quad (45)$$

Social welfare is again defined by (35) and is given by:

$$SW^{EB/EB}(s_i, s_j) = \frac{(a - s_j + 2s_i)(a - s_i - s_j)}{9} \quad (46)$$

Maximisation of eq. (46) with respect to the subsidy rate yields the following reaction functions in subsidies:

$$s_i(s_j) = \frac{a - s_j}{4} \quad (47)$$

and then

$$s_i = s_j = s^{EB/EB} = \frac{a}{5}. \quad (48)$$

Given the equilibrium subsidy, after the usual algebra we derive the equilibrium values of wage, output, profit and union's utility and social welfare reported in Table 2.

### 2.2.3. Mixed case

In this section we assume that firm 1 and firm 2 have different bargaining arrangements. Standard calculations lead to the following equilibrium subsidies (where, for example, the superscript RTM/EB denotes that firm 1 applies RTM while firm 2 applies EB and subscript denotes firm 1 and 2, respectively):

$$s_1^{EB/RTM} = -\frac{ab}{3+b} \quad (49)$$

$$s_2^{EB/RTM} = \frac{9a(1+b)}{(2-b)(3+b)} \quad (50)$$

After the usual (although tedious) substitutions, we directly obtain the equilibrium values of wage, output, profits, union's utility and social welfare reported in Table 2.

### 3. SUB-GAME PERFECT EQUILIBRIUM SOLUTIONS

Now we are in a position to consider the case of entry. To focus on the impact of different labour market institutions, let us assume that both the incumbent and entrant's fixed costs are null, i.e.  $T = 0$  and  $E = 0$ . First we investigate the role played by unions on the possibility of entry under the two cases RTM and EB. Defining  $\Delta^{RTM} = \Pi^{M/RTM} - \Pi^{RTM/RTM}$ ,  $\Delta^{EB} = \Pi^{M/EB} - \Pi^{EB/EB}$ ,  $\Delta^{RTM/EB} = \Pi^{M/RTM} - \Pi^{RTM/EB}$  and  $\Delta^{EB/RTM} = \Pi^{M/EB} - \Pi^{EB/RTM}$ , the following Results hold.

**Result 1:** a) Under RTM, unions play the role of a barrier to entry: the higher the union's power, the less likely entry. b) Under EB, unions favor entry: the higher the union's power, the more likely entry.

$$\text{Proof: a) } \Delta^{RTM} = \frac{3a^2(12-b)(4+b)}{4(b-20)^2}; \quad \frac{\partial \Delta^{RTM}}{\partial b} > 0; \quad \text{b) } \Delta^{EB} = \frac{9a^2(1-b)}{100}; \quad \frac{\partial \Delta^{EB}}{\partial b} < 0.$$

The rationale for this results can plausibly be as follows. In the case of monopoly, there is no wage competition among unions; therefore, the negotiated wage is higher than in duopoly, and the stronger the union, the higher the wage. Under RTM, the size of the subsidy the domestic government remunerates increases as the union's power enhances, and the higher the wage the larger the subsidy. Thus, a strong union makes the monopoly increasingly profitable. On the other hand, in the case of EB, the subsidy the government disburses is null under monopoly, and constant under duopoly. Therefore, no positive effect on the relative profitability of the monopoly is at work.

**Result 2:** a) When the incumbent applies RTM, while entrant applies EB, unions play the role of a barrier to entry a fortiori in comparison with the case in which both firms apply RTM. b) When the incumbent applies EB while the entrant applies RTM, entry can never be impeded.

Proof:

$$\text{a) } \Delta^{RTM/EB} = \frac{a^2(7+b)(1+b)}{4(3+b)^2}; \quad \frac{\partial \Delta^{RTM/EB}}{\partial b} > 0; \quad \frac{\partial \Delta^{RTM/EB}}{\partial b} > \frac{\partial \Delta^{RTM}}{\partial b};$$

$$b) \Delta^{EB/RTM} = -\frac{ba^2(29b + 48 + 4b^2)}{16(b+3)^2} < 0.$$

Result 2 offers a straightforward testable implication: monopoly involved in international trade applying the efficient bargaining agenda should rarely be present.

#### 4. CONCLUSIONS

This paper has investigated the effect of market entry in a standard third-market model with strategic trade policy and Cournot duopolistic competition, when firms are unionized under alternative labour market institutions (i.e. RTM and EB). It is shown that the presence of unions plays an opposite role with respect to entry, depending on whether the bargaining agenda is RTM or EB: in the former (latter) case unions tend to impede (incentivize) entry of a firm. In particular, if the incumbent applies EB and the entrant applies RTM, entry can never be impeded.

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# THE INFLUENCE OF CORPORATE SOCIAL RESPONSIBILITY (CSR) ON BRAND EQUITY

**Milan Dzupina**

*Constantine the Philosopher University in Nitra, Slovakia  
mdzupina@ukf.sk*

**Tomas Koprda**

*Constantine the Philosopher University in Nitra, Slovakia  
tkoprda@ukf.sk*

**Andrej Veselei**

*Constantine the Philosopher University in Nitra, Slovakia  
andrej.veselei@student.ukf.sk*

## **ABSTRACT**

*This paper deals with the effects of corporate social responsibility (CSR) on brand equity. Current research suggests that consumers are looking for brands that provide them with a unique experience and the CSR activities are able to achieve this goal. The companies are making significant efforts to differ from their competitors. The CSR policies can create mutual trust, satisfy customer needs and subsequently induce the purchase. Corporate social responsibility seems to be an important factor for increasing the brand equity as it can help to develop relationships based on satisfaction and trust, resulting in customer loyalty. If the company is able to satisfy its customers, it can generate higher profits from a long-term perspective. The aim of our research is to analyse the relationship between CSR and brand equity components such as brand experience, satisfaction, trust and loyalty. When drafting the aim of our research, we used the existing theoretical knowledge on the issue. Our research was based on the existing research conducted abroad, which we applied to our conditions. We tried to identify most important aspects of CSR in terms of building brand equity, which was divided into four components - Brand experience, Brand satisfaction, Brand trust and Brand loyalty. Subsequently, we managed to create a statistical model in IBM AMOS 23.0, in which we included several variables and analysed their estimated impact. Despite the above, we are aware of the need to deepen our research and extend the sample size in the future.*

**Keywords:** *Corporate social responsibility, Brand Equity, Brand trust, Brand experience, Brand loyalty, Brand satisfaction*

## **1. INTRODUCTION**

In modern marketing, brands represent a specific phenomenon that should receive adequate attention. Brand managers are trying to create strong brands (Alan, Ebru, 2014), which allows the companies to create their own loyal group of customers and maintain their market shares. Loyal customers are loyal to the brand, willing to make repeated purchases, and recommend the brand their area (Aysel et al., 2012). A brand identifies the manufacturer or seller, and it may be either a business name, trademark, logo or other symbol (Nagyová, Sedliaková, 2014). Branding is used as a tool that allows us to effectively distinguish a product or service from the competition by the name, symbol or design (Pride, Elliot, Rundle-Thiele, 2006, p. 208). The aim is to create and develop a strong top-of-the line brand in the current turbulent times and escalating competitive environment. Each brand is therefore created with certain identity, i.e. its name, graphical representation, unique meaning and expectations. Because no brand has a guaranteed place on the market, it is necessary to cultivate it with respect to the actual market situation to strengthen the long-term viability and uniqueness of

the brand (Horáková, 2008). The issue of corporate responsibility is a complicated one, and it can be viewed from several angles. A sizable portion of existing research is focused on defining the concept of social responsibility (Dahlsrud, 2008). It should be noted that the research focus of these studies was based on specific nationwide social needs and it was always indebted to particular historical periods (Wood, 1991) or areas (geographic territory) where the research was conducted (Džupina, Mura, 2015).

## **2. CSR AS A MEANS TO IMPROVE THE BRAND VALUE**

A great advantage of CSR is its positive impact on the perception and image of the company and it can create an emotional bond between the consumers and the brand (Meyer, 1999), which can be seen as an important differentiating factor in the modern highly competitive environment. Other advantages include the strengthening of corporate image, increased employee morale, increased product and service awareness and a positive impact on merchantability (Hoeffler, Keller, 2002). The positive image also reduces the vulnerability to negative publicity (Dawar, Pillutla, 2000). In relation to the brand, corporate social responsibility has a number of important functions. The major advantages of linking CSR to the brand include (Hoeffler, Keller, 2002; Keller 2013):

- Formation of brand awareness
- Reinforcement of brand image
- Increased brand trust
- Enrichment of the brand image with new positive feelings
- Sense of belonging to customer community
- Increased level of involvement of consumers

### **2.1. Contribution to brand awareness**

CSR is responsible for brand recognition more than the consumer complaint procedures. CSR, which is based on the nature of the product, increases the observed rate of brand awareness (Peloza, Shang, 2011), which can be considered as a positive expression of the influence of corporate social responsibility on the brand in the context of brand values.

### **2.2. Reinforcement of brand image**

In terms of the procedures, it is yet another step in the creation of brand value. The brand image gives it the real meaning, which is shaped in the minds of the customers (Keller, 2013). The associations can take various forms. The friendliness and uniqueness of associations should be a common feature in all the cases. In the case of CSR, the image is universal, and thus universally applicable to all brand extensions.

### **2.3. Increased brand trust**

The CSR activities generate a lot of assessments and feelings that in turn create the connections between the consumers and brands. The consumers cannot be expected to purchase the products they do not trust. Brand credibility can be seen as an essential element of its construction and development, and it applies to the extent with which the brand as a whole is perceived as credible, which is reflected in areas such as professionalism, competence, credibility and liking (Keller, 2013). The involvement of businesses in the solution of social problems directly affects the attractiveness of corporate identity (Marin, Ruiz, 2007).

### **2.4. Creation of feelings**

The feelings that the brand evokes can be short-term and focused on the intensity of experiencing – or long-term, with more permanent effects on increasing the level of respectability.

The basic feelings that the socially engaged brands may stimulate in the consumers include safety, social acceptance and self-esteem (Keller, 2013). In the case of social involvement and its connection with the brand, we are entering the territory of private feelings, which increase the level of seriousness.

### **2.5. Reinforcement of customer relations with a particular community**

An aptly selected and implemented strategy and corporate responsibility programs can affect the nature of the relationship between the brand and consumer. The identification with the brand community is an interesting social phenomenon. These relations are not defined by the borders, but by the mere use of the same brand (Muniz, O'Guinn, 2000). The members of these communities are characterized by common knowledge, traditions and a sense of moral responsibility (Hoeffler, Keller, 2002). This responsibility is vested in the brand, and therefore the very brand acts as its bearer.

### **2.6. Increased level of involvement of consumers**

The so-called "resonance with the brand" (Keller, 2013) is the highest form of customer connection with the brand. The consumers no longer passively receive the marketing information, news and messages, but through their active involvement they turn into the so-called brand speakers or evangelists.

## **3. BRAND BUILDING**

The process of branding is very closely connected with the creation of brand identity. Brand identity can be defined as a relatively permanent characteristic of the brand, which often identifies what is promised to the customers (He et al., 2012). A brand tends to have a strong and attractive identity when its identity and prestige is broader than the identity and prestige of the competitive brands (Homburg, Klarmann, Schmitt, 2010). If we want the brand to be successful, it is necessary to link the business strategy with the idea of the brand (Adamson, 2011). It is also very important to consider corporate culture and design while defining corporate culture and identity. A strong organizational culture contributes to the economic success of the brand (De Chernatony, 2009). The main aim of branding is to become a shortcut in the decision making of the consumer (Adamson, 2011; Woodside, Walser, 2007). Nevertheless, the implementation of the brand resources (creation of the brand name and choice of communication tools) is very important in the process of branding (De Chernatony, 2009). Brand equity is a vital part of brand management, i.e. how a brand is perceived by the customers and how their knowledge affects their relationship and behaviour to the brand.

### **3.1. Brand equity**

The concept of brand equity highlights the important roles of the brand in consumer perception. We can come across many theories dealing with the definition of brand equity. Most experts regard brand awareness, perceived quality, brand associations, functionality, customer loyalty and brand image as the most important (Světlík, Vavrečka, 2016). The perception of brand equity from the customer's perspective (CBBE – Customer-based brand equity) is important because its strength lies mainly in what the consumers think, how they feel with it or what they found out about it (Keller, 2013). This phenomenon is usually termed 'implicit brand equity'. The consumer perception of brand value is largely based on what perception components the brand has and how these are perceived and accepted by the consumers (Kotler, Keller, 2016). According to previous research conducted by Sahin et al. (2011), we can conclude that strong brands can be defined by following components.

### *3.1.1. Brand experience*

Experience with the brand is an important act that creates a relationship between the consumer and the brand (Khan, I. Rahman, Z., 2015). We can define it as impressions, feelings, knowledge and behavioural responses to the brands. It has to do with consumer perception when being in contact with the brand (Nadzri et al., 2016). Experience with the brand is not a concept of emotional relationship, but it represents feelings, knowledge and behavioural responses induced by the stimuli associated with the brand. Subsequently, brand experience can result in emotional ties, but emotions are just one of the internal outcomes of stimulation that result in an experience. Experience with the brand may also have a positive impact on consumer satisfaction, trust and loyalty to the brand (Zarantenello, Schmitt, 2000; Ha, Perks, 2005).

### *3.1.2. Brand satisfaction*

The customers encounter brands under different conditions and at various stages of their lives. These conditions affect the customer's relationship to the brand during the consumer journey. The consumers prefer the products that match their image and express their personality. Satisfaction is a positive affective response to the results of prior experience (Bennett et al., 2005). Customer's satisfaction with the brand is a foreshadow of customer loyalty to the brand (Keller, 2013). If the companies want to boost satisfaction with the brand, they should provide the consumer with experience-based offerings, which should be personal, engaging, compelling, memorable and create an intense and positive reaction (Iglesias et al., 2011). Satisfaction with the brand can be considered a forerunner of brand trust and loyalty, but it may be difficult to achieve it before brand trust (Agustin, Singh, 2005).

### *3.1.3. Brand trust*

Brand trust is the willingness of an average consumer to rely on the ability of the brand to fulfill its function. It is detrimental to building corporate success (Alan, Kabadayi, 2014). In other words, trusted brands are those that consistently keep their promises and values to the consumers. This concerns how a product is developed, manufactured, sold, repaired and advertised (Delgado, Ballester et al., 2003). Trust is a lasting factor in the mind of the consumer (Sahin et al., 2011). Brand trust is based on the positive beliefs regarding the expectations about the performance of the organization and products that the brand represents (Ashley, Leonard, 2009), and it has a cumulative effect on loyalty. Brand trust is the forerunner of brand commitment. Brand commitment is important for building strong relationships between the brands and consumers (Sahin et al., 2011).

### *3.1.4. Brand loyalty*

Brand loyalty can be defined as a deep obligation causing a repeated purchase of the same product or service. Brand loyalty is included in the conceptualization of the own brand phenomenon, which is used in assessing the performance of the brand (Sahin et al. 2011; Yoo, Donthu, 2001). Loyalty is an important kind of barrier against the competitors because attracting and changing customer loyalty is very expensive (Nyffenegger et al. 2014; Aaker, 2003). The loyalty is high when the consumers actively communicate with the brand (Foroudi et al., 2017). Brand loyalty has many advantages, such as development of brand strength, creation of opportunity to buybacks and it also makes the brand less sensitive to competitors (Matzler et al., 2008).

## **4. METHODOLOGY**

In our research, we were inspired by the article by Sahinom et al. published in 2011 in *Procedia – Social and Behavioural Science*. We adopted the questionnaire and concentrated on the field of CSR.

Thus, we were able to determine the CSR factor on trust, satisfaction, experience and subsequently on brand loyalty. We chose a questionnaire as the main collection technique. The questionnaire consisted of 14 questions and was divided into four basic sections (brand experience, brand satisfaction, brand trust and brand loyalty). The respondents were chosen randomly and were asked to respond to the questions using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Subsequently, the data were processed in IBM AMOS 23.0 in order to build a suitable statistical model.

Symbol	Question (observed variable)
Experience_1	I have a strong relationship towards the brands because of their CSR activities.
Experience_2	I prefer those brands that make me think about CSR.
Experience_3	The socially responsible brands stimulate my curiosity.
Satisfaction_1	I am satisfied with the brands I prefer also because of their CSR activities.
Satisfaction_2	The goods and services provided by the socially responsible brands are satisfactory.
Satisfaction_3	I consider the CSR activities when choosing a brand.
Trust_1	The brands I prefer meet my expectations in terms of CSR
Trust_2	I can rely on the brands I prefer as far as CSR is concerned.
Trust_3	I am satisfied with the CSR engagement of my favourite brands.
Loyalty_1	I am willing to pay more for the socially responsible brands.
Loyalty_2	I recommend brands to other people also because of their CSR activities.
Loyalty_3	I will consider the socially responsible brands as my first choice in the next few years.
Loyalty_4	I intend to buy other products of this brand because of CSR.
Loyalty_5	I will buy the same brand because of the CSR next time I need their products.

*Table 1: Observed variables*

#### 4.1. Research aim

Based on the assumption of CBBE construct, our primary goal is to find out if CSR influences brand equity. The main purpose of this research was to build a statistical model and determine the relationship among brand experience, satisfaction, brand trust and brand loyalty as far as corporate social responsibility is concerned. The research design was based on the research conducted by Sahin et al. (2011). Our partial aims are based on our primary aim:

1. Determine the influence of CSR on brand experience.
2. Determine the influence of CSR on brand satisfaction.
3. Determine the influence of CSR on brand trust.
4. Determine the influence of CSR on brand loyalty.

Our research is focusing on brands in general without specifying any industry, brands or their mutual relationships. We were partially inspired by the research conducted by Becker-Olsen et al. (2006), who assumed that customers are more influenced by the CSR activities in general than the CSR activities of particular brands. We were also interested in the mutual influence of brand equity components as mentioned in the theoretical part of the paper (Creel, 2012; Keller, 2013; Aaker, 2003).

#### 4.2. Hypothesis

In the article, we have formulated five research hypotheses according to our research objectives and aims as follows:

- H 1: Brand experience is positively influencing brand satisfaction in terms of CSR.
- H 2: Brand experience is positively influencing brand trust in terms of CSR.
- H 3: Satisfaction is positively influencing brand loyalty in terms of CSR.



- H 4: Brand trust is positively influencing brand loyalty in terms of CSR.
- H 5: Brand experience is markedly influencing brand loyalty positively in terms of CSR.

The hypotheses are based on Sahin's research (Sahin et al., 2011). The model as well as the hypotheses are shown in the figure. However, we assume that the relationship among the observed variables is mutual as shown in our statistical model (figure 3). All the variables (table 1) are observed variables and they are collected from our questionnaire. Brand experience, satisfaction, trust and loyalty are latent variables (common factors) determined by the answers from our questionnaires. We assume that there are also unobserved variables (unique factors) influencing our statistical model.

### 4.3. Research sample

The research sample consisted of 242 respondents. There were 98 men (40,5%) and 144 women (59,5%) in the sample.

		Frequency	Percent
Valid	Men	98	40,5
	Women	144	59,5
Total		242	100,0

Table 2: Gender of respondents (Own research)

In terms of occupation, the sample consisted mainly of students (55,8%) and employed people (36,4%) in general. The smallest groups of respondents included the unemployed (0,8%), entrepreneurs (2,1%) or pensioners (5,0%).

		Frequency	Percent
Valid	Student	135	55,8
	Unemployed	2	0,8
	Employed	88	36,4
	Entrepreneur	5	2,1
	Pensioner	12	5,0
Total		242	100,0

Table 3: Gender of respondents (Own research)

As far as the demographics are concerned, the average respondent age was 28 years (min = 18, max = 69).

	I	Minimum	Maximum	Mean	Std. Deviation
Age	242	18	69	28,0	11,7

Table 4: Descriptive Statistics (Own research)

## 5. RESULTS AND DISCUSSION

In Figure 1, we show the model created using SPSS AMOS to illustrate the relationship among the observed, latent and unobserved variables. We focused on determining the influence of observed variables (questions in questionnaire) on the latent variables (factors) in order to explore the mutual relationship among the variables. We also took into consideration the influence of unobserved variables, which can determine the whole statistical model and output.

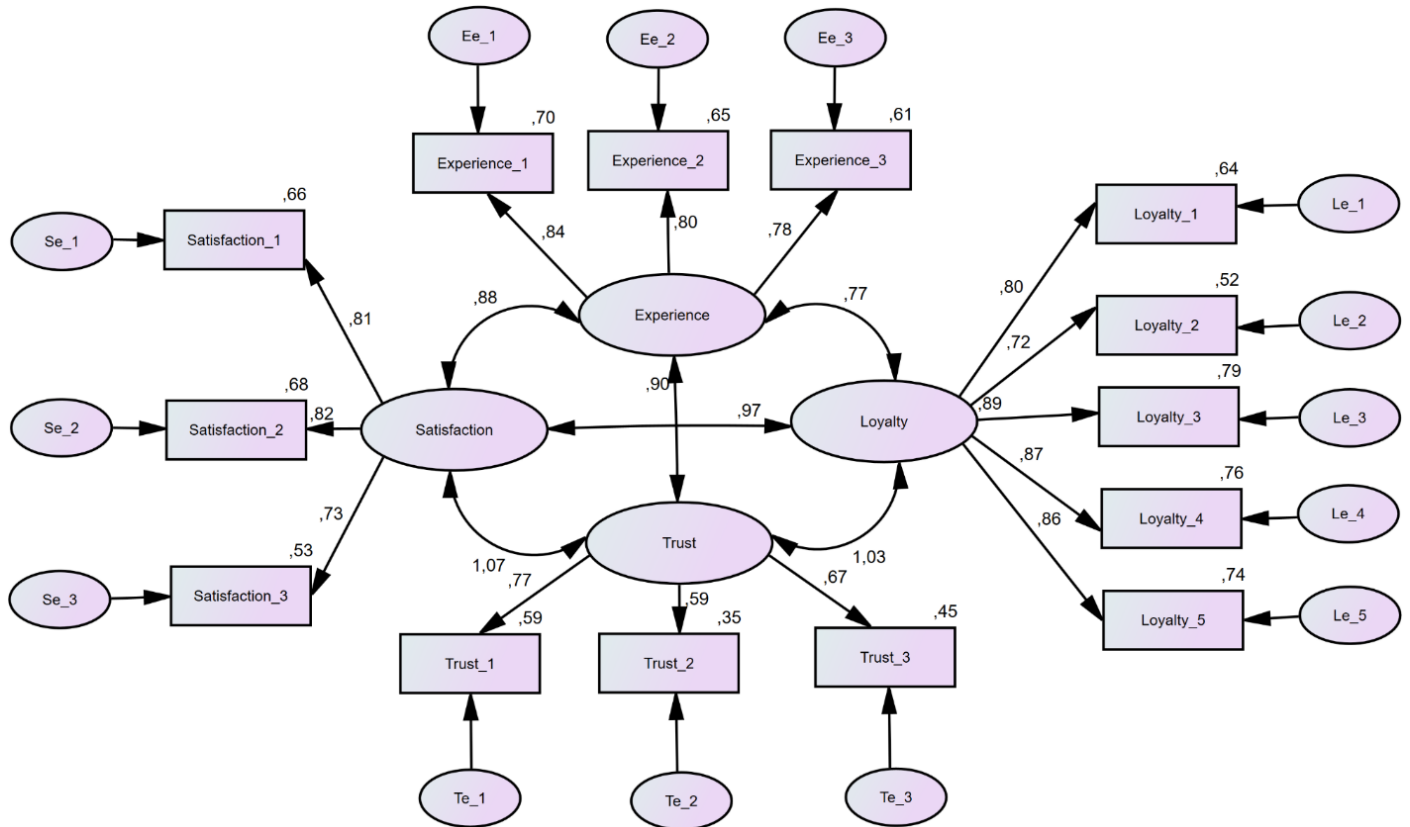


Figure 1: Flowchart of standardised estimates (Own research)

Most of the observed variables markedly load the latent variables (Table 6).

			Estimate
Experience_1	↔	Experience	,838
Experience_2	↔	Experience	,804
Experience_3	↔	Experience	,782
Satisfaction_1	↔	Satisfaction	,810
Satisfaction_2	↔	Satisfaction	,824
Satisfaction_3	↔	Satisfaction	,729
Loyalty_1	↔	Loyalty	,803
Loyalty_2	↔	Loyalty	,722
Loyalty_3	↔	Loyalty	,886
Loyalty_4	↔	Loyalty	,872
Loyalty_5	↔	Loyalty	,860
Trust_1	↔	Trust	,766
Trust_2	↔	Trust	,596
Trust_3	↔	Trust	,673

Table 5: Standardised regression weights (Own research)

The regression estimates can be viewed upon as factor loadings. Furthermore, we also determined squared multiple correlations, which can be interpreted as a percentage of variance accounted for by the observed variables (Table 6).

Table following on the next page

	Estimate
Experience_1	,703
Experience_2	,647
Experience_3	,611
Satisfaction_2	,678
Satisfaction_1	,656
Satisfaction_3	,531
Loyalty_3	,785
Loyalty_4	,761
Loyalty_5	,740
Loyalty_1	,656
Loyalty_2	,521
Trust_1	,587
Trust_3	,453
Trust_2	,354

Table 6: Squared multiple correlations: (Own research)

We can conclude that *brand experience* is mainly influenced by the relationship between the consumer and brand as a result of CSR brand involvement (.703). Furthermore, it is also very important that the CSR activities make people think (.647), and responsible brands stimulate the consumer curiosity (.611). As far as the *satisfaction* is concerned, brand satisfaction is highly dependent on the goods and services provided in a socially responsible way (.678). Overall, the CSR activities increase the consumer satisfaction and may influence consumer behaviour. Another important factor of brand loyalty is *trust*. It is loaded mainly by the ability of the brands to fulfil our requests and expectations in terms of CSR (.587). It is very important that brands do not disappoint the customers in their expectations. The brands also need to be reliable (.354) and sincere in their activities (.453). However, the last two are of lesser importance as far as brand CSR is concerned. *Brand loyalty* is most often referred to as an important factor of repeated purchases (.740) as socially responsible brands seem to be the first choice for subsequent purchases (.785). Also, CSR might be a good argument for subsequent purchases as far as the brand extension is concerned (.761). However, CSR has a smaller effect on brand recommendations (.521). The customers are not willing to pay extra for the socially responsible brands either (.656). According to our statistical model, we conclude that there are very important correlations identified in our statistical sample (Table 7).

			Estimate
Trust	↔	Experience	,899
Satisfaction	↔	Loyalty	,973
Experience	↔	Satisfaction	,882
Trust	↔	Satisfaction	1,069
Experience	↔	Loyalty	,772
Trust	↔	Loyalty	1,030

Table 7: Correlations (Own research)

As far as loyalty is concerned, trust ( $r = 1,03$ ) and satisfaction ( $r = 0,97$ ) are of the highest importance. We can conclude that satisfaction and brand trust are vitally important for the consumer decision making process in terms of CSR. In other relations, we can also see some very high levels of correlations between brand experience and satisfaction ( $r = ,88$ ), loyalty ( $r = ,75$ ) and trust (.90).

## 6. CONCLUSION

Based on the evaluation of our results, we found that there are significant relationships between the CSR activities and brand experience, satisfaction, trust and loyalty. Therefore, based on our results, we can assume that if a brand wants to achieve the satisfaction of its customers, it is appropriate to implement the CSR policies in order to ensure a positive, strong and unique customer experience. Brand loyalty is influenced by unique experience, customer satisfaction with the brand and a belief that the brand is doing everything for the customer's happiness and satisfaction. Trust is also a very important factor. Trusted brands are selected by the consumers when they need to solve their problems. Based on the results, we can confirm that there is a positive relationship among all the relations formulated in the research hypotheses. Thus, we can conclude that CSR is an important factor of a brand equity as it does influence all the selected components analysed in the article. According to the results (Table 7) all hypothesis are confirmed. However, we are aware that there are limitations in our research. The size and nature of the research group does not constitute a representative file. In general, there is always a risk in applying international research locally. Our research relies on the statements that might not be ideal for assessing the impact and future consumer behaviour. Overall, it would be necessary to develop a detailed understanding of the relationship between CSR and brand equity. Our research is determining the relationship only from one point of view. Therefore, we are aware that the relevance of our conclusions needs to be focused on other factors that may influence the monitored variables.

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## ECONOMIC POLICY ASPECTS IN MANAGING LABOUR EMIGRATION FROM UKRAINE

**Dmytro Chylikin**

*U6th Student, King Edward's School Witley,  
Surrey, Witley, United Kingdom  
13ChylikDm@kesw.org*

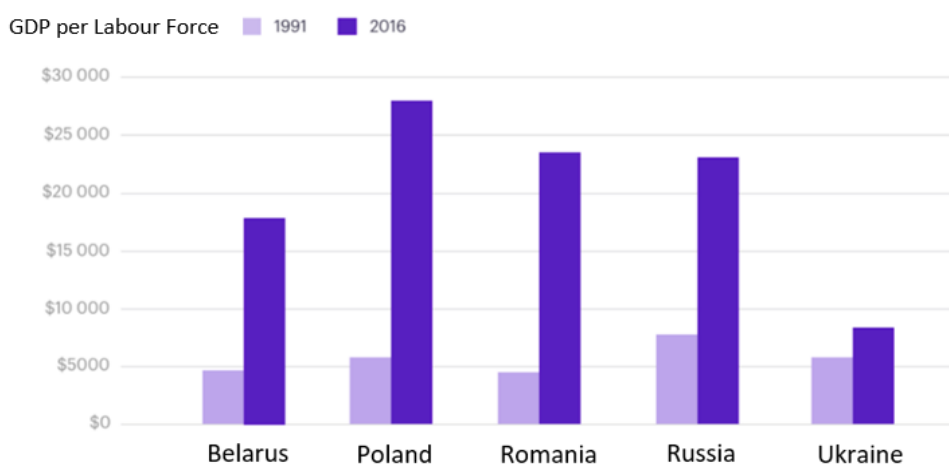
### **ABSTRACT**

*Pointed out that the status quo in labour emigration issue from Ukraine associates with Market Failure requiring Government Interference. The major provoking factor is insufficient salaries level, causing businesses to close, reducing economic activity and obstructing GDP growth. In the research the ways to build up revenues for Actual Employees are examined on the short-term and long-term basis. As a result, the temporal Subsidy Policy and its particular principles as Economic Policy Mechanism are offered in the way that doesn't contradict with WTO requirements and doesn't violate Market Efficiency.*

**Keywords:** *Labour Emigrants, Remittances, Exploitation Index, GDP Energy Consumption, Subsidy Policy*

### **1. INTRODUCTION - LABOUR EMIGRATION AS A VITAL FACTOR FOR UKRAINIAN ECONOMY GROWTH**

Under current circumstances in Ukraine Labour Force actively engaged in work, though appears not sufficient but necessary factor of GDP growth. GDP growth in turn, though appears not sufficient but necessary factor for Labour Force' revenues growth. Unfortunately, Ukraine, due to number of issues not subject of this research, doesn't provide adequate GDP growth since last decade of XX century. Poland has 14.7% GDP growth average rate for the past 25 years, Romania – 17.3% GDP growth rate, but Ukraine – only 1.3% GDP growth rate (Fig. 1). As a result, Ukrainians emigrate and Labour Force engaged in Ukraine dramatically shortens. Finally, idle capacity in Ukraine increases as Businesses shorten or even close and Investments lose their attractiveness due to shortage of Labour Force.



*Figure 1: GDP growth 1991 – 2016 [1]*

(Fig. 2) demonstrates the prevailing age group of emigrants from Ukraine belongs to 25-40 years range with around 25% in total. This group is the most receptive to new technologies, to improve own skills and to develop productivity.

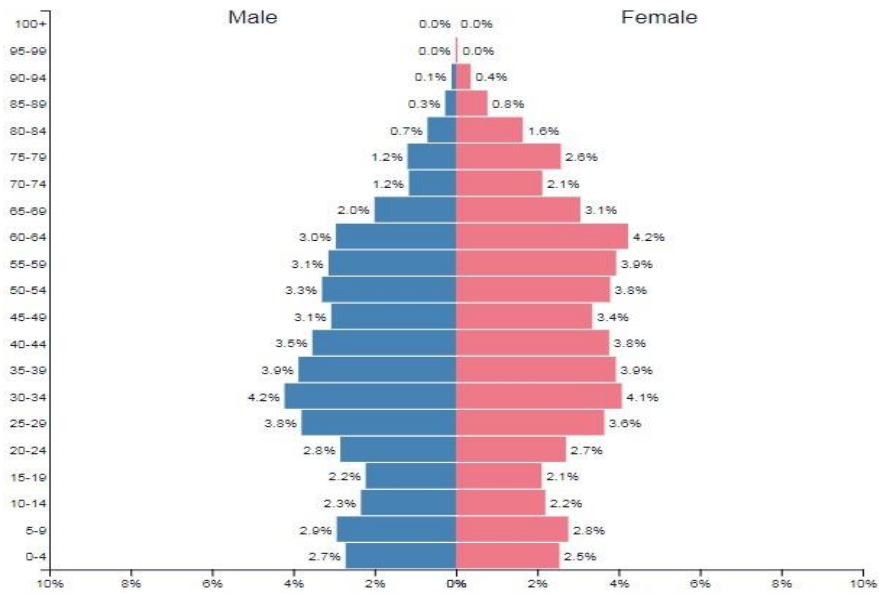


Figure 2: Emigration from Ukraine by age groups [2]

This age group is the major consumer of Educational Expenditures from Ukraine' Budget. This segment of Budget expenditures amounts to around \$8.4bn, 2018 that makes up around 14% of the total Ukrainian Budget. Utterly prevailing issue pushes Labour Emigration from Ukraine is insufficient Salaries (Fig. 3) [3]. That means until Average Salaries in Ukraine provided at roughly same level than ones at neighbouring countries – Poland, Russia, Hungary, Lithuania, Slovakia, Czech Republic, etc., Labour Emigration from Ukraine will go on, limiting the GDP growth.

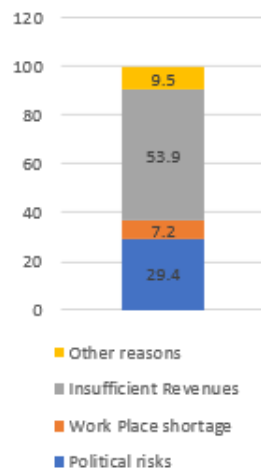


Figure 3: The Ukrainian Labour Emigration reasons

(Fig. 4) indicates top 6 countries for Labour Emigration from Ukraine. The major Labour Force hoover is associated with Poland Economy and emigrants' number to Poland constantly increases on permanent or pendulum basis. The background of this phenomenon lays in preceding Labour Emigration from Poland, resulted in over 2million loss of Actual Employees, compensating at the expense of Ukrainian Labour Force. Polish Labour Force bleeding goes on, as an example: to discourage next Young Labour Emigration outflow Polish Government cancelled Personal Income Tax for those with less than \$20k per year [5].



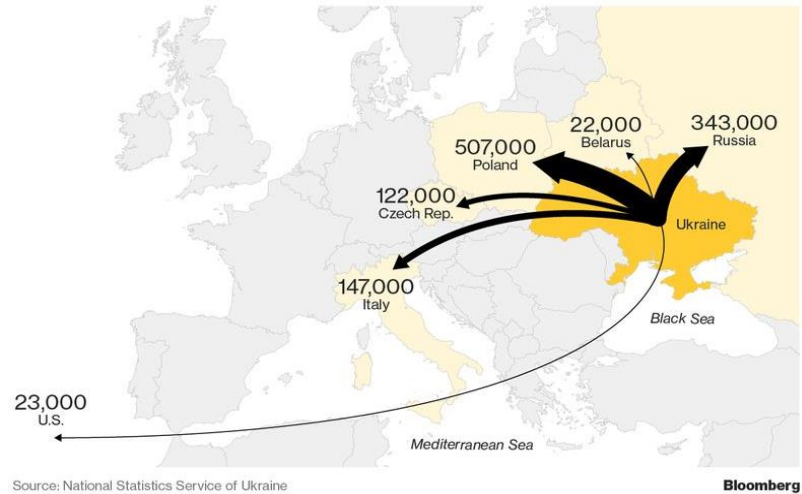


Figure 4: Labour Emigration, main destination countries [4]

As a matter of fact, to stop Labour Emigration from Ukraine and to return the actual labour emigrants back to Ukraine the Ukrainian economy should struggle and compete with the Poland Economy offers. Meanwhile the major advantage of labour emigration from Ukraine that seems to be true in the eyes of Ukrainian Authorities, are Remittances of Employees from abroad (\$9.3bn, 2017) (Fig. 5), providing currency inflow for Balance of Payments of Ukraine. Indeed, currently that inflow forms substantial part of Current Account, Balance of Payments, making up around 14% of it [7].

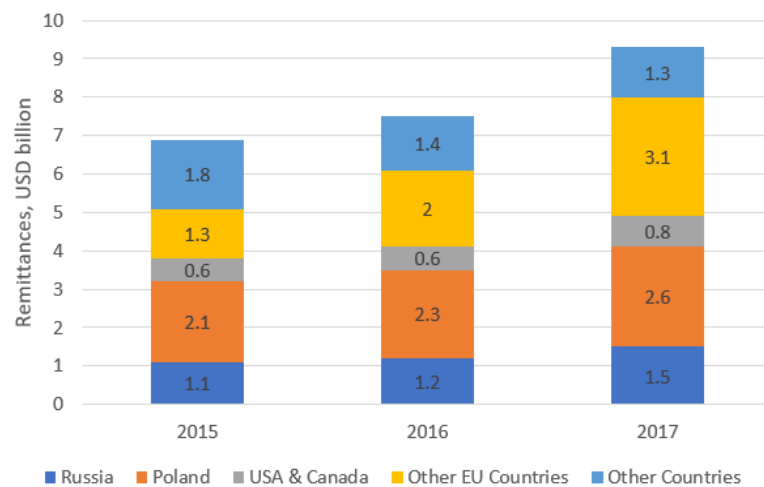


Figure 5: Labour Emigrants Remittances into Ukraine [6]

## 2. LABOUR EMIGRATION AND ECONOMIC ACTIVITY DATA

The proposed in para III mechanism for labour migration policy in Ukraine for 2020 and the following years will be based on statistics presented hereafter. Due to the shortage of data, the main statistics is applied for 2015-2017, but the trend of 2018 doesn't differ much. The GDP of Ukraine has been constantly increasing (Fig. 6) throughout the 2015 – 2017. This change has led to a rise from \$91.0bn to \$112.2bn, meaning in next 2018 was marked with GDP equal to \$130.8bn, which increased the average growth up to 14% per year. Most likely, under the shortage of capital investments and insufficient labour force, the growth of GDP is associated with less scaled shadow economy and exchange rate fluctuations. So that, the faced GDP growth rate isn't a long term one.

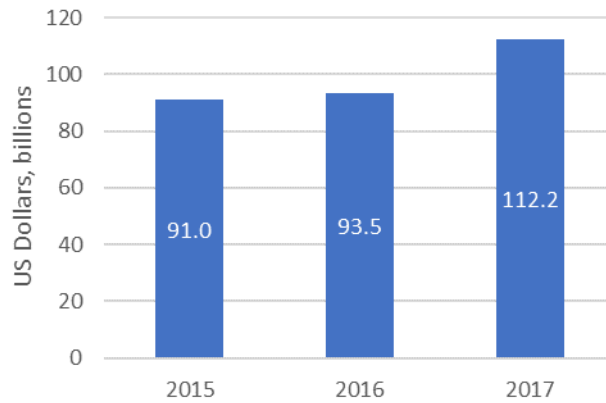


Figure 6: GDP of Ukraine, 2015 – 2017 [8]

In Ukraine, the people' data 2015 - 2017 has the downward trend, accompanied with leaving the country tendency [9], [10]. The attention should be paid towards the constant difference between Labour Force and Actual Employees, that makes up around 10mln people. Most likely, in major they are having a permanent or a part job abroad (Fig. 7).

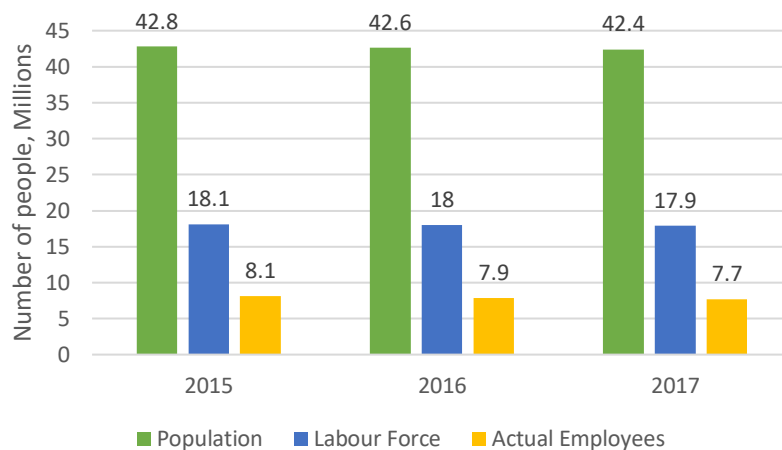


Figure 7: Population/Labour Force/Actual Employees Statistics in Ukraine, 2015 – 2017

The number of Actual Employees, who provide the GDP in Ukraine, makes up 7.7mln in 2017 with decreasing trend in 2018 and next years. The average GDP per employee in Ukraine tends to be around \$15.0 thousands (Fig. 8).

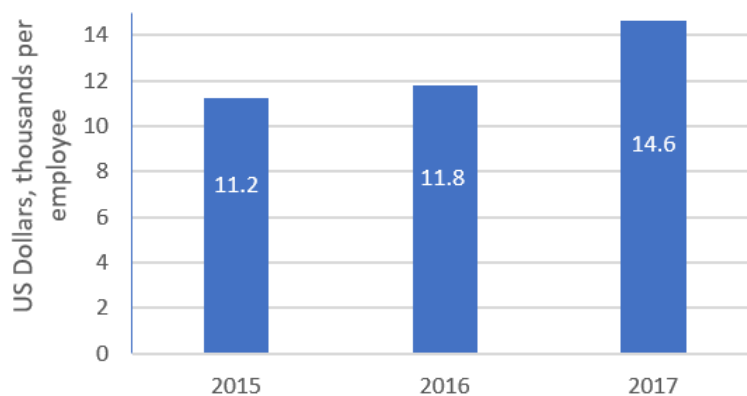


Figure 8: GDP per Actual Employee in Ukraine, 2015 – 2017

The growth of average salary is primarily determined by the growth of GDP. Depending on GDP forecast 2019 – 2024 for Ukrainian Economy, the forecast of an average salary is provided hereafter (Fig. 9).

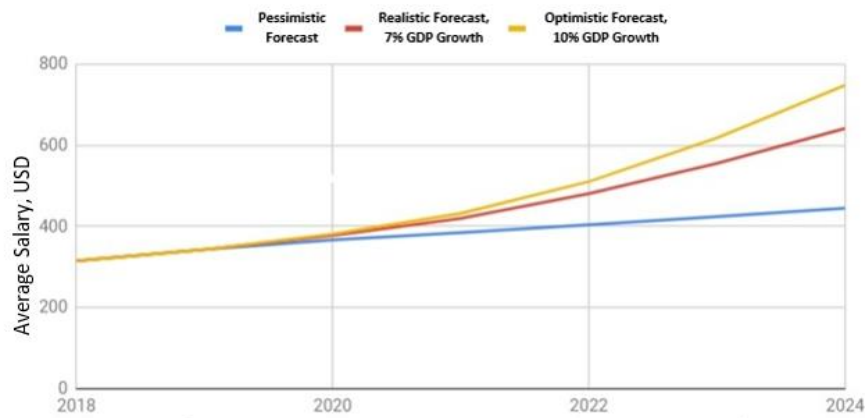


Figure 9: Ukraine Average Salaries forecast for 2020 – 2024, different scenarios [11]

Following all the next data (Fig. 9), even the Optimistic Forecast isn't enough to keep the Actual Employees in Ukraine with the same amount as in 2017. This means that outflow of Labour Force will continue in 2019 – 2024 if significant changes won't be applied. This will have a vital impact on GDP growth. Poland is the most successful country in GDP growth terms since 1991. As a result, having 3.5 times as much GDP per Labour Force than in Ukraine, Poland is constantly most competitive for Ukrainian Labour Force. Polish employer has other range of benefits in the eyes of Ukrainian employees as well: similar language, neighbour location and cultural & historical affinity.

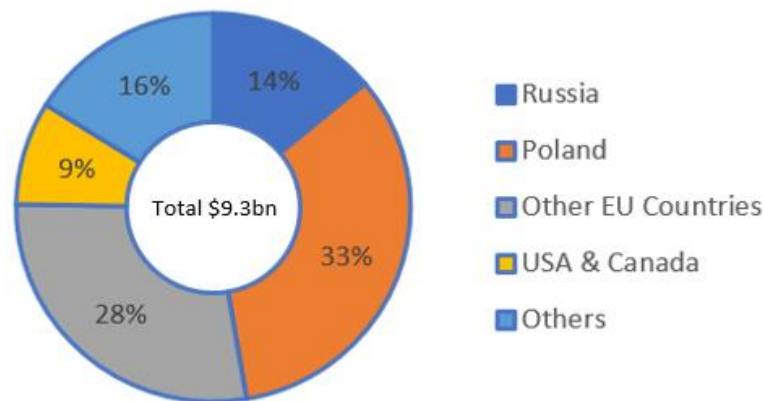


Figure 10: Labour Emigrants Remittances into Ukraine structure, 2017 [6]

This is confirmed by the statistics of Remittances to Ukraine 2017 (Fig. 10), the majority of which are sent from Poland: approximately 1/3 of the total Remittances to Ukraine is transferred from Poland. So that, the prevailing quantity of labour emigrants from Ukraine have the permanent or part time jobs in Poland. Due to 3.5 times GDP higher in Poland, the average salaries in Poland are substantially more than the Ukrainian ones. This is traced within all industries [12], [13]. The difference in salaries as weighted average equals to around \$640 that makes up to 2 times more than weighted average salary in Ukraine, 2018 (Fig. 11).

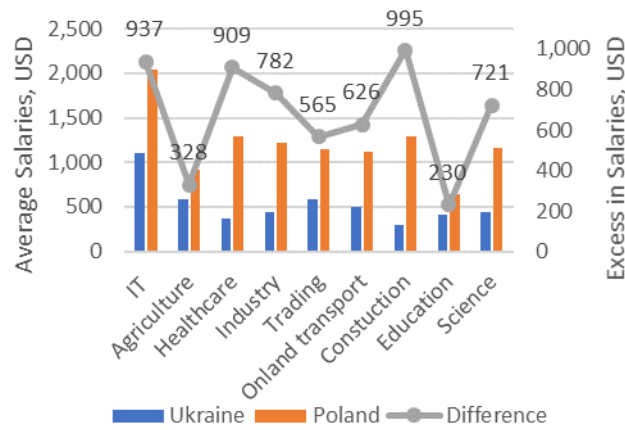


Figure 11: Average Salaries by industries in Ukraine and Poland, 2018 [7]

The Exploitation Index for the 2015 - 2017 period had the upward trend with around 30% maximum (Tab. 1). In 2018 it didn't manifest any changes. Anyway, the Exploitation Index in Ukraine is vitally lower than in developed countries (for example, the UK demonstrates 50% and more).

Table 1: Profitability and Exploitation Index calculations, 2015 – 2017

Profitability and Exploration			
Index data in Ukraine	2015	2016	2017
GDP, USD bn	91.0	93.4	112.2
Corporate Tax, USD bn	1.6	2.1	2.5
Profit, USD bn	8.8	11.9	13.8
Profitability within GDP	9.7%	13.0%	12.6%
Number of Actual Employees, millions	8.1	7.9	7.7
Average Salary, USD/month	161	187	289
Social Security payments	0.347	0.220	0.220
Exploitation Index*	23%	23%	29%

\*Exploitation Index – the part of GDP transferred towards employees

To provide the same level of salaries as in Poland the Exploitation Index is to be increased by 58%, that is 4 times more than the Profitability within GDP in Ukraine (Tab. 1).

### 3. SUBSIDY POLICY AS AN ECONOMIC POLICY MECHANISM TO SOLVE MARKET FAILURE STATUS

Labour Force is the fuel for economic development and GDP growth. But, in major due to low wages of Ukrainians, at least for 5 last years Labour Force of Ukraine is decreasing following the emigration to other countries like: Poland, Russia, Italy, Czech Republic, etc. Once again, around 10 million people difference between Labour Force and Actual Employees shown on the (Fig. 7) is most likely to be associated with Ukrainians migrating to have part time job (pendulum migration) or permanent work place abroad. As a result, existing business is out of ability to expand and no additional investments will come without sufficient supply of Labour Force to Ukraine. So, the aim is to stop ASAP Labour Force leaving Ukraine and to return the ones who left already.

Nearly 55% of labour migrants leave Ukraine after 2013 as they aren't happy with their income, see Fig. I.3. It seems in major the following market alike ways could solve this Issue:

1. To boost GDP of Ukraine. This way is a long-term process via capital investments, contradicting with short term requirement to solve the Issue: the longer the investment cycle the less Actual Employees, limiting the investments itself (vicious circle problem).
2. To displace the material costs with additional salary payments. This way assumes increase in technology efficiency, i.e. less material consumption, increase in energy efficiency; therefore, it is a long-term process via capital investments, contradicting with short term requirement to solve the Issue.
3. To direct the profit share of GDP towards the additional salary payments. The profitability within GDP is not sufficient to provide the average salaries increase by at least two times as shown in para (Tab. 1).

These ways seem insolvent under current circumstances in Ukraine to solve the Issue shortly. This status could be treated as Market Failure and requires Government Interference. The mechanism of government interference suggested is Subsidies for specified Actual Employees, returned to Ukraine as well, on principles indicated hereafter.

### 3.1. Principles of Subsidies

Subsidies should be provided to high skilled Actual Employees, having the working place as well as those obtaining one after returning from abroad. High skilled workers demonstrate greater productivity as a background of GDP accelerated growth. (Tab. 2) contains the calculation of the Average Subsidy sum per one Actual Employee, having the working place as well as those obtaining one after returning from abroad:

*Table 2: Average Salary Subsidy sum calculations*

Name	Units	Formula/Figure	Value
AITES Average Salary in Ukraine, 2018	USD	1/Fig.	456
High Skilled workers Salary Index	-	2	1.25
High Skilled workers AITES Average Salary in Ukraine, 2018	USD	3=1*2	570
Exploitation Index	%	4/Tab.II.1	29.0
Shadow Economy rate of GDP, [14]	%	5	44.8
Personal Income Tax rate	%	6	18.0
Social Security payments	%	7	22.0
Exploitation Index of the Shadow Economy	%	$8=4*(1-6)/(1+7)$	19.5
Additive to '3' due to Shadow Economy	%	$9=8/(4/(1+7))*5$	36.8
Total '3'	USD	$10=3*(1+9)$	780
AITES Average Salary in Poland, 2018 *1*2	USD	11	1042
Average Subsidy sum per one Actual Employee	USD	12=11-10	262

*\*1 - shadow economy effect isn't applied as it makes up omissible value*

*\*2 - assumed the high skilled Ukrainian workers settled for low/average skilled work places in Poland*

The recipients of the Subsidies are high skilled Actual Employees, having the working place as well as those obtaining one after returning from abroad, at export orientated industries that provide the major shares in Payroll structure (FigIII.2). Indeed, the more labour emigrants will return to Ukraine the less Remittances will take place. The Remittances in 2017 made up \$9.3bn that makes up significant share of income within the Balance of Payments. So that Remittance decline due to Labour Emigrants return should be offset by additional export of goods and services produced as an extra GDP.



Figure 12: Prevailing Export Structure from Ukraine 2018 [15]

The major leaders of export from Ukraine in last 3 years are Agriculture (around 40%) and Industry (around 55%) in terms of Metallurgy, Engineering, Chemicals and Mining (Fig. 12). Export growth by max \$9.3bn is equivalent to around 17% of total Goods and Services Export 2017.

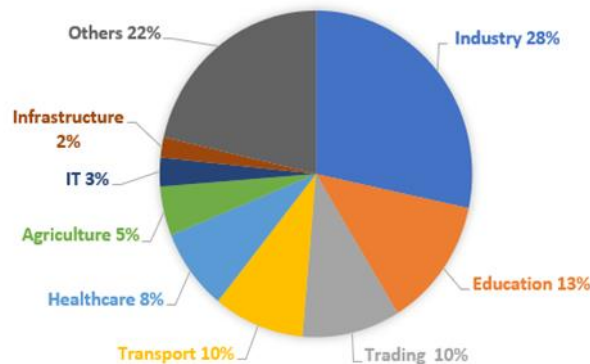


Figure 13: Payroll Structure in Ukraine, 2017, % [16]

These industries together with Transport and Education & Science (hereabove and hereafter - AITES) which ensure export potential, provide maximum share of employment and payroll. Assuming the Actual Employees structure is similar to Payroll Structure (Fig. 13), the total Actual Employees at these Industries equals to around 4.4million workers. Following this, taking the high skilled workers share at 25% in general, the base number of Subsidies recipients adds up to 1.1million people subject to a rise as more employable Ukrainian residents return from abroad. Keeping Exploitation Index at the same level (29%, 2017) (Tab. 1), Average Salary growth should be associated with GDP growth. Such GDP growth could be provided via involvement of idle capacities that are currently sufficient in Ukraine. But a required increase of GDP by 2...3 times looks like a Boost, that in turn requires increase in Actual Employees most likely via their return from abroad. Vicious circle problem is faced. To let Average Salaries grow via increase in Exploitation Index keeping GDP growth at a gentle slope, material cost is to be decreased via reduction in material consumption and an increase in energy efficiency.

This tactic will allow to displace the material costs with additional salary payments, but borrowings by Business should be applied. For example, Energy Intensity of GDP (tons of oil equivalent/kUSD1 GDP) in Ukraine equals 0.32, whereas average worldwide equals to 0.15; in Poland it equals to 0.12 that is 2.7 times less [17], [18]. That demonstrates Ukrainian business has a substantial source to increase Average Salary via shrinking material costs in the nearest future, subject to be supported by the Subsidy Policy currently. The temporal nature of Subsidy Policy is to be motivative for Businesses to effect structural changes of their own economies in favour of Average Salaries increase within the time period the Subsidy Policy will be applied. Time period the Subsidy Policy is to be applied equals to (attract + uptake + payback) of investments/borrowings period. Taking into account the profitability within GDP is around 13%, Tab. 1, the time period for Subsidy Policy in force equals to  $[(1/0.13) = 7.7 + 1.3$  (to attract and uptake)] = 9 years. The number of high skilled workers to be returned from abroad to replenish the Actual Employees in Ukraine,  $\Delta AE$  is calculated as following, thousand people:

$$\Delta AE = \text{Rem}2017 / \text{GDP AE}2017 \quad (\text{III.1})$$

where

Rem2017 – remittances from abroad to Ukraine in 2017, USD million; Rem2017 = 9,300.0

GDP AE2017 – GDP per Actual Employee in Ukraine in 2017, USD thousand/person; GDP AE2017 = 14.6

$\Delta AE = 9,300.0 / 14.6 \sim 650$  thousand people.

Once again labour emigration from Ukraine results in GDP decline and investment interest losses due to shortage in Actual Employees. High skilled workers who will be returned from abroad due to Subsidy Policy will maintain the GDP growth at minimum of \$14.6thousand per person rate, filling the idle capacity at least. To secure the USD Remittances from abroad inflows of Balance of Payments (\$9.3bn, 2017) as it will decline as a result of Subsidy Policy, the corresponding GDP growth is to be exported primarily by Agriculture and Industry sectors of economy. The total Subsidies per year  $\sum S$  to be allocated from Ukraine Budget to pursue the suggested Subsidy Policy is calculated as following, USD billion per year:

$$\sum S = (\Delta AE + \text{AITES}) * \text{Subsidy} * 12 / 1,000,000 \quad (\text{III.2})$$

where

AITES - the base number of Subsidies recipients/Actual Employees, thousand people; AITES = 1,100

Subsidy - Average Subsidy sum per one Actual Employee, USD, 2018; Subsidy = 262 (Tab. 2)

$\sum S = (650 + 1,100) * 262 * 12 / 1,000,000 = \$5.5$ billion per year, that makes up around 9% of Ukrainian Budget.

#### 4. CONCLUSION

The research proves that to stop Labour Emigration from Ukraine as well as to return labour emigrants towards Actual Employees in Ukraine is vital for Ukrainian Economy at current stage. The main reason that provokes Labour Emigration from Ukraine is insufficient Average Salaries (Fig.I.3) comparing with neighboring countries. This status should be qualified as Market Failure and Government Interference is required. The mechanism of Government Interference offered in research work covers the Subsidies for Actual Employees having the working place as well as those obtaining one after returning from abroad to eliminate the difference in Salaries in Ukrainian Economy and the Economies of neighboring countries. The estimated sum of Subsidies in total equals to around \$5.5bn per year, that makes up around 9%

of the Ukrainian Budget. In turn it makes up to around 4% of GDP, 2018. That sum of Subsidies corresponds with Social Welfare payments from Ukrainian Budget for the last years.

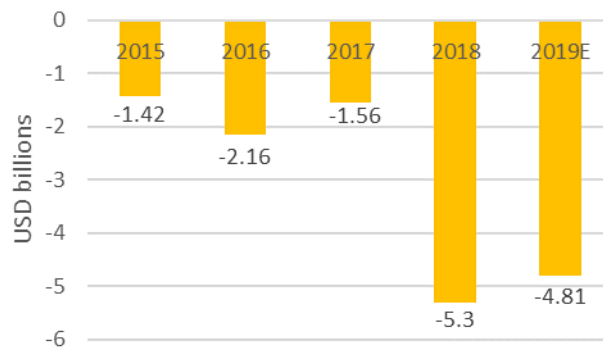


Figure 14: Ukraine Budget Deficit, 2015 – 2019E [19]

Looking on the deficit status of Ukrainian Budget during 2015-2019 (Fig. 14) at least, can be assumed that Subsidy Policy could be executed via State borrowings and therefore, it is essential to estimate the benefits Ukrainian economy will gain from. The table below contains the main benefits:

Table 3: Benefits and expected effects of Subsidy Policy

Benefits	Expected effect, USDbn per year
Bring salaries for High Skilled Actual Workers out of Shadow, as the minimum level of High Skilled workers AITES Average Salary to be Subsidized is taken at \$780, that is \$210 more than High Skilled workers AITES Average Salary formally paid [7]	1.8
GDP growth produced by Labour emigrants returned towards Actual Employees that results in additional corporate tax, personal income tax and social security payments	1.3
Social Security Payments over Subsidy to be paid by recipient Businesses at the expense of actual profit	1.2
Material cost descent under temporal nature of Subsidy Policy with next allocation for additional salary payments	to be assessed apart
Skills growth of Labour Force due to Subsidy Policy aimed on high skilled workers, resulted in labour productivity increase	to be assessed apart

Represented Subsidy Policy doesn't cover the direct Subsidies prohibited by WTO and won't violate Market efficiency.

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## TEACHING THROUGH SOCIAL NETWORKS IN HIGHER EDUCATION: IS THERE IMPACT ON STUDENTS' ENGAGEMENT?

**Dina Loncaric**

*University of Rijeka, Faculty of Tourism and Hospitality Management, Croatia  
dina.loncaric@fthm.hr*

**Marina Perisic Prodan**

*University of Rijeka, Faculty of Tourism and Hospitality Management, Croatia  
marinap@fthm.hr*

**Tomislav Car**

*University of Rijeka, Faculty of Tourism and Hospitality Management, Croatia  
tcar@fthm.hr*

### **ABSTRACT**

*The purpose of this paper is to highlight the need for implementing social networks in educational process in order to increase students' engagement, satisfaction and loyalty. The objectives of the study are threefold: firstly, to determine whether online social networking has an impact on online students' engagement; secondly, to determine the relationship between online students' engagement and students' satisfaction and thirdly to explore the relationship between students' satisfaction and students' loyalty. The three hypotheses were established based on the previous research and were tested by empirical research on a sample of 278 respondents. The hypotheses were validated by partial least square structural equation modelling (PLS-SEM). The research confirmed the positive relationship between the online social networking and online students' engagement. Also, the research results pointed out that students' loyalty to a higher education institution is positively affected by the overall students' satisfaction. Implications for higher education institutions as well as limitations and suggestions for further research were determined.*

**Keywords:** *social networks, online students' engagement, satisfaction, loyalty, higher education*

### **1. INTRODUCTION**

Social networks have become an essential part of people's life and daily routines. They are becoming increasingly important for communication, collaboration and exchange of ideas in the everyday lives of the 21st century generations that possess an innate propensity for technology. The education of such generations should be shaped and developed in a direction that will meet their needs and motivate them to actively engage in the teaching process. Quality is an important factor in the development and progress of any economic activity and it is an indispensable part of any organization that strives to be competitive. In terms of the higher education context, previous studies provided evidence that the fundamental, internal goal of higher education institutions is to improve quality of service (Ali, Zhou, Hussain, Nair and Ragavan, 2016). In order to build quality relationships with stakeholders, especially students, and to achieve satisfaction and loyalty, universities need to invest resources in communication through social networks (Clarck, Fine and Scheuer (2017). Digital technologies, especially social networks, have become indispensable, both in the educational process and in the teaching skills improvement as well. Developing teachers' digital competencies has become one of the most important prerequisites for high-quality learning experience in higher education institutions. As social media networkers teachers have to learn about different forms of participation and ways of social network implementation in online learning environment, which is one of the main objectives of the modules being developed within the project: "Future Proof

Your Classroom – Teaching Skills 2030” (ref. 2017–1–AT01– KA203-034984). Widely used in the fields of communication, advertising and broadcasting, the application of social networks as a teaching method has rarely been accepted. Therefore, this project represents a valuable contribution to the technology based education system. Also, Imlawi, Gregg, and Karimi (2015) pointed out that examining the impact of social networks on students' engagement and educational outcomes has been poorly explored so far, despite the increasing use of social networks in a higher education setting. The foregoing reasons make a relevant argument for conducting the empirical research in this study. The main objectives of the empirical research are as follows: (1) to determine whether online social networking has an impact on online students' engagement; (2) to determine the relationship between online students' engagement and students' satisfaction and (3) to explore the relationship between students' satisfaction and students' loyalty. The paper is structured in five parts. Following the introductory part, the concepts used in the paper are defined and hypotheses based on previous research are developed. The third part explains the research methodology which is followed by the presentation and interpretation of the research results. In conclusion, a synthesis of the entire paper is given.

## **2. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT**

As a widely accepted tool for personal and business purposes, the idea that social networks can be an effective tool for educational purposes has recently gained attention (Tess, 2013). According to Boyd and Ellison (2007, p. 211) social network sites are defined as "web-based services that allow individuals to: (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system". In the context of higher education, social networks enable universities to foster high-quality relationships with their students (Clark, Fine and Scheuer, 2017). Namely, the three interrelated concepts should motivate the use of social networks in higher education (Tess, 2013, p. 62): "the apparently changing nature of the student who comes to the university highly connected, collective, and creative; the changing relationship that today's university learner has with knowledge consumption, knowledge construction, and formal education; the de-emphasis of institutionally provided learning and emergence of "user-driven" education". According to Yu, Tian, Vogel and Chi-Wai Kwok (2010, p. 1496) in higher education institutions, "online social networking behavior is related to learning and academic success by creating systems of information, contacts and support". Social networks enable students to increase their engagement in educational process by creating and sharing contents, communicating with one another (Fagerstrøm, and Ghinea, 2013), following social network sites, getting informed on the last news and quick responses to their questions (Clark, Fine and Scheuer, 2017), gaining a sense of belonging to a particular community (Stageman 2011), etc. In that way, social networks become the tool that is used both, in collaborative learning or in a student - faculty interaction. Numerous definitions of customers' engagement can be found in recent literature. However, all authors agree that it is a multi-dimensional concept consisting of cognitive, emotional and behavioral dimensions. According to Islam and Rahman (2016, p. 2019) customers' engagement is defined as the "readiness of a customer to actively participate and interact with the focal object (e.g. brand/organization/community/website/ organizational activity), [which] varies in direction (positive/negative) and magnitude (high/low) depending upon the nature of a customer's interaction with various touch points (physical/virtual)". Commitment, loyalty and a positive word-of-mouth are determinants of a behavior that the customer voluntarily and indifferently develops in the concept of customers' engagement (Encinas Orozco and Cavazos Arroyo, 2017). In the higher education setting, students' engagement refers to "students' willingness, need, desire, and compulsion to participate and be successful in the learning

process" (Gray and DiLoreto, 2016, p. 5). Students usually engage with teaching materials, their colleagues, and educators, so that the activities of students' engagement may include active learning, requiring guidance from educators, collaborating with fellow students, involvement in enriching the teaching process in general (Coates, 2005). Dixson (2015) identified four domains of students' engagement in online setting: skills, emotions, participation, and performance. Jaggars and Xu (2016) proved that in online courses the quality of interpersonal interaction has a positive and significant impact on students' grades. Moreover, Kuh (2009) found out that students' engagement has a positive impact on students' outcomes (increased knowledge and good grades). The impact of social networks on students' engagement was the subject of the research performed by Rutherford (2010). The results of his study showed that there is a positive relationship between usage of social networks and students' perception of their engagement with educational experience. Hence, we propose that: *Online social networking is positively related to online students' engagement (H<sub>1</sub>)*. Research on social networks in higher education institutions has also identified the relationship between online students' engagement and students' satisfaction. For example, Yu, Tian, Vogel and Chi-Wai Kwok (2010) investigated connections between the online social network engagement and satisfaction with university life. They found out that there is a positive relationship between these two constructs. Furthermore, Mostafa (2015) ascertained that when a student perceives his own engagement through social networks as an important part of the emotional value, it will affect his or her satisfaction. In addition, findings revealed that collaborative learning with and among students positively affects a student's perceived value and satisfaction. Therefore, the second hypothesis is set up: *Online students' engagement is positively related to students' overall satisfaction (H<sub>2</sub>)*. Customers' satisfaction and loyalty have been widely explored by marketing scholars. The scholars found out that "satisfied customers are expected to engage in different forms of participation and citizenship behaviour" (Elsharnouby, 2015, p 247). The concept of customers' satisfaction has been applied in the context of higher education. According to Elliott and Shin (2002, p. 198) students' satisfaction refers to the "favorability of a student's subjective evaluation of various outcomes and experiences associated with education. Students' satisfaction is being shaped continually by repeated experiences in campus life." Overall students' satisfaction is based on the students' general experience of the university (Duque, 2014). Empirical evidence from the high education literature suggests that satisfied students are more likely to engage in different types of co-creation behaviour (Elsharnouby, 2015; Dollinger, Lodge and Coates, 2018; Mostafa 2015; Encinas Orozco and Cavazos Arroyo, 2017). Gray and DiLoreto (2016) pointed out the significance of four factors related to students' satisfaction in online courses: interaction and communication between students and faculty, time required to complete assignments, active and engaged learning and collaboration among students. Among them, interactivity is regarded as one of its key predictors (Parahoo, Santally, Rajabalee and Harvey, 2016). Students' loyalty can be described "as psychological attachment that students have to their universities based on their feelings of identification and affiliation" (Grace and Kim 2008, p. 4). Various scholars have investigated the relationship between students' satisfaction and students' loyalty in an online higher education setting (Grace and Kim, 2008; Manggarani, 2018; Ali, Zhou, Hussain, Nair and Ragavan, 2016; Giner and Rillo, 2016). Grace and Kim (2008) proved a positive relationship between students' satisfaction with university services, quality of college life and students' loyalty. Manggarani (2018) proved that there is a positive relationship between students' engagement, students' satisfaction and students' loyalty. Ali, Zhou, Hussain, Nair and Ragavan (2016) have found out, by examining higher education service quality, students' satisfaction, institutional image and students' loyalty, that all dimensions of higher education service quality influence students' satisfaction which in turn influences the institutional image and students' loyalty. Also, Giner and Rillo (2016) proved that students' participation in co-creation with the university leads to a higher level of

students' satisfaction and to students' loyalty to the educational institution. Accordingly, the third hypothesis is proposed: *Students' overall satisfaction is positively related to students' loyalty (H<sub>3</sub>)*.

### 3. METHODS

The empirical research was carried out on a sample of undergraduate students supported by a survey method. The questionnaire was completed in an online form and a link was sent to students asking them to fill in the survey. Data were collected from 30 May until 10 July 2019. The questionnaire was based on previous research and contained four constructs. *Online social networking* was measured by using 5 items taken and adapted from Yu, Tian, Vogel and Chi-Wai Kwok (2010). Two new items were added ("I use social networks to communicate with other students at this faculty" and "I regularly use social networks to communicate with my fellow students to fulfill teaching responsibilities"). *Online students' engagement* was measured using twelve items taken from a study by Krause and Coates (2008). *Students' overall satisfaction* construct was operationalised with four items taken over from Elsharnouby (2015). *Students' loyalty in higher education* was measured by four items taken over from Encinas Orozco and Cavazos Arroyo (2017). All items were measured on a five-point Likert-type scale, ranging from "strongly disagree" to "strongly agree". The questionnaire also included the questions related to demographics. In the following section, the research results are presented. Data processing and statistical analysis was performed by using univariate and multivariate statistical methods. For this purpose the IBM SPSS 25 program was applied. The hypotheses were tested by using the partial least squares structural equation modelling (PLS-SEM).

### 4. FINDINGS

A total of 278 students completed the survey, out of which 73% were female and 27% male students. The age of majority of the students (93.5%) was between 20 and 25 years. 40.3% of students were full-time students and 59.7% were part-time students. An evaluation of the measurement model was performed prior to hypothesis testing. Initially, all items were included in the measurement model. However, due to small values of item loadings, all the items not meeting the cutoff value of 0.708 (Hair, Black, Babin and Anderson, 2014, p. 103) were excluded from the model. The ultimate results of the PLS-SEM analysis of the measurement model are shown in Table 1.

*Table following on the next page*

*Table 1: PLS results for the measurement model (Research results)*

VARIABLE	CONSTRUCT / ITEM	$\lambda^*$	CR	AVE
<b>ONLINE SOCIAL NETWORKING (OSN)</b>				
sm1	Social networks are a part of my everyday activity.	0.733	0.870	0.692
sm2	I use social networks to communicate with other students at this faculty.	0.898		
sm3	I regularly use social networks to communicate with my fellow students to fulfill teaching responsibilities.	0.855		
<b>ONLINE STUDENT ENGAGEMENT (OSE)</b>				
ose1	Online discussion with other students is very useful..	0.792	0.873	0.633
ose2	Online tutoring (electronic access to tutoring support, e.g. Moodle) is very useful.	0.759		
ose3	Online resources (e.g. course notes and materials on the web) are very useful for me.	0.826		
ose4	Learning at my own pace using online resources is useful.	0.804		
<b>STUDENT OVERALL SATISFACTION (SAT)</b>				
sat1	Overall, I am very satisfied with the services provided by my faculty.	0.871	0.945	0.812
sat2	My faculty has met my expectations.	0.915		
sat3	My faculty has helped me to fulfill my aspirations.	0.908		
sat4	My faculty has met my needs.	0.909		
<b>STUDENT LOYALTY (LOY)</b>				
loy1	I speak positively about this faculty to other people.	0.911	0.924	0.802
loy2	I recommend this faculty to anyone who asks me for advice.	0.945		
loy3	I encourage friends and family to study at this faculty.	0.826		

\* All factor loadings were significant at  $p < .001$ , CR stands for composite reliability; AVE stands for average variance extracted

It is evident that that all item loadings of the reflective constructs exceed the recommended value of 0.708 (Hair, Black, Babin and Anderson, 2014, p. 103). All four constructs have high level of internal consistency reliability (from 0.870 to 0.945). The values extracted of the average variances (AVE) reflect the overall amount of variance in the indicators accounted for the latent construct. All values exceed the threshold value of 0.50 (Hair, Black, Babin and Anderson, 2014), demonstrating convergent validity. The discriminant validity was judged by using the Fornell-Larcker criterion (Table 2).

*Table 2: Discriminant validity (Research results)*

CONSTRUCTS	OSN	OSE	SAT	LOY
Online social networking (OSN)	<b>0.832</b>			
Online students' engagement (OSE)	0.343	<b>0.796</b>		
Students' overall satisfaction (SAT)	0.100	0.280	<b>0.901</b>	
Students' loyalty (LOY)	0.136	0.263	0.803	<b>0.896</b>

The results shown in table 2 confirm the discriminant validity of the measurement model, since the square roots of AVE values for all constructs are above the construct's highest correlation with other latent variables in the model. The results of testing the research model (hypotheses 1 – 3) using PLS path modeling are presented in Table 3.

*Table 3: Path coefficients, t-values and significance (Research results)*

Path	Path coefficients	t- values	p-values	Hypothesis
<b>OSN → OSE</b>	0.343	3.951	0.000	H <sub>1</sub> : supported
<b>OSE → SAT</b>	0.280	4.536	0.000	H <sub>2</sub> : supported
<b>SAT → LOY</b>	0.803	27.766	0.000	H <sub>3</sub> : supported

The results of the analysis show that all three relationships are statistically significant, which confirms all hypotheses. The  $R^2$  value obtained for overall students' satisfaction (0.078) and online students' engagement (0.118) is lower while the  $R^2$  value for students' loyalty (0.644) can be considered moderate.

## 5. CONCLUSION

In the conducted research a positive and statistically significant relationship between online social networking and online students' engagement was found out. It is in accordance with the findings of Rutherford (2010) which indicate a positive correlation between the frequency of students' use of social networks and the interaction with their peers and educators, i.e. their engagement. Also, a positive relationship between the online students' engagement and overall students' satisfaction was confirmed. This is in line with the findings of Yu, Tian, Vogel and Chi-Wai Kwok (2010) and Mostafa (2015). They found out that the online students' engagement leads to students' satisfaction with university life and overall students' satisfaction. The results also point out that students' satisfaction is related to students' loyalty which has also been proved in the previous research (Manggarani, 2018; Ali, Zhou, Hussain, Nair and Ragavan, 2016). Accordingly, this research contributes to a better understanding of using social networks in higher education institutions. The research also contributes to a better understanding of students' satisfaction and students' loyalty to the educational institution. The type and size of the sample represents a significant limitation to this research, so that the future research can be conducted on a representative sample of students from higher education institutions. Other measurement scales can also be applied. Based on the results obtained from this research, it is possible to make some recommendations to higher education institutions. As Gray and DiLoreto (2016) have noted, active and collaborative learning can be realized by assessing the level of students' engagement, which will contribute to a more effective planning of the teaching process (e.g. lessons, activities, time required to complete assignments, etc.). In order to achieve a higher quality of teaching, it is necessary to adapt teaching methods to different individual needs and preferences that will enable active students' engagement in educational process. Therefore, educators should be informed about the ways of online communication, making use of social networks in teaching. The foregoing can be realized with the module: "Teaching with social networks" that is developed within the project "Future Proof Your Classroom – Teaching Skills 2030" (ref. 2017–1–AT01– KA203-034984). The module focuses on innovative experiential learning provided by social networks as an instrument of teaching. At the same time, the module elaborates and presents in fact two different types of social networks, concentrating on the one hand on those with collaborative functions and on the other on those with a user generated content. The aforementioned proves that higher education institutions can increase the quality of their educational programs by implementing social networks in learning environment, which will lead to increased students' satisfaction and loyalty.

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# THE ANALYSIS OF COMPANIES OF THE FUEL SECTOR BASED ON THE EXAMPLE OF COMPANIES QUOTED ON THE WARSAW STOCK EXCHANGE IN POLAND AND THEIR FAIR VALUE BETWEEN 2009-2019

**Rafal Parvi**

*WSB University in Wroclaw, Faculty of Economics in Opole  
Wroclaw, Poland  
rafalp4@o2.pl*

## **ABSTRACT**

*This paper examines share price of the companies listed on the WIG-FUEL and their fair value between 2009-2019. Data from 2009 to 2019 were collected from the Stooq.pl (Polish portal of shares). Two hypotheses are tested: (1) value of the shares based on the market price; (2) value of the shares as the fair value of shares. The fuel market was analysed and characterised, also the companies participating in it were described. Nevertheless, the market value of shares does not reflect the fair value of the shares which is currently assigned to different companies in the sector. The research analysed the key financial ratios, the actual value of shares; also the fair value of the fuel sector companies listed on the Warsaw Stock Exchange was calculated.*

**Keywords:** *stock exchange, share valuation, fair value, companies, WIG-FUEL*

## **1. INTRODUCTION**

The fuel market in Poland is developing and operating very well, and fuel concerns such as PKN ORLEN even extend beyond the borders of the country. It should be noted that along with the sale of fuel, the fuel concerns earn much money, and even after the depreciation, they earn more than average and have a very high rate of return. The Polish fuel market is consolidating and according to it, the share of five grand fuel concerns, including PKN Orlen and Lotos and three foreign ones, is growing. The number of single petrol stations is decreasing, cheap stations located at supermarkets are disappearing. The beginning of 2014 brought surprisingly good results of retail segments of large Polish fuel companies. Evaluation of shares allows to some extent for determining the company's value as a share value does not depend exclusively on demand and supply on the market, but also on many factors which shape its rate starting from valuation of an enterprise by means of different methods up to showing the mechanisms changing the share value in a way increasing its value or underrating it. Therefore, valuation of shares and estimation of their fair value is extremely important. This must be done in an objective manner. Repeatedly, the value of shares listed on WIG-FUEL of the Stock Exchange is distorted and underrated, which is connected with an incorrect valuation of an enterprise's value listed on the Warsaw Stock Exchange. The research concerns the determination of fair value of shares listed on the index of WIG-FUEL when analyzing simultaneously chosen rates of particular companies from WIG-FUEL. The value of enterprises listed on this index was checked for proper determination of their fair value as currently their values appears to be underrated.

## **2. VALUATION OF SHARES**

Shares are the most important group of financial instruments listed on the Warsaw Stock Exchange. In 1991, during the first quotation, the shares were the only financial instrument. At the end of the 90s, the structure of the Warsaw Stock Exchange changed as other financial instruments, including forward contracts, were introduced to turnover. On the first exchange session, shares of 5 companies were listed. In the subsequent years, there was observed an increase in the number of companies and their market value.

A share is an instrument combining rights of property and non-proprietary character which result from shareholder's participation in a joint-stock company or a limited joint-stock partnership, and the sum of rights and obligations that a shareholder has within the framework of a company or a partnership or a part of a share capital. When purchasing shares, it is possible to distinguish the rights vesting with a shareholder and group them into property and non-proprietary (corporate) rights. These rights, in principle, are equal. However, it is possible that on the basis of a company's articles of association some shares are assigned with special rights or particular obligations. The following property rights are vital for the valuation of shares (Borowski, 2013, Bossa.pl):

- right to a dividend (share in a company's profit assigned for division among shareholders),
- right to participation in the division of assets of a company in the case of its liquidation,
- right to subscription of shares of a new stock issue (The Code of Commercial Companies and

Partnerships grants the hitherto shareholders a right to taking up of shares on a new stock issue in the case of an increase of a capital by a company). A share is a part of a company's capital. A person holding shares of a joint-stock company becomes a shareholder of a company who is, in a way, a co-owner of everything that constitutes company's assets (immovables, machines, etc.). Two basic types of shares can be distinguished: registered and bearer's shares. A fundamental difference concerns the turnover of these shares. Registered shares, contradictory to bearer's shares, are not placed on a public market. Registered shares may be preference shares connected, for instance, with a right to vote (2 votes – 1 share) or dividend. One of the elements of a fundamental analysis, which is most important, is valuation of shares. When making investment decisions, an investor should know if a company they want to invest in is not underrated or overestimated by a market. By means of valuation it is possible to estimate the risk associated with an investment. There are 4 approaches of valuation of shares (Copeland, 1997, pp. 65-69; Kufel, 1992, pp.78-89):

1. Accounting approach
2. Liquidation approach
3. Multiplier approach
4. Revenue approach

- Re 1. An accounting approach is also known as a method of a net asset value. It consists in estimating a company's value (as for a single share) by means of reducing the value of assets by company's liabilities. Then, the result is divided by the number of issued shares. This method is used rarely as it does not make allowances for market realities and development prospects.
- Re 2 A liquidation approach consists in determining the value of income due to the sale of assets in the moment of liquidating a company. This method is used when a company is liquidated or merged with another one.
- Re 3 A multiplier approach, aka comparative or indicative, relies on valuation of a company on the basis of shares belonging to other companies that are similar to the one in question. Usually, such comparison refers to companies of the same area of activity in a given sector. Most common indicators used in this method are:
  - price/profit
  - price/accounting value
  - price/sale
- Re 4 Approach based on a revenue model Valuation is made by means of a method of discounted cash flows.
  - Model of discounted dividends.

A ratio analysis is most commonly used by investors due to its simplicity. The above-mentioned indicators were used to illustrate this valuation for an analysis. The first one is an indicator: price/profit.

$P/P = \text{price of one share} / \text{net profit for one share}$

Another indicator is the price/company's accounting value ratio. As it was in the previous case, the calculation requires the use of a price of one share and accounting values (assets – liabilities) per one share of a company, where the value is achieved by dividing an accounting value by a number of company's shares (Jajuga, 1996, pp.34-57).

$P/BV = \text{price of one share} / \text{accounting value for one share}$

The last indicator is price/net sales. In order to obtain this measure, it is necessary to hold data about sale per one share (quotient of incomes from sales and a number of issued shares), and a value of one share.

$P/S = \text{price of one share} / \text{net sales for one share}$

All information concerning an accounting value, net profit and sales includes an annual financial statement prepared by companies. One may use quarterly reports of companies to forecast indicators. Apart from the aforementioned indicators, there are many other types of them which may make the financial situation of a company known. When valuating shares, one should also use the model of discounted dividends. This model is one of the oldest and most commonly used ones. It is dedicated to minority shareholders. In an adverse situation, when valuation is made by a person having control over a company, a decision regarding the pay out of some part of the profit is made by the person themselves. Here, a dividend policy is of no importance for the valuation. There are the following models of discounted dividends:

- constant dividend value model
- constant dividend growth model (by Gordon)
- two-stage model
- H model
- three-stage model

A constant dividend value model, as indicated by its name, assumes that a dividend will be paid out in the same amounts at all times (Pierce, 2004, pp.124-145; Thompson, 2008, pp.45-67; Valea, 2001, pp.88-125):

$$P = (D / R)$$

D – dividend

R - return rate expected by an investor

Situations arising from this model are encountered very rarely. Another method is worked out by Gordon. It is one of the easiest and commonly used models. It assumes that a growth rate of a dividend will be stable:

$$P = [D_1 / (r - g)], \quad r > g.$$

P - share value,  
g - dividend growth rate,  
D1 - dividend (per share) paid out in the following year,  
r - required return rate.

Formula for a growth rate of a dividend:

$$g = \text{ROE} \times f$$

ROE – rate of return from equity capital

f – retention rate (quotient of a retained profit and a net profit)

The two-stage model, as its name suggests, consists of two phases: a growth period at a constant speed  $g_0$ , and then at a constant speed  $g$ :

$$P = D(1 + g_0) \left[ \frac{1}{r - g_0} - \frac{(1 + g_0)^N}{(r - g_0)(1 + r)^N} + \frac{(1 + g_0)^{N-1}(1 + g_1)}{(r - g_1)(1 + r)^N} \right]$$

The H model assumes that a growth rate of a dividend will decrease linearly at the beginning (from the level  $g_0$  to  $g$ ), and later on it will increase at a constant growth speed  $g$ :

$$P = \frac{D_0(1 + g) + D_0H(g_0 - g)}{r - g}$$

H – half of the period when there is a linear decrease in a growth speed of a dividend.

The remaining signs are equal with the previous model by Gordon. The difference between the three-stage model and the H model is that at the beginning there is an additional regular period in which a dividend rate grows in at a constant speed  $g_0$ , whereas other assumptions are identical as it was in the previous model. Thus, valuation of shares consists in determining its value to identify underrated or overestimated shares. For that reason, it is necessary to carry out a technical (fundamental) analysis and check if the price of a share corresponds to a company's value.

### 3. FAIR VALUE OF LISTED COMPANIES

Share price of the companies listed on the Stock Exchange should reflect also their fair value (Pierce, 2004, pp. 124-145). The fair value can be defined in several ways. In view of the foregoing, the fair value is a value used repeatedly in accounting, and thus in Article 28 (6) of the Accounting Act of 29.09.1994 as "the amount for which a given asset component could be exchanged, and the liability could be paid on market transaction terms between interested and well-informed, unrelated parties. In view of whether the price of shares that are quoted on the stock exchange corresponds to their fair value, should be found in the value alone, since, after all, the values may be diverse, like the value of a similar company, producing similar goods and operating in the same industry, will also be diverse for various reasons. The subject of trade covers minority shares, and the main market participants are retail investors or minority institutional investors, thus the price of shares should reflect the fair value characterizing the liquid minority interest (Borowski, 2013, bossa.pl).

The value presented in this way seems righteous, which is confirmed by the premium paid by the investors who announce calls for subscription for shares and plan in this way the purchase of the controlling interest. Then the premium reflects the difference between the level of liquid minority interest and the level of controlling interest. Sometimes the level takes into account benefits resulting from synergy. An investor purchasing the controlling interest in this way receives premiums that appear after taking over control of a company, in the form of funds, business management and making a number of strategic decisions. The fair value of the share price should be determined in accordance with the idea of capital market, namely the market participants should have equal access to data, information and all messages concerning a given company. However, the investors are divided into three groups:

- a) People with access to the most closely guarded information that affects the price and the business value, namely those can the company's management board or shareholders,
- b) Institutional investors with blocks of shares with simultaneous access to the company's management board,
- c) Individual investors who have access to public information.

At this point, there should be no differences in particular groups, at least officially, however, it happens that a group that is closest to the company has information which can obviously change its value overnight or distort its value artificially, e.g. other data or informal data, and even fictitious data. Worldwide we can also appreciate companies that treat individual investors seriously, namely provide them data concerning a company and treat them as equal and as strategic investors, with a large impact on a company in the present and in the future. Transactions that are concluded on the Warsaw Stock Exchange relate to transactions between interested parties, namely a purchase or sale order should be submitted. Sometimes there are cases of wrongly submitted orders, but these are marginal orders that do not have a large impact on the transactions conducted on the Warsaw Stock Exchange. Share liquidity is understood as a percentage quantity of shares in a company that are in the possession of minority shareholders. This is, at the same time, free float and the face value of such shares and the value of average daily trade in shares in a given company (Kufel, 1992, pp. 78-89). Thus, we may presume that if during a day a large trade in shares takes place and a greater part of shares remains in the hands of minor shareholders, the share price reflects their fair value. We cannot agree with the fact that at small or minimum trade the value of shares is reduced to its daily minimum and it would be its fair value. Then it is only a change in the share price to a lower one and it does not indicate its fair value, as the trade alone suggests that this is only a pure coincidence. Such an impact can be exerted by large shareholders, as they can, by using one block, decrease the share value, preventing smaller players from raising the price for one reason: the capital of smaller shareholders does not enable them to raise the share price (Veale, 2001, pp. 88-125; Frąckowiak, 1998, pp. 34-42). There is one premise more to determine the fair value of share price. The investors are fond of investing in shares, namely they buy them as in the past they managed to earn on them and they feel that presently the share price is ideal and reflects their fair value and will enable them to obtain fair dividend in the future. Such a purchase or sale of shares can largely overestimate or underestimate the share value of a quoted company. Here the IT industry may serve as an example, namely shares in technological companies at the beginning of the new millennium, when shares in these companies were being purchased without any analysis in technical terms, but looking at their name and value, which was increasing overnight. In view of the foregoing, this led to excessively high business value above its fair value (Thompson, 2008, pp. 45-67). The share price should thus reflect the fair value of a company listed on the Warsaw Stock Exchange. For the value of these companies be fair, the market must make available to all investors information regarding companies listed on the Warsaw Stock Exchange.

The shareholders should be treated equally; therefore we cannot distinguish majority shareholders as those who should have information unavailable for minority shareholders. First of all, shares should be liquid securities, therefore they should be in free float and have real-time transferability, namely at any moment and at any time during the office hours of the Warsaw Stock Exchange on a business day (The analysis of 233 recommendations or analytical reports issued by broker's offices in the period from January 2014 to January 2015, concerning 41 companies comprising the WIG20 and mWIG40 indexes of the Warsaw Stock Exchange).

#### 4. FUEL MARKET IN POLAND

PKN ORLEN and LOTOS are one of the largest fuel concerns in Poland. They are quoted on the Warsaw Stock Exchange, where they are valued in terms of market activity and the potential rate of return from the funds paid by the investors. However, as far as the companies quoted on the Warsaw Stock Exchange in Poland are concerned, it should be noted that they are undervalued because they only follow the WIG-PALIWA (WIG-FUEL) index. Moreover, due to the fact that from 2008 their value, in the majority of cases, recovered the maximum value of 2009, thus, especially according to the calculations and conducted studies, it was found that the fair value of the fuel sector companies was impossible to achieve before 2017.



Figure 1: WIG-FUEL index in the years 2009 – 2019 (source: stooq.pl)

The WIG-PALIWA (WIG-FUEL) index presented in Figure 1 shows that since 2014, the fuel sector companies in Poland have revealed changes and upward trend within their values. It is possible to claim that their value does not reflect the market value and fair value. After 2018, we hope that will be better (*data of the stooq.pl*). Nevertheless, with such a volatile market and the noticed good moods of investors, it will be possible to achieve the reported maximum and also fair value of the fuel sector companies. The best companies listed in the WIG-FUEL index are characterized by a good financial condition: LOTOS, MOL, PGNiG, PKNORLEN, SKOTAN, SERINUS and UNIMOT.

*Table 1: Companies listed on the WIG-FUEL in Poland as of 25.11.2019 (prepared by the author on the basis of the financial data of the WIG-FUEL companies)*

<b>Name</b>	<b>Average assessment</b>	<b>rating</b>	<b>Current price PLN</b>	<b>Max price PLN</b>
LOTOS	4.5/5.0	A-	87.60	95.00
MOL	4.0/5.0	BB	37.30	45.00
PGNiG	4.5/5.0	AAA	4.69	7.50
PKNORLEN	5.0/5.0	AA+	94.20	120.00
SKOTAN	3.5/5.0	D	0.76	143.00
SERINUS	3.0/5.0	D	0.49	19.00
UNIMOT	4.0/5.0	BBB-	29.90	73.00

Table 1 contains the most important core values that show financial standing of the WIG-FUEL companies. With good financial data and generating earnings per share, the companies should resist crisis. However, it is unjust to quote rating for some companies in a manner showing their weakness, since those companies generate profit and are capable of surviving on the market and maintaining financial liquidity, which is proved by the financial results in tables 2 and 3. LOTOS, PGNIG and PKNORLEN may serve as an example (Parvi, 2014, pp. 33-36; Parvi, 2014, pp. 52-60). In the rating, only two companies, SKOTAN and SERINUS, differs from the rest by the lowest grade "D". Other companies have the grade of the "A" or "B" category. The share price of some of them has been reduced by 99% (SKOTAN) and of some by less than 8% (LOTOS), which proves their diverse structure and diverse financial possibilities. With good financial data and generating earnings per share, the companies should resist crisis and stagnation prevailing currently on the world markets. However, it is unjust to quote rating for some companies in a manner showing their weakness, since those companies generate profit and are capable of surviving on the market and maintaining financial liquidity, which is proved by the financial results in table 2. PKNORLEN may serve as an example. Table 2 contains the most important ratios that show financial standing of the WIG-FUEL companies.

*Table 2: Technical assessment of companies listed on the WIG-FUEL as of 25.11.2019 (prepared by the author on the basis of the financial data of the WIG-FUEL companies)*

<b>Name</b>	<b>Net profit (net loss) in thousands</b>	<b>Profit per share</b>	<b>Book value per share</b>	<b>Depreciation</b>
LOTOS	125900	0,681	66.400	226800
MOL	(HUF) 59757000	(HUF) 72.925	(HUF) 2608.132	(HUF) 87700000
PGNiG	30000	0.005	6.534	662000
PKNORLEN	1266000	2.960	89.350	893000
SKOTAN	200	0.007	-0.336	187
SERINUS	-1403	-0.006	0.046	4671
UNIMOT	23960	2.923	27.797	1606

Profit per share is interesting, and another operating profit plus depreciation, which shows more effectively the companies with large fixed assets which require a very high capital expenditures characterized by a long period of return. In view of the above, Net profit is a better ratio than EBIT, as it shows a better image of financial standing of an analyzed company (Parvi R., 2014, 33-36; Parvi R., 2014, pp. 52-60; Copeland, 1997, pp. 65-69). In view of the so conducted analysis, we can clearly see that two companies had problem with generating operating profit per share in the 3rd quarter of 2019: SKOTAN and SERINUS. The other 5 companies generated operating profit per share as presented in Table 2.



Almost all companies (5 companies) reduced assets to equity ratio, which resulted in release of equity and larger investment possibilities [6, 7]. Price to earnings and price to shares express the value in PLN and it is a value characterized by the results of the companies which affect these values (Parvi R., 2014, pp. 262-267; Parvi R., 2014, pp. 169-177). Similarly, price to book value of a company ranges from PLN 4.44 (UNIMOT) to PLN 11.26 (PGNIG). Comparing these values to the maximum values reached by the companies, we should note that the value of PLN 11.026 PLN as maximum (PGNIG) and of PLN 6.69 (PKNORLEN) were values reached by the companies during their quotations on the market over the last few years (2009-2019).

*Table 3: Financial ratios of the companies listed on the WIG-FUEL as of 25.11.2019  
 (prepared by the author on the basis of the financial data of the WIG\_FUEL companies)*

<b>Name</b>	<b>Price/Profit</b>	<b>P/OE (price/ operating earnings)</b>	<b>Price/Book Value</b>
LOTOS	0.54	7.08	1.32
MOL	0.54	7.40	1.07
PGNiG	0.64	11.26	0.72
PKNORLEN	0.36	6.69	1.05
SKOTAN	4.45	-5.96	-2.26
SERINUS	1.72	-9.08	2.66
UNIMOT	0.06	4.44	1.01

Similarly, price to book value of a company ranges from PLN 4.44 (UNIMOT) to PLN 11.26 (PGNIG). Comparing these values to the maximum values reached by the companies, we should note that the value of PLN 11.026 PLN as maximum (PGNIG) and of PLN 6.69 (PKNORLEN) were values reached by the companies during their quotations on the market over the last few years (2009-2019). Generally, the value of the index P/OE is a useful tool for determining an absolute share value referred to the operating profits (table 3). Using the operating profit instead of a net profit (the C/Z index) allows for rejecting single events. Moreover, a net profit is easier to handle. Fewer companies incur losses at the level of an operating profit rather than a net value, which allows for a broader use of P/OE. An operating profit helps to determine the efficiency of an enterprise's activity on the market regardless of a financial situation. It does not depend on a structure of financing, i.e. a relation of foreign and own capitals. An operating profit stands for the profitability of an enterprise. It is clearly visible that these values are added in the case of each company, and even 4 companies have one-digit (two-digit – only one) vales, which means that these companies have a very good financial situation (Parvi, 2015, pp. 177-184). The P/BV index informs how the company's own capital is valued by the market at a given moment. A general interpretation of the index consists in the fact that the P/BV indices below 1 mean a low price of a company, whereas a value over 3 that a company is overrated. The number of companies of a low value below 1.0 amounts to 1. Thus, these companies are attractive for investors, whereas the value of 3.0 is exceeded solely by two companies, which means that they are overrated. The remaining 5 enterprises are also worth recommendation and attention . In view of the foregoing, we should note that from the above financial data we can calculate fair values of particular companies listed on the WIG-FUEL (Parvi, 2016, pp. 53-64). The value of the P/P index is expressed in the way that when the value of the index is lower, then the price for the purchased company's shares is theoretically lower too, which means that the enterprise is more attractive. It is used in order to demonstrate cyclic profits and losses of the analyzed companies (the income is much more stable than the company's profit). Therefore, it is evident that most companies (9) have the index close to the value of 0.5 - this stands for the company's not attractiveness (Parvi, 2015, pp. 83-88).

From table 4, it can be concluded that the fair value is significantly higher than the current share price of the companies listed on the WIG-FUEL. A particular "pearl" in the index may be a well prospering LOTOS and PGNIG that is largely undervalued.

*Table 4: The Fuel sector's companies quoted on the Warsaw Stock Exchange in Poland as of 25.11.2019 (prepared by the author on the basis of the financial data of the WIG-FUEL companies)*

<b>Name</b>	<b>ROA</b>	<b>ROE</b>
LOTOS	3.95	7.85
MOL	6.88	13.83
PGNiG	3.39	4.80
PKNORLEN	6.43	12.26
SKOTAN	-86.65	0.00
SERINUS	-6.61	-53.28
UNIMOT	7.76	27.37

*Table 5: Values of the companies listed on the WIG-FUEL as of 25.11.2019 (prepared by the author on the basis of the financial data of the WIG-FUEL companies)*

<b>Name</b>	<b>Present value</b>	<b>Maximum value</b>
LOTOS	87.60	95.00
MOL	37.30	45.00
PGNiG	4.69	7.50
PKNORLEN	94.20	120.00
SKOTAN	0.76	143.00
SERINUS	0.49	19.00
UNIMOT	29.90	73.00

It should be noted that fair values of particular companies listed in the WIG-FUEL index can be calculated on the basis of the above-mentioned data and financial data (Parvi, 2015, pp. 51-67; Parvi, 2015, pp. 82-85). Deviation from the fair value in PLN = DevFV

DevFV = Fair value – current value.

*Table 6: Values of the companies listed on the WIG-FUEL as of 25.11.2019 (prepared by the author on the basis of the financial data of the WIG-FUEL companies)*

<b>Name</b>	<b>Deviation from the fair value in PLN</b>	<b>Fair value</b>
LOTOS	6.40	94.00
MOL	5.30	43.00
PGNiG	2.31	6.00
PKNORLEN	15.80	110.00
SKOTAN	5.24	6.00
SERINUS	4.51	5.00
UNIMOT	18.10	48.00

The Table 6 shows that the fair value is much higher than the current value of the share price of the companies listed in WIG-FUEL. Particular jewels in the index may be thriving companies such as: PKNORLEN, LOTOS, MOL, SERINUS and PGNIG which are greatly underrated.

## 5. CONCLUSIONS

The share price of the fuel sector companies quoted on the Warsaw Stock Exchange in Poland is significantly underestimated by the current financial situation in the world [3]. Nevertheless, fuel companies should demonstrate the higher value and at least the fair value because fuel prices are stabilized, and their profits indicate good financial condition, especially within grand fuel concerns, such as PKN ORLEN, LOTOS and PGNIG. The value of the fuel sector companies should be valued because the companies have the majority of assets expressed in the fuel supplies. Fuel companies earn money because they largely focus on the fuel sale as well as the increase or decrease of the sale price. Therefore, the constantly kept stores result in the profit growth and sometimes the decrease of profit together with the price which is liquid and reflects their current assets. However, they achieve huge profits which was confirmed in the studies of ratios in the last few years and the book value per share studies in 2019. The fair value of the fuel sector companies quoted on the Warsaw Stock Exchange in Poland should be achieved within two years, until 2020, with the improvement of situation on the Global financial markets.

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## ROLE OF EDUCATION AND TRAINING ON INCOME IN DIFFERENT REGIONS OF LATVIA

**Biruta Sloka**

*University of Latvia, Latvia  
Biruta.Sloka@lu.lv*

**Ginta Tora**

*University of Latvia, Latvia  
Ginta.Tora@lu.lv*

**Ilze Buligina**

*University of Latvia, Latvia  
Ilze.Buligina@gmail.com*

**Juris Dzelme**

*University of Latvia, Latvia  
Juris.Dzelme@lu.lv*

### **ABSTRACT**

*Latvia is often criticised by international institutions on rising gap for income differences in several social groups. This current research is devoted to analyse of role of education and training on income level. Research methods used: scientific publications and previous conducted research analysis, analysis of EU-SILC data on differences in income depending from education level, from regions and from territory (urban/rural), interviews of regional authorities on life-long training arrangements and applications in regions with lower income level. Data analysis methods: descriptive statistics (indicators of central tendency or location, indicators of variability), cross-tabulations of household income by regions, by education level, by territories, testing of statistical hypotheses on differences of arithmetic means by t-test, by analysis of variance (ANOVA) for significance of income differences by regions and by education level. Results of analysis has indicated that several innovative approaches could be applied to find best solutions for income difference decrease and increase of overall satisfaction with life.*

**Keywords:** *Education and training, EU-SILC, Income differences, Regions, Welfare*

### **1. INTRODUCTION**

Rising gap for income differences in Latvia in several social groups is often criticised by international institutions. Scientific findings of many academic researchers have indicated that important aspects for income level is government policy, education level of inhabitants, from economic activity of inhabitants and many other important factors. This current research is devoted to analyse of role of education and training on income level. Research methods used: scientific publications and previous conducted research analysis, analysis of EU-SILC data on differences in income depending from education level, from regions and from territory (urban/rural), interviews of regional authorities on life-long training arrangements and applications in regions with lower income level. Data analysis methods: descriptive statistics (indicators of central tendency or location, indicators of variability), cross-tabulations of household income by regions, by education level, by territories, testing of statistical hypotheses on differences of arithmetic means by t-test, by analysis of variance (ANOVA) for significance of income differences by regions of households and by education level of households.

## 2. THEORETICAL FINDINGS

Education levels were found to be a predictor of income inequality in all the countries included in research of research group by Manna, Ciasullo, Cosimato, Palumbo, 2018 where is stressed that higher education level leads to higher income and vice versa. Manna, et al, 2018 have concluded in their reseach results that the effect of education attainments on individual earnings was irregular and Eastern European countries, revealed a strong relationship between education attainments and individual earnings but Scandinavian countries showed a weak link between education levels and income (Manna, et al, 2018). Education has the potential to affect income inequalities in Europe. Researchers (Manna, et al, 2018) have suggested that »Policy makers should develop tailored strategies to deal with the consequences of education levels on individual earnings. Both education services' quality and the interaction between education and moderating socio-demographic variables may influence income inequality in European countries«. Different countries have different experience and approaches, like (Deshwal, 2016) research was to focus on ascertaining whether and how groups based on demographic variables (age, gender, education level, and family income) differs for dimensions of customer experience quality in the Indian retail store context and for deeper analysis was used analysis of variance - ANOVA. Researchers Celikay and Sengur (2016) have analysed whether the interaction between education expenditure and GINI coefficient changes in the short- and long-term (Celikay, Sengur, 2016) – their research results show that education expenditure generates positive results particularly by lowering income inequality in the long-term as Celikay and Sengur (2016) was aiming to examine the relationship between public sector education expenditure and the GINI coefficient as a measure of ~~justice~~ inequality in income distribution. This interaction can be more clearly observed in developing countries (Celikay, Sengur, 2016) as well as consumption patterns (Celik Ates, Ceylan, 2010), consumption preferences (Lu, Wu, Wang, Xu, 2016), on choice of food group (Quevedo-Silva, Lima-Filho, Fagundes, 2018; Tsakiridou, Boutsouki, Zotos, Mattas, 2008; Nazan, Baker, 2011), territories – urban or rural (Yıldırım, Ceylan, 2007; Sahin, Yıldırım, Deniz, 2014), by income level (Loke, 2015), by age group (Nga, Yong, Sellappan, 2010) and use of Internet (Eastman, Iyer, 2004). The findings of researchers from Brasil Besarria, Araujo, Silva, Sobral, Pereira, 2018 study results indicated that inequalities in income and educational level are the principal determinants of different growth rates among Brazilian states. It is found that additional years of schooling positively influence growth (Besarria, et al, 2018) and income inequality negatively affects this indicator. The research of Shihadeh, 2018 study has aimed to analyze the financial inclusion of individuals living in the Middle East, North African, Afghanistan and Pakistan (MENAP) - to examine the influence of individuals' characteristics on financial inclusion in the MENAP region, (Shihadeh, 2018) results showed the influence of individuals' characteristics on financial inclusion for Shindeh's research was used the World Bank Global Findex Database for 16 countries in the region. The results of Shihadeh research (Shihadeh, 2018) indicate that females and the poor are less likely to be included in financial systems, while education level enhances financial inclusion. As disadvantaged people consider access to credit is important to improving their lives, the Shihadeh study finds that the poor are more likely to borrow for medical issues than for other needs. While Islam is the majority religion in the MENAP region, it is not considered a barrier to having a formal bank account (Shihadeh, 2018). Shihadeh research has concluded that people in different income quintiles are more likely to use informal financial sources, while the educated are more likely to use formal ones (Shihadeh, 2018) – the results correspond with findings also in other countries and other researchers word-wide.

## 3. EMPIRICAL RESEARCH FINDINGS

Deeper analysis of EU-SILC anonymised data available for researchers by CSB of Latvia indicated the following results of empirical studies on disposal income for households in Latvia

– results are included in next tables in the text below. The results of calculations of income of households in Latvia indicate that arithmetic mean of income in 2017 was 7302 euro with rather big differences corresponding to range by 41551 euro with median 6200 euro – it means that half of households in 2017 had disposal income 6200 euro or less and half of households in 2017 had disposal income 6200 euro or more and one fourth of households had income 3955 euro or less and one fourth of households had income 9436 euro or more. – see table 1.

*Table 1: Main statistical indicators of descriptive statistics on disposal income in households of Latvia in 2017 (authors calculations based on data of EU-SILC)*

Statistical indicators		Values
N	Valid	13457
	Missing	0
Mean		7302.75
Standard Error of Mean		41.16
Median		6200
Standard Deviation		4774.66
Range		41551
Minimum		0
Maximum		41551
Percentiles	25	3955
	50	6200
	75	9436

Research results have indicated that there are very big differences in disposal income of households in Latvia indicated by indicators of variability –with very big values of standard deviation and range. Research results have indicated that there are differences in income of urban and rural households in Latvia – it corresponds to findings in many other countries by other researchers discussed in academic community. Main results are included in table 2 (used households having income more than zero).

*Table 2: Main statistical indicators of descriptive statistics on disposal income in households of Latvia in rural and urban areas in 2017 (authors calculations based on data of EU-SILC)*

Territory	Mean	N	Standard Deviation	Median	Range	Minimum	Maximum	Std. Error of Mean
Urban	11654.09	4142	10055.00	8663.18	98094,74	33.80	98128.54	156.25
Rural	10344.80	1835	9847.93	7190.09	114327,38	100.00	114427,38	229.89
Total	11252.12	5977	10009.99	8235.51	114393,58	33.80	114427,38	129.48

Usually it is an interest – are the results statistically different for inhabitants in rural and urban areas – hypothesis on testing significance of disposal income differences by t-test have indicated that the differences on disposal income of households in Latvia in urban and rural areas are statistically significant (sig.0.00) different – see table 3.

*Table following on the next page*

*Table 3: Main statistical indicators of t-test on disposal income in households of Latvia in rural and urban areas in 2017 (authors calculations based on data of EU-SILC)*

Indicators	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	4.333	0.037	4.672	5975	0.00	1309.29	280.22
Equal variances not assumed			4.710	3581	0.00	1309.29	277.97

*Table 4: Main statistical indicators of descriptive statistics on disposal income in households in regions of Latvia in 2017 (authors calculations based on data of EU-SILC)*

Regions	Mean	N	Standard Deviation	Median	Range	Minimum	Maximum	Std. Error of Mean
Rīga	13119.50	1907	11069.02	10039.28	97938.30	190.24	98128.54	253.47
Pierīga	13255.30	848	11669.87	10124.68	81084.71	100.00	81184.71	400.75
Vidzeme	9483.67	574	7754.99	7164.78	62880.52	33.80	62914.32	323.69
Kurzeme	10808.64	924	9339.50	8067.12	114227.38	200.00	114427.38	307.25
Zemgale	10365.60	852	9331.39	7350.84	79846.37	137.80	79984.17	319.69
Latgale	7720.49	872	6541.39	5814.07	82546.11	113.00	82659.11	221.52
Total	11252.12	5977	10009.99	8235.51	114393.58	33.80	114427.38	129.48

Data indicate that income is the biggest in Pierīga region and Rīga and much less in Latgale – eastern part of Latvia. Data indicate that the income differences are the biggest in Pierīga region and Rīga indicated by indicators of variability: standard deviations, standard errors of means. The biggest difference in income in 2017 was in Kurzeme Region. Analysis of variance – ANOVA indicate results on statistical significance on income in regions of Latvia – results are included in table 5.

*Table 5: Main statistical indicators of ANOVA on disposal income in households of regions of Latvia in 2017 (authors calculations based on data of EU-SILC)*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.358E10	5	4.715E9	48.944	0.00
Within Groups	5.752E11	5971	9.634E7		
Total	5.988E11	5976			

Results of analysis of variance ANOVA indicate that the disposal income in households of regions of Latvia in 2017 are statistically different by very high probability (sig.0.00).

*Table following on the next page*



*Table 6: Main statistical indicators of descriptive statistics on disposal income in households by education level in Latvia in 2017 (authors calculations based on data of EU-SILC)*

Education level	Mean	N	Std. Deviation	Std. Error of Mean	Range	Median
Not indicated	7881.59	408	5311.85	262.98	39661	6607
Pre school	4088.66	71	1867.79	221.67	9005	3490
Basic	4631.00	200	2707.29	191.43	24473	4074
First level secondary	5263.90	1896	3261.93	74.91	31457	4439
Secondary	6665.35	5085	4078.60	57.20	35758	5795
Post secondary	6553.56	820	4023.11	140.50	27525	5461
Higher	10060.09	2824	5873.86	110.53	41551	8978
Total	7261.98	11304	4821.27	45.35	41551	6102.5

Data indicate that income is the biggest with higher education and much less with pre school education and basic education in households in Latvia. Data indicate that the income differences are the biggest with higher education and income differences are smaller for households with pre school education level indicated by indicators of variability: standard deviations and range. Analysis of variance – ANOVA indicate results on statistical significance on income in households of Latvia by education level – results are included in table 7.

*Table 7: Main statistical indicators of ANOVA on disposal income in households in Latvia by education level in 2017 (authors calculations based on data of EU-SILC)*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.416E10	6	5.693E9	281.357	0.00
Within Groups	2.286E11	11297	2,023E7		
Total	2.627E11	11303			

Results of analysis of variance ANOVA indicate that the disposal income in households of Latvia by education level in 2017 are statistically significant different by very high probability (sig.0.00).

#### 4. CONCLUSION

Research in many countries has indicated that income level is very different by education level, by territories – urban or rural area and by regions which are more or less developed with economic activities. Research results have indicated that there are very big differences in disposal income of households in Latvia: by territories – urban and rural areas, by education level and by regions in Latvia. According to the EU-SILC data the standard deviations of disposal income of households in Latvia by territories – urban and rural areas, and by regions in Latvia are 10009.99, but the standard deviations by education level are much less – 4821.27. This result indicates, that the main reason of inequality is the education level, which creates income differences inside the regions and inside urban and rural territories. The main attention should be paid to the life long learning (LLL) in local communities. In today's European context, it is important to emphasize inclusion and cohesion competence. Lifelong learning must be for all life, including changing qualifications. The system must be flexible so that lifelong learning is accessible to everyone, regardless of their place of residence or age. In order to promote employment for the poor, older people, should be encouraged to improve equal

access to formal, non-formal and lifelong learning in adult education and vocational training by reducing skills mismatches. Vocational training needs to be made more relevant to the labor market in order to ensure personal mobility and to promote the skills of low-skilled workers and jobseekers. Improving the knowledge, skills and competences of the workforce reduces social exclusion and improves the quality of life. Other problem is the groups with very low income, less than level of poverty, part of the lowest fourth of households. Must be created support by state, local communities and NGO, such as European Anti Poverty Network (EAPN), cultural organizations, associations for arts and crafts, to include these households in the local networks, public and private, and in LLL. Use of information technologies, including block chain technologies, allows effective communication and provides possibilities for LLL and business activities, but motivation of people and technical support, first of all by local communities, is crucial. Special attention should be paid to the creation of the system of local networks, including partly overlapping networks for education, entertainment, business, private communication and administrative communication with local and state authorities. Further development of the investigations and antipoverty activities should include also "shadow economics", which creates up to one third of GDP. This could change significantly the analysis, first of all of the low income groups, below the poverty level.

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## SALES CHANNELS AND MEDIA DIGITALIZATION IMPACT ON PEOPLE VOLUNTARY SAVINGS FOR RETIREMENT

**Evija Dundure**

*University of Latvia, Latvia  
Dundure.Evija@gmail.com*

**Biruta Sloka**

*University of Latvia, Latvia  
Biruta.Sloka@lu.lv*

### **ABSTRACT**

*Due to the implementation of new technologies and orientation on digital solutions the communication and sales channels have changed dramatically. Information and client service on-line availability presents strong advantages for business, state agencies as well as customers. However, lack of personal interaction during the communication and sales process can make it difficult for people to understand and even frustrate their desire for a product or service. The purpose of the research is to analyse the digitalization impact on voluntary savings for retirement in Latvia and make comparisons with other countries. The voluntary pension schemes are the part of pension system and its third pillar created to strengthen and foster sustainability and adequacy of people income level after retirement. Main stakeholders in voluntary savings for retirement are pension funds as well as government agencies carrying out the national pension system policy. Among other motivation factors the people knowledge level about the necessity to participate in third pension level causes their willingness to create voluntary savings. Service providers chosen marketing and governments realized legislation policy impact the level of people engagement in private pensions and make a basis for people retirement period living standards. Research methods used are analysis of scientific publications and previous conducted research, analysis of statistical data and sales and communication channels in Latvia. The results of analyses show the challenges that service providers are facing and steps that should be taken to promote the voluntary savings in a digital era.*

**Keywords:** *Communication, Digitalization, Financial literacy, Pensions, Voluntary savings*

### **1. INTRODUCTION**

The financial services business environment experiences transformational changes caused by digitalization. It starts with sound decisions to digitalize all the critical business processes and ends at the person's ability to connect to the internet. Pension system creation principles are widely discussed issues all over the World. The general tendency of pension contributions and payments combination principles is to create a balanced pension system with shared responsibility for retirement income between governments and people. Voluntary savings for retirement or so-called 3<sup>rd</sup> pension system pillar as the gear to ensure a sufficient level of income at retirement age by creating private pension funds. It has the highest growth potential which is not fully realized. Development of voluntary savings for retirement depends from several important aspects: people soft skills like awareness, knowledge, attitude, and behaviour to take financial decisions (Atkinson, Messy, 2011, p.3), people ability to take care their personal financial wellbeing, attractiveness of service providers offers and communication, and finally – government established rules by legislation acts. Furthermore, all the mentioned aspects are interconnected. World Bank (Demirgüē-Kunt, Klapper, Singer, Ansar, Hess, 2018, p.13) in their analyses of people's financial literacy level emphasizes the governments' role in the expansion of financial inclusion.

Academy highlights the countries duty to “invest in education and public campaigns to make those groups that are now less literate more aware so that they can make informed decisions about whether and how much to save voluntarily for retirement”( Le Blanc, 2011, p.4). Meanwhile, OECD in its Pension Outlook (OECD, 2018, p.141) names “Simplification of information and choice” as one of five policies to improve the design of funded pension arrangements. It suggests developing web applications, better show information and facilitates offers comparison options. The purpose of the research is to analyse developments of the voluntary savings for retirement aspects influenced by digitalization, observe academic literature and statistical data to evaluate the situation in Latvia in comparison with other European Union countries. The tasks are to investigate the challenges that pension savings service providers are facing and analyse possible steps and solutions should be taken to promote the voluntary savings in a digital era. Research methods used are the analysis of scientific publications and previously conducted research, analysis of statistical data and sales and communication digital platforms in Latvia.

## **2. LEGISLATION FRAMEWORK**

In Europe Union, the pensions regulation framework was established in the year 2003 by issuing the Directive for activities and supervision of institutions for occupational retirement provision. It was “the first step on the way to an internal market for occupational retirement provision organized on a Union scale” (European Parliament, 2016, p. 38). The migration between job vacancies within the Europe Union and the softening of borders between EU countries as well as the necessity to introduce a modern risk-based governance system of institutions for occupational retirement provision caused the necessity for improved regulation, being in force from the year 2016. The duty to introduce regulation of person pension products on the European level resulted in recently approved Regulation (EU) 2019/1238 of the European Parliament and of the Council of 20 June 2019 on a pan-European Personal Pension Product (PEPP) (European Parliament, 2019). It is the consequence of the overall tendency to create private retirement savings in long-term investment products rather than in cash or bank deposits (European Parliament, 2017, p.2). With the newly adopted law, the voluntary pension schemes offered by EU countries service providers should become cross-border available for all member countries. It is expected that this directive will create a single EU market for the private savings pension plans for suppliers and customers, it will boost competition and improve the terms and conditions for customers. The local legislation initiatives should follow in order to harmonize ES legislation acts on the national level. The voluntary savings in private pension funds in Latvia has been regulated by the “Law On Private Pension Funds”, accepted on 20.06.1997 (Parliament of Republic of Latvia, 1997). It is meant for both types of retirement savings – created by the employer, so-called occupational pensions, and by private persons. Latvia being a member of the Europe Union since the year 2004 operates in Europe a single market with all its offered advantages and limitations. Therefore, the Latvia national legislative acts have been adapted to the EU directives requirements. At the end of the year 2019 in the Latvia Parliament Commission for Budget and Finance, there is an ongoing discussion on the changes in existing Private pension funds Law (Saeima, 2019). In parallel to the legislative changes in question, it is proposed to define more clearly the conditions for the termination of the pension scheme and to transfer supplementary retirement benefits to another pension scheme in such a way that it can be made remotely through the technical capabilities of the services provider website. If the proposed changes will be accepted Latvia will take a good step in facilitating remote sales channel development. Europe Parliament institutions are caring not only about the wealth of retired people in Europe by implementing normative acts to create common regulated and supervised markets they have been established certain rules for service providers using distance marketing means in sales of financial services in order to

protect consumer rights (European Parliament, 2002, p.2). Directive formulates the unified requirements for the services and their providers as well as terms and conditions of agreements concluded via the internet or telephone and in its almost 20 years duration gives ground for unified consumer protection principles in Europe Union countries. The academy is discussing the effectiveness of EU regulations of financial services distance marketing putting too much emphasis on the amount of information that should be given to the client in advertisements of savings in pension funds and before client's decision to create savings for retirement at all. Steennot in his research (Steennot, 2007, p.542) suggests facilitating the formal information on a stage of advertisement by shifting it to the stages of agreement reading processes. Latvian Law On Private Pension Funds defines the rules of minimum required information given to the client by any formats in public announcement or advertising of services: "1) the title of the pension scheme; 2) the firm name and legal address of the pension fund; 3) the name and legal address of the manager of funds of the pension scheme; 4) the name and legal address of the holder of funds of the pension scheme; 5) the place where one may get acquainted with the pension scheme and the investment policy thereof"(Parliament of Republic of Latvia, 1997, p.11). Digitally provided information can give the better chance to deliver required information in more effective and readable way in comparison with traditional communication means.

### **3. FINANCIAL LITERACY**

Digitalization starts with the two basic factors – the internet and the ability to use it. OECD, World Bank, and Europe Union institutions are paying attention to the development trends of both factors and analysing people financial literacy level. According to OECD International Network on Financial Education, "Financial Literacy is a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (OECD, 2018, p.4). Financial literacy goes hand in hand with enhancements of digital solutions. In its global financial inclusion database, the World Bank Group focused on the analysis of digital payments and on access to the Internet (Demirgüç-Kunt, Klapper, Singer, Ansar, Hess, 2018, p.86). According to Findex database 93% of adults in Latvia had bank accounts. It higher than in Lithuania (83%) and lower than Estonia (98%) (Demirgüç-Kunt, Klapper, Singer, Ansar, Hess, 2018, 124 p.). European Commission's one of the priorities is Digital Single market – "bringing down barriers to unlock online opportunities" (European Commission, 2019). To measure the progress The Digital Economy and Society Index (DESI) has been created. It presents the dynamics of the chosen five indicators and characterizes countries' digital competitiveness (Digital Economy and Society Index 2019). According to Figure 1 Latvia's DESI score's development has a positive trend however it is slightly below the EU average ratio. The highest scores are in Connectivity and Digital public services ratios, the lowest – in the Integration of digital technology and Human capital. According to DESI report on the year 2018 Latvia's main strengths was "the extremely advanced coverage of ultrafast broadband (with 90 % of households covered, against 60 % in the EU as a whole)" and there was "a high level of online interaction between public authorities and citizens: a growing number of Latvians use e-government services, which reach 81 % of internet users, well above the EU average" (Digital Economy and Society Index 2019, Country Report Latvia).

*Figure following on the next page*

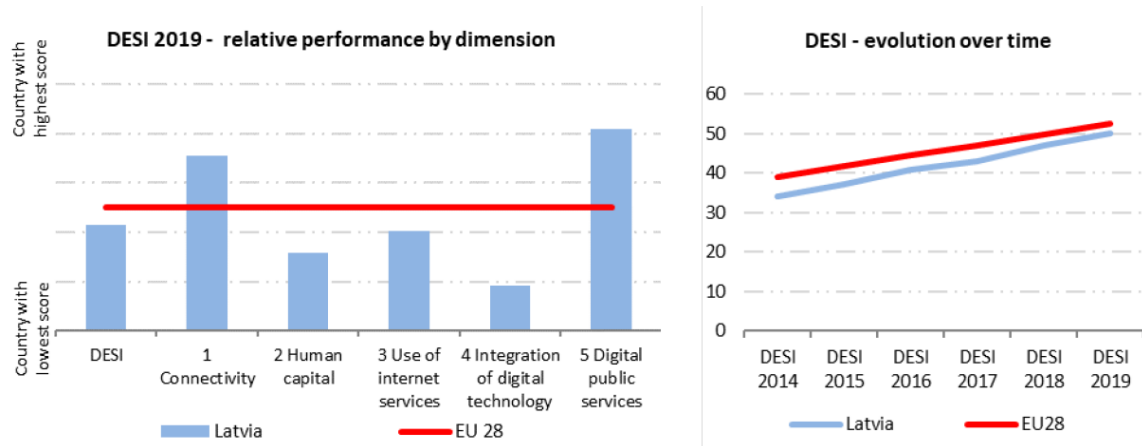


Figure 1: The Digital Economy and Society Index of Latvia (Digital Economy and Society Index 2019, Country Report Latvia, 2019, p.4)

Latvian government institutions play significant role in development of pension system on-line informational platform. At the end of 2019 it is developed in the way people of Latvia can get to know their expected pension income from the first two pension system pillars. It gives ground for people motivation to create supplementary savings on voluntary bases. However, there is no established data exchanging solution between governments agency platform and private pension institution platforms, which limits the precise and immediate data presenting possibilities on private service provider on-line platform. Digital Economy and Society Index 2019 Country Report of Latvia gives detailed information on people's habits to use the internet in banking, shopping, and selling. After Great Financial Crises in 2008 Banks in Latvia switched their strategy in the composition of sales network principles – they highly motivated customs to use internet banking instead of service “service at the counter”, closed customers' face-to-face customer service sites and introduced high commissions on cash transactions. It resulted in 79% of people using internet banking services which is much higher than the EU average 64%. Unfortunately, two other ratios – shopping in internet and selling online are much lower than EU average, only 53% and 11% accordingly (in the EU: 69% and 23%). Meanwhile statistical database of the Europe Commission Eurostat provides with the information on the proportion of the population carrying out at least one of the financial activities over the internet (Figure 2).

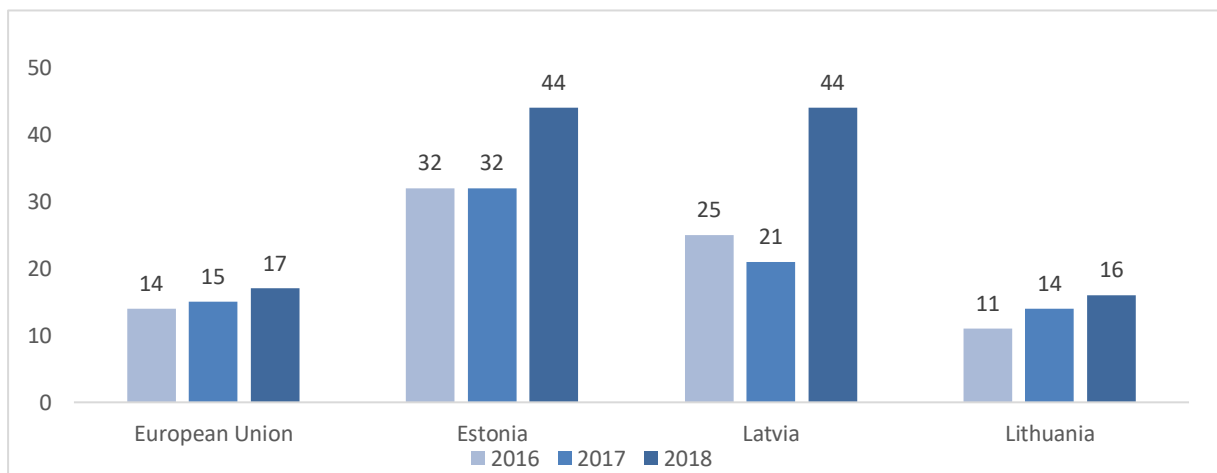


Figure 2: Individuals carried out at least one of the financial activities over the internet, years 2016 – 2018, in % (Evija Dundure construction based on Eurostat data, retrieved from <https://ec.europa.eu/eurostat>)

The tendency all over the Baltic states is positive. Lithuania population's interaction on financial services in internet is the least developed and below the EU average, Estonian and Latvia people activity in financial services online platforms in year 2018 are equally 44%. It includes all banking, insurance and investments on-line solutions.

#### **4. DIGITAL STRATEGY OF SERVICE PROVIDERS**

For all companies - focusing on local markets and working internationally, digitalization has become an everyday issue in business. The academic Jeanne W. Ross with colleagues in Thirty-Seventh International Conference on Information Systems in Dublin, year 2016 (Ross et al., 2016, p.14) spoke about digitalization as the way how to create operational and service excellence by naming two main company success drivers - operational and digital services backbones, and digital strategy as the value proposition definer. Rapidly developing market situation and consequently changing legal regulations puts financial service providers operating in the pre-digital era in a challenging situation - a situation which can be solved by digital transformation process (Chaniyas, Myers, Hess, 2019, p.18). Previously conducted IT strategies separately or as part of company business strategies have made fusion in the one – Digital business strategy (Bharadwaj, Sawy, Pavlou, Paul, Venkatraman, 2013, p.472). Academics in their research identified four key themes to consider in creating the Digital business strategy: scale, scope, speed, and value creation. The opened Europe Union pension funds markets for the companies successfully exploiting digital communication means scale of business should increase. Bigger scale brings higher sales volume and it gives the possibility to reduce prices. Researchers in their analyses of online customer preferences located the low-price factor as the main decision driver (Muthitacharoen, Gillenson, Suwan, 2006, p.687). Price sensitivity is the result of a high level of information availability and the possibility to compare the offers. For Latvia, the sales processes digitalization could enhance the growth in domestic clients' segment as well as give the opportunity to join pension plans of Latvia services providers – private pension funds and life insurance companies, for the clients from other EU countries, especially those citizens working and earning income in another EU country. From one side, there is market growth potential, however the fierce competition can bring the extra threat to lose existing clients. Certainly, Latvia like all EU customers should get a bigger range of services from new service providers to choose. All private pension funds in Latvia have internet-based client service platforms with the main on-line functionalities available for customers. According to one of the six private pension funds (The Financial and Capital Market Commission of Republic of Latvia, 2019) operating in Latvia – “SEB atklātais pensiju fonds” in its annual report of the year 2018 stated that 41% of all new pension plans members applied for savings using internet banking platform (SEB, 2019, p.4). The company is realizing digital strategy in a way to provide full service of private pension service on the Internet – starting with the conclusion of the contract, the reporting of the account of contributions and capital gains, and submitting the application for receiving pension income. For the future periods, the company puts digital and distance service development as the strategic direction.

#### **5. DIGITAL MEDIA**

To perform successfully in digital media there are certain rules and tendencies the industry follows. Bharadwaj, Sawy, Pavlou, Paul and Venkatraman in their research named Google, Facebook, and eBay as the most visible examples of effectively exploiting the information increased value factor (Bharadwaj, Sawy, Pavlou, Paul, Venkatraman, 2013, p.477). The content marketing features help to create content that not only does not leave insensitive customers but also provides a sense of added value (Jutkowitz, 2014, p.2). Even if information is strictly formal the digital media performs better when the message has been presented in a potentially attractive manner as games, videos, audio and images in digital format (Koiso-



Kanttila, 2004, p.525). There is not urgency factor in voluntary and long-term investment decision therefore digital media should bring the information in the way causing the positive emotions. Another important aspect effective digital media strategy must anticipate – once information about the voluntary savings is provided the client has to get a chance to buy a product or service. The digital media is the way how to turn interest in product or service into a real purchase (Srinivasan, Rutz, Pauwels, 2016, p.11). Nyström and Mickelsson in their article “Digital advertising as service: introducing contextually embedded selling” proposed the definition of contextually embedded selling as “a process where the firm’s advertising and sales functions are unobtrusively and congruously integrated into a single digital media journey” (Nyström, Mickelsson, 2019, p.400). Researchers structured main themes important for marketers: media content, engagement, media use, value-in-use and purchase opportunity and identified the differences between traditional advertising and contextually embedded selling. Observation of digital media space in Latvia lets us create Figure 3. On November 2019 there were 3 types of Internet sites people in Latvia could receive information about the voluntary savings for retirement: (1) official internet sites created and provided by Latvia governments institutions where people can retrieve the personalized data about the current status of 1<sup>st</sup> and 2<sup>nd</sup> pension system pillar, information about the 3<sup>rd</sup> pillar only informative nature; (2) internet sites providing general information about the pension system, including voluntary savings; no personalized data, only link to official sites described previously; (3) private pensions service providers internet sites with online calculators and possibility to apply for an offer.



*Figure 3: Digital touchpoints for 3<sup>rd</sup> pension pillar in Latvia digital media sources on November 2019 (Evija Dundure construction based on research provided on indicated Internet resources)*

The main disadvantages of all three kinds of internet sites are the lack of interconnection between all of them limiting the possibility for customers to realize buying on-line and textual information that is less attractive for the observers than graphical or video information. In Latvia, there are no internet platforms comparing offers from more than one voluntary savings service provider.

## 6. CONCLUSION

Digitalization provides an impact on the external and internal business environment causing transformational changes in all voluntary pension savings stakeholders – legal regulations, business strategies and people's financial literacy level. Latvia as a member of European Union follows the guidelines in legislation and digital policy requirements. The private pension legislation framework in Europe supports people with the freedom to choose from the large spectrum of service providers.

Private pension funds in Latvia are operating in small scale country can advance from the unified market as well as suffer. It is largely depending on private businesses' willingness to exploit opportunities provided by digitalization, which does not only enlarge competitiveness but can also potentially increase their market share. As a result of very good internet coverage and banks realized digitalization strategies, people in Latvia are used to the official and financial operations on internet platforms. However, only half of Latvia's population are shopping on the internet and every 10<sup>th</sup> business has developed an internet sales channel. The financial literacy of people in Latvia is growing and it is the bases for voluntary pension savings growth in the future. The midterm success of voluntary savings in Latvia depends on information providers in digital sites. Distance Marketing exists though it can be much more effective with the interconnections, data transfer possibilities and full sales cycle delivery on each of the platforms.

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## THE ADJUSTED ACQUISITION PRICE AS ONE OF THE PARAMETERS OF THE MEASUREMENT OF FINANCIAL INSTRUMENTS

**Ewa Mackowiak**

*University of Economics in Katowice, Poland  
ewa.mackowiak@ue.katowice.pl*

### **ABSTRACT**

*Amortised cost according to the International Financial Reporting Standard 9 and the adjusted acquisition price according to the Accounting Act should be considered in the context of the measurement of financial instruments. The issues relating to financial instruments are regulated by the Accounting Act, the Regulation of the Minister of Finance, and the International Accounting Standards. Article 3 of the Polish Accounting Act defines a financial instrument as a contract that causes financial assets to arise for one of the parties and a financial liability or an equity instrument for the other, provided that the contract concluded between two or more parties has unambiguously economic effects, irrespective of whether the performance of the rights or obligations under the contract is of conditional or unconditional nature. Under the Accounting Act, financial instruments do not include in particular:*

- a) deferred income tax assets and provisions,*
- b) financial guarantee agreements under which the obligations resulting from a guarantee granted take the form of payment of amounts equal to the losses incurred by a beneficiary as a result of a debtor failing to pay its liabilities in due time,*
- c) contracts for the transfer of rights under securities in the period between the conclusion and the settlement of a transaction, where the performance of such contracts requires a delivery of securities within a specified time, also when the transfer of such rights takes the form of an entry made in a securities account maintained by an entity licensed under separate legal regulations,*
- d) assets and liabilities resulting from schemes under which employees and other individuals or entities connected with an entity are vested with participating interests in its capital or in the capital of another entity belonging to the same capital group,*
- e) business combination agreements, generating the obligations specified in Article 44b Section 9.*

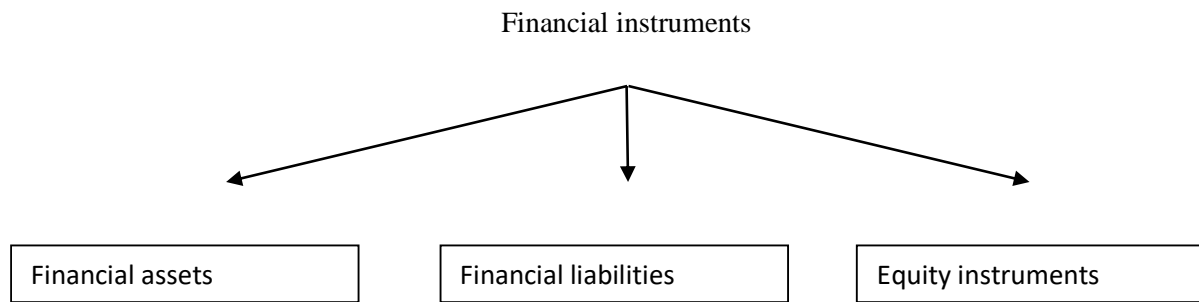
**Keywords:** *the adjusted acquisition price, financial instruments*

### **1. INTRODUCTION**

Pursuant to the Polish Accounting Act, financial assets are understood to mean cash and cash equivalents, equity instruments issued by other entities, as well as contractual rights to receive cash or cash equivalents, or rights to exchange financial instruments with another entity on favourable terms and conditions. Equity instruments, in turn, are defined as contracts vesting a right to an entity's assets following satisfaction or securing of the claims of all its creditors, as well as the entity's obligation to issue or deliver its own equity instruments, including in particular shares, options for its shares or warrants. Finally, financial liabilities are understood to mean an entity's obligation to issue financial assets or to exchange a financial instrument with another entity on unfavourable terms.

*Chart following on the next page*

Chart 1: Classification of financial instruments according to the Accounting Act



*Source: own elaboration*

The Regulation of the Minister of Finance of December 12, 2001, regarding specific recognition principles, measurement methods, the scope of disclosure and presentation of financial instruments, classifies financial instruments on the date of their acquisition or arising and breaks down financial instruments into the following categories:

- 1) financial assets and financial liabilities held for trading;
- 2) loans granted and an entity's receivables;
- 3) financial assets held to maturity;
- 4) available-for-sale financial assets.

However, an entity may derogate from the provisions of the Regulation on financial instruments if it did not exceed at least two of the following three values for the previous financial year:

1. PLN 17,000,000 – in the case of the total balance sheet assets at the end of the financial year,
2. PLN 34,000,000 – in the case of net revenues from the sale of goods and services for the financial year,
3. 50 people – in the case of average annual employment in full-time equivalent units.

Recent changes in the accounting of financial instruments are associated with the adoption of the International Financial Reporting Standard 9, which replaced the International Accounting Standard 39 as of January 1, 2018. IAS 39 defines a financial instrument as each contract that gives rise to a financial asset of one entity and a financial liability or an equity instrument of another entity. The financial instrument is defined as a contract between two parties regulating the financial relationship in which both parties remain. Instruments may be a „loan” or a share in the assets of another economic entity operating on the market. Accordingly, financial instruments are, in each case, the issuer's liabilities. The notion and scope of financial instruments have not changed and remain defined in IFRS 9, but many new solutions have been adopted, for example, in relation to:

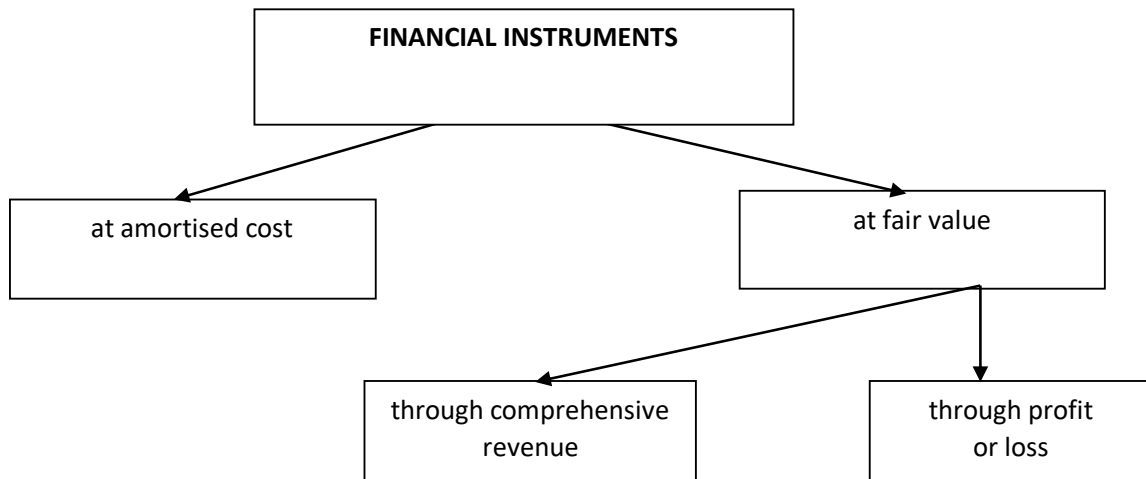
- a) Classification of financial instruments,
- b) Principles and premises for recognising impairment losses,
- c) Requirements of hedge accounting.

When the measurement method is adopted as a criterion, the analysis of the IFRS 9 allows for the identification of two groups:

1. Financial instruments measured at amortised cost,
2. Financial instruments measured at fair value.

*Chart following on the next page*

Chart 2: Classification of financial instruments according to IFRS 9



Source: own elaboration

## 2. THE ADJUSTED ACQUISITION PRICE (AMORTIZED COST) OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES

The adjusted acquisition price (amortized cost) of financial assets and financial liabilities – the acquisition price at which a financial asset or financial liability was first recorded in the accounts (initial value) – minus principal repayments, adjusted accordingly by the cumulative amount of the discounted difference between the initial value of an asset and its value at maturity, calculated using the effective interest rate, as well as reduced by write-offs.

The Regulation stipulates that certain financial instruments should be measured at the adjusted acquisition price. These are:

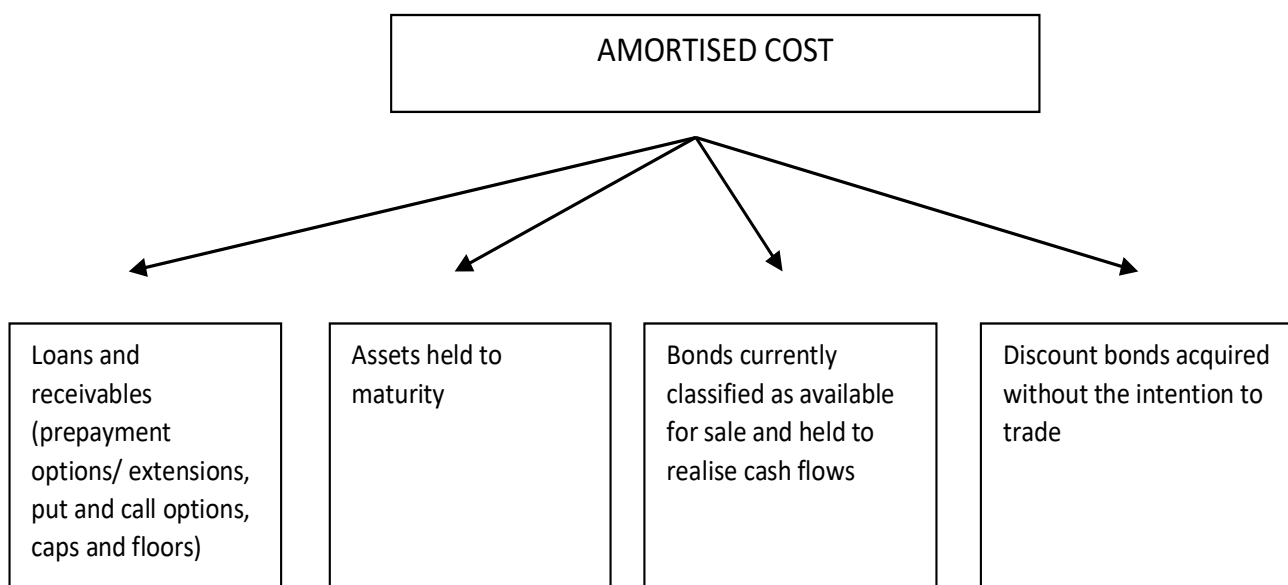
1. financial assets (e.g. bonds) that will be held to maturity,
2. financial liabilities (e.g. loans), except for derivative instruments that are liabilities, hedged items and financial liabilities held for trading,
3. financial assets with a fixed maturity date, for which it is impossible to determine fair value in a reliable manner,
4. non-trade receivables originated by the entity and loans granted by the entity.

The Regulation defines the adjusted acquisition price (amortised cost) of financial assets as the acquisition price at which the financial asset was first recorded in the accounts (initial value) minus the principal repayments, appropriately adjusted by the cumulative amount of the discounted difference between the initial value of an asset and its value at maturity, calculated using the effective interest rate, and reduced by write-offs. The adjusted acquisition price is defined in the provisions of the Accounting Act in an identical manner. The adjusted acquisition price (amortized cost) is the acquisition price at which the financial asset was first recorded in the accounts (initial value):

1. minus principal repayments,
2. appropriately adjusted by the cumulative amount of the discounted difference between the initial value of the asset and its value at maturity, calculated using the effective interest rate,
3. reduced by value adjusting write-offs.

IFRS 9 defines amortised cost as the amount at which a financial asset or a financial liability is measured at initial recognition, minus principal repayments, and plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any loss allowance.

Chart 3: Financial assets measured at amortised cost.



Source: own elaboration

The Regulation defines the effective interest rate as the rate by which the future cash flows linked with the financial instrument and expected in the period to maturity are discounted to the present value or – in the case of instruments with a variable interest rate – to the date of the next adjustment of the reference levels by the market. The effective interest rate is the internal rate of return of an asset or a financial liability for a given period. When calculating the cumulative discount amount of financial assets using the effective interest rate, all fees paid or received by the parties to the contract are taken into account. IFRS 9 defines the effective interest rate as the rate that exactly discounts the estimated future cash payments or receipts through the expected life of the financial asset to the amortised cost of a financial asset that is a purchased or originated credit-impaired financial asset. When calculating the credit-adjusted effective interest rate, an entity estimates the expected cash flows by considering all contractual terms of the financial asset (for example, prepayment, extension, call and similar options) and expected credit losses. The calculation includes all fees and points paid or received between parties to the contract that are an integral part of the effective interest rate (see paragraphs B5.4.1-B5.4.3), transaction costs, and all other premiums or discounts. It is assumed that the cash flows and the expected life of a group of similar financial instruments can be estimated reliably. However, in those rare cases when it is not possible to reliably estimate the cash flows or the remaining life of a financial instrument (or group of financial instruments), the entity uses the contractual cash flows over the full contractual term of the financial instrument (or group of financial instruments).

### 3. BUSINESS MODEL FOR MANAGING FINANCIAL ASSETS

The analysis of the estimation of the adjusted acquisition price (amortized cost) allows for the identification of financial assets and financial liabilities within financial instruments.

The International Financial Reporting Standard 9 stipulates that the classification of financial assets will be based on:

- the results of the assessment of the business model for managing a portfolio of assets,
- the assessment of the contractual terms of the financial asset – in terms of verifying whether the contractual cash flows are solely payments of principal and interest on the principal amount outstanding (reflecting credit risk and the time value of money).

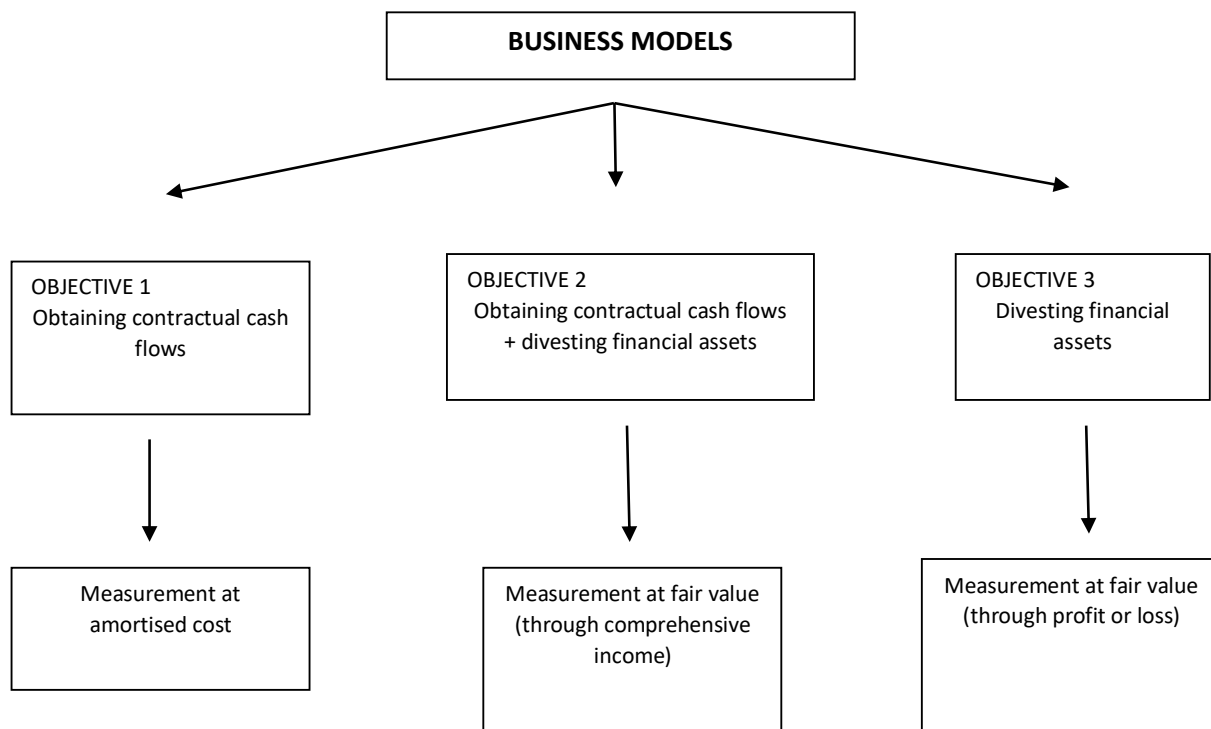
The notion of the business model was popularized in the 1990s. The two most common approaches are (Michalak J. 2012, p. 134):

- a narrow approach in which the business model is understood as a way of generating revenue,
- a broad approach in which the business model is understood as a way of creating value by an entity.

When the business model is referred to the accounting system, three basic elements of the model come to the fore – revenue streams, key resources and cost structure. This means that the business model is strongly associated with the accounting system, which is reflected in IFRS 9, where it is applied to financial assets. Under IFRS 9, defining the business model for managing financial assets is necessary to measure these items both at the time of recognition and on the balance sheet date. Financial assets that are held in compliance with the business model, which aims to maintain these items to obtain contractual cash flows, and meet the relevant contractual cash flow terms are measured at amortized cost. The identification of the business model is necessary to determine whether the objective for financial assets is to obtain contractual cash flows or to realize an asset or change its value by sale prior to the maturity date stipulated in the contract (Michalak J. 2012, p. 138). It is important how the business model is assessed. First, assessment is not performed at the level of individual financial assets and management's intentions regarding individual financial instruments, but at the level of the portfolio of which the given asset is part. Obviously, IFRS 9 indicates that an entity may have different investment portfolios for which different business models can be identified. Moreover, investment portfolios can consist of different segments that can be measured in different ways. In conclusion, business models should reflect the way in which asset groups are managed. The purpose of the business model can be:

- to hold financial assets in order to obtain contractual cash flows,
- to simultaneously obtain cash flows and divest financial assets.

*Chart 4: The impact of the business model on the measurement of financial assets.*



*Source: own elaboration*



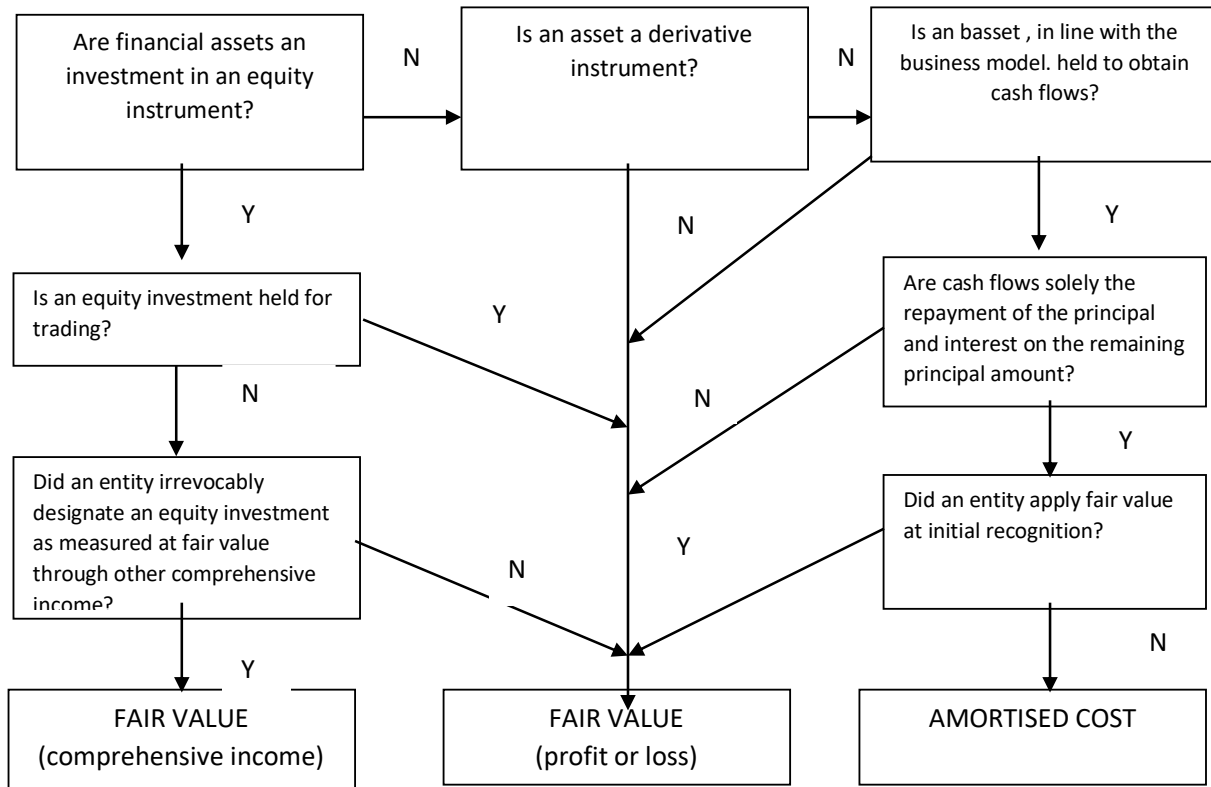
#### 4. FINANCIAL ASSETS AND FINANCIAL LIABILITIES

Based on the measurement criterion, financial assets can be divided into two groups:

- a) measured at fair value,
- b) measured at amortized cost.

To determine how financial assets should be measured, the type of the business model and the nature of cash flows need to be tested.

Chart 5: The eligibility test for financial investments according to IFRS 9.



Source: own elaboration based on: K. Barczyk p.12.

Therefore, a financial asset is measured at amortised cost if both of the following conditions are satisfied:

- a) the financial asset is held in accordance with the business model whose purpose is to hold financial assets for obtaining contractual cash flows;
- b) the terms of the contract for the financial asset give rise – on specific dates – to cash flows which are solely payments of principal and interest on the principal amount outstanding.
- c) Financial liabilities

Liabilities are obligations, arising from events that took place in the past, to perform a service of specific value, which will involve the use of existing or future assets. The financial liability consists in the issuing of financial assets or the exchange of financial instruments between entities. According to the Civil Code, the obligation exists where „the creditor may demand performance from the debtor, and the debtor should make the performance” (Article 353 para. 1 of the Civil Code). „The performance may consist of acting or refraining from acting” (Article 353 para. 2 of the Civil Code). The exchange of goods and services of a financial character is regulated by the law of obligations.

The most common financial liabilities arising from the obligation of one of the parties to the contract include the following categories:

- bank loans,
- other loans,
- liabilities arising from the issuing of debt securities,
- extra interest on loans and interest and discount charged at the issue of debt securities.

The analysis liabilities in terms of the measurement of their value should only concern financial liabilities, as only they can be measured. Pursuant to international regulations (IAS 32), a financial liability is any liability that is (Trzpioła K. p.14):

- a contractual obligation:
  - to deliver cash or another financial asset to another entity; or
  - to exchange financial assets or financial liabilities with another entity under conditions that are potentially unfavourable to the entity; or
- a contract that will or may be settled in the entity's own equity instruments and is
  - a non-derivative for which the entity is or may be obliged to deliver a variable number of the entity's own equity instruments or
  - a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments.

Zatem do zobowiązań finansowych zaliczyć należy zobowiązania:

- z tytułu kredytów i pożyczek
- z tytułu dłużnych papierów wartościowych,
- z tytułu leasingu finansowego,
- z tytułu dostaw i usług,
- inne.

Accordingly, financial liabilities include liabilities arising from:

- loans
- debt securities,
- financial leasing,
- supplies and services,
- other<sup>1</sup>.

Under international regulations, financial liabilities as on the balance sheet date should be measured at the adjusted acquisition price – amortised cost. In turn, non-financial liabilities are measured at the amount required as payment. These liabilities comprise:

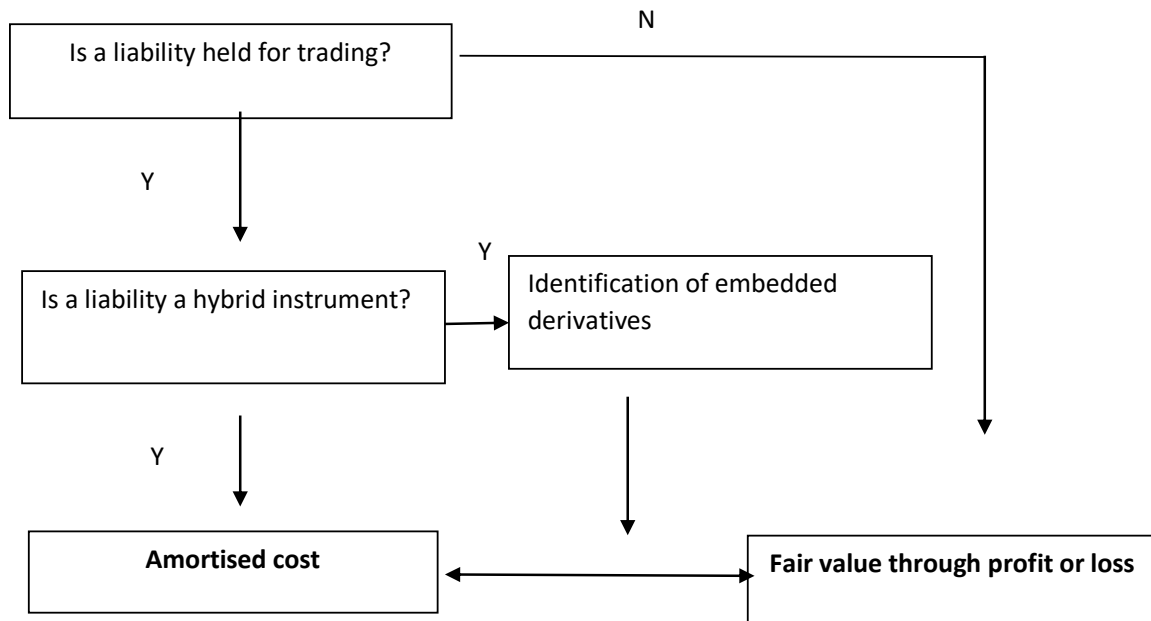
- tax, customs and social security liabilities,
- advances received which will be settled by physical delivery of goods,
- liabilities from special funds, liabilities for employees,
- special funds,
- accrued expenses.

*Chart following on the next page*

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<sup>1</sup> Salary liabilities, the settlement of derivative instruments, dividends, advances received, interest on late settlement of liabilities, financial guarantee contracts, rendering securities received.

Chart 6: Classification of financial liabilities.



Source: own elaboration

As a result, financial liabilities are measured no later than at the end of the reporting period, in the amount of the adjusted acquisition price, except for financial liabilities held for trading and derivative instruments which are measured at fair value if it can be reliably determined.

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## FILLING THE GAP: SOCIAL, URBAN AND TRANSITION DESIGN FOR BUILDING RESILIENT SOCIETIES

**Franka Grubisic**

*International Federation of Surveyors (FIG), Croatia  
grubisicfranka@gmail.com*

### **ABSTRACT**

*This paper explores what does the concept 'resilient society' represents in the current literature and how it trended over time. It finds that, for the most part, the discourse has mainly adopted a technical and economical point of view. This paper assumes and argues that, however, even though those parts are important, they are not single-handedly sufficient. It had already become increasingly hard to solve today's complex problems with a purely technical approach. Both society and the burning problems of today have moved to the social dimension. In order to make a contribution in this direction, this paper investigates the relationship of integration of social, urban and transition design and co-creation within the "building a resilient society" concept. It finds ways of aligning that with the current technical perspective and it makes the case for co-creation taking place for building a resilient society, or in this context "community design". Lastly, it argues that building new resilient societies of "tomorrow", in order to successfully aim to solve the problems of "tomorrow", needs to be based on the holistic model of sustainability, which incorporates four dimensions: social, cultural, environmental and economic. It explains the current discourse on the economic dimension, draws similarities with designerly way of thinking and proposes solutions on how to build resilient societies sustainably.*

**Keywords:** *Co-creation, Resilience, Social Design, Transition Design, Urban Design*

### **1. INTRODUCTION**

For a long time, we have known that, whatever our future society will be, it will be a 'risk society' (Beck, 1992). Recent years have witnessed the increasingly widespread, unprecedented, and devastating effects of changes in climate and ecosystem conditions on both global and local scales, in developing and developed countries alike. With societies, communities, and households continually experiencing changes in social, economic, and environmental conditions, building resilience to mitigate and adapt to shocks and stresses associated with these inherent changes has become an urgent matter (Saito et al., 2018, p. 3-4). Therefore, we have known for a long time that the precondition for every possible sustainable society is its resilience – its capability of overcoming the risks to which it will be exposed and the stresses and breakdown that will inevitably take place (Walker and Salt, 2016). While sustainability is moving from conceptualisation to the development of analytical tools, human-induced disruptions are resulting in these growing environmental shocks. Global problems such as climate change and natural catastrophes are the inevitable truth to which we have to adapt (Barnosky et al., 2012). With additional new challenges on the horizon, the context of sustainability as well as resilience shifted from thinking about how to mitigate climate change towards finding out what a resilient society really is. Manzini and M'Rithaa (2015) argue that the expression 'resilient society' is not a synonym for a sustainable society. They define resilience as a technical precondition, on the basis of which many different resilient societies may exist, endowed with different social and cultural characteristics. Those social and cultural characteristics pose new questions regarding resilience: What is a resilient society? What is the relationship between the local and the global? How does it develop? How to build the resilient society sustainably? How does everyday life look like? It is important to note that the human (social) and environmental (environmental) boundaries, as well as our preferred expected

development trajectory (economic) within them, are all social constructions and equally based on our empirical understanding of the world and on our value preferences. Resilience is in other words about protecting and maintaining what human beings value, now and for the future (Becker, 2014, p. 144).

## **2. RESILIENCE THROUGHOUT THE YEARS**

Our world is complex and dynamic, continuously transforming as a result of ongoing processes of change. Since it is in this dynamic environment that communities and societies must develop, it has been increasingly recognized that they have to be resilient to be sustainable (Levin et al., 1998; Perrings, 2006). The term “resilience” originated from the technical area of mechanical and engineering sciences to describe the properties of materials, such as timber or iron, and their ability to withstand severe conditions (Hollnagel et al., 2006). Throughout the years, the term “resilience” had moved from the technical area towards many new ones. It is now used across many academic fields with different interpretations ranging from engineering to psychology, economics and social sciences to ecology and environmental science (Bhui, 2014). The conceptual similarities lie in understanding the responses to shocks, surprises, unforeseen or hazardous disturbances. The shift, however, happened gradually. After moving from the purely technical sphere, it arrived to the economic one. Economic resilience refers to “the ability of the system to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently... or to deliver essential services” (Perrings 2006, p. 418). Social and ecological resilience have only started to gain traction in recent years. The emphasis in social resilience is not just on the time it takes to recover from stress, but most importantly the access community has to critical resources (Langridge et al., 2006), such as water, land, finances and human skills (Xu et al., 2014). Ecological resilience describes the ability of an ecosystem to absorb environmental disturbances as well as its capacity for renewal, reorganisation, learning, adaptation and development, hence reflecting the degree of self-organisation (Berkes et al., 2003; Folke et al., 2004; Folke, 2006). Although these definitions are useful for their intended purposes, communities and societies are human–environment systems that entail human beings with the ability not only to react to disturbances but also to anticipate and learn from them. The resilience of human–environment systems is in other words not only including reactive qualities, but also proactive qualities (Becker, 2014, p. 143). Xu et al. (2014) have performed a bibliometric inquiry by examining the annual numbers of cited publications from 1973 (when Holling introduced the notion) to 2013. They have chosen to examine cited publications rather than just publications, as they believe it can better represent the use and prevalence of resilience research among researchers. Web of Knowledge, Scopus and Google Scholar were their starting points. They performed a keyword search to identify publications based on the word “resilience” and combinations of “ecological resilience”, “economic resilience”, “social resilience”, “resilience and sustainability”, “resilience and sustainable development”, “resilience and SESs”, “social-ecological resilience”, “resilience and environment”, “resilience and natural resources”, “resilience and assessment” in the title, keywords or abstract. They have found that all four resilience contexts grew steadily since 1995 with the ecological aspects vastly overshadowing social, economic and sustainability integration, as illustrated on Figure 1 below. Social resilience and integrated sustainability context publications have become quite important in recent years.

*Figure following on the next page*

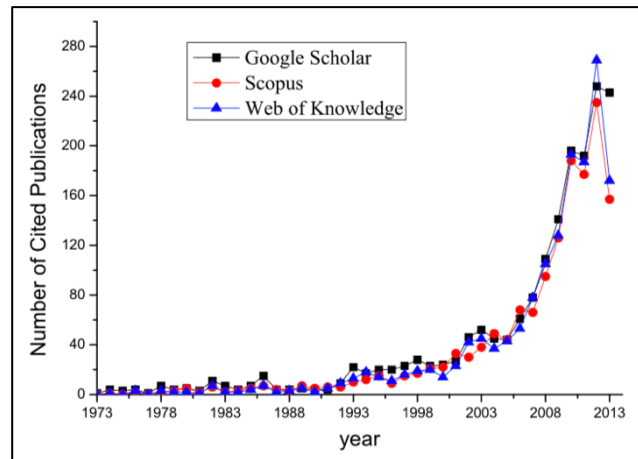


Figure 1: Number of cited resilience publications per year, 1973–2013 (Xu et al., 2014, p. 4)

Their findings show that resilience analysis experienced significant development and continues to increase. Nevertheless, the strong prevalence of ecological resilience indicates that more work needs to be done in the integration of environmental, social and economic knowledge in order for humanity to understand the occurring changes, self-organise to respond to them and increase its ability to learn and adapt (Xu et al., 2014, p. 4). Paired with these findings and fragility of today's social-technical systems, the concept of "resilience" has become part of the vocabulary of more and more people and organisations. Although there are many approaches to resilience that are useful for their intended purposes, there are many that are not designed in relation to sustainable development, nor helpful in guiding us in how to make communities, society or any type of human–environment systems resilient in practice. Sometimes because they are purely descriptive and meant for other purposes, but other times resilience is simply used as more of a buzzword than a useful concept. For the concept of resilience to be useful in relation to safety and sustainability, it must assist us in identifying what is needed for a human–environment system to be resilient in context (Becker, 2014, p. 149). Manzini and M'Rithaa (2015) state that it must rapidly come onto policy-maker's agendas and be included among the aims and practical actions of the design community. This goes in hand to Becker's (2014, p. 149) call to action to make a difference, for which he states that: "we must link the conceptual with the actual". In other words, we must operationalize the concept to provide a clear link between theory and practice.

### 3. RESILIENCE AND DESIGN

#### 3.1. Resilience and social design

Knowing that new crises and catastrophic events await us, as well as that their frequency of occurring will increase in the future, we have to re-organize our society and make it more resilient on current terms. Luckily, the shift from looking at resilience from a purely mitigation point of view (looking at what should not happen and reducing it) is changing towards creating expected development trajectories (looking at where we [as a society] would like to go). Manzini and M'Rithaa (2015) bring an interesting perspective to resilience: "If, technically, resilience means diversity, redundancy and continuous experimentation, it also means that the corresponding society must be diversified, creative one". So, similar to Becker (2014), they bring in a human image of society to the picture. Enhancing the resilience of vulnerable societies and communities to enable them to respond positively to these changes requires investigating and understanding communities and households (Saito et al., 2018, p. 5). Manzini and M'Rithaa (2015) make the case that, if our society has any hope of lasting (meaning that it is resilient), cultural diversity and creativity must flourish and be an integral part of any scenario of resilient societies.

A cultural approach to resilience would not attempt to solve ‘problems’ per se but open up new possibilities in order to feed and support a social conversation about them. The contemporary landscape of social practice is full of examples of collaborative projects where local actions create new functions, practices and meanings. What Escobar (2018, p. 159) believes is interesting to note is that many of these innovations take place through a new logic, that of distributed systems. The idea of distributed systems came from natural systems. See, Manzini and M’Rithaa (2015) observed that the lasting of natural systems is a result of a multiplicity of largely independent systems and that they are based on a variety of living strategies - meaning they are diverse and complex. Exactly this diversity and complexity is what makes them resilient. Taking this logic when designing resilient socio-technical systems, it’s clear that these systems should be made up of a variety of interconnected elements capable of adapting and lasting through time. In essence, this refers to the fact that, unlike dominant centralized, top-down modern systems and infrastructures (representing a hierarchical model of organization and social life), distributed systems operate on the basis of decentralized elements that become mutually linked into wider networks (Escobar, 2018, p. 160). Distributed systems in this sense have a connection to the social factors, as per Manzini (2015, p. 17): “the more a system is scattered and networked, the larger and more connected is its interface with society and the more the social side of innovation has to be considered”. Additionally, he states that the result of this increasingly networked action is more resilient system, as well as a redefinition of work, relations and well-being and, potentially, “a new civilization”. Within this spectre, Manzini believes that design needs to participate proactively in the social construction of the civilization’s meaning. Discussing social innovation from design perspectives enriches the social science understanding of how change happens and at the same time radicalizes the design practice (Escobar, 2018, p. 160). Within an expanded field of design’s operation, there are three areas of established, maturing and emergent design focus that are of particular relevance in socio-technical transition management. The focus areas are: Design for Service, Design for Social Innovation and Design for Policy. These areas evolved out of user-centred, participatory and co-design approaches (Grubisic, 2019, p. 37). The new practices within Design for Social Innovation, such as codesign, participatory design and design activism, form a new model of Design for Social Innovation. new design approaches are to be based on a positioning that is both critical of the current state of things and constructive in terms of actively contributing to broad cultural change (Escobar, 2018, p. 160). It comes as no surprise that these new practices are all based on collaborative action. Building the resilience of vulnerable communities and households to make them more responsive to known and unknown changes demands collaborative action. Collaboration in this case means getting stakeholders at multiple levels—local, regional, and national—to participate in the formulation, design, implementation, monitoring, and evaluation of resilience enhancement strategies. In developing a resilience assessment approach, it is imperative for stakeholders to gain an in-depth understanding of the diversity of factors and processes that drive vulnerability or, conversely, can build up resilience among communities and households (Saito et al., 2018, p. 6-7). In order to build a society both resiliently and sustainably, other than looking at technical, economic and environmental factors which have been, as explained in Chapter 2, very well researched and documented in current literature discourse, it is imperative to focus on social and cultural pillars of the holistic model of sustainability. So, these collaborative organizations are vital to design for social innovations, but it goes the other way as well - social design is extremely important in order to achieve a resilient society. In a world that is both loaded with problems and highly connected, social innovation happens “when people, expertise and material assets come into contact in a new way that is able to create new meaning and unprecedented opportunities” (Manzini, 2015, p. 77). Oftentimes, these conditions materialize at the intersection of grassroots organizations or local communities and digital networks, enabling new, bottom-up, top-down and peer-to-peer

practices and their combination (Escobar, 2018, p. 161). These new social design practices, which are contributing to society's cultural diversity and creativity (two pillars of the holistic model of sustainability), are key building blocks to creating a resilient society.

### 3.2. Resilience and urban design

In Chapter 3.1., I've talked about the infrastructure of distributed systems and importance of social design in building a resilient society. Closely connected to social design is urban design. The reason for this is because we [as a society] experience our day to day life on urban grounds. This definition of place focuses on those who "dwell in the urban" – the citizens and passers-by – and considers place as something that is experienced and sometimes transformed by citizens and passer-by (Friedmann, 2010). Consequently, creating auspicious conditions for collective life projects demands the creation of supportive environments through appropriate "infrastructuring" (Escobar, 2018, p. 162). Social and urban design should be observed simultaneously. When thinking: "How can we achieve the life we want to live?", neither social nor urban design should be developed individually. That question, posed in that manner, goes hand in hand with the new shift around resilience: creating expected development trajectories (looking at *where* we [as a society] would like to go). While solutions derived from social design may remain local and place based, they are also open to networking. Manzini (2015, p. 178) constitutes a new ground for social innovation: small, local, open and connected (SLOC). From the start it is clearly visible that all of SLOC's attributes are directly or indirectly related to urban terminology. By using design methods presented in Chapter 3.1. (eg co- and participatory- design), Manzini states that "*by coordinating with others through networking, local projects might achieve scalar effects at the neighbourhood and regional levels. The resulting configuration may rightly be considered instances of cosmopolitan localism*" (p. 202). Indeed, social design decidedly locates place making and the re/creation of communities at the heart of the design mission. The practice of designing places with people in mind is known as *placemaking*, the idea which is attributed to Jane Jacobs and William W. Whyte (Project for Public Spaces, 2010). Two core principles of placemaking are its focus on designing cities for people and including citizens in the decision-making process when designing public spaces. Inventing and enhancing, in this way, a new socio-cultural and economic activities, these creative communities are also generating a new sense of place and a new idea of locality (Manzini and M'Rithaa, 2015, p. 279). This combination of social innovation which is place-based is becoming more and more popular worldwide. Additionally, emerging ways of living and producing they generate are largely convergent with the trend toward resilient distributed systems (Manzini and M'Rithaa, 2015, p. 278). Therefore, the emerging cosmopolitan localism can be seen as a creative balance between being rooted in a given place and community, being open to global flows of ideas, information, people, things and money (Appadurai, 1990, 2001). Being localized, small, connected and open (to others' ideas, culture and physical presence), these promising social innovations on urban grounds actively contribute to the realization of resilient, distributed socio-technical systems. Moreover, symmetrically, distributed socio-technical systems may become the enabling infrastructure of a society where these kinds of innovations can flourish and spread (Manzini, 2015). Far from being a neutral and allegedly objective position, social and urban design together take a stand on the side of a particular understanding of life and a particular style of world making that privileges localization, self-organization, and a collaborative social praxis. In advocating for "a new civilization", it directs our attention toward the emergence of "territorial ecologies" - assemblages of ecosystems, places, and communities - where open-ended codesign processes might function with greater ease (Escobar, 2018, p. 163). In turn, this creates a new idea of a place, which is by Manzini and M'Rithaa (2015): "*a place that is no longer an isolated entity, but that becomes a node in a variety of networks* (where short networks generate and regenerate the local social and



economic fabric, whilst long oens connect that particular place, and its resident community, with the rest of the world)". Creating a place which allows its habitants to understand and manage complex socio-technical systems, but also enable them to carry out their activities, fulfil their needs and build their desirable futures within their communities (while keeping human relationships lively and personal), is a consequence of integrating social and urban design when building a resilient society. Manzini (2015) articulates this option: "*Place building/making can, therefore, carry considerable weight in the definition of a new idea of well-being... I think that what social innovation is indicating, with its idea of well-being based on the quality of places and communities, is the seed of a new culture*" (p. 202). Tomitsch (2018) argues that design and upgrade of cities are no longer the sole responsibility of architects, urban planners and engineers. On the contrary, the need for co-creation within the orders of the citizens revolving around urban spaces is happening, by Greenfield (2013), Townsend (2013) and Hemment and Townsend (2013), because the current top-down smart city solutions fail to address the local complexities of cities and the needs of citizens, whose role is becoming increasingly important. This is where design comes to play.

### **3.3. Resilience and transition design**

Transition design acts as the 'glue' within this entire concept. It proposes a design-led societal transformation toward more sustainable futures, because it assumes that the dominant ways of living today are not sustainable nor resilient. It also assumes that designing must play a central role in the systems-level change that our societies need to undertake (Tonkinwise, 2015, p. 3). Many transition discourses take as their point of departure the notion that the contemporary ecological and social crises are inseparable from the model of social life that has become dominant over the past few centuries. The literature on transitions makes it clear that transitions are not designed, but emergent; they depend on a mix of interacting dynamic processes, both self-organizing and other-organized (by humans). One of the key principles of emergence is that it takes place on the basis of multiplicity of local actions that, through their (largely unplanned) interaction, give rise to what appears to an observer to a new structure or integrated whole, without the need for any central planning or intelligence guiding the process (Escobar, 2018, p. 151-152). The latter paragraph explains the connectedness of the concepts presented so far: social design, urban design, collaboration and distributed systems. By applying these concepts and an understanding of the interconnectedness of social, economic, political and natural systems, transition design aims to address problems that exist at all levels of spatio-temporal scale in ways that improve quality of life (Irwin et al., 2015, p. 16). In other words, it aims to create resiliency all across the board. It does so by advocating the reconception of entire lifestyles (social design), with the aim of making them more place-based (urban design), convivial and participatory. Additionally, transition design shares similarities with social and urban design, as well as distributed systems theory, by drawing influence from diverse streams of thought from varied fields and disciplines, relevant to sustainable transitions. Some of them are a part of social and urban design, such as living systems theory, cosmopolitan localism, everyday life discourse, etc. The value of design lies in the ability to contribute to fostering a culture of cosmopolitan localism that effectively links the local and the global through resilient infrastructures that bring production and consumption closer together, building on distributed systems. Additionally, people's actions to change their everyday life conditions increasingly take place through collaborative organizations; design experts thus become part of creating the conditions for collaborative social change (Escobar, 2018, p. 159). Working with these holistic perspectives, Kossoff (2015, p. 36) explains that "*the transition to a sustainable society will require the reconstitution and reinvention of households, villages, neighbourhoods, towns, cities, and regions everywhere on the planet as interdependent, nested, self-organised, participatory and diversified wholes*". We can see that in this way transition design works

towards building a resilient (and sustainable) society. The result of such an approach will, according to Kossoff, “*embody the communion not just of people, but of people, their artefacts, and nature, and will come into being at multiple, interrelated levels of scale*”. Thinking in terms of nested structures and networks provides the basis for a distributed understanding of transition’s agency (Escobar, 2018, p. 156). Having all of this in mind, it is no surprise that at this level the transition design framework is seen as fostering a paradigm shift and an entirely new way of understanding households and understanding societies (Tonkinwise, 2012, p. 8).

#### 4. CONCLUSION

The analysis performed by Xu et al. (2015) shows that, even though the term ‘resilience’ has a technical origin, it has been connected with the economy and the environment in the recent years. However, the economy and the environment are only two out of in total of four pillars of the holistic model of sustainability. Additionally, even though it is important to recognise environmental and economic aspects of resilience, in order to build a truly sustainable society, the focus should be put on it - the society. The paper shows in which ways does social design help build a resilient society. It has been shown that a part of the emerging social innovation is working on creativity, diversity and cultural change - all part of a holistic model of sustainability. This way not only are societies built resiliently, but sustainably as well. Collaborative practice (social design), place-making (urban design), as well as the unambiguous grounding of transition design in an ecological vision, are all important elements of building a resilient society. Within that development, transition design is explicitly connecting the concepts of social design, urban design and distributed systems to building resilient and sustainable societies. Good design can create environments that foster community engagement, equity (in quality of life), diversity (culture) and opportunity. Good design then becomes our habitat and habits that can determine future pathways for our societies. Design can contribute reciprocally through new approaches to framing problems related to sociomaterial change within the context of complex ecosystems. All this implies that design can play a more central role in the discourse of transition (Irwin et al., 2015, p. 1-2), and, consequently, in building a resilient society.

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## THE ROLE OF CORPORATIONS' SOCIAL CONTRACTS IN THE RUSSIAN SOCIETY DEVELOPMENT

**Maximov Ilya**

*Novosibirsk State University of Economics and Management, Russia  
ilya\_maksimow@mail.ru*

**Kovtun Olga**

*Novosibirsk State University of Economics and Management, Russia  
kovtuolga@yandex.ru*

**Ivanenko Marina**

*Novosibirsk State University of Economics and Management, Russia  
ivamarin@mail.ru*

### **ABSTRACT**

*In the context of the specific "transnational economy" that has developed in the world economic space, transnational corporations (TNCs), as its main actors, have to interact with national and regional socio-economic systems, while exerting a contradictory effect on their development. The choice of the optimal mechanism for the interaction of TNCs with the socio-economic environment is, therefore, a necessary condition for its competitiveness. The aim of the article is to analyze the laws, methods and mechanisms of interaction between the parent TNCs and the basic components of the socio-economic systems of Russian society. The emphasis in the analysis is placed on the consideration of subject-subject relations, as the interaction of two entities, the roles of which are, on the one hand, subsidiary and dependent units of corporations, and on the other, the institutions of society, which develop the employees' competencies of employees. The authors suggested their own concept of a social contract and its classification of a social contract between firms and groups of society in the article. The research methodology is determined by the paradigm of system analysis and the principles of neo-institutional economic theory. The article notes the contradictions between the development goals of TNCs and society, the problems of subordination of social development to corporate goals through the control of the basic mechanisms of human capital developing by firms. The conclusions are made regarding the place of TNCs in the social relations structure of in terms of social interaction and the of human capital development .*

**Keywords:** *socio-economic systems, social institutions, social contracts, corporate social responsibility, parent TNCs, human capital*

### **1. INTRODUCTION**

The internationalization of the world economy through deepening the international division of labor is the most important factor determining the of the world economy development from the second half of the 20th century. At the beginning of the 21st century, the trends of capital allocation, increasing the trade and investment openness of national economies, the global nature of scientific and technological progress and social communications led to a specific "transnational economy" formation, the main subjects of which are transnational corporations (TNCs). Transnational business in the process of its activity is forced to interact with national and regional socio-economic systems, exerting a contradictory effect on their development. This determines the need to choose the optimal mechanism for the interaction of TNCs with the socio-economic environment. This task is very important for relatively young Russian companies, since the socio-economic system of Russian society is at the stage of creation and search for its essence and development directions.

In this regard, the main goal of this work is to identify the patterns, methods and mechanisms of interaction between the parent TNCs and the basic components of Russian socio-economic systems with an emphasis on the role that Russian TNCs play in the creation and development of human capital.

## **2. SOCIAL CONTRACTS BETWEEN TNC AND SOCIO-ECONOMIC SYSTEMS**

Determining the structural content of socio-economic systems, we adhere to G. Kleiner's perimetric mode approach, distinguishing the state, social, economic and entrepreneurial subsystems [6]. Refining the concept of the perimeter model, G. Kleiner proceeds from the neoclassical economic theory approach and suggests that the subsystems of the model strive for equilibrium to ensure balanced growth and development [7]. The neoclassical approach in this case limits the variety of models at each level of development (micro, mezo, macro), neglects the integrity of the space formed by them and contradicts socio-economic reality. Equitable development of subsystems cannot take place due to the different endowment of territories with factors of production, differences in transaction costs, capital, and different goals of actors. TNCs operate within the framework of the considered perimeter model of the socio-economic system and are an element of the entrepreneurial subsystem. The role of TNCs in the socio-economic system is manifested by the formation of a special type of industrial and social relations. These relations are determined both by the dominant company specifics, the of equity capital ownership, its management bodies formation method, and the industry's functioning characteristics, the demand for factors that ensure production processes. The interaction of domestic TNCs and the public subsystem is revealed through a system of corporate contracts with society and employees, which, having structured, can be divided into subject-object, object-object, subject-subject relations. The analysis of subject-object relations is based on bilateral contracts between the employer and employee in terms of the resource of the production sphere. The effectiveness of the production process, associated costs and the potential competitiveness of the goods produced and the vertical level of social relations depend on this form of relationship. In more detail, the aspect of subject-object relations was considered by us in [8]. The analysis of the form of object-object relations is reduced to assessing the relationship of the internal elemental structure of the corporate actor, where labor resources are considered in the context of the situation in the organization and relations at the horizontal public level, because this gives rise to contradictions associated with translated formal and informal norms in the corporate environment, which may come into conflict with the rules prevailing in society and established practices of behavior. In more detail, the aspect of object-object relations was considered by us in [9]. The form of subject-subject relations reflects the interaction of two entities, which are, on the one hand, subsidiary and dependent units of corporations, and on the other, the institutions of society, which form the competencies of employees. This creates a contradiction between the development goals of TNCs and society, and the problems of subordination of social development to corporate goals through the control of the basic mechanisms of human capital formation by firms. It is the aspect of subject-subject relationship that is the focus of this work. The institutions of society ("the totality of institutions" according to G. Kleiner [7]), which form the basic skills of the labor resources of production relations, include: education, health care, social security, culture and the environment. We believe that the approach of R. Nureyev should be expanded, marking the first three categories [10], since it is important to take into account the institution of culture, on which the directions and goals of development of individuals depend, the formation of basic and supporting needs and the manifestation of creative initiative in activities. Consideration of the environmental factor is important because it determines the qualitative characteristics of the standard of living, the existential perception by individuals of the external environment, and deviation from the normal state leads to additional costs for society.

In the context of the study, it is advisable to distinguish between the concepts of human and social capital. According to J. Coleman, social capital is inherent in relations between actors, characterized by the presence of several social structures and facilitates the actions of actors within the structure of relations [3]. Human capital is created as an internal transformation of individuals, caused by their skills and abilities [3], and is the outcomes of social institutions that develop the individuals' competencies. According to A. Buzgalin divides social capital into 2 concepts: as a commercial category that includes social parameters used to obtain benefits, and as a phenomenon that describes relations that act as a public good and contribute to the development of collectivism [2]. Developing the idea of human capital, R. Nureyev defines it as a stock of health, knowledge, skills, which contributes to the labor productivity growth, etc., and as a revenue stream throughout a person's life, increasing as a result of investments in human capital [10]. The long planning horizon associated with the need to ensure the TNC's sustainability in local and global markets requires companies to take a "long look" at trends in changes in human capital [4]. Being slowly adapting to changes in the external environment, which is associated with the loss of feedback from the market at a certain stage in the growth of the internal elemental structure and increase in market power, the company has to undergo reform and adaptation to changes in market conditions through human resource policy.

### 3. CORPORATE OF SOCIAL RESPONSIBILITY

Corporations appropriate the human capital of a society to receive a private good, so Russian society bears the general costs of developing individuals, with the private nature of receiving rents. However, the social costs of develop human capital are not always able to satisfy the needs of corporate actors. Demand for changing tools and approaches for organizing and designing public institutions forms the social policy of corporations in relation to public institutions and stimulates social investments aimed at social development and manifests itself in the framework of corporate social responsibility (CSR).

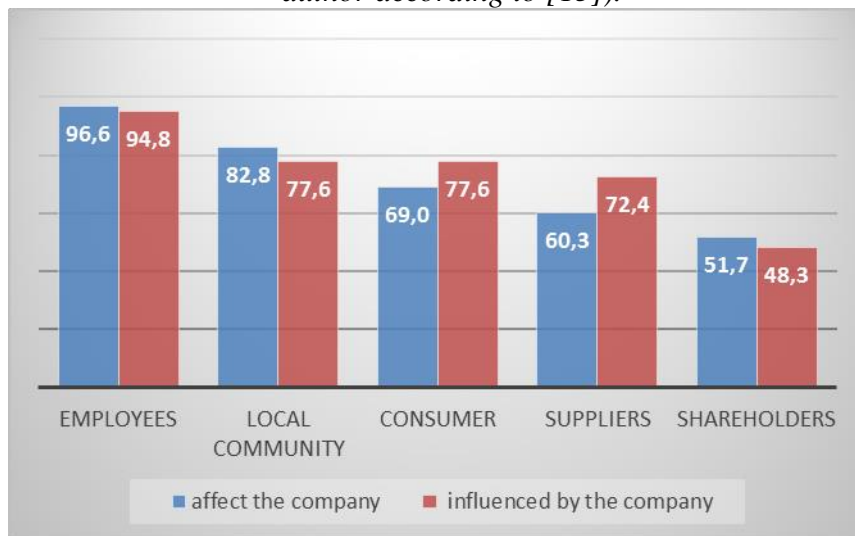
*Table 1: The definitions of CSR used by Russian TNC (compiled by the author [14; 15; 16])*

Russian TNC	Corporate social responsibility definition
public joint stock company «Tatneft»	A voluntary initiative based on the recognition of the business' role in strengthening the socio-economic stability of the state. The company implements special programs aimed at supporting healthcare, education, culture and sports.
public joint stock company «Bashneft»	Improving business performance and minimizing possible negative effects at all stages of the company's work: – mining with maximum attention to environmental aspects; – biodiversity conservation and community support; – extraction of maximum value from raw materials; – creation of the most favorable working conditions; – production and sale of the best quality fuel with a minimum level of emissions into the atmosphere.
public joint stock company «Alrosa»	The philosophy of behavior and the concept of devising social and business activities by the business community, companies and entrepreneurs with their activities aimed at meeting the expectations of interested parties for sustainable development.

From the independent definitions of CSR by domestic TNCs, we can conclude that there is no single methodological base on these approaches (Table 1). In one case, CSR is identified with the voluntary responsibility of the business. The second emphasizes the focus on increasing the internal competitiveness and attractiveness of the company for elements of the corporate structure. The third definition is based on a stakeholder approach, and interprets CSR as creating a favorable social and economic environment for corporation influence groups. Numerous definitions of corporate social responsibility are broadly interpreted and narrative in nature,

which is associated with the desire of TNCs to transmit their own interpretation of this practice to society. We believe that the social responsibility of TNCs is the responsibility for the impact of decisions made on the internal environment and society, and the goal of the company's social behavior is to achieve the sustainability of society as a whole [17]. At the same time, for society, sustainable development is a development in which "meeting the needs of the present does not jeopardize the ability of future generations to satisfy their own needs" [11]. Moreover, the adoption of CSR contracting leads to such positive affects in social-economic system as an increase in long-term orientation; an increase in firm value; an increase in social and environmental initiatives; a reduction in emissions; and an increase in green innovations [4].

*Figure 1: Primary stakeholders identified by the respondent companies (compiled by the author according to [13]).*



*Note: the sum of the responses exceeds 100%, because respondents could choose more than one option*

Russian corporate actors mark as primary groups affected or influencing companies, i.e. direct and feedback stakeholders (Fig. 1): employees, the local community, consumers, suppliers and owners, who are primarily affected by positive and negative effects, and who are the most susceptible groups in society. The respondent companies noted as the strongest groups of influence on the activities of corporations: employees - 96.6%, the local community - 82.8% and consumers - 69.0%. According to the identification of corporate actors, social groups of a company subject to the influence of Russian corporations are employees - 94.8%, local community - 77.6%, consumers - 77.6%, suppliers and business partners - 72.4%. As a result of the analysis of sociological data, one can notice the absence among groups of influence: competitors, complementary, state, etc. Groups marked by companies (with the exception of the local community) are clearly endogenous. A focus on regulating the relations of the internal environment of corporations does not allow us to argue about the strong integration of units of the corporate structure in the social environment of the company, however, the development of human capital is a clear priority for corporate development. The main direction of social investment in Russian corporations is the development of personnel, which is confirmed by the respondents' answers in favor of this category, which amounted to 44.4% in 2003, 48.7% in 2007, and 43.5% in 2011 [13]. A more consistent growth is shown by the attitude towards the local community, which made up 9.1% of the respondents' votes in 2003, 14.1% in 2007, and 20.3% in 2011 [13], but the reverse process develops in relation to environmental and resource-saving activities, from 21.0% in 2003 to 12.2% in 2011. [13]. The latter, in our opinion, is a negative phenomenon, since most of the largest domestic TNCs are oil and gas and industrial

producers, exploiting to one degree or another land resources, objects of nature and the environment. The growing interest in social investment in the local community can be considered as a new phenomenon and as the result of increasing the social relationships. Thus, the contracts (exchange of expectations) which corporations conclude explicitly or relationally, providing agents' incentives and restrictions can be divided into exogenous and endogenous. Where endogenous is the relationship between the means of production's owner, the managerial corps, intellectual employees, mental and physical workers regarding the creation of tangible and intangible assets and the rent capture within the corporate environment. Exogenous contracts can be divided into financial-industrial, information and communication and social, associated with the changing of property rights to tangible and intangible goods to extract rent from the market and the external environment. The classical definition of social contract in economic theory and economic literature [5; 1] presupposes a system of stable relations between the state and social groups of, evaluating the costs and benefits of their behavior in a continuous exchange and transaction of property rights and freedom. A social contract between TNCs and society is a type of social agreement and the form of relationships in the socio-economic system that develops on the basis of the firm's need for sustainable development, addressed to various groups of society.

#### **4. INTERACTION OF DOMESTIC TNC WITH INSTITUTIONS IN RUSSIAN SOCIETY**

Let us analyze the relationship between domestic TNCs and institutions of Russian society. The following companies were selected as objects of observation: JSC TATNEFT, PJSC Bashneft and JSC Alrosa, since the firms are transnational, with a small amount of foreign ownership, but with a broad orientation to foreign markets both in the form of management and in the structure of capital and industry affiliation are typical and classic for the domestic corporate environment of the transnational type. The educational programs of Russian corporations can be divided into two qualitatively different groups: inside and outside the corporate structure. Internal social investments in education are aimed at developing the human capital of workers, its concentration and the effectiveness of the application. External investment in education is formalized in the creation of a corporate university of a full and partial cycle with the transfer of elements of the educational process to professional educational institutions that are not part of the corporate structure. In addition, corporate projects extend to the support of students and young professionals for the formation and mobilization of corporate personnel reserve on the basis of regional educational institutions. Health projects in domestic transnational corporations are concentrated in three areas: supplementary health insurance (VMI), prevention and treatment of diseases. The most common form in TNCs is the preservation and maintenance human capital maintenance is the integration of firms and markets for medical services in the corporate structure. Social security projects in domestic transnational corporations can be divided into three types: improvement of housing conditions, insurance, and pension provision. The social security institution forms stable employees' expectations that increase the planning horizon. In the first type, corporations finance or co-finance the living conditions improvement of their employees. Insurance is an investment in the liability of a company to reduce the risks of harming employees, the environment, and the public when the company operates facilities and to cover the costs associated with them. Pension provision is expressed in the creation of a pension fund owned by one corporation or shared. Currently, the largest domestic transnational-type corporations have internal structural elements (duplicating or outsourcing them) of the formation, maintenance and development of human capital. On the one hand, for the company this is an increase in liabilities and expenses in non-core ownership in order to maintain the efficiency and competitiveness of human capital. On the other hand, due to transfer prices and the scale of services consumed, this is the most optimal way to regulate the state of labor



resources, relative independence from the regional state of capital, limiting state opportunism and overcoming regional and national differences in the quality of public institutions. Cultural projects in domestic multinational corporations, unlike developed countries, are rare and are mainly aimed at supporting the local community identity in places of capital localization, as well as organizing exhibitions, concerts and other cultural events. The industrial operating activities of the largest Russian multinational firms determine their expanded responsibility in ecological sphere. Social investments of companies in environmental projects are formalized in 4 basic forms: state monitoring, water and land resources, air and biodiversity protection and reproduction. In the first case, projects are being implemented for effective water consumption, water disposal and recycling. In the second case, we pay special attention to waste management and improving the pipelines reliability. In the third case, the main projects are concentrated in the refining capacities modernization, increasing the level of associated petroleum gas utilization and its efficiency, as well as monitoring harmful emissions. The fourth basic form involves maintaining biodiversity - species and ecosystems in terrestrial and aquatic ecological complexes. Having examined international experience of CSR practices implementation, Chinese researchers consider the diffusing CSR practices at multinational enterprises at both corporate and individual levels, which can be helpful or even necessary for suppliers to implement CSR practices from the social capital on the example of developing countries [18]. Institutions useful for corporate actors reduce transaction costs and market uncertainty for companies; expand the planning horizon, and support production, exchange, distribution, and consumption. The key institutions that shape the human capital of a society, first of all, possess the properties of public goods and serve the goals of the development of society. The intended use of the totality of public institutions by corporations, we believe, contributes to their stable and balanced functioning, development and reform. It also provides equal access to social groups and distribution of public goods. The conditions for the functioning of institutions, the content of formal and informal norms, the value of guarantors and instruments of coercion act as a given for socio-economic systems and in this quality determine the institutional space of society, which can be called the result of the "logic of institutions". From here institutional logic, on the one hand, is a limitation of individual behavior, and on the other hand, creates incentives and motives for the interaction of elements within society and economic actors. The "logic of institutions" at the mezolevel, firstly, reflects local conditions of production and social relations, geographical features and the quality of capital, and secondly, it has a reproductive nature and a high level of inertia, i.e. stimulates individuals to acquire knowledge, social and cultural standards that provide the greatest reward in conditions of certain restrictions. Trying to improve their well-being, economic agents in a market economy use opportunism as a means of achieving corporate goals, and in a transitive, decentralized, market economy, state failures have formed that serve as the basis for opportunistic behavior, which manifests itself in the use of public goods in an inappropriate way that violates the structure and the conditions for their functioning. The opportunistic behavior of employees creates problems at the endogenous level - in corporate governance within the enterprise. The high level of opportunism also complicates the process of professionalization of enterprise management, that is, conscientious implementation and a responsible approach to the obligations undertaken in relation to this enterprise. Opportunism negatively affects the efficiency of the development and functioning of corporations, and generates high transaction costs. The need to study this socio-economic phenomenon is related to the fact that we can use the results of studies to prevent opportunism to improve management and improve the efficiency of the organization's employees. According to L. Polishchuk the effects of improper use of institutions can be divided into [12]: information asymmetry exploitation, manipulation, use as cover and submission (capture). In addition, you can add another type of misuse, based on the contradiction noted at the beginning - the using of institutions unauthorized by society.

Thus, the intervention of corporate actors through the offer of social investments in the stable and regular work of public goods can turn them into an exclusive or club source of withdrawal and appropriation of rent. The unauthorized using of the institute, we believe, is a contradiction of the mechanisms and means of the corporation and society sustainable development. And it has more serious consequences due to uncoordinated development vectors. In situations of this type, conflicts arise between the economic interests of TNCs and public associations, for example, environmental, human rights and trade union organizations, over the fact that firms do not take into account the outgoing impact of producing activities or reduce the public benefits of production, the potential of public goods to reproduce, and the ability of future generations to satisfy their needs etc.

## 5. CONCLUSION

Pursuing corporate social policy, business makes an important contribution to stabilizing the situation in Russian society by providing high-quality educational, medical and other services to its employees, and by implementing programs, the business creates high educational and social patterns and consumption standards that are transmitted through employees and members of their families to society. The conscientious use of the institutions of society by the economic units of TNCs leads to the distribution of positive effects between agents, ensures progressive social development, and new forms of economic and social ties. The desire to increase the recoverable profit from the use of the institutions of society that form human capital in their favor leads to dishonest behavior of corporate actors. Thus, domestic transnational capital seeks to impose the development goals on society by regulating the trajectory of changes in its background at the regional level. This gives rise to the assertion that under these conditions, public goods lose the ability to perform their functions properly.

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# THE POLISH INVESTMENT ZONE AS A NEW SOLUTION FOR SUPPORTING INVESTMENTS AND SUSTAINABLE REGIONAL DEVELOPMENT

**Joanna Miklinska**

*Gdynia Maritime University, Poland*

*j.miklinska@wpit.umg.edu.pl*

## **ABSTRACT**

*Poland as a country that went through the political and economic transformation has significant experience in supporting the investments and regional development. Already in the 1990s, Special Economic Zones (SEZs) were established in Poland. In accordance with the laws, the end of SEZs in Poland has been scheduled for 2026. Without waiting for this moment, in 2018 it was decided to introduce a new instrument supporting the investments. The whole country has become the Polish Investment Zone (PIZ). The aim of this article is twofold: 1) to present the basic assumptions of the new solution regarding the support of investments in Poland and the first experience of various stakeholders resulting from the implementation of this solution, 2) to indicate how the new instrument helps to fulfil the objectives of sustainable development. In order to achieve the main objective of this paper, the author performed analysis of reference literature, legal acts and documents published during the legislative process, as well as reports and publications of public institutions and consulting companies, the information published by the Ministry of Entrepreneurship and Technology, and boards of SEZs in Poland. The paper provides formal and legal grounds for the new instrument and modes of its implementation during the time when SEZs and the Polish Investment Zone will still be in operation in parallel for several years. The paper compares the „old” and „new” models of investment support in Poland and presents the basic quantitative and qualitative criteria. The main objectives related to the implementation of the new instrument have been analysed, regarding in particular meeting the assumptions of sustainable development. The paper presents the expectations as well as concerns related to this solution, expressed by various groups of stakeholders. The first experience in Poland may constitute guidelines for countries planning some changes in supporting the investments.*

**Keywords:** *Polish Investment Zone (PIZ), support of investments, Special Economic Zones in Poland (SEZs)*

## **1. INTRODUCTION**

The Polish Investment Zone marks a new chapter in the history of supporting investments in Poland. The first such chapter were Special Economic Zones (SEZs) introduced in the country in the 1990s, following the example of various types of special zones developed elsewhere in the world (The World Bank Group, 2017, p. 35-36). SEZs, contributing to the economic recovery of the region, were then seen as a remedy for rising unemployment and decaying industries. Over the years, as the economic situation changed, their role has also evolved. The new legal regulations have imposed on SEZs, among other things, the role of supporting the development of clusters or education for the needs of the labor market. The following years also brought the expansion of the area covered by the status of zones (in December 2018, it totaled approx. 22,900 ha, as compared to approx. 6,500 ha in 2004). The total value of capital invested in 2018 stood at approx. PLN 119.2 billion, coming in 60% from Poland, Germany, the Netherlands, Luxembourg, and the United States. Along with the expansion of SEZs improved the level of infrastructure development in many locations (Ministry of Entrepreneurship and Technology, 2019b, p. 3, 4). It should be noted that each of the 14 Polish SEZs has a slightly different specificity and industry focus.

SEZs in Poland have undoubtedly brought about a number of benefits and effects of a qualitative and quantitative nature, both direct and indirect (Miłaszewicz, 2011, p. 32; Miklińska, Klopott, 2016). In the literature, SEZs in Poland are broadly analyzed in many different contexts, including as a stimulator of economic development (Pastusiak, 2011), in terms of effectiveness (Pastusiak, Bolek, Jasiniak, Keller, 2018), or in terms of their impact on regional competitiveness (Typa, 2013, p. 16). The achievements of Polish SEZs are significant and recognized, among others, in the international fDi Global Free Zones ranking where they have consistently scored high in various categories. In 2018, for example, the Łódź SEZ ranked 4<sup>th</sup> in the world, and 8<sup>th</sup> in 2019, with the Katowice SEZ ranking 2<sup>nd</sup> the same year (fDi Magazine, 2018, 2019). Having said that, the current solution to support investments has its drawbacks. In the literature, the positive effects of SEZs are listed alongside their negative effects, and so are SEZs themselves as growth and anti-growth poles (Godlewska-Majkowska, Komor, Typa, 2016). Despite a number of amendments to legal provisions that have been introduced over the years, the SEZ solution did not fully meet the current needs. One of the reasons blamed for it was the geographical criterion, which determined the possibility of enjoying a zone tax relief. SEZs located in economically attractive regions remained the most popular over the years, leading to the growth of these areas, while poorer and less attractive regions developed more slowly (Colliers International, PAIH, EY, 2018, p. 5; Justification, 2018). It is therefore emphasized that SEZs have not sufficiently supported the sustainable development of regions and of the least economically attractive areas of Eastern Poland, which - despite the existence of SEZs - are still marked by a relatively slow rate of development (Justification, 2018). To improve the availability of SEZs, an initiative from 2014 made it possible to obtain support for an investment located in the area that was still to be included in a SEZ, although the procedure was often lengthy and complicated (Justification, 2018). Last but not least, a major disadvantage of SEZs is the end of their operation scheduled for 31 December 2026, as this will lead to an increasingly smaller number of investors wanting to locate capital in Poland in favor of the neighboring countries (Justification, 2018). The shortcomings of SEZs have prompted the search for another model of investment support in Poland. In September 2018, regulations came into force in Poland introducing a new investment support instrument – the Polish Investment Zone (PIZ). Within that instrument, territorial limitation of areas where investments can be located (geographical criterion) was abandoned, and sustainable development criteria were laid out. The whole country has become the Polish Investment Zone (PIZ). The aim of this article is twofold: 1) to present the basic assumptions of the new solution regarding the support of investments in Poland and the first experience of various stakeholders resulting from the implementation of this solution, 2) to indicate how the new instrument helps to fulfil the objectives of sustainable development. In order to achieve the main objective of this paper, the author performed analysis of reference literature, legal acts and documents published during the legislative process, as well as reports and publications of public institutions and consulting companies, the information published by the Ministry of Entrepreneurship and Technology and boards of SEZs in Poland. The paper is divided into four chapters. After the Introduction, Chapter 2 involves an analysis of the basic solutions of the new model of supporting investments in Poland. The goal of Chapter 3 is to present the criteria (qualitative and quantitative) for new investments in the service sector and in the industry sector in the light of the challenges of sustainable development of regions. Chapter 4 presents the first experiences of diverse stakeholders connected with the PIZ, and conclusions. The study is the next stage of the author's research pursued as a result of her interest in the development of special zones, which has already brought about several publications (Miklińska 2013; 2014; 2016) (Miklińska, Klopott 2016).

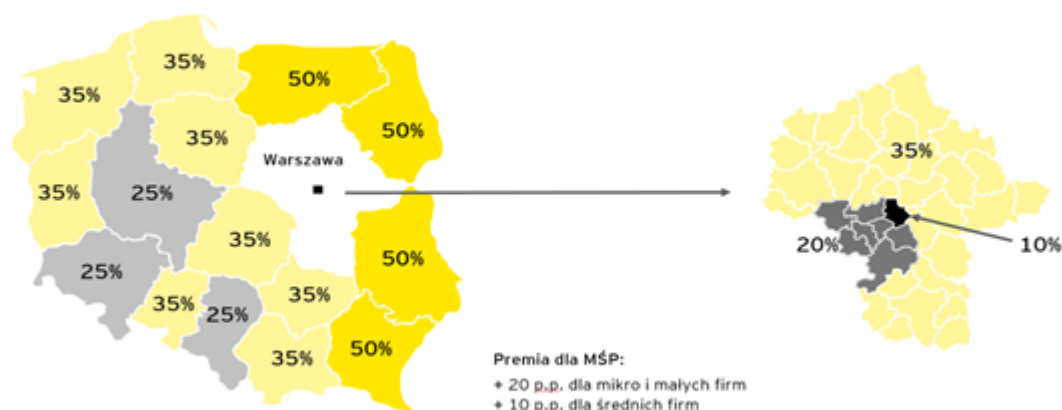
## 2. THE POLISH INVESTMENT ZONE AS A NEW CHAPTER IN SUPPORTING INVESTMENTS IN POLAND

The Polish Investment Zone (PIZ), a new investment support instrument in Poland, was originally introduced in 2018. The legal basis for its implementation were (Investment Zone, 2019):

1. The Act of 10 May 2018 on supporting new investments (came into force on 30 June 2018) (hereinafter Act 2018),
2. The Regulation of the Council of Ministers of 28 August 2018 on public aid to be granted to certain enterprises for new investments (came into force on 5 September 2018) (Regulation 2018a),
3. The Regulation of the Minister of Entrepreneurship and Technology of 29 August 2018 on determining areas and assigning them to managers (Regulation 2018b).

In Poland, two laws on investment support are currently in force: a 1994 one regarding SEZs and permits granted to entrepreneurs, which will remain valid until 2026, and a 2018 one regulating the PIZ (Ministry of Entrepreneurship and Technology, 2019a). Attempting to analyze the new investment support instrument, it should be noted that its basic assumptions result from the document adopted in Poland in 2017, which is the Strategy for Responsible Development. In the face of geopolitical and global circumstances (Grzelakowski, 2019), as well as economic conditions in Europe, the Polish economy needs impulses for development, which were indicated in that document. One important assumption it contains is the inclusion in the development processes of all social groups and all territories (Strategy, 2017, p. 3, 5), which relates to the adopted model of investment support. Investment support, in accordance with the new Act, may be granted on the territory of the Republic of Poland, which is divided into areas (respecting, among others, territorial cohesion and poviats borders) (Act 2018, art. 5). The main difference is the fact that the PIZ now covers 100% of the country's investment areas. The intensity of state aid (Fig. 1) varies depending on the location of the investment, which in turn is determined by transparent quantitative (Table 1) and qualitative (Table 2) criteria listed in the Annex to Regulation (2018a). The selection and construction of these criteria will help meet the need to support sustainable regional development (see Chapter 3).

Figure 1: State aid intensity map within the PIZ (EY, 2018)



For the Polish Investment Zone to successfully cover the whole country (divided into Areas), institutions with specific rights and functions need to be established. The 2018 Act introduces, among others, the position of Area Manager, who is to support the development of new

investments in the relevant area, bearing in mind the broadly understood needs of regional development. Their tasks encompass activities related to the emergence of new investments, such as: management of property components and making them available (under contract) to entrepreneurs; providing them with free information services, business promotion and new investments; supporting cooperation between entrepreneurs and their relationship with public administration, recommending the optimal location of investments and supporting the development of innovation. In addition, an important area concerns cooperation with schools and universities in the field of education for the needs of the labor market (Act, 2018, art. 2, 7). The tasks of Area Managers were transferred to SEZ Managers as a cost-effective solution saving on the need to create new entities and capitalizing on the experience of these organizations (Justification, 2018). According to the regulations, Area Manager appoints Economic Development Councils, whose creation is undoubtedly an important initiative to achieve the goals of sustainable development, as they are represented by people from both the public and private sector. The Councils have among their members entrepreneurs (micro, small, medium-sized, and large), local government officials, and representatives of voivodship social dialogue councils. An important competence of the council is the possibility of presenting opinions and conclusions regarding matters related to conducting business activity in a given area, as well as proposing measures to improve the area's investment attractiveness and socioeconomic development (Act, 2018, art. 11).

### **3. THE POLISH INVESTMENT ZONE AND CHALLENGES OF SUSTAINABLE REGIONAL DEVELOPMENT - SELECTED PROBLEMS**

To get a better idea of what the PIZ instrument is, attention should be paid to the term sustainable territorial development, which was adopted in the Polish Strategy for Responsible Development and defined there as "consist[ing] in recognizing the diversity and territorial specificity, including all areas in development processes, and properly identifying their resources in order to tailor policy interventions to the needs of individual areas and to overcome structural obstacles standing on the path to their development" (Strategy, 2017, p. 136). Referring to the basic assumptions of this new investment support instrument, it should be stressed that entrepreneurs are granted under the PIZ support for the implementation of new investments. According to the regulations, a new investment mainly means: investments related to establishing a new enterprise; increasing the production capacity of an existing enterprise; production diversification by introducing a new product; a fundamental change in the production process while meeting additional conditions (Act, 2018, art. 2). Support is provided in the form of income tax exemption through the so-called Decision on Support (DoS). A DoS specifies the duration of the exemption, the subject of business activity, and additional conditions to be met by the entrepreneur, such as employing a certain number of staff, incurring eligible costs of the new investment, or criteria (quantitative and qualitative) which the entrepreneur undertook to fulfill, etc. (Act 2018, art. 3; 13; 15). As mentioned, a DoS is granted for the implementation of an investment that meets the relevant quantitative and qualitative criteria. The mentioned criteria and types of economic activity for which decisions on support will be issued are specified in the Regulation (2018a) (Act, 2018, art. 2; 14) which distinguishes three periods: 10, 12 and 15 years, depending on the location of the investment (public aid intensity in a region) (Regulation, 2018a, §7). Quantitative criteria are the minimum eligible costs required for a new investment that an entity must incur in order to be granted a tax exemption. The amount of these costs (Table 1) depends on the level of unemployment in the poviats in which the new investment is to be implemented (Investment Zone, 2019). Qualitative criteria, due to the specificity of operations, are listed in the Regulation separately for the service sector and the industry sector (Table 2).

*Table 1: Quantitative criteria ranges within the PIZ (Investment Zone, 2019)*

Company size	Industry sector	Modern service sector
Large	from PLN 10 mln to PLN 100 mln	from PLN 500,000 to PLN 5 mln
Medium-sized	from PLN 2 mln to PLN 20 mln	
Small	from PLN 500,000 to PLN 5 mln	
Micro	from PLN 200,000 to PLN 2 mln	

*Table 2: Qualitative Criteria For New Investments Performed in the Service Sector and in the Industry Sector (based on Regulation 2018a, Annex No. 1)*

<b>Criterion of sustainable economic development</b>	
<b>Service Sector</b>	<b>Industry Sector</b>
Investments in service projects to support the industries which correspond to the current national development policy, in which the Republic of Poland may gain competitive advantage	Investments in projects to support the industries which correspond to the current national development policy, in which the Republic of Poland may gain competitive advantage
Achieving an appropriate volume of sales outside of the territory of the Republic of Poland	Achieving an appropriate volume of sales outside of the territory of the Republic of Poland
Pursuing research and development activity	Pursuing research and development activity
Establishing a centre of modern business services with the scope of activities exceeding beyond the territory of the Republic of Poland	Membership of the National Key Cluster
Possessing the status of a micro, small or medium-sized enterprise	Possessing the status of a micro, small or medium-sized enterprise
<b>Criterion of sustainable social development</b>	
Creating well-paid jobs and offering stable employment	Creating specialist jobs to pursue the economic activity covered by the new investment and offering stable employment
Pursuing an economic activity with low environmental impact	Pursuing an economic activity with low environmental impact
Location taking into account special conditions (see below)	Location taking into account special conditions (see below)
Supporting the acquisition of knowledge and vocational qualifications and cooperating with industrial schools	Supporting the acquisition of knowledge and vocational qualifications and cooperating with industrial schools
Undertaking actions to care for employees	Undertaking actions to care for employees

As part of the PIZ, investments in projects in strategic sectors are supported in line with the Strategy for Responsible Development. In the service and industry sector, these branches are the following: high quality food, transport means (Borucka, 2018), professional electrical and electronic equipment, hygiene products, medicines and medical products, material recycling of raw materials and modern plastics, eco-buildings, professional services, professional telecommunication and information services (Marek, 2017), aero-space sector and machinery sector. In addition, the investments should comply with the smart specializations of the province in which the investment is planned (Regulation 2018a, Annex No. 1). Smart Specialization is a concept of the European Commission, concerning the implementation of the innovation policy of the Union regions and countries based on the RIS 3 strategy. In Poland, 15 national Smart Specializations and compatible Smart Specializations for individual provinces were selected to better tap into the strengths and competitive edge of a region and therefore to support its sustainable development (KIS, 2019). As part of the criterion regarding the undertaking of R&D activities by the entrepreneur, it was indicated that 1% of the operating costs incurred by the entrepreneur in a given year is to be associated with conducting such activities, purchasing services of this type, or employing staff conducting development works. Another criterion outlined for the service sector is Establishing a center of modern business services (...). It should be emphasized that the scope of these services must go beyond Poland and the annual net income from their sale cannot be less than PLN 100,000 (Regulation, 2018a, Annex No. 1).



In the industry sector, meanwhile, the Membership of the National Key Cluster is an important criterion. Finally, let us point out that, both in services and industry, the appropriate level of exports carried out by the entrepreneur and the fact of having the status of a micro, small or medium-sized enterprise are a criterion (Regulation, 2018a, Annex No. 1). In the area of sustainable social development, important criteria were set relating to Creating well paid jobs and offering stable employment (service sector) and Creating specialist jobs (...) and offering stable employment (industry sector). Job creation is one of the fundamental problems in this area. In addition, an important factor influencing investment support in both sectors is a way of doing business that has a low environmental footprint. Entrepreneurs should therefore have one of the widely recognized environmental certificates: EMAS, ETV, ISO 14001, or equivalents that correspond to the specificity of the Polish market (e.g. having a GreeEvo laureate status etc.) (Regulation, 2018a, Annex No. 1). Another important criterion (for both services and industry) in the area of social development is investment location. It is preferable to locate investments in medium-sized cities (or the neighboring communes and poviats) that are losing their social and economic functions. The Regulation contains a list of 122 such cities across all 16 Polish provinces (Regulation, 2018a, p. 27, 31). In the eastern provinces, the number of such locations (indicated as losing their potential) is among the highest in the country (40 in just four eastern provinces). It is not surprising, therefore, that these regions have a 50% rate of state aid intensity (Fig. 1). This solution has so far markedly addressed the needs of the least-developed cities, despite the existence of SEZs. For many years, also in the Polish SEZs, attention has been paid to educating employees for the needs of the labor market (Miklińska. Klopott, 2016). In the PIZ, Supporting the acquisition of knowledge and vocational qualifications and cooperating with industrial schools was made one of the important criteria for supporting investments in the service and industry sector. The initiatives undertaken by the entrepreneur may concern e.g. offering employees training, organizing apprenticeships for schools, creating patronage classes in schools, laboratories or providing them with equipment etc. The last criterion in the area of sustainable social development (for services and industry) concerns taking action regarding employee care, including in the field of health care or various forms of leisure (Regulation, 2018a, Annex No. 1).

#### 4. FIRST EXPERIENCES WITH THE POLISH INVESTMENT ZONE – DISCUSSION AND CONCLUSION

Solutions supporting investments in Poland, in the form of SEZs and the PIZ, differ in many aspects. The main such differences were listed in Table 3.

*Table 3: »Old« (SEZs) and »new« (PIZ) model of investment support in Poland (based on Ministry of Entrepreneurship and Technology, 2019a)*

<b>Old model of investment support (SEZs)</b>	<b>New model of investment support (PIZ)</b>
- investment assessment based on quantitative criteria	- investment assessment based on quantitative (investment outlays depending on unemployment rate and company size) and qualitative criteria
- tax exemptions for areas of 25,000 ha (about 0.08% of the country's area)	- 100% of investment areas across the country
- same-for-all support criteria	- preferential support criteria for micro, small and medium-sized enterprises, and for investments in poviats with high unemployment
- the possibility of receiving tax exemptions until 2026 (end of SEZ operation in Poland)	- exemptions granted for 10, 12 or 15 years (without a definite end to the operation of the PIZ in Poland)
- long waiting time for permits	- faster process of issuing Decisions on Support

It can be observed that the new investment support model has been subject to major changes, and a large group of business entities has already benefited from this solution. After more than six months in operation (by mid-2019), investors obtained over 170 (DoS) and declared as much as PLN 10 billion in capital expenditure (Deloitte, 2019) under the PIZ. Currently, the Ministry indicates that, since the launch of the PIZ, 296 DoS have been issued, 199 of which concern companies with Polish capital (67.2%), while the declared investment value for the first eight months of 2019 was PLN 11 billion (Ministry of Entrepreneurship and Technology, 2019d). To obtain direct data on the functioning of this new solution (including the number of Decisions on Support issued in individual Areas and its change over time, the type of entities that obtained them in the period after the entry into force of the new provisions, as well as the first experiences related to receiving a DoS), the content of information published on the websites of Area Managers (which are also the websites of the management boards of SEZs) was analyzed (Websites of SEZs, 2019). This analysis was carried out twice (first in February 2019 and then in September 2019 to observe if any changes have been made). Although not all types of websites share such data with the same level of detail and regularity, the study led to significant findings nonetheless. First decisions on support were already issued in all Areas (14) included in the PIZ. Their number, from the entry into force of the regulations until September 2019, varies for individual zones and currently ranges from a few to about 30 for a single Area. In the period under examination, which is from February 2019 to September 2019, an increase was noted by a few to several decisions issued for each zone, e.g.: in Kamieniogórska - from 6 to 13 decisions, in Wałbrzyska - from 11 to 24 decisions, in Euro Park Mielec - from 9 to 27 decisions, in Pomorska - from 12 to 21 decisions, in Słupska - from 1 to 8 decisions, in Tarnobrzeg Zone's Euro Park Wisłosan - from 3 to 15 decisions (Websites of SEZs, 2019). The information obtained also allows drawing several other conclusions related to enterprises that have received support under the PIZ. It should be noted that these are entities of different size (see Table 1), representing different industries, with different origins of capital (Polish, EU, as well as from outside the EU, e.g. Switzerland or the United States). Decisions on Support also apply to different amounts of investment outlays. Entities that have benefited from the new solution (already in February 2019) come from the industries including: machine construction, production of components for the automotive industry (Pomorska), food industry (Starachowicka), metal and construction (Kamieniogórska). The current list of investors can be consulted in the Areas section on some of the websites, such as on Tarnobrzeg Zone's Euro Park Wisłosan website. Representatives of entities that applied for and obtained support under the PIZ share their experiences related to this new form of investment support. These observations vary significantly, as the new formula is reaching to an increasingly larger number of different companies. For example, one the Krakow Technology Park's website there is a "Success stories" section containing the testimonies of large, small or micro companies from various industries (such as biotechnology, communication technologies or furniture production) that have started operating within the PIZ. These observations are important, given that one of the arguments for the introduction of the new investment support instrument in Poland was precisely the increase in its availability for various sizes of domestic and foreign entities, thereby increasing the attractiveness and competitiveness of the country as a location for foreign investment (Colliers International, PAIH, EY, 2018, p. 6). Such suggestions could be traced in the course of legislative work, including in the justification to the new act. The need was emphasized to make the Polish solution similar to those already existing in Poland's closest neighbors – e.g. in the Czech Republic, Slovakia, and Hungary (Justification, 2018). Representatives of the Area Manager positions also share important experiences regarding the new investment support model. They indicate, among others, that the time for granting state aid was greatly reduced, particularly for enterprises that wish to operate outside the former SEZ.

Currently, there is no need to start the procedure of incorporating an area into the zone or to relocate business activity (Łódź SEZ, 2018). Area Managers are actively involved in promoting a new form of investment support within their territories. This is done, among others, by organizing training sessions and meetings with potential investors in which a new investment support model is presented. On the websites of these entities, information about subsequent events of this type is constantly updated. Additional information for investors is that published on the website of the Ministry of Entrepreneurship and Technology and the State Aid Calculator available on the website supervised by the Ministry (Investment Zone, 2019). Such calculators are also offered by business entities, an example of which is a calculator addressed to investors looking for real estate on the website of a consulting and brokerage firm operating in the industrial and warehouse real estate sector (partner of the Polish Investment and Trade Agency project) (Cushman & Wakefield, 2019). The first year of PIZ operation made it possible to identify not only the advantages but also the disadvantages of this solution. The Ministry is currently working on an amendment to the 2018 Act and the opinions of Areas representatives are being collected (Ministry of Entrepreneurship, 2019c), which is likely to eliminate any existing shortcomings. The article presents the basic assumptions of the PIZ and the first experiences resulting from the operation of this investment support model. Over time, the multidimensional effects of the PIZ may become interesting, which can be the subject of further research.

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## FREE COMPETITION AND FISCAL POLICY IN EUROPEAN UNION

**Maria do Rosario Anjos**

*Associated Professor in Law, Lusófona University of Porto,  
Polytechnique Institute of Maia,  
Portugalense Institute for Legal Research, Portugal  
rosario.anjos@socadvog.com*

### **ABSTRACT**

*Fiscal policy and the harmonization of tax laws are extremely important in order to prevent distortions of free competition in UE. The process of European Union construction is based on integration and liberalization of markets in order a loyal and free competition. This issue is really important in order to crisis superaction. In this context the fiscal policy has a very significant impact on countries economics in EU and on company's management, especially for those most exposed to globalization. The impact of taxes on free competition, economic growth and employment is quite evident since the EU foundation. So, it would be expected a more significant progress towards fiscal harmonization among EU countries. However, until now the question of tax harmonization had no results. It remains a sensitive question in EU. Almost two decades after the entry of the Euro, after a deep economic crisis that endangered the European project, face to BREXIT, we raised some questions as base to this work: what are the political and institutional limitations to tax harmonization in EU? Why there are no further progress was made in the field of tax harmonization, at least, in company's income? How does this affect social cohesion? What are the effects on economic and social cohesion? This study intends to reflect on the political and institutional constraints of the tax harmonization, quite necessary to the effective process of economic and social integration within the EU. As methodology, we will use a comparative study about income taxes in several EU countries and the relation to GDP, as well the deductive method to analyze the results we find and some reference studies on the subject. In conclusion, we will present the analyze the results and try to answer to these questions. With this study we pretend give a contribution in order to find an answer to the investigation questions.*

**Keywords:** *Economic and Social Cohesion, Fiscal Policy, Free Competition, Tax Harmonization in EU*

### **1. INTRODUCTION**

The process of building the European Union (EU), extended to an increasing number of member states and the process of globalization, are based on a logic of integration and liberalization of markets in an environment of free competition. Therefore, in EU, a strict free competition defense was guaranteed from the first hour, eliminating all distorting factors from the free movement of goods and services between member States. In short, all abusive or restrictive practices of free competition within the EU are forbidden. In this context, the internal fiscal policy of each member state has taken on enormous importance, being an instrument available for governments to control the internal public finances, but also to create more attractive conditions for investors, for large international capital and even for the most qualified human capital. In a word, the internal tax policy of each Member State may distort free competition, having an effect equivalent to some of the abusive or restrictive practices of competition forbidden by the Treaty. In a word, we faced a unfair fiscal competition between the UE member States, what is a way to promote a disloyal competition, a real distortion of free competition, against the spirit of the EU Treaty. Is well known the very significant impact of tax policy on businesses, especially for the most exposed to globalization, particularly with regard to the location and development of their activities and the development of their activities.

(Oliveira & Santos, 2005, p.416). The impact of taxation on economic growth and employment is indisputable. It is normal and legal for companies to seek better taxation for their activities in EU or all over the world, i.e. lower tax rates, ensuring their best level of income. Workers also seek the best pay for their work, i.e. better salary or lower tax or, sometimes, both. On the other hand, economies with the biggest budgetary balance problems, with low levels of economic growth and employment, are the most penalized or sacrificed because they have to tax the average incomes with high taxes, in order to ensure the stability of their public finances. It means a vicious cycle that lead to the impoverishment of the middle class, the exit of companies and human resources to other member states, which slows the growth of the economy and endangers economic and social cohesion in the EU, the fundamental pillar for the success of the European project. If we take a look for the EU countries, we can say that those whose governance is less rigorous on budgetary balance, with higher public expenditure, are the same that usually use the tax policy to get some advantages over the other member States. Usually to get foreign investment, they offer significant tax benefits to companies and people, por instance, to retired people from other countries of EU that change their residence for the host country. Is amazing how can this happens between countries members of the EU and almost nothing was done. The European institutions are keeping this situation since a long time ago, in spite of the solution is known: EU needs more tax harmonization. Almost two decades after the entry of the Euro, after a deep economic crisis that endangered the European project, face to face with BREXIT and with "the sound" of other claims for independence in other European countries, we can say that it would be expected a more significant progress in tax harmonization between EU countries . However, so far, this remains a sensitive issue in the EU.

### **1.1. The investigation objective**

Considering the framework described in the introduction, we raised some questions as a proposal for investigation as a base to this work:

- a) what are the political and institutional limitations to tax harmonization in EU?
- b) Why there are no further progress was made in the field of tax harmonization, at least, in company's income?
- c) How does the current situation affect social cohesion?
- d) What are the effects on economic and social cohesion in the next years?

This study, developed in a Seminar about free competition, for the Master in Law Degree, in ULP, intends to reflect on the political and institutional constraints of the tax harmonization, quite necessary to the effective process of economic and social cohesion within the EU.

### **1.2. Methodology**

As methodology, we begin with a summary of literature review, collecting the main doctrinal references on the subject. The present work is a result of the first part of a research project aimed at Haan & Sturm analysis, published in the 1994 about this issue: "Political and institutional constraints for fiscal harmonization in the EU" and revisited in 2018 by the same authors. So many years after the beginning of European integration process it seems that nothing was done about tax harmonization and equality promotion between the EU members States. Even face to the greatest economic and financial crisis of ever and the evidence of the risk of EU disintegration. So, our proposal is to investigate if the conclusions of that analysis were confirmed, or not, within the following 15 years. Therefore, the literature review goes back to the 1990's and, after that, we conclude with a contemporary literature review and the analysis of the assumptions then defined by those authors, in order to find the answers to the questions put in discussion about how to combat the unfair tax competition between member states and move towards greater and effective fiscal harmonization.

The second phase of this investigation will be completed with the relevant data collected in some EU countries. Because the group is very extended, we selected for comparison the following countries: Greece, Portugal; Netherlands; Ireland and Luxembourg, between 2015 - 2018. This second part will not be included in this work, as its extension would not allow it, in view of the defined publication rules. But it will certainly be presented in a future work paper, after the collection of all data, which is still ongoing. We use a comparative study about income taxes in these EU countries and the relation to GDP, as well the deductive method to analyze the results for conclusion. The findings of the research carried out are just a summarized exposition of the theme. The investigation questions are very complex and can be analyzed from various perspectives. In this work we focus on the analysis of the political and institutional limitations that have contributed to the non-implementation of tax harmonization in the EU until now. The second part of this research will be finished soon, with the systematization of data collected on the evolution of budget deficit levels, public debt and the level of income taxation in a wide range of EU countries. The aim of this analyse is to find the relation between the effects of tax competition within the EU over the past 15 years and the impact on economic growth and GDP developments. As final objective, it is intended to assess whether there is a relationship between countries with higher public debt and higher rates and greater progressivity of income tax.

## **2. LITERATURE REVIEW**

The bibliography review shows that this issue is not new. On the contrary, the idea of tax harmonization in the EU as a precondition for fair and loyal competition between Member States has been debated since, at least, the 1980s. The starting point is the study of Haan & Sturm analysis, published in the 1994 about this issue: "Political and institutional constraints for fiscal harmonization in the EU". Two decades later we can say that your conclusions were right? Tax harmonization in EU not moving forward because political or economic reasons? This question are being study all over two decades or even more. The point of In 1999 BARRY BRACEWELL-MILNES and BANSTEAD did realize a study about "Tax Competition: Harmful or Beneficial?" and did conclude that the reason for the stop of tax harmonization in EU are the political limitations and constraints between Member States (MILNES & BANSTEAD, 1999). The same conclusion is take by EASSON in a similar work about "Taxation in European Comunity" (EASSON, 1999). FREITAS PEREIRA, in a study about "Harmful Tax Competition - The European Union Code of Conduct" advocates the need to introduce discipline and ethics into European tax systems to combat fiscal fraud and anti-competitive practices (PEREIRA, 1998). In this sense, many other reference authors have been pronounced over the last fifty years of European construction, among whom highlight: G. CLOSE, in "Harmonisation of Laws: use or abuse of the powers under de EEC Treaty?" presents a more restrictive view about the powers enshrined in the Treaty on harmonization of law (CLOSE, 1998). COLLINS and HUTCHINS in a work about "Articles 101 and 102 of the EEC Treaty: completing the internal market" defend that free competition requires a loyal fiscal competition, and so, some tax harmonization (COLLINS & HUTCHINS, 1988). Another Author, BRESSAND, in a remarkable work about "Vers une Économie Mondiale à trois vitesses?" in which it draws the attention of European leaders to the worsening inequalities between Europe's weakest economies and the strongest, which endangers the economic and social cohesion, necessary for ensuring the effective union between Member States (BRESSAND, 1985). In the same direction point PAUL MASON and MARK TAYLOR, in a work about "Fiscal Policy Within Common Currency Areas" and GABRIEL MONTAGNIER (1993) in a work specifically about "Harmonisation Fiscale Communautaire" have any doubt about tax harmonization as a requirement to the economic and social cohesion in EU (MASON & TAYLOR, 1993; MONTAGNIER, 1993).



All these authors are greatly influenced in their works by VERHOEVEN, one of the first researchers of the subject of harmonization of legislation in the EU and its effects. In a work published in 1985, "Communauté Européennes et Rapprochement des Legislations", Verhoeven defend that the future of common Europe depends on that harmonization, even considering that in tax field the question will take some time to be implemented (VERHOEVEN,1985). We find the same point of view in WAELBROECK, in the study about "L'Harmonisation des Règles et Normes Techniques dans la CEE" (WAELBROEK, 1986). Both open the discussion on the need for harmonization of EU laws to go far beyond technical standards and measures of equivalent effect preventing free trade, pointing to the need to move forward in the field of fiscal harmonization, primarily in indirect taxation but also in the direct taxation of undertakings and individual persons. (VERHOEVEN, 1983). The European Commission, after the implementation of VAT as a general (indirect) excise duty in all member countries has produced, in the last 40 years, numerous reports in defense of the importance of tax harmonization of direct taxation within the European Union. As an example, the Report presented by the European Commission, in 1992, about "Conclusions and Recommendations of the Comunittee of Independent Experts on Company Taxation" and also another joint publication by the European Commission and Eurostat in 2004 on " Structures of the Taxation Systems in the European Union 1995-2002". The issue gained new interest in the context of the economic crisis. MITCHELL and DANIEL J. in "The Economics of Tax Competition: Harmonization Vs. Liberalization", consider the importance of fiscal harmonization as fundamental issue for defending free competition in EU (MITCHEL & DANIEL, 2004). Between 2005 and 2015, we have not register of studies about this issue. The global crisis put on table other concerns, specially the repair of the financial and bank systems. More recently, VALDIS DOMBROVSKIS, as keynote in a conference about "Challenges and impacts of implementing Basel III", did consider fundamental give some steps in fiscal harmonization (DOMBROVSKIS, 2019). On 15 November 2017, the European Fiscal Board (EFB) published its first annual report and reviews the way the EU fiscal framework has been implemented, highlighting imperfections and scope for improvement. Looking ahead, the challenge will be to adapt the fiscal framework to the return of normal and good economic times, while building the buffers necessary to withstand future crises. An important report published in 2019, by LAMLA, MICHAEL J. & LEIN, SARAH M. & STURM, JAN-EGBERT, about "Media Reporting and Business Cycles: Empirical Evidence based on News Data," point to a relation between lack of tax harmonization and public finance default, with a negative effect over the weaker economies in EU (LAMLA & LEIN, 2019). This problem is even more serious if we consider the impact of globalization and the free competition allowed worldwide between countries with such different realities. SAVINA GYGLI & FLORIAN HAELG & NIKLAS POTRAFKE & JAN-EGBERT STURM, in a study about "The KOF Globalisation Index - Revisited" some interesting but worrying results (GYGLI, HAELG, POTRAFKE & STURM, 2018). We ended up as we started, that is, with Jakob de Haan & Jan-Egbert Sturm, and his study published in 2016, "Finance and income inequality: A review and new evidence", in which they conclude that two decades later there is still no political will to do the right thing and change what is wrong in EU. The EU members behave in fiscal matters as rivals and not as members of an economic and monetary union. Are they right?

### **3. POLITICAL AND INSTITUTIONAL CONSTRAINTS OF TAX HARMONIZATION IN THE EUROPEAN UNION**

Tax policy is a widely used instrument by some Members States of the EU to attract big corporations' and investment, which reinforces the importance of achieving tax harmonization in income direct taxation. In a context of free competition and respect for the rules of Community law on competition law, any tax discrimination between Member States has a

strongly perverse effect. After the worst economic crisis of ever, we found that EU concern focused on the financial system, ignoring the growing fiscal competitiveness among Member States. As VALDIS DOMBROVSKY said in a recent speech as keynote in European Commission “ten years ago, the financial and economic crisis brought widespread disruption to global markets. The contagion spread easily into Europe's banking sector. It showed us why we need an integrated and stable financial system, why we should work together to reduce risks, and why we depend on a strong banking sector to fund jobs and growth. The European banking sector is now in a much better position than ten years ago” (DOMBROVSKIS, 2019). In the same period the tax competition grew between Member States, on a way of fight against the economic crisis and the EU failed, once again, to stop this problem. It missed a good opportunity to move forward with effective tax harmonization measures needed to introduce some ethics into fiscal competition between Member States economies.

### **3.1. What are the political and institutional limitations to tax harmonization in EU?**

The first evidence is: tax harmonization needs political will. The question is not economic but strictly political. The conscience of the problem exists since the first hour of the European project construction. The concept of tax competition implies the existence of several jurisdictions with the power to determine (independently) the taxes charged and presupposes the existence of mobility of persons, goods or capital. That means, each Member State choose their tax policies in view of their objectives of people, capital and corporations' mobility. International tax competition is a consequence of the need for states to adapt taxes to social welfare, investment and scientific development seeking to attract investment, or at least prevent the movement of the existing one. Trying to keep some social welfare and equity. Subsequently, there is fiscal competition when the tax system of a jurisdiction affects the tax system of a second jurisdiction, for example by reducing the tax revenues of the latter entity. In other words, tax competition exists when taxpayers can reduce the tax burden by shifting capital and the work of jurisdictions with high levels of taxation to jurisdictions with reduced rates (ANDRADE, 2016; MITCHELL, 2004). Several Members States look at fiscal harmonization as a threat, a way to lost sovereignty and internal decision-making power. However, the truth is that in recent EU history, that is, in the last 15 years, many member states have lost their sovereignty by indebtedness and inability to meet the Maastricht criteria. The public finances default of several countries in EU proves that something have failed and that we must change to save the EU. Since then, the entire focus of the European institutions has focused on the analysis and surveillance of monetary and financial markets, neglecting the social part, the concrete life of Europeans. Much has been written since then on economic and social cohesion but very little has been made in the field of fiscal harmonization, something essential for achieving effective cohesion among Europeans, combating inequalities between the different member states, cause of disunity in times of economic difficulties (HAAN & STURM, 2016). The truth is that the EU has been in economic crisis since 2003, aggravated in 2006, boiling since 2008, in total implosion since 2011 and, despite some recovery (probably without sustainability), the result is an EU in risk of political disintegration, the crisis of the rule of law, democracy and the Welfare State. The European dream is increasingly in danger and it is worth fighting for it, for the union of peoples, for solidarity between member states, economic and social development, in a word, for peace among all Europeans. In this context, fiscal harmonization are, again, in the center of discussion between EU Member States. Not because of the social concerns but because states feel they are losing tax revenue. The tax competition is, indeed, a way of disloyal competition between European Member States. That means, in defense of tax revenue, so important to the states, we believe that the issue will necessarily move forward. We don't know when or how, but we know it has to happen to save the EU. So, the first conclusion is that the greatest limitation to fiscal harmonisation in the EU is the lack

of policy will be generated in rivalry between member states. Between solidarity and the biggest gains for its economies, the second remains the option. The EU is not really, yet, a true union but only a set of countries where the historical rivalries of the past persist. But will there be other limitations? Of course, yes, and Hann & Sturm's analysis is a good reference for understanding them.

### **3.2. Hann & Sturm analysis**

It is particularly interesting to refer the thought of Jakob de Haan and Jan-Egbert Sturm (HAAN & STURM, 1994; 2016). In the point of view of these Authors: "game theory suggests that cooperation is harder when the number of players is large...", with the purpose of highlighting the disadvantages of governance of great number of players and, also, in internal plan the disadvantages of governance by alliance or coalition governments. They believe that the success of the objective of harmonization of direct taxation between member states depends only in part on macroeconomic determinants, considering that the main condition for advancing tax policy in the European Union depends on the verification of "certain political and institutional constraints". According to their line of thought, "the most important constraints are those that result from the political system itself and the political faction in power." Its analysis is based on idea that the governments of the member states guide their fiscal policy according to their economic reality, with a certain political volatility of the ruling parties determined for reasons that require them to take policies that deviate somewhat from the traditional dichotomy between left and right-wing policies, without a line of direction defined according to the macroeconomic objectives to be achieved, but previously determined by the political and electoral cycles that they impose solutions to satisfy electoral customers in the short term. In this analysis, the economic and legal determinants equally important in the evolution of tax policy in the European Union are clearly relevant in view of the constraints resulting from the political system itself. The main ideas advanced by these authors, in 1994, was as follows:

- a) member states of Community Europe have been endeavored to converge their tax policies;
- b) despite the progress already made in this regard, they are not as satisfactory as it would be desirable, from the outset because the level of public debt in different countries is quite different;
- c) two distinct groups of countries are highlighted in this regard, a first group consisting of countries whose public debt is lower or very close to the Community Europe average (countries from center and north Europe) and another group whose public debt is higher (countries from south Europe);
- d) there are also marked differences in the level of public expenditure supported by the different governments;
- e) political and institutional changes that may occur and affect the formation of national political programmes are invoked as an explanation of the setbacks of different countries with respect to the continuation of tax policies.

In the end, we conclude that political constraints aggravate the economic situation of the weaker countries, so political and economic variables are combined, generating a total absence of political will to move forward with fiscal harmonization. Neither group of countries seems to have an interest in tax harmonization because the loss of one group (the southern countries) results in the gain of the other (countries in central and northern Europe). So, can we still expect some progress in tax harmonization in the EU? Can the EU overcome the fiscal competition environment and move towards progressive tax harmonization?

#### **4. THE CURRENT SITUATION**

According HAAN & STURM study, reviewed in 2016, the conclusion is that there still are some important constraints in determining advances and setbacks in achieving fiscal harmonization in the European Union. Almost everything is in the same status as in 90's. But what is most important is, in fact, the conclusion that the first and main condition for progress is the political system itself, which significantly affects the process of harmonization and tax unification. For European politicians, tax harmonization is not interesting. Giving up some fiscal sovereignty would be to see weakening your own power of influence and decision, and that in politics, is something against nature. Once again, HAAN & STURM present us a very clear idea about our current situation in EU. In fact, nowadays, in 2019, the current situation in EU shows:

- a) a large the number and frequency of government changes;
- b) the sharing of powers between democratic social parties and other left-wing parties;
- c) new political parties, some of them, eurosceptics;
- d) the dispersion of political power and some inability to decide (ex. BREXIT);
- e) the variable of budgetary procedures and requirements seems unacceptable for new generations;
- f) risk of disintegration within the EU;
- g) growth of extremist political forces.

So, we conclude that the way for tax harmonization is, now, so far than in 90's. However, we have no doubt, that public debt is positively determined by internal institutional instability, and the effects of political instability and minority or coalition governments are negative for public finances. Political crises sometimes encourage the change of exhausted and ineffective systems, which is positive. But, usually economic and financial crises impose deeper changes. We hope that EU could benefit with that That is why we believe that perhaps economic and financial constraints will force them to move towards a path of greater union between member states. This way, EU can do an effective step forward in intensifying the process of tax harmonisation in the EU.

#### **5. GLOBALISATION AND TAX COMPETITION**

The last few years have been marked by the worsening public deficits in EU countries, which will certainly have greatly contributed to the negative developments in the social situation, especially high unemployment rates. More and more pressing commitment has become to reduce financial imbalances. That is why the effort made in the countries of the European Union, in particular, for fiscal consolidation is fundamental. But the last ten years have also been marked by the deterioration of the budgetary situation in almost all member countries, which was largely due to the conflicts that have erupted around the terrorist threat. On social level, the EU has been faced with serious social problems, and emigration to Europe, the humanitarian crisis of people in scape from war and poverty, did not facilitate progress towards strengthening the spirit of the European Union. However, economic and social reasons evidence of the need for further progress towards combating tax evasion and avoidance caused by unfair tax competition within the member states themselves. This will be, probably, the opportunity to adoption towards greater tax harmonization in the EU in next years.

#### **6. CONCLUSION**

Considering the initial questions, as proposal for the investigation, and all the theoretical work developed was possible to find some answers.

- **What are the political and institutional limitations to tax harmonization in EU?**

First of all EU needs political will to move towards fiscal harmonization. The different level of public debt between the EU countries is a difficult condition. The existence of two distinct groups of countries are highlighted in this regard, a first group consisting of countries whose public debt is lower or very close to the Community Europe average (countries from center and north Europe) and another group whose public debt is higher (countries from south Europe); There are also marked differences in the level of public expenditure supported by the different governments; The political and institutional changes all over the European countries.

- **Why there are no further progress was made in the field of tax harmonization, at least, in company's and personal income?**

EU needs a greater convergence of economic interests between Member States. Actually, the political constraints aggravate the economic situation of the weaker countries. It seems that no Member State have an interest in tax harmonization because the loss of one group (the southern countries) results in the gain of the other (countries in central and northern Europe). For European politicians the tax harmonization is not interesting. Giving up some fiscal sovereignty would be to see weakening your own power of influence and decision, and that in politics, is something against nature.

- **How does the current situation affect social cohesion?**

Almost everything is in the same status as in 90's. In 2019, the current situation in EU shows a very difficult situation. A large the number and frequency of government changes; the sharing of powers between democratic social parties and other left-wing parties; new political parties, some of them, Eurosceptics; the dispersion of political power and some inability to decide; the variable of budgetary procedures and requirements seems unacceptable for new generations; the risk of disintegration within the EU; growth of extremist political forces. So, we conclude that the way for tax harmonization is, now, so far than in 90's. The only way to reverse this situation can be the fight against evasion and tax avoidance.

- **What are the effects on economic and social cohesion in the next years?**

If nothing is done economic and social cohesion will definitely be hampered by unfair tax competition between the member states themselves.

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## COOPERATION BETWEEN NON-GOVERNMENTAL ORGANIZATIONS AND COMPANIES (POTENTIAL POSSIBILITIES - REAL LIMITATIONS)

**Hanna Mackiewicz**

*Gdynia Maritime University, Poland*  
*h.mackiewicz@wpit.umg.edu.pl*

### **ABSTRACT**

*The article discusses cooperation between non-governmental organizations and companies in Poland. The main objective is to indicate the potential possibilities and real limitations in cooperation in the light of the results of two case studies and results of qualitative research carried out in 2019. The results of the study lead to conclusions about the direction of cooperation in the future. Multidimensional work on social awareness would be important for future cooperation. In this context, the role of education on social solidarity, especially in a given region, is needed. The two examples of cooperation are a small step in this process. It is necessary to understand the essence of NGOs' social work by companies and the essence of enterprises' activities by non-governmental organizations. Building long-term cooperation is a real challenge.*

**Keywords:** *Company responsibility, Cross-sectoral cooperation, Non-governmental organizations, Paid work, Social responsibility*

### **1. INTRODUCTION**

Work, in terms of physics, is a scalar quantity, which is a measure of the amount of energy transferred between physical systems; as physicist T. Rożek explains, "work is done when force tries to set something in motion or stop it" (Gutowski, 2015). Work is a very important dimension of human life. Paid work (hereinafter called work) is one of many forms of work. Man undertakes paid work for money, but also for many other tangible and intangible motives, including participation in communities. Many people engage in social work, such as preventing and aiding in poverty or social exclusion, without interest, not for profit (Polańska, 1995). Work requires collaboration. The forms of cooperation are different; they result from the division of labor and depend on the current situation. For man, cooperation is a chance of development, but it can also be a restriction of freedom and make man dependent. Similarly, in the case of business entities and entire societies.

### **2. CHAPTER SOCIAL WORK IN ENTERPRISES AND NON-GOVERNMENTAL ORGANIZATIONS**

In the Encyclical on Human Work, John Paul II calls paid work social work, seeing the most important key to the social issue in work (ibid). As part of his work, man enters social relations with colleagues, with the boss, with clients, etc. One can read about the rules of this cooperation in the Davos Manifesto (Steinmann and Schreyögg, 1992), which, despite being adopted in 1973, is still topical. The Manifesto draws attention to the need for agreement, balancing contentious interests of various stakeholders, as well as to profit, which is not the company's ultimate goal but an important long-term measure. For an enterprise, the main stakeholder is a customer who expects products and services offered on the market with fair competition which will ensure price reliability, product quality and variety as well as make enterprises take steps to improve products and services. Unsold goods are a serious threat to the company's existence on the market. Recognizing and meeting customer needs is a very important dimension of success at work (Polańska, 1995). Work provides awareness that people need products and services. In this way a person feels needed and finds sense in laboring at work.

Work helps determine a place among others. When cooperation is good, man finds recognition and respect. He enjoys the development of his own qualifications, gains self-esteem and recognition of his colleagues and the boss. Balancing interests requires management to secure jobs, regulate real income, and humanize work for employees. In such conditions, an employee can satisfy his and his household's needs and cooperate with others. Management is the investor's trustee. In the light of the Davos Manifesto, they are meant to serve the investors who should be provided a dividend, which includes a return on investment and a bonus for risk. The management is also meant to serve the society by protecting the environment, using the knowledge and resources entrusted to them for the good of the environment. They are to promote technical progress. Through their managerial role, they are intended to enable the community to fulfill its tasks as well as to share knowledge and experience in the field of management for the benefit of society. According to the concept of the division of socio-economic activity of democratic states, three sectors are distinguished (*Facts about NGO*):

- The first sector is state institutions (public administration at the government and local level, public institutions);
- The second sector includes private for-profit entities, such as business, private enterprises;
- The third sector (the terms civic, social, non-governmental are used interchangeably) are organizations that are either non-profit or are not part of the state structure and in that sense they are Non-Governmental Organizations (NGOs).

The third sector means forms of social activities falling between the state and the market. They have various legal forms. NGOs employ people who have the necessary competences, knowledge and skills to solve social problems and to help people in need (Reichel, 2016).

### **3. CHAPTER A QUESTION OF RESPONSIBILITY**

People produce goods (products and services) in enterprises, at work. In a market economy, in fair competition, it is assumed that there are transactions of exchange and relationship in the area of freedom and trust that confirm cooperation. When the guidelines from the Davos Manifesto, which encourage partnership working methods and emphasize the importance of agreement between people, are added to this, we see that we deal with social work both in enterprises and in organizations. There were many misunderstandings about profit. K. Guczalska asked an inspirational question: "What is profit, if not value? It is not an 'empty' category, but it consists of many different values: diligence, ingenuity, creativity, passion, wisdom, honesty, teamwork skills, independence, etc." (Guczalska, 2014). This is all undeniably important. The question is rather how profit is treated, whether as a means or as the objective of all activities. Profit in an enterprise is a very important means, not an end in itself. Under conditions of sufficient profit, it is possible to implement the agreement mentioned in the Davos Manifesto. Non-profit organizations, although not directly profit-oriented, apply for the necessary funds to conduct their activity. Milton Friedman, an American economist, strongly opposes the company's involvement in social activities. According to the Author, additional goals in an enterprise can be undertaken after completing the necessary tasks. In addition, they should be undertaken at the initiative and at the expense of specific people who feel a need to take such actions. With this view in mind, one cannot talk about collective responsibility, but only about individual responsibility. Milton Friedman is also against the politicization of enterprises which, by getting involved in various commitments, spare politicians from performing tasks that are the duty of the government and political institutions (Guczalska, 2014). Undoubtedly, it is valuable to notice people in need and help them as part of interpersonal solidarity and mutual assistance. J. Reichel (Reichel, 2016) indicates that cooperation between organizations from the third sector is a necessity and even its permanent feature.



Cooperation between enterprises and non-governmental organizations is often established in connection with implementation by the former of their strategies of corporate social responsibility (CSR). Together with associations or foundations, companies undertake to solve such social problems. Social partners have the indispensable competences, knowledge and skills to solve these social problems, and 67% of organizations cooperate with business (Facts about NGO, 2019). Voluntary cooperation, which raises a lot of controversy, enshrined in the so-called Green Paper assumes that the collaborating parties expect to gain benefits. The issue of cross-sectoral cooperation is of interest to researchers. There is extensive literature on the subject. The synergy effect achievable by pursuing a common goal with a use of resources of various organizations and sharing knowledge and experience is particularly emphasized (Rondinelli and London, 2003; Selsky and Parker, 2005; Bryson, Crosby and Middleton Stone, 2006). This is often realized on a foundation of shared values. Cooperation between organizations representing different sectors should be based on partnership. Cross-sectoral cooperation is "a form of a relationship that is a relatively stable (often institutionalized) process of jointly defining needs, keeping a record of resources, creating action plans, and finally jointly, and thus in a harmonized way, implementing them. Such partnerships can be established for the needs of a specific task; they can also transform into a more general (sometimes institutionalized and having a separate personality) cooperation mechanism" (Handzik, Głowacki, eds, 2012).

#### **4. CHAPTER POTENTIAL POSSIBILITIES AND REAL LIMITATIONS OF COOPERATION BETWEEN NGOS AND ENTERPRISES IN THE LIGHT OF RESULTS OF THE CONDUCTED RESEARCH**

In order to obtain an in-depth answer to the question about potential possibilities and real limitations in terms of cooperation between NGOs and enterprises, a qualitative study was conducted. Data were collected by means of individual in-depth interviews (IDI) with experts. Three interviews were conducted with persons experienced in cross-sectoral cooperation. The measuring tool consisted of a frame questionnaire with open questions.

According to interview participants, the specificity of NGOs consists of:

- Social orientation of non-governmental organizations towards people, towards ideas of assistance requiring financial resources to achieve goals, premises, remuneration for employees;
- A long period of achieving social goals;
- Financial problems of non-governmental organizations in raising funds for activities:
  - Lack of project continuity (implementation of activities from project to project, January and February without financial resources), which results in a sense of low stability;
  - Strong competition between NGOs for financial resources from projects, often fierce, exclusive, unfair;
  - Competitive needs resulting from the current functioning of NGOs are a space for the temptation to play for / mull over cash for the operation of premises, ongoing repairs, salaries for people, etc.;
  - A long process of achieving social goals and, at the same time, a strict time-limited project framework mean that sometimes projects remain unfinished;
- Problems with staff (low wages, uncompetitive conditions mean that if someone gains business qualifications, he/she quits work in the third sector);
- Weakness of non-governmental organizations in administrative matters, negotiations, reporting (specific accounting);
- The attitude of NGOs: "we can make mistakes; we will be forgiven any unprofessionalism";
- Employees sensitive to social needs, willing to help, creative, with contacts;

- A specific approach to time both in terms of communication and organization; fuzzy working hours, openness to the process and not to the result. Financial problems seem to make the activities of non-governmental organizations real over time;
- Previous stereotypes about cooperation: a company supports the organization financially in exchange for a banner with information about assistance;
- There is also a generational change in the third sector; thus the sector acquires the characteristics of business activity;
- difficulties in getting to business, except for enterprises oriented towards social responsibility due to various motivations;
- Established cooperation with enterprises is short-lived, impermanent.
- When asked about the motivations of enterprises to cooperate with NGOs, the interviewees mentioned:
  - Because it is worth helping for a good atmosphere (humanization) of work in a company, for the very sense of doing good;
  - For pleasure when there are good market conditions (when there is a crisis, social responsibility is limited);
  - Of necessity set by standards / requirements of cooperation with contractors, for the environment;
  - Because it pays – consumers are increasingly educated, they have a choice, they also want to help, do good; for the requirements of foreign or domestic recipients, etc.;
  - For the market image of a socially sensitive company;
  - Out of fashion for social responsibility.

Non-governmental organizations need financial resources to achieve social goals. Participation in projects makes this possible. Enterprises participate in social projects for a variety of motives.

## **5. CHAPTER GOOD PRACTICES IN CROSS-SECTORAL COOPERATION**

The Latin proverb teaches: “words fly away like birds, only examples attract”. Hence, it is worth quoting here two practical examples of cross-sectoral cooperation in Northern Poland. Both examples of cooperation were initiated as part of the project: SYNERGY. A new model of cooperation between NGO and the private sector – Piloting between 15 July 2018 and 31 July 2019 on the basis of the Citizens’ Initiative Fund program (Report, 2019).

### **5.1. Case Study - SPOKO – Społeczny Kosz**

SPOKO – Społeczny Kosz [The term is a compound of the beginnings of two words ‘Społeczny Kosz’ meaning Social Basket. The word ‘spoko’ in colloquial Polish also means ‘being cool’. Hereinafter the original acronym will be used or its English translation where appropriate], SPOKO – Social Basket was founded on the initiative of the Foundation of the Development of Social Responsibility HELISA. The project is a result of cooperation of entities on the market of commercial services – 102 Group advertising agency from Gdynia and MAMYWENE Workshop [Eng. WEAREINSPIRED Workshop] as well as regional non-governmental organizations (Idea, 2019; SPOKO – Społeczny kosz, 2019)). The 102 Group company deals with broadly understood marketing communication for enterprises. The MAMYWENE Workshop, among others, commercially supports enterprises in the implementation of CSR projects. People from the above-mentioned companies who had experience in cooperation with both NGOs and business worked on the SPOKO project and made up the SPOKO team. The task of this team was to create a SPOKO gift box from regional food products and everyday objects from regional NGOs that wanted and could supply the expected products on the market.

The overriding criterion for choosing suppliers from among regional social organizations was the quality of products, and whether the products were ecological. Furthermore, readiness to meet market requirements was taken into account: ensuring continuity of deliveries, timely delivery and product repeatability. After six months' work with potential suppliers, the SPOKO team selected 13 organizations that met the assumed criteria. The selected entities were social foundations and cooperatives from the Pomeranian, Kuyavian-Pomeranian and Warmian-Masurian Voivodeships. Selected social companies took on the role of suppliers of products for the SPOKO-box in order to raise funds for social activities. For example, the Bury Miś [Eng.: Brown Teddy Bear] Community Foundation from near Kościerzyna, which has been operating for almost 30 years and deals with providing shelter, care, rehabilitation and recreation for people with intellectual and physical disabilities, provided honey and preserves. The Ciekawa Spółdzielnia Socjalna [Eng.: Interesting Social Cooperative] from Gdańsk employing people with intellectual disabilities in the 'cieKawa' café [the name of the café is a pun, literally meaning 'interesting' but is made of two separate words meaning 'you' and 'coffee'] delivered coffee. As a result, three gift boxes were created in three colors: black, red and blue. Each box included: traditionally made preserves, natural honey hand packed by beekeepers from an organic farm, home-baked pastries made of the highest quality ingredients, a SPOKO gadget, and handmade gifts. The cheapest blue box (PLN 100) also included natural tea of dried herbs. The red set (PLN 200) included coffee beans and natural dried herbs, and the black box (PLN 300), in addition to the above listed items, also had jewelry made of upcycling materials, a plant and natural tea syrup. The products were packaged in uniform cardboard boxes which on the outside differed only in the color of the sticker. An institutional client purchasing a gift box for their clients and/or business partners could only stick their company logo in place of the sticker. The point is that at the moment of giving a SPOKO-basket they to provide information "I help social economy subjects", "I run CSR activities confirmed by the We are SPOKO certificate!" It is worth mentioning that the project was supported by local government and business represented by the Pomeranian Employers organization, which is an additional advantage for business representatives (Be SPOKO, 2019; Products, 2019; Project Patrons and Ambassadors, 2019; Suppliers, 2019). By purchasing gift boxes, business representatives financially support social suppliers of products in the box, pay the SPOKO team, and also pay money to the SPOKO Fund, which receives funds after deducting the costs of running the project. According to information on the website, every social entrepreneur can apply for support for the development of this fund, e.g. for the purchase of machinery, designing packaging, financing the stay at the fair or the help and support of experts (*Fund*, 2019).

## **5.2. Case study - Mikrostryk station (Mackiewicz, Spodarczyk, 2019)**

The Mikrostryk company has been cooperating with the Gniew Center of the Active Association (CAG). One of the effects of this cooperation is the Mikrostryk Station Foundation. The Mikrostryk company website informs that: "the Foundation's superior idea is to implement, initiate and conduct innovative socio-cultural activities". Mikrostryk is a producer of metal elements for various recipients. The history of Mikrostryk began in 1957 with the state-owned Gniewskie Zakłady Podzespołów Radiowych [Eng.: Gniew Radio Components Factory]. In 1970 the factory was incorporated as part of ELTRA Radio Factories in Bydgoszcz. Along the way, there were several acquisitions, until the takeover of the factory by Mikrostryk in 1998. Currently, under the name Mikrostryk, the company employs 180 people (70% of them are employed under an employment contract). According to the website, "Mikrostryk is a leading manufacturer of metal components for leaders in the market of consumer electronics, automotive, lighting, telecommunications, home appliances, electrical engineering and battery industries". According to information from the marketing and communication specialist, the current consumer of metal components is the automotive industry (radiators) and a

manufacturer of industrial lighting covers. The company manufactures to foreign markets. Mikrostyk conducts business activities under applicable law as well as within the CSR. For its activities in this area, Mikrostyk was awarded the title of a Socially Sensitive Company during the Pomeranian Employers gala on March 1, 2019. The available documents show that a CSR audit was carried out in the company in August 2015. The company also has the Code of Ethics and Business Conduct. The provisions of the Code have a character of the letter of the law. In the company itself one can feel the spirit of human sensitivity (e.g. children in pictures about health and safety). The biggest challenge for the company is to meet the ISO standards concerning the environment. The company uses its competences to implement good practices and to solve any emerging problems. CAG is an association. The Association's website is dominated with information on financing (about calls for proposals and the results). In the Polish Classification of Activity, CAG's activity was classified as: the activities of other membership organizations, not classified elsewhere, established in 2006. Currently, the Association employs two persons under full-time contract of employment and a few persons employed under a specific task contract. One person represents the Association and deals with organizational activities, the other one with financial issues, including monitoring of the sources of financing; one of the employees is a person with passion who suggests ideas and gives energy "when motivation dwindles". CAG primarily takes into account local needs defined by the local government. Mikrostyk Station is a project implemented by the Mikrostyk Station Foundation and its social partners. The station is a flat grassy area bordering the Mikrostyk company, on the Vstula's Bank, at the mouth of the Wierzyca river flowing into the Vistula. Two containers and machines from ELTRA's production halls were placed there. One container serves as a stage; the other one is a bar. Beach chairs are available to visitors to the Station. The station can be reached on foot from the Castle in Gniew or from GOSiR [the Municipal Centre of Sport and Recreation]. The first outdoor event took place on June 14, 2019. Attractions such as: a slide, foam bath, a shooting range, dances, deckchairs, bar – catering and service by Castle staff (including beer in the bar) were provided. As stated on the website, the station is "cultural space open to the inhabitants of our city and its guests". The calendar of cultural events for 2019 includes the following events: tourist music concert (June 27); rock festival (July 12); dancing (July 16); white garden (August 9); farewell to summer (August 29). The cooperation between Mikrostyk and CAG has brought both organizations a number of benefits. It was possible to gain these benefits, first of all, thanks to basing the common activity on similar values. By definition, CAG, as a social organization, is sensitive to social and environmental issues. In this case, the goal of the activities is to increase the well-being of the local community, activate to support the development of the local environment, build good relations between residents, the local government and organizations operating in the Gniew municipality. Being an enterprise, Mikrostyk mainly aims to make a profit. However, the Company attaches importance not only to the financial result, but also to its being achieved in a socially responsible manner. Social commitment is a vital condition to facilitate business contacts on the international market. However, in the case of Mikrostyk, social responsibility is not only the result of calculations, but it also stems from the values represented by the company – its management board and some employees. The shared values based on the principles of ethical behavior, sensitivity to social issues, concern for the development and well-being of the local environment, in this case, are an important condition of cooperation and a driving force generating benefits for both organizations and the entire community. A combination of the competences of Mikrostyk and CAG ensures the synergy effect in terms of the achieved benefits. This is because, on the one hand, the competences of both organizations are complementary, and on the other, similar competences are strengthened.

## 6. CONCLUSION

Work is a very important dimension of human life and it requires cooperation. Forms of cooperation result from the division of labor and depend on the current situation. The cooperation of organizations from the third sector is a necessity and their permanent feature. People are employed here who have the knowledge and skills to solve social issues and are sensitive to helping people in need. However, it cannot be assumed that there is no place for social work in the enterprise itself. Under conditions of sufficient profit, it is possible to implement the agreement mentioned in the Davos Manifesto. Socially oriented non-governmental organizations achieve their goals in the long run; they systematically need financial resources to implement projects. They often work from a project to a project. The third sector employs persons who are highly sensitive to helping people in need, have a different approach to time and efficiency than company employees. Cooperation between non-governmental organizations and enterprises often remains connected to the implementation of social responsibility strategies by the former and finishes on completion of the project. In enterprises, however, there is a perception that the enterprise management is responsible for making a profit. Some enter cross-sectoral cooperation out of fashion; others because it is worth for a good atmosphere in the company or for the pleasure of doing good, still others because it pays off due to the benefits of the image of a socially sensitive company or the need to meet market requirements. The described practical examples implemented as part of the project show the potential for cross-sectoral cooperation. It should be noted that both examples are firmly embedded in the region: SPOKO-box includes products from regional suppliers, and in the case of cooperation between Mikrostryk and CAG, the activities involved the community of the city of Gniew. In the case of SPOKO – social basket, it was a gift box with a message of value (Prezent z przesłaniem, 2019). Social economy entities have shown that they can be partners in cooperation, not just passively wait for financial help. Non-governmental organizations participating in this project are socially engaged foundations and cooperatives, i.e. subjects with the characteristics of both enterprises and NGOs. They were able to be social-oriented and meet market conditions in terms of product quality and ensuring the continuity of delivery, timely delivery and product repeatability. The advertising agency and the Workshop “removed” tasks from social companies in which they have no competence, i.e. packaging or promotion. Business representatives have also benefited because by giving the SPOKO gift box they can send a message of value and build relationships with clients with whom they have had no relationship yet. The SPOKO box is also an additional means of differentiating and positioning the company’s offer on the market. The purchase of a SPOKO box, confirmed with a Certificate, can be included in the company’s CSR strategy. Moreover, entrepreneurs want to do good in their surroundings. In the case of cooperation between Mikrostryk and CAG, it was important to benefit from basing mutual actions on similar values. These values are: principles of ethical behavior, sensitivity to social issues, concern for the development and well-being of the local environment. Owing to cooperation, CAG realizes its aims of the Association, and Mikrostryk meets the requirements in terms of corporate social responsibility set on international markets. Non-governmental organizations need financial resources to achieve social goals. Participation in projects makes this possible. Enterprises participate in social projects for a variety of motives. The case studies described above show that cooperation between non-governmental organizations and companies representing business could take place due to the awareness of the importance of social relations in business, as well as previous experience of such relationships (SPOKO-box), as well as due to an enterprise (Mikrostryk) eager to cooperate. NGOs and enterprises are two separate worlds which, however, are growing closer together. Business is moving towards social issues to be able to pursue business goals, and NGOs must become business-like in order to survive and implement social goals. The possibilities of cooperation are based on a system of values, legislation, social sensitivity, seeing

the benefits of cooperation, conditions conducive to cooperation, etc. There are also limitations. To meet long-term social objectives, NGOs need financial resources. They have a different approach both to money and to time. Companies are more focused on the result. Difficult cooperation with NGOs makes enterprises choose other companies to cooperate due to convenience and reliability in completing the task. Multidimensional work on building social awareness would be important for further cooperation. In this regard, the role of education about the need for social solidarity is important, especially in a given region. This takes time. The described examples of cooperation are a small step in this process. Professional preparation of NGOs is insufficient to present the benefits from cooperation; just an idea or values are not enough. A genuine understanding of the nature of social work from the perspective of both NGOs and business is necessary. Freedom and individuality, which are closer to business, as well as social sensitivity to people in need, which is closer to organizations from the third sector, are both important. How to combine freedom and cooperation in good long-term interdependence of NGOs and enterprises is probably a direction of further research in this area.

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## KEY INDICATORS OF ENTERPRISE FINANCIAL HEALTH: CASE STUDY IN THE CZECH REPUBLIC

**Jakub Horak**

*School of Expertness and Valuation,  
Institute of Technology and Business in České Budejovice  
Okružní 517/10, 370 01 České Budejovice, Czech Republic  
horak@mail.vstecb.cz*

**Tomas Krulicky**

*School of Expertness and Valuation,  
Institute of Technology and Business in České Budejovice  
Okružní 517/10, 370 01 České Budejovice, Czech Republic  
krulicky@mail.vstecb.cz*

### ABSTRACT

*Works dealing with the enterprise financial health and bankrupt have already appeared in the 30s of the 20th century. The question of financial health and bankrupt is principled for many enterprises, especially in the current turbulent economic environment. The fear of bankruptcy forces enterprises to look for key economic indicators of early warning of this situation. An assumption for paper research is the existence of several variables, financial ratios, which could be key for enterprise financial health assessment. The main of the paper is to find an existence of statistically significant variables for the assessment of the financial health of the enterprise, under the condition of the Czech Republic. The methodology of the research will be based on regression and correlation analysis. For statistical testing, the statistical software XLSTAT will be used. The research data will be contained financial statements of 9,500 enterprises from the Czech Republic in 2018. The starting point, dependent variable, the value of enterprise equity will be represented. Its negative value will be determined bankrupt of an enterprise. Subsequently, other research will try to find other variables from the area of enterprise financial health assessment which could have a statistically significant relationship with an independent variable. These independent variables will come from the area of liquidity, profitability, activity and indebtedness of enterprise. Research theoretical findings bring a review of the scientific literature development for issue of enterprise financial health and bankrupt. For the scientific community, the paper findings represent sources of potential enterprise financial health indicators which can be used for the creation of the new model of enterprise financial health valuation in future research.*

**Keywords:** *Prediction, Financial health, Financial ratios, Bankrupt, Correlation*

### 1. INTRODUCTION

Nowadays, the problem with failure of business entities is very actual topic in market economy. One of the biggest business risks is credit risk, which relates with secondary insolvency of business entity. The failure of business entity has negative influence on all subject with relationship with this business entity. Possibility of evaluating and predicting credit risk and financial situation of business entities is advantage for creditors, investors and business owners. Based on the assessment and forecasts of credit risk and financial health of business entities, we are able to take necessary corrective action, in time. (Weissova, 2017) Economists are able to evaluate and predict credit risk and financial health of business entities due to ex-ante financial analysis - through prediction models. Prediction models can early predict the probability of failure of business entity. The problem which is necessary to solve, for application of prediction models, is the selection of prediction model which is able to provide



the best evaluation of probability of failure of analysed business entity and of course, model which is able to provide exact and relevant results. Valaskova, Kliestik, Kovacova in their study „*Management of financial risks in Slovak enterprises using regression analysis*“ from 2018 stated: The default of companies is the problem of every economy in the world. Defaults can have various forms, various manifestations and consequences. In particular, the consequences are the engine of research and development of methods and models that help predict the failure in advance. Prediction models are used for an early detection of impending problems in the analysed company, their task is to evaluate the financial health of the company based on selected financial indicators or other characteristics of the company or the environment where it operates. The possibilities of forecasting the development of financial health of business entity and its future solvency or insolvency have taken attention of economists since last century. (Kovacova, Kliestik, 2017) The issue of relevant prediction model is very actual topic not only in Czech Republic but also in abroad. Prediction models are suitable for management of business entity because they allow to correctly interpret relevant indicators of potential problems in the future. Thanks to these indicators, the negative development in entity may be identified before its results bring more serious financial and economic problems or financial crisis. In case, when business entity was not able to find any crisis solution, these financial problems can end up like its bankrupt (Valaskova, Bartosova, Kubala, 2019). The main of the paper is to find an existence of statistically significant variables for the assessment of the financial health of the enterprise, under the condition of the Czech Republic.

## 2. LITERATURE REVIEW

First, economic engineers dedicated to the issue of bankruptcy and corporate failures gained stature as a profession in the 1930s. The first studies devoted to bankruptcy prediction were based on one-dimensional analysis of the financial ratios. These studies simply analysed financial ratios and compared the results of these indicators in creditworthy enterprises and enterprises in bankrupt, in accordance with Kliestik, Misankova, Valaskova, Svabova (2018) in study „Bankruptcy prevention: New effort to reflect on legal and social changes“. In 1930, the Bureau of Business Research presented a study that analysed the development of 24 financial ratios from 29 industrial enterprises in bankrupt (Fitzpatrick 1932, Malin, 2017). In 1935, R. F. Smith and A. Winakor verified the BBR study results. They analysed financial indicators of 183 enterprises in bankrupt and their results confirmed BBR study (Bellovary et al. 2007). W. H. Beaver was the first economist who used statistical methods for prediction of financial health of enterprises. In his study, “Financial Ratios of Prediction of Failure”, in 1966 he divided enterprises into the two category of creditworthy enterprises or bankrupt enterprises, based on the certain number of financial indicators (Beaver 1966, Jones 1987). In 1968, E. I. Altman created one of the most famous and also the first bankruptcy prediction model, which is known as "Z-score". This model interconnected explanatory power of several variables. This model is the basic stone of multiple discrimination analysis (Altman 1968). Since this time, the number of bankruptcy models has risen up. In 70s of 20ty century, were published 28 studies about prediction models, in 80s of 20ty century were published 53 studies and in 90s of 20ty century were published 70 studies about prediction models. Other authors who have tried to improve Altman's multiple discrimination analysis are for example Deakin (1972), Taffler (1974), Loris (1976), Springate (1983), Fernandez (1988), Neumaier and Neumaierova (1995, 1999, 2000, 2005), Gajdka and Stos (1996), Virag and Hajdu (1996), Chrastinova (1998), Binkert (2000), Gurcik (2002), Sharita (2003) and so on (Virag, Kristof 2005, Mousavi et al. 2015, Gurcik 2002, Agarwal, Taffler, 2007, Kubickova, 2015, Zavrzen 1985, Siekelova, 2017, Poddig 1995, Ohlson, 1990). In 70s of 20ty century, also raised prediction models based on the logistic regression - logit and probit models. The first authors who used logistic regression for prediction the bankrupt of enterprise were Santomero and Vinso (1977) and Martin (1977).

They only analysed bankrupt of American banks. In 1980, Ohlson analysed bankrupt of enterprise by logistic regression in general. The result of his model is one value which directly determining the probability of bankrupt of enterprise. Logit analysis was also analysed in works of Casey and Bartczak (1985), Zavgren (1985), Pantalone and Platt (1987), Jakubik and Teply (2006), Sajter (2008), Hurtosova (2009), Bredar (2014), Gulka (2016) (Zavrgen, 1985; Siekelova, 2017; Poddig, 1995; Ohlson, 1990; Hiadlovsky, Kral, 2014; Valaskova, Kliestik, Svabova, Adamko, 2018; Podhorska & Siekelova, 2016). A pioneer in the area of probit regression was M. Zmijewski (1984) whit his work "Methodological Issues Related to the Estimation of Financial Distress Prediction Models". Other authors followed up his results, for example Gloubos and Gramamatikos (1988), Skogsvik (1990), Theodossiou (1991), Boritz and Kennedy (1995), Lennox (1999) (Gulka 2016, Zmijewski 1984, Skogsvik, 1990). Since the 90s of 20ty century have been created studies focused on the development of prediction models by neural network methods. The basic stone of this method put Odoma and Sharda in 1990. Later Coats a Fant (1992), Altman a Varetto (1994), Wilson a Shardy (1994), Rudorfer (1995), Alici (1996), Serrano-Cinca (1996), Kivilluoto (1998), Sung, Chang and Lee (1999), Zhang (1999) Lee (2001), Witkowska (2002) (Bellovary et al. 2007, Hiadlovsky, Kral 2014, Press, Wilson, 1978).

### 3. METHODOLOGY

The third chapter is focused on the methodology of the paper and includes three subheads: (i) data collection (focused on the creation of dataset); (ii) input variables (focused on the definition of decision rules for identification of bankrupt enterprises and financial variables from area of the financial health of enterprises); and (iii) test statistics (focused on the description of the statistics methods used in research).

#### 3.1. Data collection

The dataset for the identification of statistically significant variables for the assessment of the financial health of enterprise, under the condition of the Czech Republic consisted of financial statements of Czech enterprises in 2018. The data were obtained from the Amadeus database system<sup>1</sup> – A comprehensive European database on public and private companies. Relevant sample for the purposes of our research of enterprise financial health consisted of 9,500 financial statements of Czech enterprises in 2018. Dataset creation contained 2 conditions: (i) limited companies; (ii) domestic ownership.

#### 3.2. Input variables

The first step was the identification of decision rules for dividing enterprises into the group of bankrupt enterprises or prosperous enterprises. For further research was determined two decision rules: (i) the value of equity; (ii) the equity to debt ratio. Conditions are showed formulas 1 and 2.

$$equity < 0 \quad \text{enterprise in bankrupt} \quad (1)$$

$$\frac{equity}{debt} \leq 0,08 \quad \text{enterprise in crisis} \quad (2)$$

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<sup>1</sup>Amadeus is a database of comparable financial and business information on Europe's largest 520,000 public and private companies by total assets. 43 countries are covered. Amadeus is published by Bureau van Dijk/Moody's Analytics. Amadeus provides standardised annual accounts (consolidated and unconsolidated), financial ratios, sectoral activities and ownership data. The database is suitable for research on competitiveness, economic integration, applied microeconomics, business cycles, economic geography and corporate finance. Amadeus is updated weekly, providing standardised annual accounts with up to ten years archive.

Table 1 shows an arrangement of decision criteria and the subsequent classification of the enterprise into a group of bankrupt enterprises or prosperous enterprises in accordance with the results of individual criteria.

*Table 1: Decision rules and enterprise classification (Source: own processing)*

Enterprise in crisis	Enterprise in bankrupt	Bankrupt enterprise	Prosperous enterprise
yes	yes	yes	no
no	yes	yes	no
no	no	no	yes

Conditions and criteria represented a basic stone for enterprises classification into the two groups, bankrupt or prosperous enterprises. The difference between the book value of equity and the book value of debt represented the important role for further research. Its value not represented only basic decision rule but also the value of depend variable to searching for statistically significant relationship among variables. Subsequently, we were able to define input variables from area of enterprise financial health assessment, which could be statistically significant for creation of comprehensive prediction model. It means to discover the variables which have verifiable statistically significant relationship with set explained variable. Based on the study of suitable scientific domestic and foreign literature we decided to choose 8 potential relevant variables, which are captured in table 2. These variables it was necessary to quantified in all enterprises from dataset (9,500 enterprises).

*Table 2: Input variables (Source: own processing)*

Variable	Mark	Calculation
cash ratio	CR	(cash + cash equivalents)/current liabilities
debt-equity ratio	DER	equity/total liabilities
return on equity	ROE	earnings after taxes/equity
net income previous year	NIP	earnings after taxes from previous year from balance sheet
age of enterprise	AC	time since the enterprise establishment to 2016
market share	MS	sales from operating activities/sales from operating activities in industry
turnover ratio from short-term payables	TUR	(short-term payables from business/costs)*365
retained earnings from previous years to total assets	EtA	retained earnings from previous years/total assets

### 3.3. Test statistics

This chapter is focused on the methodology of selected statistics methods for our research. First of all, it is necessary to exclude outliers from dataset, because their existence could lead to incorrect results. Subsequently, for identification of statistically significant relationship between dependent variable (the difference between the book value of equity and the book value of debt) and independent variables (financial ratios), was chose the test of significant of Pearson's correlation coefficient. Existence of outliers will be test by *interquartile range*. Interquartile range is very popular method for outliers detection, it is the difference between the first and third quartiles. The first quartile ( $Q_1$ ) is the value in the data set that holds 25 % of the values *below* it. The third quartile, denoted  $Q_3$ , is the value in the data set that holds 25 % of the values *above* it. In other words, it is the distance between the first quartile ( $Q_1$ ) and the third quartile ( $Q_3$ ).

$$IQR = Q_3 - Q_1 \quad (1)$$

In this method outliers are values: (i) below  $Q1 - 1.5IQR$ ; (ii) above  $Q3 + 1.5IQR$  according to Figure 1.

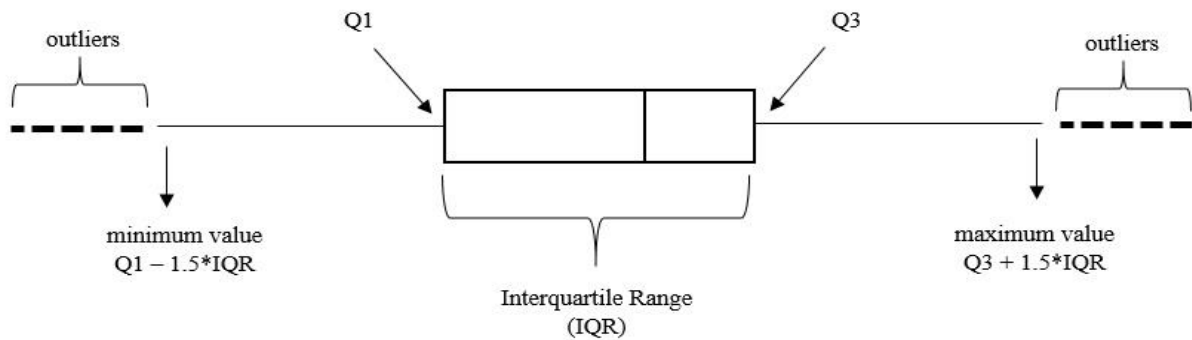


Figure 1: Outliers detection by interquartile range (Source: author's compilation according to Svabova, Kramarova, Durica, 2018)

An existence of linearity between variables will be tested by Pearson's correlation coefficient, which represents the most using type of correlation coefficient. Coefficient is used when variables are quantitative. First of all, is necessary to create correlation matrixes, subsequently the hypothesis about the significance of Pearson's correlation coefficient will be tested. It means significant dependent between variables. We will formulate following hypothesis:

- $H_0: r = 0$  there is not statistically significant relationship between variables
- $H_1: r \neq 0$  there is statistically significant relationship between variables

For the decision about acceptance or rejection of null hypothesis we will defined following decision rule: If the value of  $p - value \leq \alpha$  we will rejected the null hypothesis – between variables there is statistically significant relationship.

The value of significance level alpha ( $\alpha$ ) will be determined at 0.05. For testing statistical software XLSTAT will be used, especially section Correlation/Association tests/Correlation tests.

## 4. RESULTS

### 4.1. Input variables

First of all, two decision rules were quantified. Subsequently, all enterprises were classified in the group of bankrupt enterprises or prosperous enterprises. The second step was quantification all input variables from area of enterprise financial health assessment, which could be statistically significant for creation of comprehensive prediction model. Following table 3 captures the part of results in enterprises from our dataset.

Table following on the next page

*Table 3: Results of decision rules in dataset (Source: own calculation)*

1. rule (VK < 0) [€]	2. rule (VK/CK) ≤ 0,04	Bank.	Prosp.	Input variables							
				CR	DER	ROE	NIP	AC	MS	TUR	EtA
107,768	0.33	no	yes	0.64	9.47	0.80	5,385	10	0.000001543	20.17	1.58
966,980	2.47	no	yes	0.70	10.26	0.58	5,022	11	0.000002433	12.43	0.26
167,934	3.05	no	yes	0.46	7.63	0.53	4,026	11	0.000002681	28.43	0.59
-15,152	-0.94	yes	no	0.32	43.29	0.22	2,247	7	0.000002692	101.28	0.89
8,049	-0.39	yes	no	0.21	12.46	0.85	2,656	22	0.000004798	37.18	0.03
14,800	6.94	no	yes	0.23	54.66	0.29	3,448	7	0.000006163	6.07	1.25
79,821	0.002	no	yes	0.52	187	0.63	11,965	10	0.000009878	40.67	0.28
47,234	0.20	no	yes	0.50	39.67	0.77	3,857	7	0.000010220	100.06	0.57
245,428	0.13	no	yes	0.37	10.19	0.73	3,804	12	0.000011764	22.45	0.02
.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.

However, we have encountered first problems in quantifying some input variables. We were not able to calculate some of the selected variables in all enterprises, given that these enterprises did not have the necessary information. We had to exclude such enterprises from the dataset and other calculations, thus excluding 972 enterprises altogether. The dataset was thus reduced from 11,483 to 10,511. Out of a total of 10,511 enterprises, 8,498 were included in the group of prosperous companies and 2,013 in the group of bankrupt based on the chosen decision rules.

#### 4.2. Test statistics

The next step was to remove extreme values from the database of 10,511 enterprises. As mentioned in methodology, we tested the existence of outliers by interquartile range. In the following table 4 shows the individual variables and the number of values that the test revealed to be extreme. These values (enterprises) we have removed from further calculations so as not to distort the relationships we are trying to discover.

*Table 4: Number of outliers in dataset (Source: own calculation)*

variables	number of removed enterprises
CR	40
DER	11
ROE	30
NIP	98
AC	374
MS	125
TUR	39
EtA	108
<b>Total removed enterprises</b>	<b>825</b>

Based on the results of the interquartile range, we have removed a total of 825 enterprises from the dataset. The dataset was thus reduced from 10,511 enterprises to 9,686 enterprises. Finally, out of the total of 9,686 enterprises, 7,968 remained in the prosperous group and 1,718 in the bankrupt group. Because we were able to create relatively robust dataset of enterprise, in which we were able to quantify the necessary input variables, and at the same time eliminate enterprises for which we could not quantify some of the variables and outliers, we can carry out statistical testing of relationships between selected variables by test of significance of Pearson correlation coefficient. We tested the significance of relationships in each group of enterprises separately. We have repeatedly tested the hypothesis that a statistically significant relationship exists between the dependent variable (the difference between the book value of equity and the

book value of debt) and the chosen input variables from area of the enterprise financial health at significance level  $\alpha = 0.05$ . We have repeated this process for all selected variables. The following table 5 shows the results of test statistics in the group of prosperous enterprises.

*Table 5: Results of test statistics in the group of prosperous enterprises (Source: own calculation)*

	variable							
	CR	DER	ROE	NIP	AE	MS	TUR	EtA
<b>p-value (two-tailed)</b>	0.039	0.802	0.872	< 0.0001	< 0.0001	< 0.0001	0.206	0.289
<b>alpha</b>	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
<b>H<sub>0</sub></b>	reject	accept	accept	accept	reject	reject	accept	accept
<b>H<sub>1</sub></b>	accept	reject	reject	accept	accept	accept	reject	reject

Based on the results in table 5 we conclude that in the group of prosperous enterprises the variables CR, NIP, AE and MS proved to be statistically significant. It follows that these four variables should be incorporated into the prediction model. In our paper, however, we decided to test the relationships in question also in the group of bankrupt companies, and we assume that similar results could serve as a confirmation of the relevance of the selected variables. The following table 6 thus captures the results of test statistics in the group of bankrupt companies.

*Table 6: Results of test statistics in the group of bankrupt enterprises (Source: own calculation)*

	variable							
	CR	DER	ROE	NIP	AE	MS	TUR	EtA
<b>p-value (two-tailed)</b>	0.024	0.107	0.844	< 0.0001	0.001	0.001	0.540	0.751
<b>alpha</b>	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
<b>H<sub>0</sub></b>	reject	accept	accept	reject	reject	reject	accept	accept
<b>H<sub>1</sub></b>	accept	reject	reject	accept	accept	accept	reject	reject

Based on the results from table 6 we note that in the group of bankrupt we managed to demonstrate a significant relationship of the variables CR, NIP, AE and MS to the base variable in the form of the difference between the equity and the foreign capital of the company, which served as the basic decision rules.

## 5. DISCUSSION AND CONCLUSION

The main of the paper is to find an existence of statistically significant variables for the assessment of the financial health of the enterprise, under the condition of the Czech Republic. The methodology of the research will be based on regression and correlation analysis. For statistical testing, the statistical software XLSTAT will be used. The research data will be contained financial statements of 9,500 enterprises from the Czech Republic in 2018. The starting point, dependent variable, the value of enterprise equity will be represented. Its negative value will be determined bankrupt of an enterprise. Subsequently, other research will try to find other variables from the area of enterprise financial health assessment which could have a statistically significant relationship with an independent variable. These independent variables will come from the area of liquidity, profitability, activity and indebtedness of enterprise. Based on the results we conclude that in the group of prosperous enterprises the variables CR (cash ratio), NIP (net income from previous year), AE (age of enterprise) and MS (market share) proved to be statistically significant.

It follows that these four variables should be incorporated into the prediction model. In the group of bankrupt enterprises, we managed to demonstrate a significant relationship of the variables CR, NIP, AE and MS to the dependent variable the value of equity of enterprise, which served as the basic decision rules. Our results in this group confirmed results from the group of prosperous enterprises. Research theoretical findings bring a review of the scientific literature development for issue of enterprise financial health and bankrupt. For the scientific community, the paper findings represent sources of potential enterprise financial health indicators which can be used for the creation of the new model of enterprise financial health valuation in future research in Czech Republic.

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## MONEY SAVING - THE CHANCE FOR A HAPPY OLD AGE

**Hristea Anca Maria**

*Bucharest University of Economic Studies, Romania*

*anca.hristea@cig.ase.ro*

### **ABSTRACT**

*The phenomenon of aging at European level is a worrying reality in the aspect of economic and social solutions. A quarter of the European population is pensioners. The forecasts for the coming decades reflect an imbalance in the ratio between the working population and the retirement age population. In Romania, pension systems are facing great difficulties in fulfilling their "pension promises" due to increased unemployment, decreased economic growth, increasing public debt levels and volatility of markets Financial. In addition to increasing the retirement age, the education of the young population in the spirit of saving through private pension programs or the unit-linked programs can be the solution to the "swan song". Dinamic Invest is one of the most stimulating investment programs with the insurance component. This unit-linked type program offers the possibility of choosing the investment according to the inclination of each person to the risk and of his investment options, due to the existence of a complete investment structure. The flexibility of choosing between six investment options in Euro and three options expressed in national currency - denominated leu - is another challenge for Romanian citizens aged 15-65 years. Another advantage offered by Dinamic Invest is the flexible duration of the investment (5-55 years) as well as the possibility of repurchase and reinvestment during the entire period of the contract. Romania has an important investment market in saving programs.*

**Keywords:** *assurance, investment, pension, saving, unit-linked*

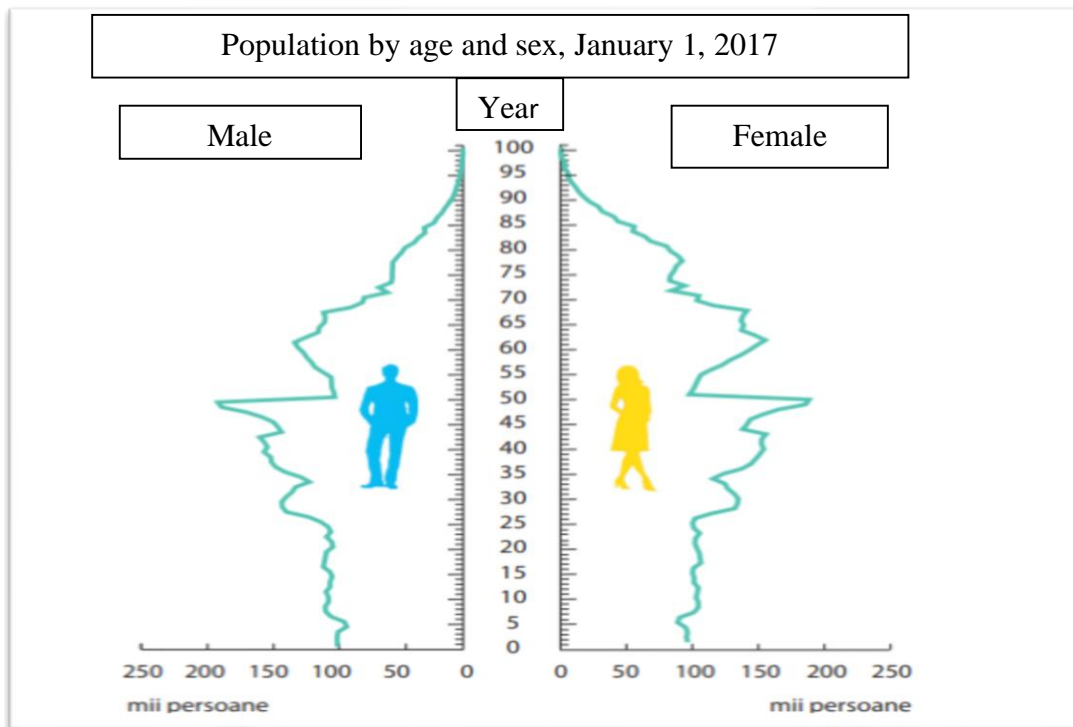
### **1. INTRODUCTION**

People can fail in the future because of a lack of trust and information in the present, because they will not be able to save money today to cover the needs they will have during their retired life (Hershfield, Goldstein, 2019, pp 23-37). In his interviews the famous economical analyst John Mauldin warned that Europe is close to collapse regarding the problem of the pensions. The ageing of the population is a certainty in the majority of the European countries (Georgescu, Herman, 2010, pp. 91- 103). The low birth rate, the migration of the young population, the high rate of the population that is apt for work but that was never employed, the increase of the medium duration of the lifespan, the people that work and do not pay taxes ("work under the counter") are the main causes that generated, in the past years, imbalances in many of the European states, Romania being in this top (Nita, 2008, pp. 127- 155). What does this actually mean? There are too little people that are employed that contribute to the system of the state pensions. If in 1950, in Romania, five employees contributed for a pensioner, in 2016 the ratio became 2 to 1 and in the following decades, according to the previsions, an employee will have to contribute for two pensioners. The question that arises is: How big the contribution will have to be in order to insure half of the pension for a pensioner? Or, what level a medium pension will have to be so that an economical balance is maintained between the collections from the active people and the payments of the pensions for a growing number of the old people? In the chapter "Old Age and Pensions" Karl Hinrichs shows that, the increasing of the degree of fees for the employees creates problems regarding the financial sustainability and the equity between generations, because more and more elders will have to be sustained by less and less employees (Hinrichs, 2018, p. 14). The system of the state pensions has become a ticking time bomb because the European states do not have a reserve fund for the monthly payment of the pensioners' rights, thus existing the risk of an impossibility to pay them.

The strategies of the last years to reduce the risks and of the consequences connected to the intrinsic risk lead to the apparition of some financial products, more and more compatible with the client's profile, named unit-linked contracts (Moller, 2014, pp. 17-47). The comparative analyses made by different authors (Gatzert, Huber, Schmeiser, 2011, pp. 3-29) have shown the fact that the population is more and more interested in the saving products of the unit linked type that, besides the investment component (on different levels of risk) include protection clauses, for the insured and for his direct inheritors, named through the contractual conditions.

## 2. THE RADIOGRAPHY OF THE DEMOGRAPHY IN ROMANIA. FROM EUPHORY TO DISPAIR

The statistical data show in Romania a continual imbalance of the ratio between the resident age groups, in the way of a massive growth of the number of the people over 50. The explanation lies in the fact that 1966 the state decree regarding banning abortion was introduced what led to the most important historical growth of births in 1967-1970. This group of population is now 50-52 years old (Chart 1).



*Chart 1: Romania – The Age Pyramid*

([http://www.insse.ro/cms/files/publicatii/Romania\\_in\\_cifre\\_breviar\\_statistic\\_2018.pdf](http://www.insse.ro/cms/files/publicatii/Romania_in_cifre_breviar_statistic_2018.pdf))

On the other hand the average lifespan grew due to the improvement of the quality of life. In Romania the life expectancy is 75 years old. An important element is the low rate of natality in the last years. According to the National Institute of Statistics in 2018 it was recorded the lowest birth rate in the last half a century. Moreover Romania is on the first place in Europe at infant mortality. In the last years Romania faces a negative natural growth rate. To all this we must add the excessive migration of the young population that is fit to work. In the chart below, named the "age pyramid" we can notice imbalances between the age groups, where the base of the pyramid is no longer represented by newly born and children up to the age of 10. In a consensus with the subject of this paper are the data published by the Social Monitor, Project of Friedrich-Ebert-Stiftung Romania. It presented an info graphic regarding the ratio between the number of pensioners and that of the active population that starts from the observation that

the ratio in 2016 was 0.64, a moderate value compared to the statistics of other European countries. On socio-economic regions the situation of the ratio pensioners/employees is given in the next chart.

*Table 1: Ratio pensioners/employees on socio economic regions (Social Monitor, Project of Friedrich-Ebert-Stiftung Romania)*

Nr.	Region	Pensioners/Employees (2016)
1	BUCHAREST - ILFOV	0.55
2	WEST	0.91
3	CENTER	0.99
4	NORTH WEST	1.01
5	SOUTH EAST	1.24
6	SOUTH-MUNTENIA	1.45
7	SOUTH-WEST OLTENIA	1.45
8	NORTH-EAST	1.50
9	<b>ROMANIA</b>	0.64

On regions of development we can notice that the smallest ratio is recorded in the capital Bucharest -Ilfov region, in the Centre and the West of Romania. The explanation lies in the fact that these regions attracted in the years between 1970 and 1990 work force from all over Romania, due to the policy to develop those regions of the time. Now all those employees are pensioners. The ratio between the number of pensioners and that of the occupied population deteriorated until around 2004. The main causes were the decrease in the number of employees (and of the occupied population because of the migration) and the increase of the number of pensioners. After this moment the situation became more stabile, with slightly positive trends. After the indicators from the “pyramid of ages” we can expect the situation to deteriorate again, especially in 10-15 years, when the large number of people that were born after 1967 will become pensioners. The National Institute of Statistics reported for the second trimester of 2019 a number of 5159 thousand pensioners, the equivalent of 26,5% of the resident population of Romania. In a press release INSSE shows that “Romania continues to be an emigration country, the emigration phenomenon being the second most important cause of the country’s reduction of population. The balance of the international migration in 2018 was negative, the number of emigrants being higher than the number of immigrants with more than 57000 people”. The process of demographic ageing has deepened; compared to the 1<sup>st</sup> of January 2018 we can notice an increase in the share of old population (65 and older). The index of demographic ageing increased from 116,3 (on the 1<sup>st</sup> of January 2018) to 118,8 old people to 100 young people (on the 1<sup>st</sup> of January 2019). According to an UN report published in July 2015 the experts expect a deepening of the demographic decline for the next decades, when the population will get to 14,5 million inhabitants in 2050 (19,4 million inhabitants in 2019).

### **3. SAVING THROUGH UNIT LINKED PROGRAMS – A SOLUTION FOR OLD AGE**

The population becomes more and more aware of the importance of savings as time goes by and they approach the age of retirement, when their incomes will not allow them to have the same life style. According to statistics most Romanians start to save money after the age of 35 and the reasons are diverse: they save for their children; they save because they want to buy a house, or to supplement their incomes from the state pension. The decision to save part of their monthly incomes attracts, on long term, an additional financial protection, that is most welcomed in unforeseen situations. Although they are confused all the time with the private pensions, unit links are a different product, more and more attractive for the people that have a medium predilection towards risk taking.

More often, people, when they talk about financial products think about bank deposits, credits and only seldom do they talk about the stock market. From a financial perspective unit linked is a complex product. According to the type of program it is opted for as well as the assumed risk this can be associated in some manner with the term of deposit, where the savings are given monthly and they are administered either by the insurance companies that own them through the transformation into financial instruments that offer small flows (2-3% per year), sure and constant, or by the big investors that turn them into investments with flows of 5% or even more than 12% per year. In this latter case the savings are invested mostly in financial instruments with big and fluctuant flows like: shares, mutual funds and other derived instruments.

### 3.1. Dynamic Investment – the challenge of the Romanian financial market

The case study was made for one of the most efficient unit linked investment plan from the Romanian financial market and in the same time from the European market.

The financial product is called Dynamic Invest and it belongs to Allianz Tiriac Insurance Company, member of the German Allianz Group, established in 1890 in Berlin, one of the most powerful insurance groups in the world. The unit linked life insurance Dynamic Invest and has in mind three components: the life insurance of the insured person, the protection of the family through financial support in case of the production of the risk of death and, the most important component, the investment programs through which the insured person according to his profile towards risk with the help of the financial consultants can built the investment he desires.

#### 3.1.1. Short presentation of the Dynamic Invest investment plan

Dynamic Invest is a multimodal product, of unit linked type, that includes besides the saving component an investment component and a protection one.

Table 2: Dynamic Invest – characteristics (OVB Romania, Allianz Tiriac, Dynamic Invest – Program to Train the Financial Consultants, 2018)

Specifications	Characteristics
<i>Duration of savings</i>	Medium and long term (recommended for a period of at least 10 years) in order to benefit from the opportunities of the financial market, with the purpose to supplement the incomes from the savings
<i>Term of payment the bounty</i>	Annually, semestral, quartely, monthly
<i>currency</i>	RON (national currency) or Euro
<i>Basic insurance premium</i>	Minimum 240 Euros/year or minimum 1200 RON/year
<i>Customer's needs</i>	Vary from the desire to save on a medium and long term and the inclination to invest on the financial markets in order to increase the flow

The Dynamic Invest insurance plan includes an important investment component that offers the biggest “force” to the program. This has as its main objective the development of an individual strategy to save during the lifetime, so that at the age of retirement the program that reaches its maturity allows the person that opted for such a saving way with an included risk, to benefit from additional funds, that participate at the covering of the financial needs, that become bigger and bigger once a person grows old. The Dynamic Invest is an investment plan that includes 8 programs, differentiated according to the chosen currency to the capital market or to the degree of risk (Chart 3). The main investment programs are presented below.

Currency /Risk	HIGH RISK	MEDIUM RISK	LOW RISK
EURO	<b>World Equity:</b> invests mainly in shares on the international markets.	<b>World Plus:</b> invests mainly in bonds on the international markets	<b>Protective:</b> invests in european instruments of the monetary market
	<b>Europe Equity:</b> invests mainly in shares on European markets .	<b>Euro Plus:</b> invests mainly in bonds on European markets	
RON	<b>Leu Forte:</b> invests in shares and bonds on the internal market	<b>Leu Clasic:</b> invests in shares and bonds on the internal market	<b>Leu Simplu:</b> invests in bonds and monetary market instruments on the internal market

*Chart 2: Dynamic Invest – Investment Programs (OVB Romania, Allianz Tiriac, Dinamic Invest, Program to Train the Financial Consultants, 2018)*

Dinamic Invest means life insurance, protection and investment. In the case of an unfortunate event, the family is protected and it benefits from the necessary financial support, calculated as the sum between the value of the investment account at the moment of the production of the risk and the insured sum for death. Through the payment of the insurance bonus you access the investment programs in which you want to place your money in order to “build” the investment. In the investment program the contractor can choose the transfer between programs that are in the same currency. This is a major advantage because when on the financial market the high risk investments present threats, the beneficiary of the program can be protect from the risk of losing through the oscillation between different investment programs that are in the same currency. Dynamic Invest can be considered one of the most challenging saving solutions in order to augment the incomes at the retirement age, but also for the fulfillment of other objectives throughout the life.

### *3.1.2. Case study regarding the impact of saving through Dynamic Invest*

According to the recent statistics, at the moment of making this case study the monthly average net wages in Romania is 3020 RON (635 Euros). The minimum monthly consuming expenses for an adult are 797 RON (168 Euros), and for a child it is 437 RON (100 Euros). Recent statistics show that each family has an average of 1.5 children. In the analysis I have made I considered that an adult has to take care of a child, thus the minimum consuming expenses are of 1270 RON (268 Euros). The difference that remains, 1750 RON (367 Euros) can be used for the covering of some unexpected necessities, but also for a monthly saving in order to satisfy the bigger and bigger demands that occur once we get older. The studies show that in case of a medium wage the incomes exceed the monthly spending. The financial specialists consider that any active person that has a secure job can save monthly between 6% and 10% of the net salary.

*Figure following on the next page*



Figure 1: Dynamic Invest – the profile of the Dynamic Invest customer (author’s adaptation)

In the using of the Leu Forte investment program the example was made in the case of a young man, about 30 years old, that has a monthly net income of 3100 RON (about 640 Euros). He is not married and he does not have any children. From the economical analysis made by the financial adviser we can notice that he saves 450-500 RON (100 Euros) monthly, that he then spends in some special occasions. He was advised on the role of the saving and investing the money on a medium and long term into specific programs, so that when he reaches the retirement age, alongside the pension obtained from the state he can also benefit from the accumulations from the taking of an investment program with a protection component. The young man chose the unit linked program Dynamic Invest. The parameters of the offer are the following:

The currency of the contract	RON
Duration of the contract	30 years
Payment frequency of the bonus	4/year
Contractual bonus according to the payment frequency	1200
Index percent of the insurance bonus	3%
Insured sum	4500
Chosen investment program	Leu Forte

Chart 3: Dynamic Invest – “Leu Forte” Investment Program (author’s adaptation)

Using the analysis and calculus system of the demand for offer belonging to the Allianz Tiriac Insurance Company, after the introduction of the data in the offer program the following information emerged.

Table 3: The savings situation through Dynamic Invest – compared analysis (author's adaptation after voffice.allianztiriatic.ro)

Year	Bonus' sums	Sum after the deduction of costs	Bank deposit	Surrender sum
1	4800	4323	4350	0
2	9744	8674	8770	0
3	14836	13147	13355	8979
4	20082	17800	18164	15179
5	25484	22612	23179	21657
6	31048	27588	28407	28954
7	36780	32760	33882	36881
8	42683	38105	39585	45736
9	48764	43630	45523	55343
10	55027	49337	51703	66034
15	89275	80812	86511	136952
20	128978	117871	128832	247617
25	175005	161249	179734	417855
30	228362	211875	240653	677105

As we can notice in the first two years since the beginning of the insurance contract the client does not have the right to surrender the sum, a situation that is encountered in most unit linked programs due to the life insurance component on the one hand and to the policy to get the investor accustomed to the saving habit on the other hand. The report The rate of flow of the investment/ The total cost of managing the savings account becomes over unitary starting with the seventh year, the first one that produces benefits. Alongside the increase of the saved amount and the passing of time, that according to the theory "money's value increase in time" advantages the deposit due to the composed interest, the value of the investment increases in a geometrical progression (attention! The risk fully belongs to the investor and the simulation made takes into account the statistical data, the history of the investment program). In the chart above there are presented three situations:

1. The case in which the investment is not made (hypothetical case), that has as a purpose the emphasis of the size of the annual costs;
2. The case in which the money are saved as a bank deposit (profitability rate of 2%)
3. The saving case through programs of unit linked type (here there is a profitability rate of 8% per year).

The following chart presents the evolution in time of the saved amount, according to the three hypotheses.

Chart following on the next page

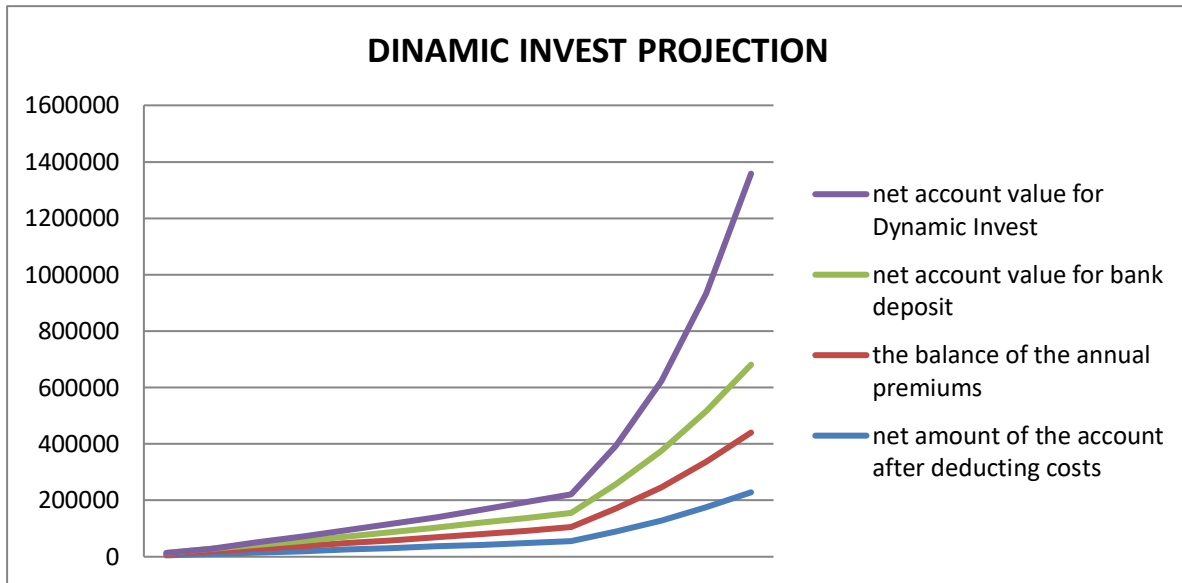


Chart 4: The compared analysis between the saved amount – the managing costs – bank deposit and Dynamic Invest (author's adaptation)

From the presented chart we can notice the big difference in financial gain between a bank deposit and the Dynamic Invest Unit Linked program. In case of the bank deposit the value of the account increases in 30 years by 5,38%, while in the case of the saving through financial investment the real growth is of 196,5%. This fact is due to the different flow rates: in case of the banks this is 1,5-2,5% while, in the case of Dynamic Invest it is 5-12% (+33.06% in the last 3 years).

### 3.1.3. Benefits and limits of the Dynamic Invest Unit Linked

The Dynamic Invest Unit Linked program has important advantages:

- The investor can interfere at any point with the amount from the savings account: after the first 3 years from the starting of the savings account the assured person has the possibility to withdraw part of the value of the account or even the whole amount, with the mention that in the case of a full surrender before the maturity, the withdrawal commissions are quite big; in the case of a partial withdrawal there are no fees. Also on the duration of the contract the beneficiary of the account can save additional amounts (top-up) that are oriented straight towards the investment component of the program, without giving any percent to the insurance component.
- The insured person can modify the characteristics of the investment, going between “Leu Forte”, “Leu Clasic” and “Lel Simple” (the same is true for the programs that are in Euros) according to the evolution of the financial market. For example if the financial market, after a long period of growth, shows signs of a downfall then the investor can sell the most risky component, namely the stocks, at a high price and then he can “preserve the received sum” under the form of bonds or bank deposits, so that he protects himself from risk. When the nominal price of the stocks is very low, for the investor, that saves periodically the same sum, there exists the opportunity to buy the stocks from the market at a low price, so with the same periodic sum he can acquire more units that in the moment in which the financial market grows they will generate big flows. This is the reason why the unit linked is recommended for long periods of investment: the economical cyclicity in this context offers benefits to the investor, no matter if the financial market goes up or down.



- In time the insured can decide if the insurance bonus will be indexed with the inflation rate or not, as well as its size in the limit of 3-10%; the intervention is made at the level of a calendar year and the operation is free.
- During the duration of the unit linked contract the insured person has consultancy and financial service, at his request or when the changes are very important on the market; the client can be called by the specialists in order to create a strategic plan to manage the money, in the best interest of the investor.
- At any point during the duration of the contract the insured can change the stipulation regarding the beneficiaries in case of his death, as well as the percents given to each beneficiary.
- In the case in which a financial problem occurs, of any nature (the temporary loss of the work capacity, family problems, dismissal etc) the insured person can ask for a determined period of time the introduction of the stipulation "free from the payment of the bonus" so that he has the possibility to quit the payment of the bonus but the investment plan still "operates" based on the value that is already in the account, in his advantage.
- The beneficiary of the unit linked contract enjoys all the stipulations of the European law regarding the transparency and objective information.
- In case the insured person dies the heirs mentioned in the contract will benefit from the insurance indemnity, that consists of the insured sum in case of death that is 4500 RON (1000 Euros) plus the value of the account (obtained through the product between the number of account units owned and the selling price on the market at that moment).
- The compulsory life insurance stipulation can be completed at any time with additional stipulations that insures the protection of the insured person and of the members of his family for different risks.
- The contractor can be different from the insured person and he has many other rights: he can modify the frequency with which the bounties are paid, he can change the beneficiary, he can introduce or eliminate additional insurance stipulations, he can redirect the sums destined for investment, he can transfer units etc.

Unit-linked programs have also *some limitations*:

- The investment programs with a high degree of risk offer the possibility of obtaining a financial gain superior to other types of investments on medium and long term, but the value of the account can have important fluctuations (positive or negative) according to the financial, economic and political conditions that exist in certain periods of time.
- The full surrender of the insurance before the term can have important costs.

#### **4. CONCLUSIONS**

In the conditions of the contemporary world, the solution of ensuring financial stability for the population is saving money. Benjamin Franklin said "Beware of little expenses. A small leak will sink a great ship".

*Chart following on the next page*

<p><b>Strong points</b>                  A program with many investment programs                  Big flow rates for all the products (based on the history)                  Flexibility in changing the inflation rate and of the installment bounty (+/- 2%).                  The biggest flow on the unit linked market                  The possibility to invest in the national currency, but also in Euro                  It offers a protection component alongside the investment and saving one                  A product that is more attractive for knowers, compared to the bank deposits and with salting away money                  Preferential fiscal state (the income is not taxed)</p>	<p><b>Weak points</b>                  The entire risk belongs to the investor                  It is made for people that manage to save monthly                  It is made for the people that have a minimum of financial knowledge or that are willing to learn in this respect                  It cannot be transferred to another country                  It cannot be transferred from one currency to another                  It does not have the warranty of gain of 100%</p>
<p><b>Opportunities</b>                  there is an important potential market in Romania                  it has a large popularity through one of the most important financial middlemen in Europe (OVB Allfinanz)                  it can present an interest for the people that migrated because there are investment programs that are in euros</p>	<p><b>Constraints</b>                  Over 1 million people from the total active population of Romania never had a declared income                  The aged population (the limit for getting into the program is 60 years old)                  The lack of trust the people have in the saving/investment products                  The lack of financial education                  The existence of a multitude of offers on the capital and financial markets</p>

Chart 5: Dynamic Invest SWOT Analysis (author)\

In conclusion as the great playwright Tennessee Williams said “You can be young without money but you can’t be old without it”.

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## EMPLOYMENT OF PERSONS WITH DISABILITIES AND THEIR ROLE WITH EMPLOYERS

**Ivan Peronja**

*Assistant Professor at Faculty of Maritime Studies,  
Department of Maritime Management,  
University of Split, Croatia  
iperonja@pfst.hr*

**Mario Dadic**

*PhD student at Department of Professional Studies  
University of Split, Croatia  
mario.dadic@oss.unist.hr*

**Ante Mihanovic**

*Pharmacies in Split and Dalmatia County, Croatia  
ante.mihanovic@yahoo.com*

### **ABSTRACT**

*The paper analyzes the role of persons with disabilities in employers and the impact and role of persons with disabilities on the labor market. The main problem faced by people with disabilities is their low representation in the labor market and discrimination by both society and employers. It is worth pointing out the unemployment of persons with disabilities, which is several times higher than the average unemployment in society, which is often the result of prejudices themselves. A working man can show and prove that he is worthy and capable of working, learning and developing, earning a living wage and thus securing a livelihood. Persons who are capable and willing to work without being given the opportunity are greatly restricted and denied not only the right to work, but other fundamental human rights. The work helps us to achieve positively valued social roles, self-esteem, enables communication with the environment, contributes to creating a positive image of ourselves and our values and is a prerequisite for self-actualization. In line with the problem, research goals have been set that are aimed at supporting the marginalized group of people, that is, people who are particularly "vulnerable" in the labor market, in order to recognize the need to create incentives and regulations within the system that would result in a better position and greater the inclusion of people with disabilities in society. This paper analyzes the data collected from the labor market questionnaire from different employers who have different legal form, size and number of persons employed in different markets. Basic statistical methods are used in data processing. The results of the research confirm the hypotheses. Social action that will result in the necessary changes and facilitate equal participation of persons with disabilities in all areas of social life should be encouraged.*

**Keywords:** *disability, disabled person, human potential, rehabilitation, employment, work*

### **1. INTRODUCTION**

Human resources consist of individuals and groups that, with their knowledge, skills, abilities and other traits, enable an organization to achieve its goals. Professional rehabilitation is an integral part of the rehabilitation process aimed at integrating or returning people with disabilities into active professional life. The Law on Professional Rehabilitation and Employment of Persons with Disabilities has made a major step forward in addressing the problems of their employment and work, but the position of these people in the labour market is still unfavourable.

Despite this legislation, people with disabilities still do not experience the same access to employment possibilities as do their counterparts without disabilities. (Bonaccio et al., 2019.) There are legal obligations in field of employability in countries with developed legislation. Obligations are used in order to prevent discrimination of people with disabilities and other groups (Pribolšan, 2016.). The majority of employers who responded to the survey believe that the best means of discovering the potential of persons with disabilities is their work and the main recommendation of those who have experience in their employment and work with other employers who have not yet dared to employ a disabled person is to definitely try and get to know person's work potential.

## **2. POSITION AND REPRESENTATION OF PEOPLE WITH DISABILITIES ON THE CROATIAN LABOUR MARKET**

According to recent CES records (Croatian Employment Service), a drop in the number of unemployed has been highlighted, but with a strong unemployment of disadvantaged people in the labour market still present. From January 1 to June 30, 2018, a total of 103 644 people were employed through this Office, of which 1707 are PWD (Persons With Disabilities) (1.6% in the total population of employees from the Office's records, which is 0.1% less than in the same period of last year). Regarding the activity in which the largest number of PWDs are present, these are the most common activities: providing of accommodation and preparation and serving of food (18.14%), manufacturing (16.7%) and finally administrative and support service activities (11.81 %). Within their business representation by counties, this part of the population is mostly employed in the City of Zagreb (19.73% of the total number of PWD employees), while their share in the total employment of persons from the CES records is largest in Varaždin County (3.7 %). Regarding the level of education, the highest proportion of persons have completed secondary education (83.66%), most often in the duration of 3 years (67.31%) (HZJZ, 2017.; HZZ, 2018.). As in the general population, people with disabilities who are the shortest in the unemployment register are the fastest to employ, while those with longer wait in unemployment tend to find employment harder, primarily because of the loss of already acquired knowledge and skills acquired during education or previous work. The most common occupations in which they are employed are: assistant cook, cleaner, maintenance worker, gardening worker, administrative clerk, kitchen worker, production line worker, cook, salesman (HZZ, 2017.). Work enables a person to establish interpersonal communication, PWD employees have a better self-image, more self-esteem and self-esteem in relation to the unemployed. They are more socially active, more adaptable to change, more competent in their daily personal lives, economically superior according to Operational Programme Efficient Human Resources 2014-2020 (2014.). Another study suggests that disability is linked with lower average pay, job security, training and decision making positions and more negative attitudes towards the company and the job (Gottlieb and Myhill, 2010). Research also reveals that employed PWD are generally highly satisfied with their job and report positive relationships with their colleagues and superiors. The problem arises because the PWDs are not sufficiently qualified for the needs of the labour market. Their education and their qualifications are not adequate to the needs and that is why they often approach retraining or education for another occupation. PWDs are in really tough position when it comes to their employability. They are the last one to be employed and unfortunately the first one to lose a job. There are a number of reasons why an employer does not dare to employ a PWD and some of the most common ones are: a negative attitude of the society based on stereotypes and prejudices about poorer work potentials, fear that a person will be more often absent from work or will be more on sick leave, negative attitude towards PWDs etc. (Romito, 2015.). There are two distinctive limitations arising from the problem of employment of people with disabilities.

The first comes from the reaction of current employees towards possible employment of person with disability. The second one arises from the adjustment of job as well as surroundings in regard to person with disability (Crnković, 2018.)

### **3. PRIMARY RESEARCH RESULTS**

The results of the empirical research will be presented and interpreted in this chapter. The study sought to obtain results on the position of employers (those who employ and those who do not employ PWDs) regarding the employment and work of PWDs and their lack of experience in working with them, which should give insight into the potentials this population possesses. Throughout the chapter, basic information of the research sample will be presented and some questions from the survey questionnaire will be analytically presented and commented on. The questionnaire is structured in such a way that at the very beginning the employer is required to indicate his name and then, under the mandatory form, the basic activity of the business subject and the number of people he employs. Then, throughout the rest of the questionnaire, questions were asked in an effort to get as specific answers as possible regarding the view of employers on the position of persons with disabilities in the labour market and their potentials.

#### **a) Research sample**

The primary survey was conducted using an online survey questionnaire consisting of 20 questions that complement each other and were asked in a logical sequence. The survey was conducted on a sample of 41 respondents, given that it is about employers and their position on PWD, it can be stated that the research can be considered relevant for reaching concrete conclusion.

#### **3.1. Description of the research**

For the purpose of the primary research, hypotheses have been put forward that will be tested based on the questions in the survey. The hypotheses raised are as follows:

- The PWD is viewed through his disability, not his work potential;
- Work is the best way to prove to all other people and people with disabilities;
- PWDs value workplace and employer, representing a significant contribution to the work of company in which they are employed.

#### **b) Research results**

Below, the results obtained through the questionnaire will be presented in tables and charts, followed by a comment or interpretation to clarify the structure of the respondents' answers. The employers who participated in the survey are: Ustanova za zapošljavanje, rad i profesionalnu rehabilitaciju osoba s invaliditetom DES Split, Udruga tjelesnih invalida Kaštela, Babić pekara d.o.o., Udruga osoba s invaliditetom „Bolje sutra“ grada Koprivnice, Punkt d.o.o., FOTOimago, Ustanova Suvenir Arbor, Fornix d.o.o., Udruga osoba s invaliditetom „Prijatelj“ – Metković, Vodovod i odvodnja cetinske krajine d.o.o., Galeb dalmatinska trikotaža d.d., socijalna zadruga Humana Nova Čakovec. Below you will find basic information about the employers who participated in the survey, such as: type of business premises, main activity and number of employees in order to find out what type of employer they are.

*Table following on the next page*

Table 1: Type of business subject (source: author, according to survey data, August 2018)

FORM	NUMBER	PERCENTAGE
Company	19	46.3 %
Institution	11	26,8 %
Craft	2	4,9 %
Other	9	22 %
TOTAL	41	100 %

Table 2: Basic business activity of a business subject (source: author: author, according to survey data, August 2018)

CORE BUSINESS
<ul style="list-style-type: none"> <li>• Health care and physical therapy,</li> <li>• Catering,</li> <li>• Production and provision of nutrition services and rehabilitation of disabled employees,</li> <li>• Protection, monitoring and promotion of the rights and interests of persons with disabilities in the Republic of Croatia,</li> <li>• Social services,</li> <li>• Production (work clothes and various articles, wood products, car parts, linen, textiles),</li> <li>• Production and sale of bakery products,</li> <li>• Care for persons with disabilities,</li> <li>• Business consulting, photographic activity, telecommunications,</li> <li>• Utilities, water abstraction and distribution, sewage disposal and similar, distribution,</li> <li>• Sales and service of food and beverages, photocopying,</li> <li>• Packaging and distribution of bulk products,</li> <li>• Inclusive housing,</li> <li>• Publishing,</li> <li>• Vocational rehabilitation,</li> <li>• Humanitarian activities.</li> </ul>

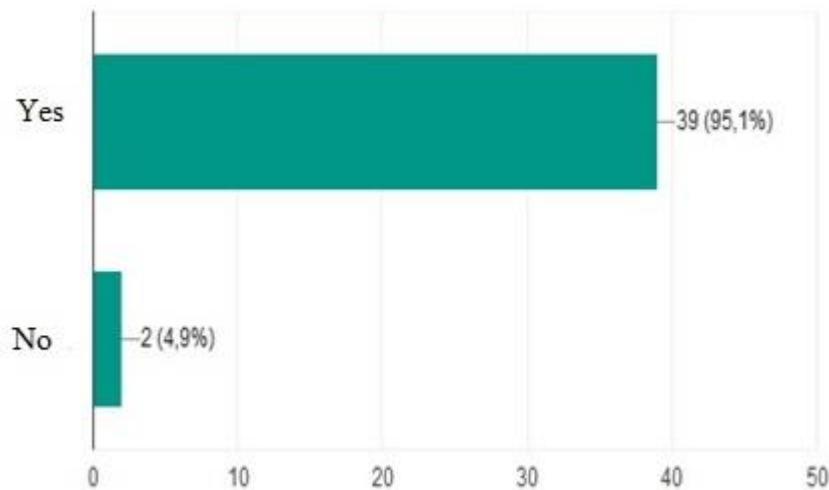
The employers involved in the survey are engaged in a variety of activities. This is an advantage in this case, as it is examined their view on the employment and work of PWDs, who are a less employable group of people whose condition does not allow them to be employed in all kinds of activities.

Table 3: Number employers (source: author, according to survey data, August 2018)

RANGE	NUMBER	PERCENTAGE
1-10	12	29,3 %
11-20	6	14.6 %
21-50	9	22 %
>50	14	34.1 %
TOTAL	41	100 %

Given the number of people hiring, there are mostly employers with over 50 employees (14, 34,1%) based on the Table 3. It is interesting that the majority of employers were employers with more than 50 employees and those who employ up to 10, so we can gain a clearer insight into the position of employers with larger volumes and those with less workforce.

Based on the following answers, the respondents come to their more specific opinions regarding the employment and work of PWDs and the reasons for such a position. Those who have had experience in employing PWDs emphasize their experience, while those who have not yet employed them point out if they have the desire to do so. It is still necessary to adapt legislative and regulations for improvement of employment of people with disabilities as well as their integration in the society respective to Croatian legislative and society as well as European according to HZZ (2010.). Some changes have been made when it comes to projects that enables employment of PWDs by implementing Efficient Human Resources 2014-2020 programme which was introduced by Croatian Ministry of Labour and Pension system (Ministry of Labour and Pension system, 2014.).



*Chart 1: Do you support the employment and work of persons with disabilities? (source: author, according to survey data)*

39 employers (95.1%) said they supported the employment and work of PWDs, while two employers (4.9%) said they did not support the employment and work of a prominent population. The results of the research presented here give us an insight into the fact that employers, who support the PWD and their work, ventured to participate, while others preferred to keep their opinions on the topic for themselves.

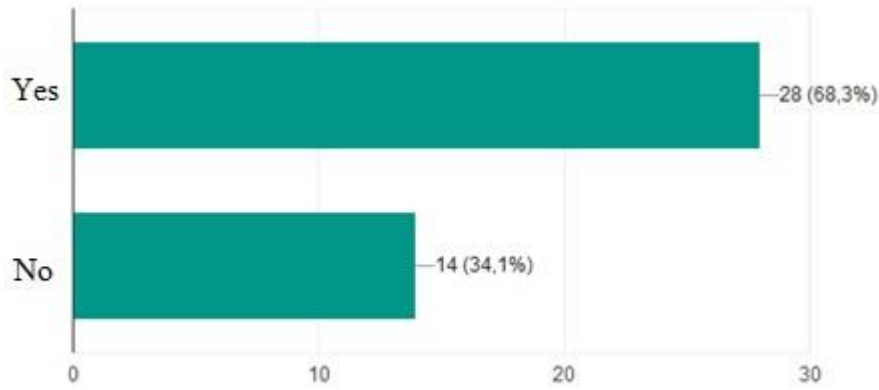
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Table 4: What is the main reason for this answer (source: author, according to survey data, August 2018)

<b>MAIN REASONS</b>
<b>Supportive</b>
<ul style="list-style-type: none"> <li>• "To give people with disabilities an opportunity to work.";</li> <li>• "As a protective workshop, we have extremely positive experiences in how, with a quality organization of work with most employees with disabilities, we can have good business results.";</li> <li>• "We have employees with disabilities.";</li> <li>• "Well we are the Association of Persons with Disabilities and if we do not hire them and set an example for others, no other employers will employ them. ";</li> <li>• "We are a PWD employment agency.";</li> <li>• "Every person needs an opportunity, and our company carries out an activity where a disability, especially physically, is no barrier to doing business.";</li> <li>• "Work has an economic, social, psychological dimension for every human being. Without employment, people with disabilities cannot realize their opportunities or have a satisfactory quality of life. ";</li> <li>• "Because people like that are also part of our society, and I know it means a lot to them when they feel useful.";</li> <li>• "I see no reason why a disabled person would not do a good job.";</li> <li>• "The purpose of founding the association is to improve the quality of life of people with intellectual disabilities. Because it is about the goals of its founders and herself. We also employ other categories of PWD. ";</li> <li>• "We have been established as a safety workshop for the purpose of employing people with disabilities.";</li> <li>• "I find that people with disabilities, just like those without disabilities, can contribute to business and contribute to their diversity in the work environment.";</li> <li>• "We have disabled employees in our company who carry out their work duties in a responsible and responsible manner.";</li> <li>• "The association was established to care for people with disabilities.";</li> <li>• "I personally support it, but in practice it is quite difficult to apply. We have several well-disrupted employees in the company who return the retirement commissions to work with reduced working ability, and we have nothing in the company to give them work because the jobs by their description are such that they require a healthy person (physical and mental effort, work with machine and tools). ";</li> <li>• "No discrimination.";</li> <li>• "I believe that the inclusion of people with disabilities in the life of the community is to the benefit of both the disabled and the community.";</li> <li>• "People with disabilities need to be integrated into society.";</li> <li>• "They also need work, of course, according to their capabilities. "</li> </ul>
<b>NOT SUPPORTIVE</b>
<ul style="list-style-type: none"> <li>• "They are not in the work environment."</li> <li>• "That is not in the domain of the Board. "</li> </ul>

The prominent reasons why employers support the employment and work of PWDs tell us that employers are very aware that this is a marginalized group of people that work, individually as any other person. Employers believe that PWDs are able to work, that they need to be given the opportunity, organize their work properly, to refer them to the jobs they are able to do, and to integrate them into society.



*Chart 2: Do you have experience with people with disabilities as employees? (source: author, according to survey data)*

28 respondents (68.3%) stated that they had experience in employment and work with PWD, while 14 (34.1%) said that they did not have experience in employment and work with PWD. Only one respondent said yes and no. According to the results of the survey, there are twice as many employers who have experience, which is a mitigating factor in gaining insight into the work potential of PWD.

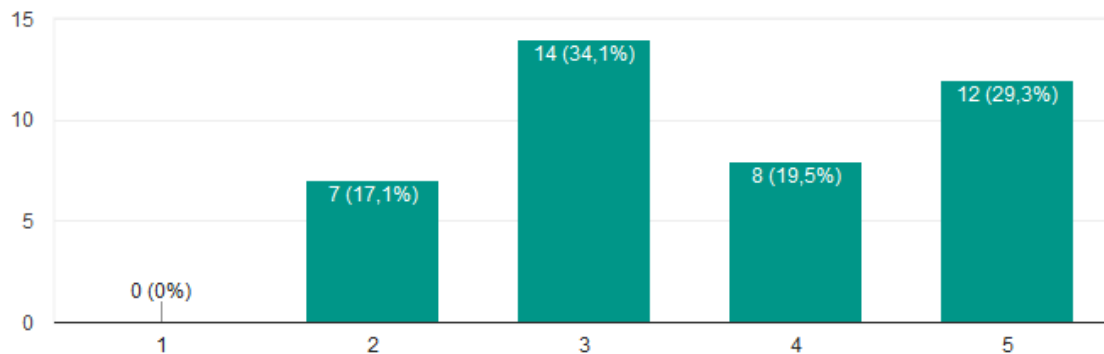
*Table following on the next page*

*Table 5: If the answer to the previous question is YES, could you please state your experience in employing people with disabilities, and if the answer is NO, would you like to hire a disabled person? (source: author, according to survey data, August 2018)*

YES
<ul style="list-style-type: none"> <li>• "The experience is great. They are persons with physical and sensory impairments, they are diligent, hardworking, extremely well received in the team, good associates...";</li> <li>• "People with physical disabilities are very hardworking and motivated workers, for all praise. They carry out their tasks properly, they are not late for work and have a high level of responsibility. ";</li> <li>• "A very positive experience.";</li> <li>• "The experience is both positive and negative, as with the general population. The fact is that PWDs have less work experience and are significantly longer unemployed compared to the general population, and people with intellectual disabilities are also repeatedly deprived in the labour market. ";</li> <li>• "Hardworking and trustworthy workers, meticulous and precise.";</li> <li>• "Our experiences are positive and we are open to people with disabilities who are willing to work and want to join our team.";</li> <li>• "So far only positive experiences with working with people with disabilities.";</li> <li>• "With very small adjustments, we have included people with disabilities in the work of the library. Colleagues with disabilities contribute as much to our goals as people without disabilities. We are also ready to hire more people with disabilities.";</li> <li>• "People with disabilities carry out work responsibilities just as well as people without disabilities.";</li> <li>• "The experience is colourful, but it is always a great experience, where the level of self-confidence and sense of involvement of an employed person is raised. ";</li> <li>• "Extremely conscientious, responsible and trustworthy workers.";</li> <li>• "Excellent. People are loyal to their jobs and are respectful of their work and responsibilities.";</li> <li>• They helped us break down barriers to interpersonal relationships. At times, they themselves were surprised that they were viewed by others who were different. "</li> </ul>
NO
<ul style="list-style-type: none"> <li>• "Yes.";</li> <li>• "We would like to hire.";</li> <li>• "Yes, of course, if they will conscientiously do their assigned tasks.";</li> <li>• "It would not be an obstacle for us to do our work.";</li> <li>• "If I could make a decision, I would definitely hire a disabled person."</li> </ul>

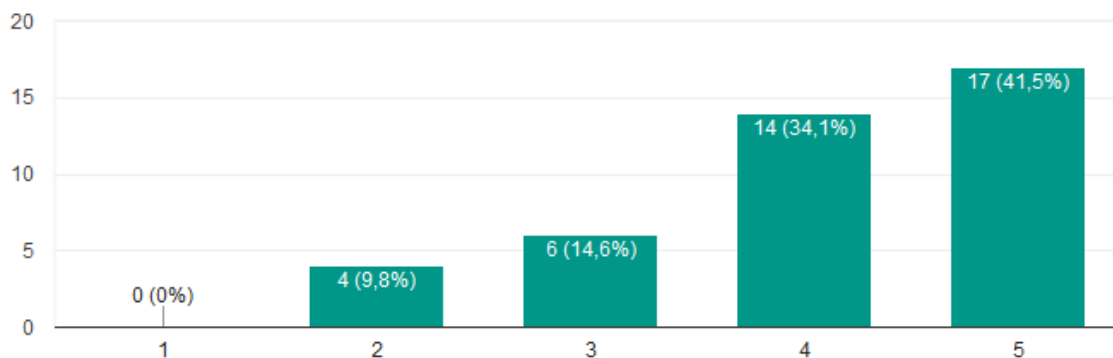
The above mentioned experiences of the employers are mostly positive. PWDs perform their tasks properly, are conscientious, responsible, diligent, hardworking, reliable employees, good associates, not late for work, but they absolutely need to adjust their workplace and position, secure work assistance and other conditions to allow them equal access to work (HZZ, 2011.). Employers who have no experience in employment and work with PWDs have expressed a desire for their employment, suggesting that prominent employers want to move beyond prejudice and provide opportunities for PWDs. The results of the survey presented below, i.e. the answers obtained through the questionnaire, continue with the results previously obtained and the questions relate to the employers' assessment of the quality of life, the position of the PWD, their potentials and what they can give.

Respondents answered only with grades 1 to 5, where grade 1 indicated a statement that the respondent did not agree with it all, while grade 5 indicated a statement that the respondent fully agreed with.



*Chart 3: The quality of life of persons with disabilities in the Republic of Croatia is low.  
(source: author, according to survey data)*

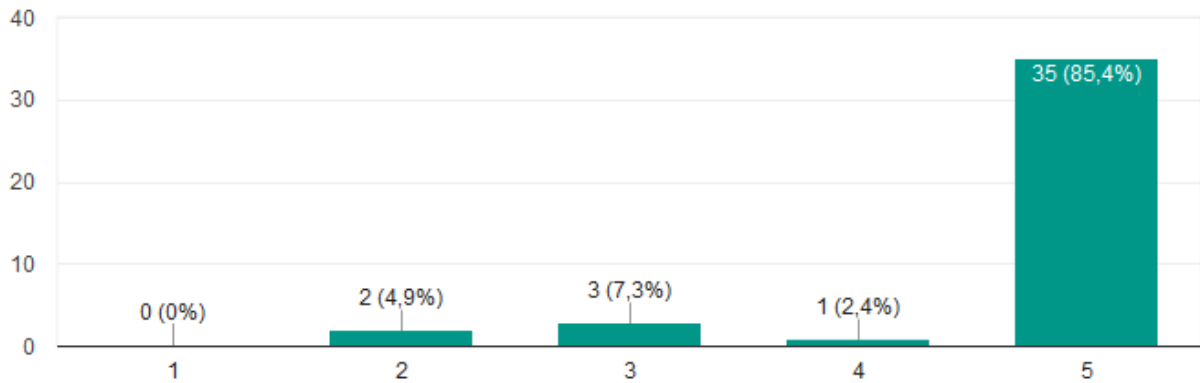
The highest number of employers (14, 34.1%) expressed the rating with 3, while approximately (12, 29.3%) expressed the rating with 5. 8 employers (19.5%) expressed the rating with 4 and 7 employers (17.1%) rated 2. The largest amount of employers agrees that the quality of life of PWD in Republic of Croatia is very low.



*Chart 4: Disability is seen as a key characteristic of these people, not what they can give.  
(source: author, according to survey data)*

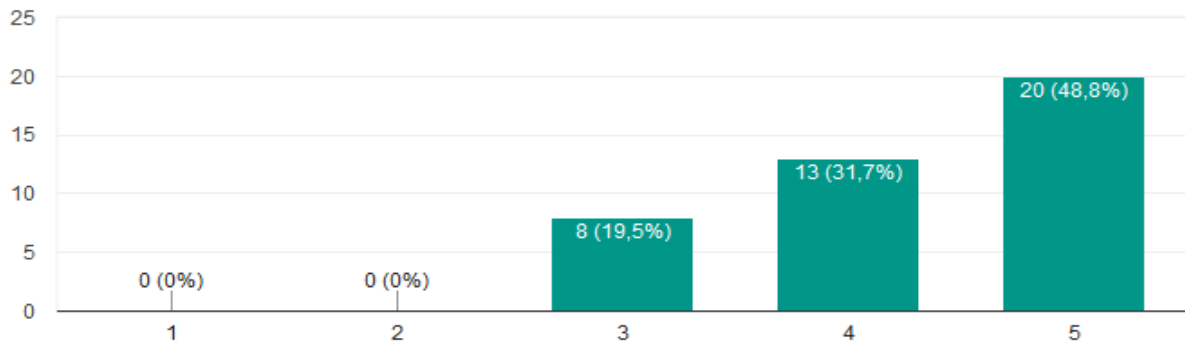
Furthermore, the hypothesis of projecting PWDs through their disability is confirmed. Specifically, 17 employers (41.5%) completely agree with the stated statement, whereby they rated it as number five, 14 (34.1%) rated it as number 4, 6 (14.6%) as number three and four employers (9.8%) rated this claim as number two.

*Chart following on the next page*



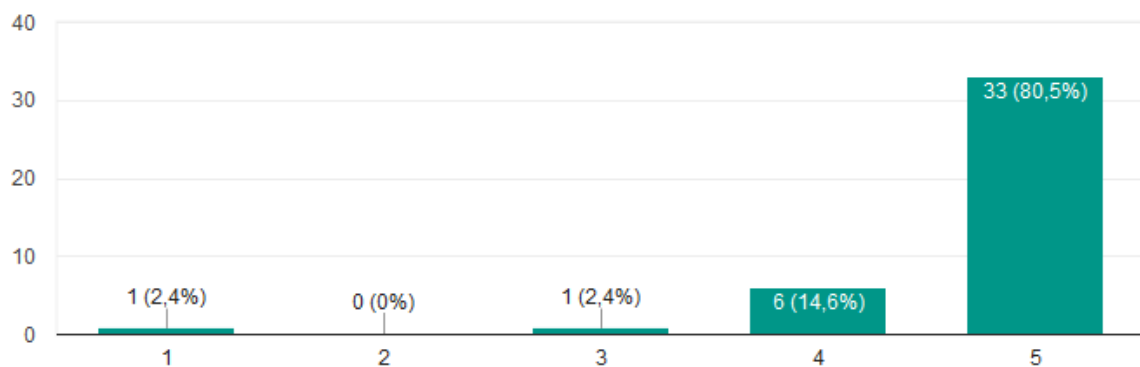
*Chart 5: People with disabilities are equal members of society. Society is obliged to ensure equal opportunity to people with disabilities. (source: author, according to survey data)*

The graph above shows that employers agree with the claim that PWDs are equal members of society. 35 (85.4%), rated themselves 5, 3 (7.3%) rated 3, 2 (4.9%) rated 2 and one employer (2.4%) rated 4.



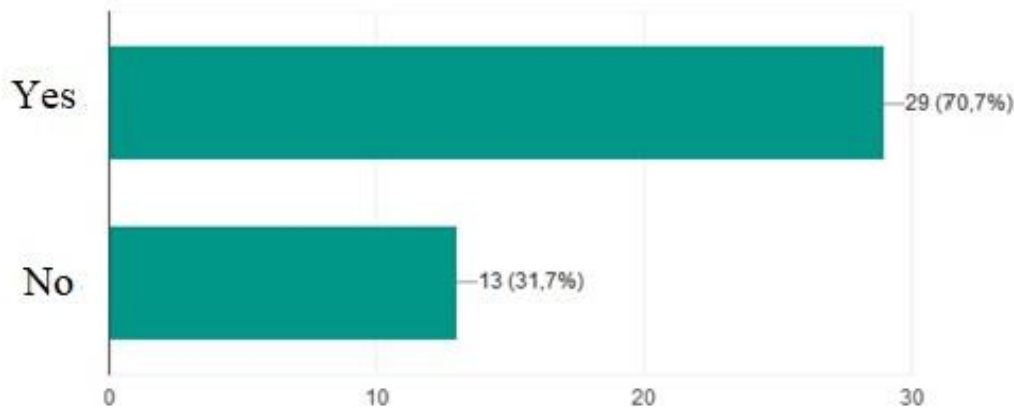
*Chart 6: The best means of discovering the potential of persons with disabilities is precisely their work. (source: author, according to survey data)*

The hypothesis that the PWD, like any other person, can best prove and demonstrate its potential through its own work is confirmed. 33 employers (80.5%) rated the claim 5, 6 (14.6%) 4, and 1 employer (2.4%) rated it 3 and 1. Business needs for employment of people with disabilities are ought to be adjusted. PWD needs to be included in as much as possible activities to show the need for their contribution (Kiš, 2018.)



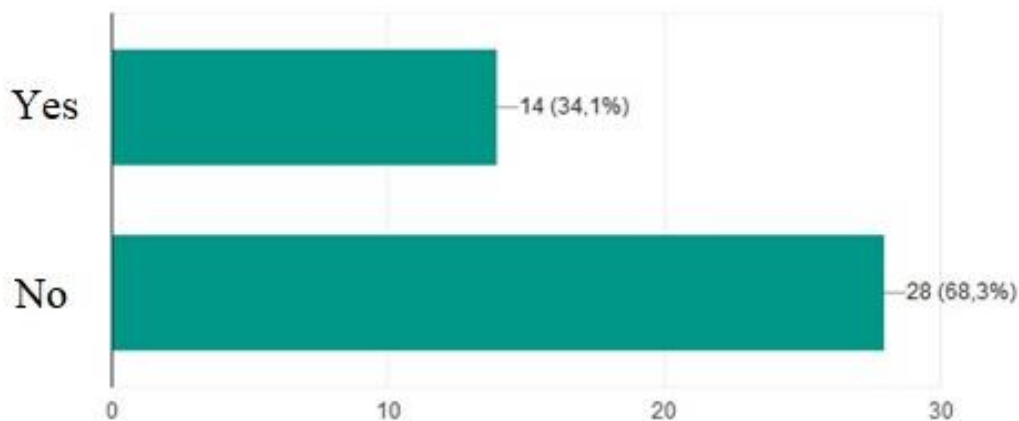
*Chart 7: Persons with disabilities represent "attractive workforce", untapped potential. (source: author, according to survey data)*

The claim that PWDs are an "attractive workforce", fully agrees with 20 employers (48.8%), 13 employers (31, 7%) rated this claim as number four, while eight employers (19.5 %) expressed a rating of three. Most employers that participated in the survey have experience in employing PWDs, which gives us a clearer picture of the potential of this population.



*Chart 8: Are you aware of the opportunities (incentives, subsidies, replacement quotas, rewards, active policy measures, etc.) available to you when hiring people with disabilities? (source: author, according to survey data)*

Generally, employers are familiar with the opportunities available to them when hiring PWDs, and this is expected given that they are mostly those employers who have had experience in employing PWDs.



*Chart 9: In your opinion, did the so-called. "quota system" employment of PWDs changed their position in the labour market? (source: author, according to survey data)*

In the majority opinion of the respondents, the so-called "quota system" of employment did not change the position of the PWD in the labour market. Twice as many, or 28 (68.3%), do not think that a change has occurred with the introduction of the employment system, while 14 (34.1%) do think that there has been a change in the position of PWD in the labour market. Below are answers from only those employers who have had experience in employment and work with people with disabilities in order to get a more specific picture of the potentials of these people and to bring their work potential closer to employers who have not yet ventured into employment. Also, employers with experience propose certain measures that they consider to be the key to integrating PWD into the world of work.

*Table 6: What do you propose as an employer employing people with disabilities as a key to their more intensive integration into the world of work? (source: author, according to survey data, August 2018)*

<b>THE KEY TO INTENSIVE INTEGRATION OF PEOPLE WITH DISABILITIES IN THE WORLD</b>
<ul style="list-style-type: none"> <li>• "Personally, I think the key is to change school curricula and directions - I don't know if you know what occupational training programs for people with disabilities exist.";</li> <li>• "Highlighting positive examples of practice, presenting the skills and abilities of persons with disabilities, encouraging greater education of persons with disabilities in accordance with the needs of the labour market, continuous informing of employers about their rights and opportunities as well as the abilities of persons with disabilities - through workshops, seminars, etc...";</li> <li>• "Acquiring competencies and higher levels of education.";</li> <li>• "Informing employers, better communication between CES and employers. Adequate, attractive and competitive school curricula for students with intellectual disabilities within secondary education. ";</li> <li>• "Within the disability group, persons with intellectual disabilities need practical training programs and work centres and social services to harness the potential of this social group and to achieve greater inclusion in society and related to the world of work.";</li> <li>• "Supporting persons with disabilities in the recruitment process in terms of assisting with CV preparation, escorting to job interviews (e.g. deaf translators), etc.";</li> <li>• "Employers should be helped to adjust their work organization so that they can accept people with disabilities (and not penalize them for unemployment).".</li> </ul>

The surveyed employers suggest that the key to more intensive integration of PWD into the world of work is primarily the change of school programs and directions for PWD, i.e. their adaptation to the needs of the labour market, adaptation of working conditions and environment, highlighting examples of positive practices of employers who have had experience in employment of PWD, educating employers about the benefits and incentives when employing PWDs.

*Table 7: What do you consider to be the highest quality or potential of the disabled person as an employee? (source: author, according to survey data, August 2018)*

<b>HIGHEST QUALITY, OR THE POTENTIAL OF PERSONS WITH DISABILITIES AS EMPLOYEES</b>
<ul style="list-style-type: none"> <li>• I think that PWDs as employees have the same qualities as other employees."</li> <li>• "High motivation and desire to prove yourself and emphasize skills and competencies</li> <li>• "Responsibility of the disabled person, the desire to prove."</li> <li>• "The desire to constantly acquire new knowledge and skills."</li> <li>• "Responsibility and perseverance in work."</li> <li>• "People with disabilities find it harder to get a permanent job and because of that, they work extremely hard and respect for the workplace."</li> <li>• "Personalization, economic independence!"</li> <li>• "Their loyalty and maximum effort to the best of their ability."</li> <li>• "Like people without disabilities, their quality is proven and demonstrated through their work."</li> <li>• "Commitment to Work."</li> <li>• "Respect for superiors, wills and desires to learn."</li> <li>• "Responsible attitude towards work or institution / company."</li> <li>• "Attitude towards work."</li> <li>• "Personality, the will to work, intelligence."</li> </ul>

The most prominent potential of PWD in the opinion of employers are: high motivation and desire to prove themselves, emphasizing skills and competences, responsibility for taking over the job, desire to constantly acquire new knowledge and skills, persistence in work, effort, commitment and punctuality.

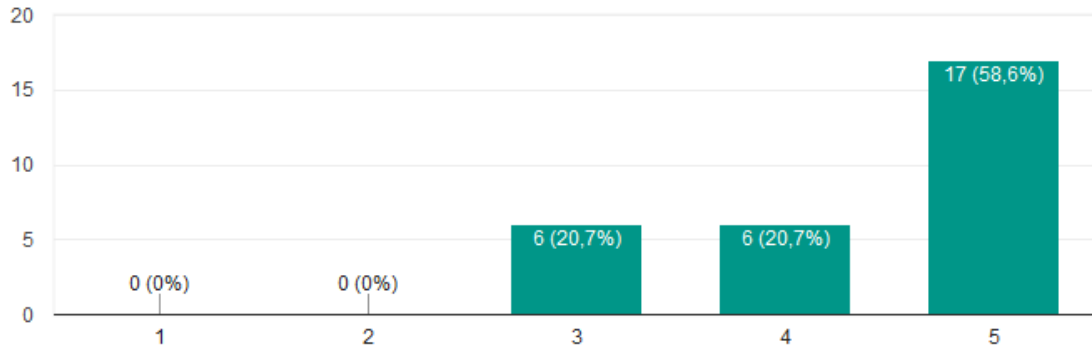


Chart 10: What overall grade would you give to persons with disabilities and their contribution to the work of your company? (source: author, according to survey data)

PWDs make a great contribution to the work of the company in which they are employed. Specifically, 17 employers (58.6%) rated their contribution to the work of their company as five. From the above, we can determine that employers who have experience in employment of PWD are quite satisfied with their work.

Table 8: What is your main recommendation for employers who have not yet ventured into hiring a disabled person? (source: author, according to survey data, August 2018)

<b>MAIN RECOMMENDATION TO EMPLOYERS WHO DIDN'T TRY TO EMPLOY A PERSON WITH DISABILITY</b>
<ul style="list-style-type: none"> <li>• "Pay attention to the needs of persons with disabilities in the workplace and any adjustments to enable them to express their work ability, to provide the necessary support in the workplace.";</li> <li>• "To be informed and familiar with the capabilities, skills and abilities of persons with disabilities in accordance with the needs of the workplace for which they are seeking an employee and to be informed of legislative and other regulations that offer certain opportunities and facilities.";</li> <li>• "Try to hire one disabled person at least on probation.";</li> <li>• "To do so as soon as possible, in cooperation with the Croatian Employment Service, they will receive a recommendation on potential candidates. It will hire a hardworking and motivated person";</li> <li>• "Consult before making employment decisions with employers who have experience with employees with disabilities.";</li> <li>• "Let them recruit. I believe that everyone can adapt at least one workplace to accommodate a disabled person.";</li> <li>• "Without fear, every PWD has its value and only the right approach will give you a quality employee.";</li> <li>• "People with disabilities are very important for integration and equal treatment, so they should be given the opportunity to participate actively in all aspects of life."</li> <li>• To avoid prejudice, that a person with a disability can make a full contribution to the work they do, as well as to a non-disabled person.";</li> <li>• "I would personally recommend that they get to know people, PWDs can give a lot, sometimes more than a healthy person because they value the opportunity given, the job and the employer, while healthy people often take their lives for granted. I know from my own experience that disability does not have to be a barrier.";</li> <li>• "They are very creative and communicative individuals who can contribute to a particular activity in improving its quality.";</li> <li>• That they have no prejudice against such persons."</li> </ul>



As major recommendations to other employers who have not yet ventured into hiring PWDs, these employers advise primarily to move beyond prejudice by hiring a PWD at least for probation and to know its value, or its work potential.

#### 4. CONCLUSION

Based on the theoretical part and the results of the research, we conclude that the possibilities of actual realization of the rights of persons with disabilities differ greatly from the general population. Disability is a difficult topic in our society, it is still not aware that a person is much more than his or her disability, that persons with disabilities are valuable, have their dignity, can develop and have their potential. It is necessary to sensitize society first and the employers about the potentials that PWDs possess. They know, want and can work. The most important thing is to get the opportunity that these persons successfully use and are much less on sick leave than healthy persons, they are more loyal to the employer, they are more conscientious at work, and they represent a significant contribution to raising a working culture in every company in which they are employed and experience which have also been empirically validated. Specifically, the survey conducted was mainly attended by supportive employers who had experience in employing PWDs and gave their answers to the knowledge that one of the greatest potentials of these persons is loyalty to both business and employer and the best means of discovering their potential is exactly their work.

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## PERCEPTION OF QUALITY OF HOTEL SERVICES

**Robert Stefko**

*University of Prešov in Prešov, Faculty of Management, Slovak Republic  
robert.stefko@unipo.sk*

**Anna Tomkova**

*University of Prešov in Prešov, Faculty of Management, Slovak Republic  
anna.tomkova@unipo.sk*

**Ivana Ondrijova**

*University of Prešov in Prešov, Faculty of Management, Slovak Republic  
ivana.ondrijova@unipo.sk*

### ABSTRACT

*The paper presents selected attributes of the quality of services of a selected company in the hotel industry with regard to gender and age of respondents. The aim of the paper is to compare and find correlation within the level of quality of accommodation, quality of services, offered activities, attractions, and prices for services provided between men and women and within age. We conducted the research using a questionnaire method. The research sample consisted of 121 respondents aged 23 to 68 years, while maintaining the proportionality of the gender. The results of the research did not confirm statistically significant gender differences in the level of examination of selected attributes of quality of services of the selected hotel. We noted the interdependencies of selected attributes, statistically significant relationships between age and room quality assessment, satisfaction with additional services provided, satisfaction with gastronomy and satisfaction with the price for provided services.*

**Keywords:** *Customer Satisfaction, Gender Differences, Hotel Services, Perception of Quality*

### 1. INTRODUCTION

Providing accommodation services is one of the most important prerequisites in tourism. The hotel and hospitality product is an important component of a comprehensive tourism product that we can understand as everything that tourism offers and has the ability to meet the needs of visitors. From the guest's point of view, we can say that it is always an individual set of services. The basis of each accommodation facility is to provide services in the standard range, level, time and finally yet importantly the quality, to lead to customer satisfaction (Šenková, Šambronská, 2014, p. 191). The aim of our contribution is to point out the importance of quality of accommodation services and to analyse the customer's perception of quality of accommodation, services, offered activities and the selected hotel attractions.

### 2. THEORETICAL BACKGROUND

There are many studies dealing with hotel services satisfaction (Min, Min, 1997; Ladhari, 2009). The satisfaction is related to expected and perceived value of the services. Generally, value can be created in three domains: value creation through relationships with suppliers, value creation through alliance partnering, and value creation through relationships with customers (Sharma, Sheth, 1997, p. 87). Perceived value is defined as „a trade-off between benefits and sacrifices perceived by customers in a supplier's offering. Customer value analysis is a strategic marketing tool to clarify a company's proposition to its customers“ (Ulaga, Chacour, 2001, p. 527). When we speak about value, we also have to speak about quality. One of the theories says, there are two dimensions of quality, namely technical quality and functional quality. This theory was based on conditions of hotel services.

Technical quality means what the consumer receives as a result of his interactions with a service firm. This is important to him and to his evaluation of the quality of the service. And how he gets the technical outcome or technical quality this is functional quality (Grönroos, 1984, p. 38). Perceived quality is defined as the perception of the overall quality of the superiority of a product or service by consumers compared to corresponding alternatives and purposes. Perceived quality is an overall appraisal based on the perception of the customer for whom the product acquires quality. Achieving a satisfactory level of perceived quality is becoming an increasingly important feature (Keller, 2003). Different factors can influence customer satisfaction and overall customer experience. The connection between quality and customer satisfaction is expressed by the quality function. These functions can be divided into different types (Storbacka, Lehtinen, 2002, p. 84):

- Key factors - quality and customer satisfaction have a linear relationship.
- Hygiene factors - quality improvement will not affect customer satisfaction for the better, but worsening quality will cause a significant decrease in customer satisfaction.
- Insignificant factors - changing the quality of these factors does not affect the overall impression and customer satisfaction.
- Profile factors - distinguish the company from the average level in the field and from the competition. Better quality increases customer satisfaction, but a slight decrease in quality does not affect satisfaction.

The customer is satisfied when he feels that the product's performance is equal to what was expected (confirming). If the product's performance exceeds expectations, the customer is very satisfied (positively disconfirming), if it remains below expectations, the customer will be dissatisfied (negatively disconfirming) (Ulaga, Chacour, 2001, p. 527). Ariffin and Maghzi (2012, p. 196) in their study found that hospitality of hotel services is best explained by "personalization". Personalization means the feeling of the guests that the hotel treats them as important guests, particularly by knowing their names or any other their personal information. The more the hotel guests feel or believe that they have been treated as important person, the higher the hotel is rated in terms of its hospitality. Milfelner, Snoj and Pisnik Korda (2011, p. 607) examined the role of perceived value as a mediating variable between perceived hotel services quality and guest satisfaction on a sample of hotel guests in Slovenia and Italy. As they state, hotel managers should be aware that perceived value by hotel guests influences hotel guest satisfaction, which, in most cases, also leads to guest decisions about whether or not to return to a particular hotel. There are many determinants that can meet or exceed customer expectations. The respondents in the research identified the following: continual on the job training to identify customer requirements—so that employees can differentiate between the business customer and the tourist who require different kinds of service; offer special rates and upgrade where appropriate; supervision, training and monitoring to maintain standards; proactive service through selling to provide better service and better profits; clean rooms with modern furniture and cable TV; provision of accurate information online which sells the hotel; recruitment and selection of skilled, competent and caring staff (Briggs, Sutherland, Drummond, 2007, p. 1011). The most important factor in predicting business travelers' overall service quality evaluation are tangibles, followed by understanding and caring, adequacy in service supply, assurance, and convenience (Akbaba, 2006, p. 184). Gallarza and Saura (2006, p. 449) had explored the relationship between perceived value, satisfaction and loyalty in tourism. The results of their study indicate that perceived value is significantly related to tourist satisfaction.

### 3. METHODOLOGY

The paper deals with the analysis of the perception of the quality of services of a selected company in the hotel industry with respect to a selected sample of respondents. The main aim is to compare and find correlation within the level of quality of accommodation, quality of services, offered activities, attractions, and prices for services provided between men and women and within age. The research sample consisted of 121 respondents aged 23 to 68 years. The respondents were customers of the selected hotel. According to the gender, the sample was proportional, 46% men and 54% women. For our research was used questionnaire method for the evaluation of individual attributes of the perception of the hotel services quality. The questionnaire consisted of 17 questions. For each of the questions respondents were asked to estimate degree of agreement with the claim on a scale: 1 (very important) to 5 (least important); 1 (excellent) to 5 (insufficient); 1 (very satisfied) to 5 (very dissatisfied); 1 (completely agree) to 5 (completely disagree).

### 4. RESULTS AND DISSCUSION

The research results we have processed by means of t-test in statistical program SPSS 20. We examined the existence of statistically significant differences in individual perceptions of quality attributes of the selected options, so the selection of accommodation, quality of service, quality of rooms, satisfaction with additional services, satisfaction with gastronomy, aspects of hotel activities, aspects of attractions and the price for the services between men and women (Table 1).

*Table 1: Comparison of the statistical significance of differences in the attributes of perception of selected hotel quality between men and women (own processing)*

	<b>Gender</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>t</b>	<b>df</b>	<b>p</b>																																																																																
<b>Accommodation selection</b>	Man	55	2,0485	,70102	1,303	118	,194																																																																																
	Woman	65	1,8795	,71353				<b>Quality of rooms</b>	Man	55	2,4909	1,09329	1,079	118	,283	Woman	65	2,3046	,79223	<b>Quality of services</b>	Man	55	2,4582	,89746	1,139	118	,257	Woman	65	2,2862	,75661	<b>Satisfaction with additional services</b>	Man	55	2,2634	,85075	-	118	,979	Woman	65	2,2700	,94005	<b>Satisfaction with gastronomy</b>	Man	55	2,3545	1,26445	1,209	118	,229	Woman	65	2,1000	1,04283	<b>Aspects of hotel activities</b>	Man	55	2,3182	,81146	-	118	,784	Woman	65	2,3577	,76287	<b>Aspects of attractions</b>	Man	55	2,1403	,87697	0,688	118	,493	Woman	65	2,0330	,82791	<b>The price for the services</b>	Man	55	2,3970	,97103	0,278	118	,782
<b>Quality of rooms</b>	Man	55	2,4909	1,09329	1,079	118	,283																																																																																
	Woman	65	2,3046	,79223				<b>Quality of services</b>	Man	55	2,4582	,89746	1,139	118	,257	Woman	65	2,2862	,75661	<b>Satisfaction with additional services</b>	Man	55	2,2634	,85075	-	118	,979	Woman	65	2,2700	,94005	<b>Satisfaction with gastronomy</b>	Man	55	2,3545	1,26445	1,209	118	,229	Woman	65	2,1000	1,04283	<b>Aspects of hotel activities</b>	Man	55	2,3182	,81146	-	118	,784	Woman	65	2,3577	,76287	<b>Aspects of attractions</b>	Man	55	2,1403	,87697	0,688	118	,493	Woman	65	2,0330	,82791	<b>The price for the services</b>	Man	55	2,3970	,97103	0,278	118	,782	Woman	65	2,3538	,72619								
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$p < 0,05$

We assumed existence of the differences between men and women in the individual attributes of the perception of the hotel quality. Our study was based on the theory that different customer segments ascribe different degrees of importance to the dimensions of service quality (Scott, Shieff, 1993, p. 51). The study by Meng and Uysal (2008) revealed gender differences in the perceived importance placed on destination attributes. Women put a higher importance on most destination attributes than did men, especially in appreciating natural scenery and having recreational activities.

Men valued challenging naturebased activities such as canoeing, hiking, skiing, horseback riding, hunting and fishing. Gender differences we had expected in evaluating the accommodation selection, in importance of the quality of services and in satisfaction with the quality of the food and drinks at this hotel. We also had expected differences between men and women in assessing the price of services provided, whether the price was appropriate or not and differences between men and women in terms of the activities offered by the hotel, or the various attractions that belong to the hotel. We verified the results through a t-test for two independent samples to determine these differences. The results of the t-test showed that in the attributes of accommodation selection ( $t = 1.303$ ;  $p = 0.195$ ), room quality ( $t = 0.136$ ;  $p = 0.892$ ), quality of service ( $t = 1.139$ ;  $p = 0.257$ ), satisfaction with additional services ( $t = -0.027$ ;  $p = 0.979$ ), gastronomy satisfaction ( $t = 1.209$ ;  $p = 0.229$ ), activity aspects ( $t = -0.275$ ;  $p = 0.784$ ), attraction aspects ( $t = 0.688$ ;  $p = 0.493$ ), and prices for services ( $t = 0.278$ ;  $p = 0.782$ ) there are no statistically significant differences. Another aim of our research was to find out the existence of relationship between age and the perception of the selected attributes of hotel quality. The Pearson correlation coefficient showed (Table 2) statistically significant correlation between age and perception of selected quality attributes.

*Table 2: Relationship between age and perception of the selected attributes of hotel quality (own processing)*

		Accommodation selection	Quality of rooms	Quality of services	Satisfaction with additional services	Satisfaction with gastronomy	Aspects of hotel activities	Aspects of attractions	Price for the services
Age	r	,005	,419**	,084	,272*	,292**	,116	,062	,288**
	p	,955	,000	,359	,049	,001	,206	,503	,001

\*  $p < 0,05$ , \*\*  $p < 0,01$

Statistically significant relationships between age and perception of selected attributes of hotel quality we found in four attributes. With the increasing age of visitors, their positive rating of room quality and satisfaction with the provided additional services increases. As the age of customers increases, their satisfaction with the quality of food and beverages in the hotel increases as well, and for these respondents is the price for the provided services more appropriate. Ganesan-Lim, Russell-Bennett and Dagger (2008, p. 558) analysed whether demographics affect perceptions of the four dimensions of service quality (perceptions of interaction quality, physical environment quality, outcome quality and systems quality). The study found strong evidence of the effect of age on service quality perceptions. These perceptions were significantly higher for mature customers than to younger ones. The study by Callan, Bowman (2000, p. 105) about mature travellers (aged over 55) had shown that this segment has high expectations of hotel service quality. Attribute of primary importance was cleanliness and value for money was ranked second. Politeness, responsiveness and friendliness of staff, efficiency and promptness of service were all ranked in the top 10 attributes, with services provided as ordered and attentiveness of staff. This study analysed whether there were any significant differences in the importance placed on attributes according to age. Significant differences were found between three age groups (55-64, 65-74, 75 plus) for ease of manoeuvrability around the hotel and small food portions. In our research we had oldest respondent of age 68, so the differences were not so significant.

## 5. CONCLUSION

The aim of the paper was to compare and find correlation within the level of quality of accommodation, quality of services, offered activities, attractions and prices for services provided between men and women and within age. The result of our research is that there is no statistically significant difference between men and women in the individual attributes of perception of the quality of the selected hotel. There are no gender differences in the importance of choice of accommodation in terms of quality of service, price, staff access to customers, hotel availability to the center and a pleasant environment. In evaluating the quality of rooms, there are no significant differences between men and women in the assessment of room cleanliness, satisfaction with bathroom, room refreshments, electronic equipment and location. In addition, there are no differences from the view of gender in terms of satisfaction with additional services, namely wellness, sauna and massage. These conclusions led us to a modification of the thesis so both, men and women, have on average the same level of requirements imposed on selected attributes of the perception of the hotel quality, with no significant differences in this assessment. We examined the existence of statistically significant relationship between the age of respondents and perception of selected attributes of the hotel quality. We found out that with increasing age of respondents their positive assessment of room quality, satisfaction with provided additional services, satisfaction with gastronomy and satisfaction with price for provided services increases. With the increasing age, hotel visitors perceive quality of the hotel more positive. The limitations of our study are size of sample and non-random selection.

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## DEVELOPING BUSINESS - IT ALIGNMENT SKILLS THROUGH DATA MANAGEMENT: HIGHER EDUCATION EXAMPLE

**Borna Nikolic**

*Faculty of Economics and Business Zagreb, University of Zagreb, Croatia  
bnikolic@net.efzg.hr*

**Lucija Ivancic**

*Faculty of Economics and Business Zagreb, University of Zagreb, Croatia  
livancic@efzg.hr*

**Ljubica Milanovic Glavan**

*Faculty of Economics and Business Zagreb, University of Zagreb, Croatia  
ljmilanovic@efzg.hr*

### ABSTRACT

*Business-IT alignment (BITA) skills are one of the top concerns in companies since a misunderstanding is a common issue between the business units and the informatics department. BITA is becoming even more important with the challenges that the digital transformation is posing. Accordingly, top-level managers coming from the business domain are expected to have profound knowledge about information technology (IT) and related topics. The goal of this paper is to present an educational approach for developing BITA skills in the graduate-level course of Data Management in Business Administration university program. A project assignment is designed with the purpose of strengthening the BITA skills of business students. Additional objectives of the project are related to the learning outcomes of the course. Those include acquiring knowledge about databases and database modeling in order to empower students for gaining insights from data and recognizing the opportunities for business improvement in the digital economy. In order to meet the research goal of the article, the steps in the project assignment are shown. Students are required to simulate a business environment. Firstly, the business environment of a company which is encountered with digital disruption in their industry is designed. After that, actions for business improvement are defined. Then, modeling of a relational database that can support subsequent business requests is carried out. In the end, programming skills in SQL are applied to gain quality information needed for business actions. The presented project assignment incorporates a combination of business, IT, and digital skills which foster business development. Since employees and managers with strong BITA capabilities help companies to mitigate risks of losing time and money, and overseeing business opportunities for growth, the presented educational approach can be of great value to educators in higher education and business.*

**Keywords:** *Business-IT Alignment, Data Analysis Skills, Digital Skills, Education, Relational Database Modeling*

### 1. INTRODUCTION

Information technology (IT) has enabled the fast growth of businesses by changing the way companies organize their business processes, communicate with their customers and potential customers, and deliver their services (Silvius, De Waal, & Smit, 2009). As IT has become such an integral part of the business model it has drawn the interest of many academics, executives and consultants to the topic of optimizing the interdependency between IT infrastructure and business goals (Luftman & Kempaiah, 2007), giving birth to the field known as Business and IT alignment (BITA). BITA can be defined as the extent of alignment between information technology and business strategy (Jia, Wang, & Ge, 2018).

With the growing importance of digitalization and the disruptive effect of trends such as social media, data analytics and cloud computing, enterprises who fail to act proactively in their IT strategy risk losing their competitive advantage (Diallo et al. 2014, Horlach, Drews, & Schirmer, 2016). This presents a pressing problem for middle and top management as the driving forces of forming an organization's strategy. The SIM IT trend study (Kappelman, Mclean, Johnson, & Gerhart, 2015) list the most important skills for IT middle management as (i) teamwork; (ii) technical knowledge; (iii) problem solving, and; (iv) people management. Hence, the diverse skillset of the modern manager includes not only technical skills but also so-called "soft" skills. This clash of business and IT know-how falls directly into the area of BITA and highlights the importance of the subject in the current business landscape. Recent studies also show that large firms are actively taking part in the trend of digital transformation and as such look to extract added values from the vast amount of data at their disposal (Ivančić, Bosilj Vukšić, & Spremić, 2019). With larger value given to data in general, middle and top management need to be data "literate" to maximize the efficiency of decisions. A significant part of BITA is data management and analytics and the latest research shows that they currently draw the largest amount of investment in the industry (Kappelman et al., 2018). The rise of interest and influx of funds bolsters the need for IT management and workers to possess data-centric reasoning among other BITA skills to enable the synergy between Business and IT inside the organization. The Faculty of Economics and Business (FEB) Zagreb educates future managers and leaders. As such, it is crucial for economics and business students to possess BITA skills. The Data Management course is a part of the Managerial Informatics masters' degree at the Business Administration university program. The Managerial Informatics program aims to equip students with a complete skill set that includes equally business strategy and technical knowledge. On top of that, students from other business and economics programs at the faculty regularly enroll in the course. Therefore, this paper aims to present an educational approach for developing interdisciplinary BITA skills of business students in the graduate-level course of Data Management. The remainder of this paper is structured as follows. After the introduction, the employed methodological approach is displayed. After that, the main section of the chapter envelopes the steps of the chosen project assignment. In the end, a discussion of the presented educational approach regarding the skills it is developing is presented, alongside the contribution of the paper and the concluding remarks.

## **2. METHODOLOGY AND PROJECT ASSIGNMENT DESCRIPTION**

In order to meet the research goal of the article, an educational approach for developing interdisciplinary BITA skills is presented. For that purpose, a project assignment task is developed. Therefore, the steps in the chosen project assignment are presented in the next chapter and can be defined as follows: (i) setting business environment and requests; (ii) relational database modeling, and; (iii) query deployment to support business actions. The second step is employed with the assistance of MySQL and Oracle SQL Developer software. Logical modeling is done in MySQL, while the physical modeling is deployed in SQL Developer. The third step, i.e. query deployment is entirely conducted in Oracle's SQL Developer. Before conducting and writing a project assignment, students are required to simulate a business environment of a chosen company. After that, business goals with accompanying business requests are set which aim at optimizing the selected domains of a company. A special focus is put on the consideration of how digital trends and digital disruption is affecting the particular business niche the company is operating in. In accordance with these trends, particular business requests aiming at business development and improvement are defined (strategic level focus). Since the execution of business actions is in the hands of business units (operational level), business actions and database requests are connected to particular organizational departments.

Then, modeling of a relational database that can support subsequent business requests is carried out. In the end, to gain quality information needed for business actions, programming skills in SQL are applied. The information gained at this step is used in particular organizational departments for conducting predefined business actions.

### **3. DATA MANAGEMENT COURSE PROJECT ASSIGNMENT EXAMPLE**

#### **3.1. Setting business environment and requests**

In order to meet the learning goals of the course, the business situation of a company is simulated. The simulated business environment in this example is about a rent a car company, which deals in rentals of various automotive vehicles to customers. The industry is largely affected by disruptive technological business models such as Uber and Lyft, which provide cheap transportation alternatives, therefore pushing rent-a-car companies to constantly improve the quality of their services. The rent a car company decided to do a full structural adjustment of their business practices with help from data analytics. This has resulted in particular business actions in their Marketing, Human Resources, and Business Development departments. The goal of business changes with respect to the department in charge are the following:

1. Create a new promotional campaign for business customers. Business customers count for a large percentage of the total number of customers in the last several years. Hence, they are evaluated as an untapped customer niche (Marketing Department).
2. Replace older outdated models in the rental car portfolio with a larger number of popular models. Popular models are the ones having a high demand with previous customers (Business Development Department).
3. Increase employee morale and incentive by rewarding the most active ones (Human Resources Department).

For accomplishing these goals, a functioning and accurate relational database is required from which we can gather information to support the planned business actions. Modeling of the relational database that is in the function of supporting business decisions is presented in the following paragraph.

#### **3.2. Relational database modeling**

Modeling can be defined as a process that begins with the analysis of the information system requirements and results in the creation of a database (Varga, 2016). Modeling is done through multiple steps which all develop different aspects of the database. The steps in modeling a relational database are (i) conceptual modeling; (ii) logical modeling, and; (iii) physical modeling. To build a working database, the person in charge of modeling it must not only be proficient at the technical aspect of development but must also thoroughly understand the business logic behind the database, so that it functions in an efficient manner.

##### *3.2.1. Conceptual and logical modeling*

The first step of relational database modeling is conceptual modeling, with a goal of giving a complete, consistent and non-redundant description of the data in an information system (Varga, 2016). The tool for achieving this goal is building an Entity-Relationship (ER) diagram which shows all the Tables, also known as entities in a database and the relationships between them. This step requires the designer of the database to understand the interoperability of different business units and how to optimize their interdependencies.

*Figure following on the next page*

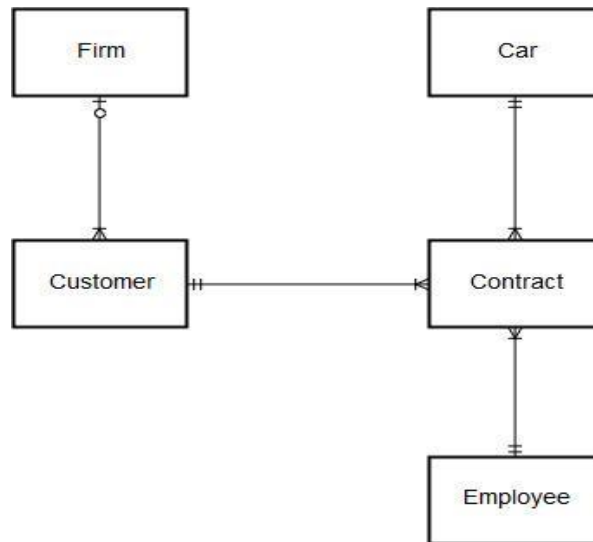


Figure 1: Entity-Relation diagram for the Rent a car project (Authors' work)

Figure 1 presents the ER diagram of the rent-a-car project. The company demands 5 different tables inside their database: (i) Customer – this table would collect all the personal information for each customer who rents a car; (ii) Firm – a special table which would keep legal information about Firms in which customers work when they rent cars for business use; (iii) Car – the list of all vehicles available in the rent a car company; (iv) Employee – the list of employees of the rent a car company, and; (v) Contract – a table which would store information of each rental contract. Diagram displayed in Figure 1 uses a simplified Martin notation also known as “Crows feet” notation because of its specific symbol of relation. “The feet” symbol stands for many, “|” stands for one, and “o” stands for optional. In the ER model of the project assignment, each contract must have only one employee, car and customer, which is logical when considering the legal background of the document. Every employee, car, and customer can be present in many contracts but need to be at least inside one to be present inside the system. This is due to the fact that we are operating a rental service in which vehicles are returned and then rented again to new customers by various employees. The last relation on the diagram is between the Firm table and the Customer table. Each firm must have at least one employee, who is a customer, to be present in the system but can also an unlimited number of them. The customer, on the other hand, doesn't have to be employed at any firm to rent a vehicle. Logical modeling continues on conceptual modeling as it provides the reasoning behind the connection of different tables. Logical modeling presents attributes (columns) of the tables and connects different tables by specifying which columns serve as primary and foreign keys. A primary key is a column or group of columns in the table which value can be used to uniquely identify each row of the table. The foreign key is a value of a primary key of a table which is found in another table and can be used to link together rows from two different tables. The result of logical modeling is a relational schema (Figure 2).

Figure following on the next page

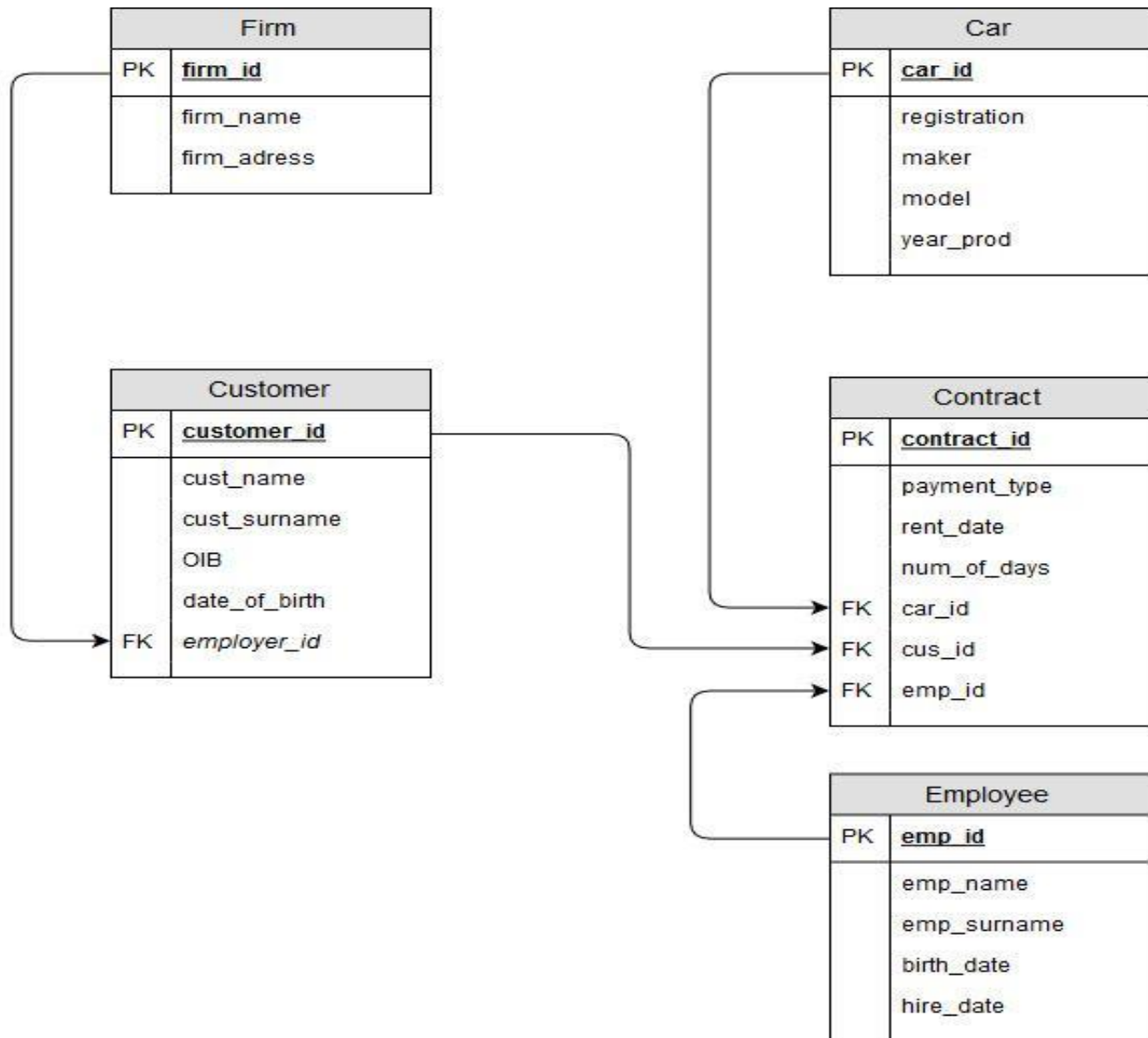


Figure 2: Relationship schema of the Rent a car project (Authors' work)

As seen in Figure 2, we will collect various data to use for information gathering. In the Firm table, the data collected is about the name and legal address of the partnering company. The Customer table will have primarily personal data such as the name, OIB (personal identification and VAT number) and the birthday of the customer. A similar data will be gathered for the employees with the addition of the hiring date. Vehicle information such as maker, model, registration and year when it was produced will be stored in the Car table. The final table, Contract, is combining information from the other tables with payment type and rental details to give a complete view of each transaction in the business. This is made possible by three foreign keys inside of it, from which we can reference relevant rows from other tables. Through both modeling steps, the vital part is to transfer the business logic into the database. The tables have to gather the needed information and be connected so the data is available to the different apartments which all possess a need for different aspects through which to view the data.

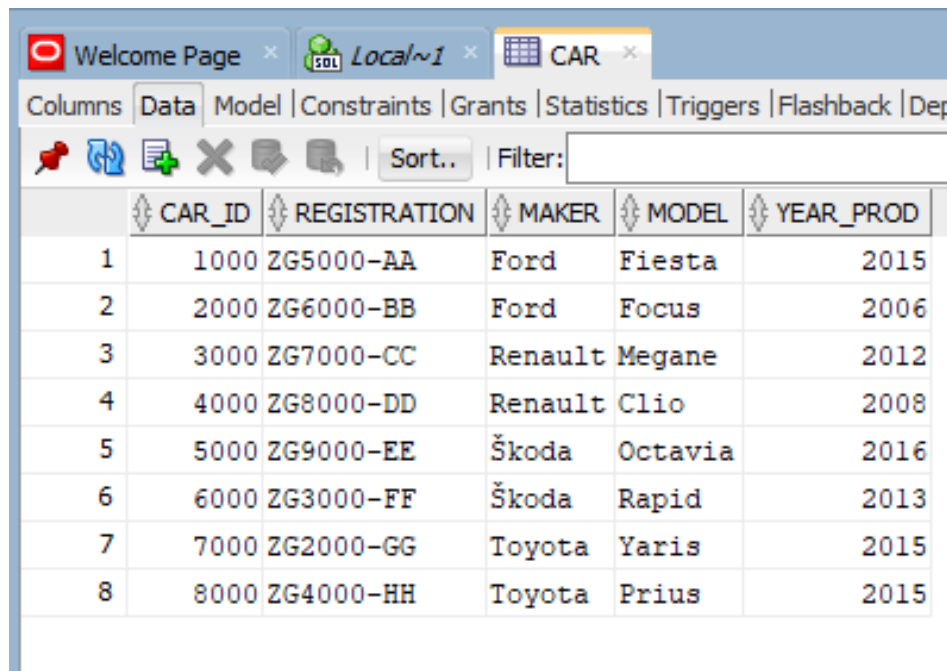
### 3.2.2. Physical modeling

Physical modeling is the step in which the actual database is constructed. Most relational databases are built and manipulated using Structured Query Language. The chosen program to use for creating the database is SQL Developer by the Oracle Corporation, as it provides all the necessary tools for the completion of the project.

The exemplary syntax for the creation of a table can be seen in the example below:

```
CREATE TABLE Car
(car_id NUMBER (4) NOT NULL,
registartion VARCHAR (12),
maker VARCHAR (15),
model VARCHAR (15),
year_prod NUMBER (4),
CONSTRAINT car_unique UNIQUE (car_id,registration));
INSERT INTO car VALUES
(1000, 'ZG5000-AA', 'Ford', 'Fiesta', 2015);
INSERT INTO car VALUES
(2000, 'ZG6000-BB', 'Ford', 'Focus', 2006); ...
```

The result is the creation of the Car table and subsequent insertion of relevant data into it (Figure 3). All the other tables were created in the same manner with different attribute names and data types. The data types used in the project were mainly NUMBER, DATE, and VARCHAR2 for different textual values. During this phase of the project, the need for technical expertise arose. The syntax has to be correct and complete for the creation of the table. Even though SQL Developer provides a graphical interface to interact with, there is still a need for technological skills for correct usage.

The image shows a screenshot of the SQL Developer interface. The 'Data' tab is selected, displaying a table with 8 rows and 6 columns. The columns are CAR\_ID, REGISTRATION, MAKER, MODEL, and YEAR\_PROD. The data rows are as follows:

	CAR_ID	REGISTRATION	MAKER	MODEL	YEAR_PROD
1	1000	ZG5000-AA	Ford	Fiesta	2015
2	2000	ZG6000-BB	Ford	Focus	2006
3	3000	ZG7000-CC	Renault	Megane	2012
4	4000	ZG8000-DD	Renault	Clio	2008
5	5000	ZG9000-EE	Škoda	Octavia	2016
6	6000	ZG3000-FF	Škoda	Rapid	2013
7	7000	ZG2000-GG	Toyota	Yaris	2015
8	8000	ZG4000-HH	Toyota	Prius	2015

Figure 3: Car table inside SQL Developer (Authors' work)

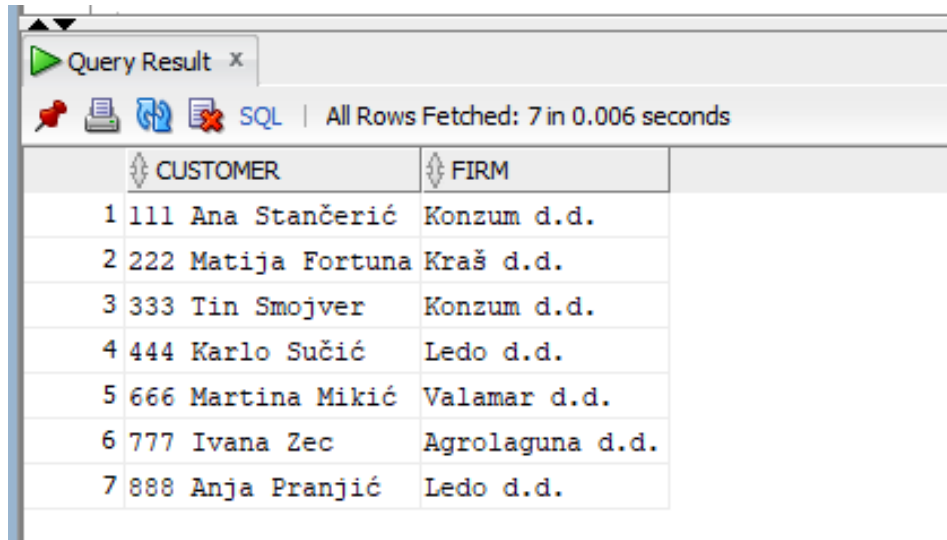
### 3.3. Query deployment to support business actions

As the database has been prepared in the previous steps, we can address the business issues identified in section 3.1. As stated in section 3.1., the first problem regarded the Marketing Department and involved the creation of special promotions for business customers. To accomplish this, we need to create a list of all customers who rented vehicles for business use and their respective companies. This task involves filtering all customers who have some value in the company\_id field and attaching to them the relevant row from the Firm table.

The used query is as follows:

```
SELECT CONCAT(CONCAT(k.customer_id,' '), k.cust_name||' '||k.cust_surname)
"CUSTOMER",
p.firm_name "FIRM"
FROM customer k left join firm p on k.employer_id=p.firm_id
WHERE firm_id is not null;
```

The result of a query is visible in Figure 4. Once the relevant information is in place, they can be used to send promotional material.



	CUSTOMER	FIRM
1	111 Ana Stančerić	Konzum d.d.
2	222 Matija Fortuna	Kraš d.d.
3	333 Tin Smojver	Konzum d.d.
4	444 Karlo Sučić	Ledo d.d.
5	666 Martina Mikić	Valamar d.d.
6	777 Ivana Zec	Agrolaguna d.d.
7	888 Anja Pranjić	Ledo d.d.

Figure 4: Marketing query and results (Authors' work)

The second issue was more complex and thus requires two queries. The Business Development Department wants to increase service quality by replacing old vehicles in their fleet with new vehicles, which proved as the most popular by previous experience. The first query will help us determine which cars are outdated. We will accomplish this by filtering the Car table to show cars whose year of production is more than ten years apart from the current date. Furthermore, we will order the results by year so that we can remove the oldest ones first. The query and its results are presented in Figure 5. The second part of the solution is to find the most popular models in the current fleet so that we can increase the number of those models. We can do this by taking the list of models from the Car table and adding to them the number of rental contracts in the Contract. Finally, we order the results from the highest number of rental contracts the least, so that we can choose the best available model if the first one cannot be attained for some reason. The second query result is visible in Figure 6. The employed queries are as follows:

```
SELECT car_id "ID", maker "Maker", model "Model", registration "Registration number",
year_prod "Year of production"
FROM car
WHERE 2019 - year_prod > 10
ORDER BY year_prod;
```

```
SELECT a.maker||' '||a.model "Car", COUNT(v.contract_id) "Number of rides"
FROM car a LEFT JOIN contract v ON a.car_id=v.car_id
GROUP BY a.maker||' '||a.model
order by COUNT(v.contract_id) desc;
```

ID	Maker	Model	Registration number	Year of production
1	2000 Ford	Focus	ZG6000-BB	2006
2	4000 Renault	Clio	ZG8000-DD	2008

Figure 5: Business Development query No. 1 and results (Authors' work)

Car	Number of rides
1 Renault Megane	4
2 Toyota Yaris	3
3 Škoda Octavia	2
4 Ford Fiesta	1
5 Škoda Rapid	1
6 Toyota Prius	1
7 Ford Focus	0
8 Renault Clio	0

Figure 6: Business Development query No. 2 and results (Authors' work)

The last problem we are addressing is of internal nature and involves the Human Resources Department which wants to reward the best employees. We will, therefore, gather the list of employees and attach to them their respective number of realized contracts. This way we can reward the best-sellers among them and give incentives to all employees to focus more on their sales skills. The query is:

```
SELECT a.maker||' '||a.model "Car", COUNT(v.contract_id) "Number of rides"
FROM car a LEFT JOIN contract v ON a.car_id=v.car_id
GROUP BY a.maker||' '||a.model
order by COUNT(v.contract_id) desc;
```

Employee	Number of rides sold
1 Marija Marić	4
2 Ivana Ivić	3
3 Ivo Ivić	2
4 Ante Antić	2
5 Pero Perić	1

Figure 7: Human Resources query and results (Authors' work)

#### 4. DISCUSSION AND CONCLUSION

This paper presents the educational approach to developing BITA skills and reasoning. In order to do so, a project assignment is designed and a project assignment steps are presented. A business environment is simulated, and business actions set. Business actions have been chosen with respect to the digital trends affecting the chosen rent-a-car industry. Moreover, a relational database is created to support business actions' execution.



Through the presented example, valuable information is gained which helped make four important business improvements, related to respectively, Marketing Department, Business Development Department, and Human Resources Department. To accomplish project assignment objective, BITA skills to model, deploy and manipulate the database, and connect it to strategic reasoning and operational business activities are required. By employing BITA skills, the business side is analyzed, aspects for a strategic focus are chosen, the technical solution is built in an efficient manner, and knowledge is combined to produce added value to the company. The presented project assignment incorporates a combination of business, IT, and digital skills which foster business development (Kappelman et al., 2015). Therefore, here presented educational approach is suitable for developing BITA skills. Accordingly, the paper contributes to the ever compelling issue of strengthening the students', and consequently employees' and managers', capabilities in the BITA body of literature (Luftman & Kempaiah, 2007; Mora, Wang, Raisinghani, & Muravchik, 2017). Employees and managers with strong BITA capabilities help companies to mitigate risks of losing time and money and overseeing business opportunities for growth, which in the end leads to the higher organizational performance (Gerow, Grover, Thatcher, & Roth, 2014; Silvius et al., 2009). Moreover, BITA skills have been identified as essential by the companies in the last decade (Kappelman et al., 2018b, 2015). Hence, incorporating here presented educational approach in courses stems beyond the university setting and has practical repercussions for the business sector also. Additionally, the approach can be of great value not only to educators in higher education but also to the professionals working with the business sector, such as human resource departments and training organizations.

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# A COMPARATIVE STUDY OF MULTIPLE-CRITERIA DECISION- MAKING METHODS: THEIR USE IN MODEL EXAMPLE OF FINANCIAL HEALTH

**Jaromir Vrbka**

*School of Expertness and Valuation,  
Institute of Technology and Business in Ceske Budejovice  
Okruzni 517/10, 37001 Ceske Budejovice, Czech Republic  
vrbka@mail.vstecb.cz*

## **ABSTRACT**

*Decision-making is common part of business practices. It is a part of management. Multiple-criteria decision-making (MCDM) or multiple-criteria decision analysis (MCDA) is defined as a sub-discipline of operations research that explicitly evaluates multiple conflicting criteria in decision-making. The quality of multiple-criteria decision-making process significantly influence results and effectivity of organizations. At present, decision-making cannot be defined as a random process. Multi-criteria decision-making has been one of the fastest growing problem areas in many disciplines. The central problem of multiple-criteria decision-making process is how to evaluate a set of alternatives in terms of a number of criteria. There are several methods available and their quality is hard to determine. Some of them are simpler, less time consuming, without the need to use computer technology, others quite the contrary. The efficiency of the method is influenced mainly by the difficulty of the decision-making problem, but also by the abilities, knowledge and experience of the manager. The question 'Which is the best method for a given problem?' has become one of the most important and challenging ones. The aim of the contribution is to describe and present on practical example results of selected methods of multiple-criteria decision-making. Multiple-criteria decision-making methods are studied in the context of financial health assessment. The approach is to compare the functionality and the results provided by different selected methods. There is no „the best” MCDM method discovered and presented in the study, there is an information about the performance of the selected methods in the content of model example.*

**Keywords:** *Decision-making, financial health, multiple-criteria, TOPSIS, WSA*

## **1. INTRODUCTION**

Financial health is also largely influenced by the financial health of trading partners. Every corporation has an economic and moral responsibility to its stockholders to perform well financially. However, the number of bankruptcies in Slovakia has been growing for several years without an apparent macroeconomic cause. (Kliestik et al., 2018, p.791) Defaults can have various forms, various manifestations and consequences. In particular, the consequences are the engine of research and development of methods and models that help predict the failure in advance. (Valaskova et al., 2018, p.105, Valaskova et al., 2019, p.22). The decision to provide a trade credit should be the result of an analysis of the customer's solvency to meet its future commitment properly and on time. A number of criteria are taken into account when assessing the solvency of trading partners. This process can therefore be understood as multi-criteria decision-making and one of the mentioned methods can be used to solve it. The aim of the contribution is to describe and present on practical example results of selected methods of multiple-criteria decision-making.

## **2. THEORETICAL BACKGROUND AND METHODOLOGY**

Indecision can be also defined as a decision that does not move you forward or help you achieve goals. Decision-making process is referred to as one of the most important activities that take

places in business. It is also defined as a core of the management. (Vinczeova, Kascakova, 2017, p.120) Decision-making process is defined as set of activities related to the analysis, evaluation and selection of one of the non-zero set of options for solving a given decision problem. The existence of the decision-making process is determined by the existence more than one meaningful option for the solving problem (Rogalska, 2018, 710). In order to make a rational decision, the decision-maker must have information on the three basic elements of the decision-making model, namely alternatives, the states of the world and the consequences. In the case of the decision under the conditions of the risk, he/she needs to know the probability of the occurrence of the states of the world (Sadaf et al., 2019, 175). In terms of the information available to the decision-maker, we distinguish: (Balcerzak et al., 2017, 53)

- Decisions under the conditions of the certainty, decision-maker knows the alternatives, knows with certainty the state of the world, which will occur and therefore he/she also knows its consequences.
- Decisions under the conditions of the risk, decision-maker knows the alternatives, does not know for sure which the state of the world will occur, but knows the probability with which the state of the world will occur and therefore the consequences are likely.
- Decisions under the conditions of the uncertainty, decision-maker knows the alternatives, the states of the world and the consequences, but does not know how likely they will occur.

In our contribution, author deals with the multiple-criteria decision-making situations that are more common under the conditions of the certainty. The basic characteristics of multi-criteria decision-making include: (Fotr et al., 2010, p.26)

- Multiple-criteria character of the decision problems, it means that decision is taken on the basis of an assessment of more than one criterion.
- Non-additivity of criteria, it means that criteria are expressed in different units of measure.
- Mixed set of criteria, it means that some criteria are quantitative, some qualitative, some want to be maximized, others minimize.

In the framework of the multiple-criteria decision-making, two problems are solved:

- Modelling preferences between criteria. Generally, each criterion has a different importance for the decision-maker. As a first task, the decision-maker must resolve the choice of the appropriate method for the determining the weights for each criterion.
- Modelling preferences between alternatives in terms of individual criteria and aggregating them to express overall preference.

Consequently, the decision-maker needs to assess the alternatives under consideration in the light of the selected criteria, taking into account their importance as set out in the previous step. The decision-maker again must resolve the choice of the appropriate method for it.

In our contribution, the author compares the results of using different most used methods for solving the multiple-criteria decision-making process.

The following steps of the multiple-criteria decision-making process are addressed in the paper:

1. Creating multiple-criteria decision-making matrix.

*Figure following on the next page*



$$PIS = \max w_{ij} \quad j = 1, 2, 3, \dots, k$$

$$NIS = \min w_{ij} \quad j = 1, 2, 3, \dots, k$$

7. Calculation the geometric distance of all alternatives from the PIS  $d_i^+$  and the NIS  $d_i^-$ .

$$d_i^+ = \left( \sum_{j=1}^k (w_{ij} - PIS_j)^2 \right)^{1/2}$$

$$d_i^- = \left( \sum_{j=1}^k (w_{ij} - NIS_j)^2 \right)^{1/2}$$

8. Calculation the relative distance of alternatives  $c_i$

$$c_i = \frac{d_i^-}{d_i^- + d_i^+}$$

9. Rank the alternatives according to  $c_i$ .

## 2.2. Weighted Sum Approach

Weighted Sum Approach is based on the construction of a linear utility function on a scale from 0 to 1. The worst alternative according to a given criterion has the utility 0, the best alternative has the utility 1 and the other alternatives have utilities between these two extreme values (Mulliner et al., 2016, p. 150). This means that when applying this method, the elements of  $y_{ij}$  of the input criterion matrix should be replaced by values  $y_{ij}$  which will represent the utility  $X_i$  in the criterion  $Y_j$ . The values  $y_{ij}$  can be obtained for maximization criteria by the following relationship:

$$y_{ij} = \frac{y_{ij} - NIS}{PIS - NIS}$$

Where  $NIS$  is the lowest (in maximizing criterion the worst) and  $PIS$  the highest (in maximizing criterion the best) criterion value  $Y_j$ . It is clear from the above equation that the utility  $y_{ij}$  for the worst criterion value  $y_{ij} = PIS$  is equal to 0 and for the best criterion value  $y_{ij} = NIS$  is equal to 1. The total utility of the variant  $X_i$  is then calculated as the weighted sum of the partial utilities according to individual criteria.

$$u(X_i) = \sum_{j=1}^k v_j y_{ij}$$

The alternatives can then be ordered by decreasing utility values  $u(X_i)$ .

## 3. RESULTS AND DISCUSSION

Providing trade credit has begun a common business practice. However, there is a credit risk on the part of the supplier ("trade credit provider") as a result of the possibility that the debtor will not be paid properly and on time. (Siekelova, 2015, p.689, Siekelova, Podhorska, 2016, p.2010) The decision to provide a trade credit should be the result of an analysis of the customer's solvency to meet its future commitment properly and on time. A number of criteria are taken into account when assessing the solvency of trading partners.

This process can therefore be understood as multi-criteria decision-making and one of the methods mentioned above can be used to solve it. The survey has shown that businesses focus on different areas when screening a business partner. They are most interested in the financial stability of the partner (92% of those involved in screening), its background and ownership structure (81%), but also in establishing, referring and reputation in terms of association with illegal / unethical conduct (around 70%). on the basis of the above, the following criteria were established: (Vrbka, Stehel, 2019)

- selected indicators of financial-economic analysis (liquidity indicator, maturity of liabilities, achievement of profit during the last 3 years),
- duration of market operation,
- a type of ownership.

Ten companies from the same industry have been selected for the example application that will be considered as potential business partners and identify them as  $a_1 - a_{10}$ . Three quantitative criteria liquidity indicator ( $f_1$ ); maturity of liabilities (days,  $f_2$ ); and duration of market operation (years,  $f_4$ ) were used to describe potential business partners ( $a_1 - a_{10}$ ) and also two qualitative criteria achievement of profit during the last 3 years (yes or no,  $f_3$ ); and the type of ownership ( $f_5$ ). Qualitative criteria were transformed to quantitative. If company achieves profit during the last 3 years – 1, otherwise – 0. Our sample included businesses with two types of ownership. In general, the limited liability company is considered to be more reliable, so this type has been marked as – 1, otherwise – 0.

Table 1: Multiple-criteria decision- making matrix

Alternatives	Liquidity Indicator	Maturity of Liabilities		Achievement of Profit	Duration of Market Operation	Type of Ownership
MAX/MIN	MAX	MIN	MAX	MAX	MAX	MAX
Weight	0,33	0,28		0,15	0,14	0,10
$a_1$	1.24	41	31	1	12	1
$a_2$	0.8	69	3	1	22	0
$a_3$	1.92	22	50	0	3	1
$a_4$	0.75	59	13	0	5	1
$a_5$	1.38	30	42	1	10	0
$a_6$	1.28	<b>72</b>	0	1	2	1
$a_7$	2.50	55	17	1	5	1
$a_8$	1.00	22	50	0	18	0
$a_9$	0.99	36	36	0	16	0
$a_{10}$	0.58	28	44	0	14	1

Tables 2. and 3. show calculated matrix  $R = r_{ij}$  and calculated matrix  $W = w_{ij}$ , which is derived from the matrix  $R = r_{ij}$  according to the equations from theoretical part.

Table following on the next page

Table 2: TOPSIS – Normalized Criterial Matrix R

Alternatives	Liquidity Indicator	Maturity of Liabilities	Achievement of Profit	Duration of Market Operation	Type of Ownership
$a_1$	0.288	0.290	0.447	0.303	0.408
$a_2$	0.186	0.028	0.447	0.556	0.000
$a_3$	0.446	0.468	0.000	0.076	0.408
$a_4$	0.174	0.122	0.000	0.126	0.408
$a_5$	0.321	0.393	0.447	0.253	0.000
$a_6$	0.297	0.000	0.447	0.051	0.408
$a_7$	0.581	0.159	0.447	0.126	0.408
$a_8$	0.232	0.468	0.000	0.455	0.000
$a_9$	0.230	0.339	0.000	0.404	0.000
$a_{10}$	0.135	0.421	0.000	0.354	0.408

Table 3: TOPSIS – Weighted Normalized Criterial Matrix W

Alternatives	Liquidity Indicator	Maturity of Liabilities	Achievement of Profit	Duration of Market Operation	Type of Ownership
$a_1$	0.095	0.081	0.067	0.042	0.041
$a_2$	0.186	0.531	0.067	0.078	0.000
$a_3$	0.446	0.000	0.000	0.011	0.041
$a_4$	0.174	0.418	0.000	0.018	0.041
$a_5$	0.321	0.090	0.067	0.035	0.000
$a_6$	0.297	0.565	0.067	0.007	0.041
$a_7$	0.581	0.373	0.067	0.018	0.041
$a_8$	0.232	0.000	0.000	0.064	0.000
$a_9$	0.230	0.158	0.000	0.057	0.000
$a_{10}$	0.135	0.068	0.000	0.050	0.041

Table 4. shows PIS and NIS, calculated geometric distance of all alternatives from the PIS  $d_i^+$  and the NIS  $d_i^-$  and calculation of the relative distance of alternatives  $c_i$ .

Table following on the next page



Table 4: TOPSIS – PIS, NIS,  $d_i^+$ ,  $d_i^-$ ,  $c_i$ .

Alternatives	Liquidity Indicator	Maturity of Liabilities	Achievement of Profit	Duration of Market Operation	Type of Ownership
PIS	2.5	50	1	22	1
NIS	0.58	0	0	2	0
Alternatives	$d_i^+$		$d_i^-$		$c_i$
$a_1$	54.604		2.020		0.03567
$a_2$	53.978		2.034		0.03631
$a_3$	54.647		1.994		0.03521
$a_4$	54.255		2.067		0.03669
$a_5$	54.497		1.985		0.03514
$a_6$	54.139		2.092		0.03721
$a_7$	54.274		2.019		0.03586
$a_8$	54.510		1.967		0.03483
$a_9$	54.385		1.981		0.03515
$a_{10}$	54.486		2.002		0.03545

Table 5: WSA – results

Alternatives	Liquidity Indicator	Maturity of Liabilities	Achievement of Profit	Duration of Market Operation	Type of Ownership	Utility
$a_1$	0.000	0.144	1.000	0.500	1.000	0.360
$a_2$	0.187	0.940	1.000	1.000	0.000	0.615
$a_3$	0.723	0.000	0.000	0.050	1.000	0.345
$a_4$	0.163	0.740	0.000	0.150	1.000	0.382
$a_5$	0.464	0.160	1.000	0.400	0.000	0.404
$a_6$	0.416	1.000	1.000	0.000	1.000	0.667
$a_7$	1.000	0.660	1.000	0.150	1.000	0.786
$a_8$	0.283	0.000	0.000	0.800	0.000	0.205
$a_9$	0.278	0.280	0.000	0.700	0.000	0.268
$a_{10}$	0.082	0.120	0.000	0.600	1.000	0.245

Table 6: Comparison – TOPSIS vs WSA

TOPSIS			WSA		
$c_i$	Rank	Alternative	Score	Rank	Alternative
0.03567	5.	$a_1$	0.360	6.	$a_1$
0.03631	3.	$a_2$	0.615	3.	$a_2$
0.03521	7.	$a_3$	0.345	7.	$a_3$
0.03669	2.	$a_4$	0.382	5.	$a_4$
0.03514	9.	$a_5$	0.404	4.	$a_5$
0.03721	1.	$a_6$	0.667	2.	$a_6$
0.03586	4.	$a_7$	0.786	1.	$a_7$
0.03483	10.	$a_8$	0.205	10.	$a_8$
0.03515	8.	$a_9$	0.268	8.	$a_9$
0.03545	6.	$a_{10}$	0.245	9.	$a_{10}$

#### 4. CONCLUSION

Providing trade credit has begun a common business practice. However, there is a credit risk on the part of the trade credit provider as a result of the possibility that the debtor will not be paid properly and on time. The decision to provide a trade credit should be the result of an analysis of the customer's solvency to meet its future commitment properly and on time. A number of criteria are taken into account when assessing the solvency of trading partners. This process can therefore be understood as multi-criteria decision-making and one of the methods mentioned above can be used to solve it. The aim of the contribution is to describe and present on practical example results of selected methods of multiple-criteria decision-making. Multiple-criteria decision-making methods are studied in the context of financial health assessment. The approach is to compare the functionality and the results provided by different selected methods. There is no „the best” MCDM method discovered and presented in the study, there is an information about the performance of the selected methods in the content of model example. Using method of multiple-criteria decision-making can be helpful to make more effective decisions, there are some pitfalls to look out for. Having too much or not enough information. Gathering relevant information is key when approaching the decision making process, but it's important to identify how much background information is truly required. An overload of information can leave you confused and misguided, and prevents you from following your intuition. The important step is the misidentifying the problem, mainly in the cases of difficult solving problem. Conduct thorough research and speak with internal experts who experience the problem firsthand in order to mitigate this. Even if you follow the steps of the decision making process, there is still a chance that the outcome won't be exactly what you had in mind. That's why it's so important to identify a valid option that is plausible and achievable. Being overconfident in an unlikely outcome can lead to adverse results. Decision-making is no longer an intuitive process. In conclusion, we can state that:

- Despite all efforts, the decision-making process is largely subjective and thus influenced by the person of the decision-maker.
- The choice of the method and its complexity depend on the decision-making situation.
- The use of computer technology plays an increasingly important role in the decision-making process.
- We recommend supporting one method with the other.
- Different methods produce different results. (Vrbka, Stehel, 2019)

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# **DISRUPTION ANALYSIS OF THE ARMY PERSONNEL IN THE IMPLEMENTATION OF WEAPONS MODERNIZATION SYSTEM (CASE STUDY: LEOPARD MAIN BATTLE TANK CAVALRY BATTALION)**

**Yusuf Ali**

*Indonesia Defense University, Indonesia  
yusufali8788@gmail.com*

**Suhirwan**

*Indonesia Defense University, Indonesia  
suhirwan32@gmail.com*

**Jonni Mahroza**

*Indonesia Defense University, Indonesia  
jmahroza@gmail.com*

**Erna Nuraeni**

*Indonesia Defense University, Indonesia  
ernanuraeni1995@gmail.com*

## **ABSTRACT**

*The military capabilities enhancement in the world has changed battle model oriented to the concept of war which requires modern defense supported by weapons technology, high mobility, massive long-range shots, accurate and a large lethal force. As a rule, modern weapons supported by advanced technology will reduce the use of humans/personnel in the unit that owns it. This is in line with the Indonesian government's policy of zero growth and right sizing for the state apparatus, including military personnel. Modernization of Army tank weaponry has been carried out by purchasing "Leopard" main battle tank and manned by certain cavalry battalions. This modernization has led to increasing in the number of personnel of tank crews and supporters in the cavalry battalion. In this research "disruption" did not affect reducing of personnel but increasing the number of Army personnel because of the implementation of the "ROK 2013" (MBT organization). The Army has anticipated the changes of defense technology due to Industrial Revolution 4.0 and the era of Disruptive Innovation, by changing the grand theory of the Army's human resource management. The Cavalry Battalion which manned 2 A4 and 2 RI "Leopard" Main Battle Tank must master its technology through Transfer of Technology (ToT) to deal with the era of the Industrial Revolution 4.0 and Disruptive Innovation.*

**Keywords:** *Disruption analysis, Leopard Main Battle Tank, Army Personnel*

## **1. INTRODUCTION**

The 4.0 Industrial Revolution has found a new pattern of disruptive innovation (disruptive technology) that is present so quickly and is changing the world of work, industry and business. Indonesia is no exception not being spared from the impact of globalization which is growing and growing in all sectors of life. The strategic environment dynamics require and encourage countries in the world to improve their defense technology. Globalization also comes with all the consequences, namely challenges and new threats to the existence of the Unitary State of the Republic of Indonesia. The Army Organization has the responsibility in preparing and fostering land combat forces for the benefit of the national aspects of land and carrying out the

empowerment of land defense areas<sup>1</sup>, as well as carrying out tasks in maintaining the security of land border areas with other countries, carrying out Indonesia Army duties in the development of land forces, implementing land defense area empowerment.<sup>2</sup> The Army must be open to technological advancements to carry out of duties, both information technology and war technology, through the mastery of the latest technology which is a necessity for the realization of a professional army.<sup>3</sup> One variant of modern combat vehicles that the Army has chosen in its defense equipment modernization effort is the Main Battle Tank (MBT) Leopard which is manned by Cavalry units. The Cavalry of the Army is one of the Corps in the Army with the main task of carrying out coaching and carrying out the functions of the Cavalry both in the tasks of Military Operations for War (OMP) and Military Operations Other Than War (OMSP) using combat vehicles and/or horses Cavalry as its main equipment in order to conduct the main tasks of the Army. In order to realize the posture of the Army Cavalry Unit which is able to provide optimal combat power, the needs of the Army Cavalry Unit's strength are more directed to the Attacking and Safety functions. So, it is very appropriate policy of the Army leadership which is in line with the Minimum Essential Force policy and is guided by the concepts of capability-based defense, zero growth and right sizing to restructure the organization of Cavalry Unit, so that it can be operated effectively and efficiently and is expected all units are ready for operation.<sup>4</sup> Therefore, based on the phenomena that occur during preliminary research, it is reasonable if the researcher is very interested in the impact of changes in defense technology through weapon modernization on Army disruption personnel through a case study: Leopard Main Battle Tank Cavalry Battalion.

## 2. DETAILS RESEARCH

### 2.1. Theory

#### 2.1.1. *Change Management Theory*

Change is the occurrence of something different from the previous situation.<sup>5</sup> These changes can be described that the organization has implemented new things starting from the way used, the direction, systems, technology and management procedures and disruptive reorganization. According to Richard Newton that change is another term for the process, equipment, techniques, and methods and approaches to obtain the final conditions expected by the organization in a change.<sup>6</sup> According to some literature, several factors that influence changes in an organization are; technology, human resources, economy, competition and regulation. Based on the factors that influence these, organizational change can be grouped in several forms, namely; structure (both organizational structure, policy, personnel composition), technology, physical setting (lay out), and personnel through the formulation of new management procedures, merging, reorganization or the occurrence of a phenomenon that is disruptive.<sup>7</sup> In this context, Change Management theory strongly underlies the transformation of the Cavalry Battalion from a light tank Cavalry battalion into a Cavalry Main Battle Tank (MBT) battalion. These changes certainly apply in a comprehensive manner starting from the technology applied by MBT followed by the doctrine of battle, and organizations that must change are transformed according to the new paradigm of war. The series of changes is the implementation of the Revolution of Military Affairs (RMA) scheme, which is if a country

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<sup>1</sup> TNI law No. 34 of 2004, article 7

<sup>2</sup> Ibid

<sup>3</sup> Syamsul Ma'arif, Jurnal Sosiologi Masyarakat, Vol. 19, No. 2, July 2014, p. 278. Pusat Kajian Sosiologi, LabSosio FISIP-UI.

<sup>4</sup> Mulyanto. Teknologi Persenjataan Militer sangat Mewarnai kemenangan dalam suatu Pertempuran. Palagan 2013; accessed electronically on October 8<sup>th</sup>, 2018 at [www.tniad.mil.id](http://www.tniad.mil.id)

<sup>5</sup> Jeff Davidson. Change Management. 2010, p. 3.

<sup>6</sup> Richard Newton. Managing Change Step by Step, all you need to build a plan and make it happen. London; Prentice Hall. 2007.

<sup>7</sup> Robbins. Organizational Behavior: concepts, Controversies, Applications. New York: Prentice Hall. 2004.

wants and has the opportunity to transform its army from: technology, doctrine, organization, strategy, training, education, equipment, operations and tactics of war as military objectives which must be achieved through new ways. The change management perspective is based on four main dimensions,<sup>8</sup> namely:

1. Related to the concept of the process of change, the concept of this process of change will raise fundamental questions about "when will organizational change occur?". An understanding of the process of change can be the basis for creating conditions that allow for change.
2. Relating to context and uncertainty, that is, this dimension is related to the reasons why it must change.
3. Relating to the concept of the content and scale of the changes to be made, this dimension requires that the change is perceived as down to earth and can be reached by the mind set and thought. When the direction of change is perceived as something high or utopian, what is created is strong resistance to resist change. Direction of change that is not in accordance with the goals and interests of members is very likely to bring up the status quo phenomenon. If change is perceived as something that makes organizational members uncomfortable with new positions and conditions, it is not surprising that the enthusiasm and commitment to make changes is very small.
4. Regarding the methods and strategies chosen in managing change, this dimension raises the question "what strategies will be used?" The selection of appropriate methods and strategies is a determining factor for an organization's success in making changes.

### *2.1.2. Technology Management Theory*

Definition of Technology in the new Webster international dictionary in 1974, interpreted as: "The knowledge and means used to produce the material necessities of society".<sup>9</sup>

Other definitions according to the American Heritage Dictionary:

"The entire body of methods and materials used to achieve industrial or commercial objectives".<sup>10</sup>

According to Nazaruddin, the above definition shows that technology is related to means and methods to achieve the goals. The 8 Cavalry/NSW 2/Kostrad Battalion manned the Leopard 2 A4 and 2 RI MBT who had modern technology and were one of the most sophisticated in the world. With strong financial capabilities, technology is a commodity that can be in the form of hardware that is easily bought or owned. But technology in the form of capabilities, institutions and science (body of knowledge) must be developed systematically by utilizing human resources. Technology is a human ability consisting of:

1. Technoware, the technology contained in machinery, equipment and products.
2. Humanware, the technology contained in humans such as knowledge, attitudes, behavior and skills.
3. Infoware, the technology contained in the document.
4. Orgaware, the technology contained in organization and management.

Each of these components has an important role in technology with one another to strengthen each other. Technology is the most prominent factor in determining competition rules. This is due to the advantages possessed by technology as a result of strategic planning, the success of companies that use high technology in certain competitive industries and academic interest in

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<sup>8</sup> Soerjogoeritno. Total Organizational Change, Berkelanjutan: Perspektif Manajemen Perubahan.2004.

<sup>9</sup> Nazaruddin. 2008. Manajemen Teknologi, p. 2.

<sup>10</sup> Ibid, p.36.

technology management.<sup>11</sup> Force management technology states the formula that technology management is a science that bridges the fields of engineering and science with fields management in planning, development and implementation of technology in order to achieve the strategic and operational goals of an organization. The Merriam-Webster offers definitions of the terms: "practical application of knowledge especially in certain areas" and "capabilities provided by practical application of knowledge".<sup>12</sup> Ursula Franklin, in the 1989 "Real World of Technology"<sup>13</sup> lecture, gave another definition of the concept; it is "practice, the way we do things here". This term is often used to imply a particular field of technology, or to refer to high technology or just consumer electronics, rather than technology as a whole. Bernard Stigler, in *Engineering and Time*, defines technology in two ways: as "the pursuit of life in ways other than life", and as "organized inorganic matter." Peter Drucker argues that technology must be considered as a system, namely a collection and units and activities that are interrelated and communicate with each other.<sup>14</sup> (*Work and Tool, Technology and Culture*). Until the twentieth century, the term technology has been used in general and summarizes a series of facilities, processes and ideas besides tools and machines. Technology can not only be seen as a system, but technology is indeed a real system. For the understanding of the system it can be followed by the opinion of Ludwig von Bertalanffy who formulated it as a set of elements that are in a state of interconnection with each other and with the surrounding environment, while the real system is an entity that is known to or inferred from observations and exists freely from the observer concerned. Technology is a system, which is a roundness consisting of parts that are interconnected with one another and with the surrounding environment. What system or how has been answered with a system of practical skills, or more generally a system of determining the means to achieve certain goals based on the concept of efficiency.

## **2.2. Methodology**

This research will take a lot of data in the form of words and activities of people or groups and supported by documents in the form of notes, administrative documents, photos and others. So that in this study, researchers chose the qualitative research methods. The researchers will carefully examine the activities, events, activities, processes or groups within a predetermined time and region. In this study researchers will use a case study approach (Creswell, 2010).

## **3. RESULT AND DISCUSSION**

Based on Army leadership policy in 2011 on weapons modernization program for Army units, the purchase of the Leopard MBT will strengthen the Army Cavalry weaponry as part of the Minimum Essential Force (MEF) policy which is the implementation of Revolution in Military Affairs (RMA).<sup>15</sup> Its implementation was at the beginning of 2012. In the context of the Industrial Revolution 4.0 and the emergence of disruptive innovation, researchers have carried out research in several Army units; Army Personnel and Logistics Staff, both of act as policy formulators, research units and the Research and Development Department the development of the Army, and agencies that manned and used the creation of modern technology, the type of heavy tank Cavalry Battalion that manned the Leopard 2 A4 and 2 RI versions, and its impact of changes in defense technology (weapon modernization) on Army disruption personnel and policies implemented by the Army.

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<sup>11</sup> Porter. 1983. Sahoo et al. 2011.

<sup>12</sup> Merriam-Webster. Definition of Technology. Retrieved 2007.

<sup>13</sup> Franklin, Ursula. Real World of Technology. House of Anansi Press. Retrieved 2007

<sup>14</sup> Peter Drucker. Management Challenges for the 21<sup>st</sup>. 1999.

<sup>15</sup> R. Mokhammad Lutfi. RMA Implementation in state defense policy. 2012.

### **3.1. Disruption Analysis in Leopard Main Battle Tank Battalion**

The research will use the theoretical approach of the Three Steps Model from Kurt Lewin, that there are three stages of the planned change model as a way of taking initiatives, processing and stabilizing the change process to meet organizational goals.<sup>16</sup> Through the three stages of Lewin's change model to describe the impact of changes in defense technology (modernization of defense equipment) Main Battle Tank (MBT) Leopard on the disruption of personnel of the 8 Cavalry/Narasinga Wiratama 2/Kostrad Battalion, as follows:

1. Unfreezing is a disbursement stage, a stage with a focus on creating motivation to change. The 8 Cavalry Batt / NSW has gain the trust of the government as the role model of the Tank Battalion Cavalry with MBT Leoprad 2 A4 and 2 RI Armored Main Combat Vehicles, the previously owned combat vehicle which is very old conditions. Cavalry combat vehicle is mostly old with varied years of production. Among them AMX-13 and subsequently replaced family Scorpion and Stromer. So that it has not been able to support the main tasks the battalion, both as a combat unit as well as a security unit. The rejuvenation of Cavalry combat vehicle through the modernization of defense equipment will provide support in implementing the tasks. As a maneuver unit, directly under the 2 Kostrad (Army Strategic Command) Infantry Division, the 8 battalion is also a role model of the Cavalry Battalion in the ranks of the Army Cavalry unit.
2. Movement/Changing, is the stage of change that is the stage of moving towards change and in the period of change each group, individual and organization begins to recognize new information, new models and attitudes as well as new ways in a change. In the context of changes in the 8 battalion, the presence of Leopard's main combat vehicle has changed it Organization and Duties that previously used the Tank Battalion Cavalry become the TOP ROK 2013, which is specifically manning the Main Bettel Tank, that starting from the personnel, material and infrastructure facilities have changed in accordance with the ROK 2013 that have been imposed. According to the development of the organization and the task of the Cavalry Battalion only divided into two namely; TOP ROK 2011 for Territorial Cavalry Battalion (under Military Area Command), and TOP ROK 2013 for Battalion Main Bettel Tank, directly under Kostrad (Army Strategic command) as a centralized force, and prepared as the home of the Leopard Main Battle Vehicle. The Cavalry 8 / NSW Battalion Headquarters is in Beji, Pasuruan, East Java, which stands firmly on an area of 54 hectares. Facilities and infrastructure. The facilities are very complete, including combat vehicle supporting facilities consisting of Leopard Tank garage, workshop garage with a capacity of 10 tons crane, Tank Transporter garage, and Tank washing facilities, and also supporting facilities for soldiers who maneuver Leopard Tanks are also no less complete; a field for running sports with a 400-m shuttle tire, swimming pool, Dojang Yongmoodo, obstacle course facilities, soccer, basketball and futsal fields, rifle and gun shooting fields, and a field fitness area. There are also facilities for worship in the form of mosques, churches and temples. So, it can be said that Yonkav 8 / NSW has very complete facilities and infrastructure to support the implementation of the main tasks and operational units.
3. Refreezing, which is the re-freezing phase, is a phase of stabilizing a state of change resulting in accordance with new tasks and organizations. Attitudes and behavior in accordance with the changes will be standardized and will then be evaluated whether the changes are still in accordance with the demands. If changes are needed, the unfreezing stage must be restarted. It is known that the ROK 2013 were implemented in Yonkav 8 / NSW ahead of the arrival of the Leopard MBT to Indonesia. However, the improvement of

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<sup>16</sup> Lewin, op.cit, p. 17.



weaponry technology owned by Yonkav 8 / NSW has not been matched by the availability of combat tactics that can optimize the use of modern MBT Leopard defense equipment capabilities. The combat tactics used are still fixed on the front, are linear, and still use combat configurations using normative calculations in conventional warfare, thus severely limiting the use of Cavalry defense equipment capabilities, which results in interoperability of cavalry units in the operation of operations that have not been able to be carried out properly because of the optimal utilization of the cavalry. Cavalry's combat ability.<sup>17</sup> Leopard MBT arrived in Indonesia gradually, along with that Yonkav 8 / NSW also made preparations in accordance with the conditions set in the TOP ROK 2013 organization. The first phase of the arrival of the MBT Leopard 2 A4 in September 2014 was 24 units and 28 Marder Tanks. The pride tank of the Indonesian Army was a platoon held at Safkar Indopura joint exercise in November 2018 organized by the Indonesian Military Area Command V / Brawijaya and Siangapore Armed Forces (SAF) at Puslatpur 5 Marines Situbondo, Surabaya. In an effort to implement the TOP ROK 2013, the top command conducting monitoring and evaluation, to the implementation of the 8<sup>th</sup> Cavalry new organization.

The trial is carried out approximately one year, and on March 10, 2016 the Cavalry Battalion 8 / NSW received a visit from the Review Team from Headquarters, headed by Col. Inf Agus YR Agustinus, SH, Paban II / Jemen Srenad along with 4 members, to conduct a review of the ROK 2013 implementation trial. The Leader of 8 / NSW Mayor Kav Depri Rio Solio, S. Sos., MM delivered about the constraints and shortcomings of various fields, ranging from the fields of personnel, material, infrastructure and personal equipment in the implementation of the ROK 2013. It was intended that in the future Yonkav 8 would be able to implement the new organization without any significant obstacles and deficiencies, so that the Yonkav 8 unit was always ready to carry out the main tasks assumed by the top level command.<sup>18</sup> This is illustrated in stage one of Lewin's theory of change, where unfreezing or disbursement stage is a stage of creating motivation to change from previous circumstances which are routines then change according to management's demands. The occurrence of obstacles can come from within (internal) or from outside (external). In the second stage, movement / changing, it can be seen from the behavior of individuals in the context of this research is the Yonkav 8 / NSW soldier who must implement changes, attitude models and new ways in accordance with the demands of ROK 2013. As Personnel Staff statement that changes in defense technology (modernization defense equipment) will always have an impact on Army personnel because defense technology will be maximally used if personnel have the ability commensurate with the technology carried by the defense equipment. For that mastery of new literacy in the form of data literacy (the ability to read, analyze and use information (big data) in the digital world), technological literacy (understanding how machines work, technology applications (Coding, Artificial Intelligence and Engineering Principles) and human literacy (Humanities (Communication and Design) is very much needed by Army personnel / Yonkav 8 / NSW soldiers to maneuver the modern defense equipment owned by the unit. Old literacy; reading, writing and arithmetic / mathematics no longer face the demands in the 4.0 Industrial Revolution including in facing disruptive innovation. However, changes in defense technology also do not necessarily lead to disruption if the term disruption is interpreted as reducing the number of personnel. As the power of the land dimension, the Doctrine of the Indonesian Army Kartika Eka Paksi said that the main tool of the Indonesian Army is humans, soldiers who are armed. In this study disruption occurred not in reducing the number of personnel but in increasing the number of

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<sup>17</sup> Technical Cavalry Meeting 2018

<sup>18</sup> 8<sup>th</sup> Cavalry Headlines, Army Hq visitting. 2016.

Accessed electronically at [yonkav8.mil.id/kunjungan-tim-mabesad-satuan-yonkav-8nara-singa](http://yonkav8.mil.id/kunjungan-tim-mabesad-satuan-yonkav-8nara-singa).

personnel. This happened because of the implementation of ROK 2013 (MBT), where there was a transition from light tanks (Scorpion family) to heavy tanks / Main Battle Tanks (Leopard family). Besides that, in the defense system of the universe, the existence of a Regional Command that relies on human maneuvering in carrying out territorial guidance is still very much needed, especially in carrying out Social Communication in the context of building strong Space, Tools and Conditions. In economic terms, technological change should be developed by humans using their minds to solve every problem they face as well as for many people and it is hoped that every innovation created will provide positive benefits, and new steps in every activity undertaken. Likewise, in the field of defense / military, technological advances cannot be avoided along with the advancement of science, but on the other hand it cannot be denied that technological advancements are also disastrous and disruptive for others or known as disruptive innovation, not because of steps managerial is not right, but due to lack of innovation and the strategies used are faced with the dynamics that are developing.<sup>19</sup> This description of the situation is in the third Lewin stage, namely Refreezing or freezing again. From the above analysis, it is reviewed from a change management perspective that disruption of Army personnel as a result of changes in defense technology in the 4.0 Industrial Revolution and the Disruptive Innovation era will always have an impact on Army personnel because of defense technology will be maximally used when personnel has the ability commensurate with the technology carried by the defense equipment, in this study were 8 / NSW soldiers who manned the Leopard MBT.<sup>20</sup> To be able to understand new defense technology / modern defense equipment in the era of the Indonesian 4.0 revolution and Disruptive Innovation, soldiers are not sufficiently armed with old literacy (reading, writing and arithmetic / mathematics) but mastery and understanding of new literacy (data literacy, technology literacy and human literacy) absolutely needed. The three literacies can be had if supported by a new way of thinking that is different from the previous way of thinking. Technology that is completely computerized must be treated differently with the use of manual technology or that is not yet fully computerized. Thus, changes in technology will have a direct impact on changes in organizational culture and ways of thinking of all ranks starting from Enlisted, Non-Commissioned Officers and Officers. The cultural change process and way of thinking requires a relatively long time because the change is evolving. The next impact of these changes is a change in the field of education. Education within the Army is oriented towards providing provisions to be able to carry out the tasks of the Army in the future. Thus, changes in technology will have an impact on changes in the type of education, especially in the development of specialization education, changes in the education curriculum in various strata of education, changes and additions to tools and educations instrument and changes in the budget as a result of changes in the 10 components of education. Another follow-up effect is the need for the provision of knowledge commensurate with defense technology. Provision of knowledge is pursued through formal education channels both domestically and abroad, including maximizing scholarships provided by the Ministry of Finance. If the technology is produced from abroad, it is necessary to equip foreign languages in the context of mastering the technology and courses in countries that produce the technology. Based on the results of field research in Yonkav 8 / NSW, that changes in defense technology (modernization of defense equipment) will always have an impact on Army personnel, in this case personnel at Yonkav 8 / NSW, because defense technology will be maximally used when personnel have capabilities commensurate with technology carried by the defense equipment. In this era three new literacies are needed (data literacy is technology literacy and human literacy, because the old orientation in the form of reading, writing and mathematics or arithmetic skills can no longer fulfill the era that is completely automatic and digital as a basic capital for acting in society.

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<sup>19</sup> Ibid. p. 23.

<sup>20</sup> Personel Staff. Op.cit.

However, technological change defense does not necessarily lead to disruption if the term disruption is interpreted as reducing the number of personnel, as a ground force, that the main tool of the Indonesian Army is humans, soldiers who are armed, changes in defense technology have also affected the changing of the Yonkav 8 / NSW organization which was previously only Yonkav Tank Usually, with the presence of Leopard, it turns into an MBT Cavalry Battalion using TOP ROK 2013 (as a centralized unit).

*Table 1: The changes of the 8<sup>th</sup> Cavalry Battalion faced with Army policy<sup>21</sup>*

NO	STRUCTURE, NOM, TYPE	NEW	POLICY IMPLEMENTATION
1	2	3	4
1	ROK Orgabization	ROK 2013 (MBT)	- Organizational Validation is in accordance with ROK 2013
2	Personnel	439	- There are still a shortage of 65 personnel (4 Officers, 1 NCO, 60 Enlisted), - No specific to the defense equipment manned for education and courses - Maintenance of Leopard defense equipment has not been optimally carried out in the face of the demands of the same activities as other units under Kostrad that are not manning modern defense equipment
3	Material	Leopard Family combat vehicle	- ToT has been carried out both in Germany and in the preparation & capacity building of personnel through preparation at the Center for Education and Training and Unit Training, - Don't have a Leopard Driving Simulator yet (there is only 1 in Pussenkav) - the long distance to the center of maintenance
4	Supporting Facilities	Garage, Tank Wash, Road Structure adjusts the weight of the Leopard MBT	Software Room & - Library is inadequate

### **3.2. Policies adopted by the Army in the face of disruption to Army personnel as a result of changes in defense technology in the Talent Management Context.**

The Indonesian Army through Pussenkav (Center of Cavalry Weaponry) has also prepared the Human Resources of its soldiers to be able to maneuver and operate the modern MBT Leopard combat vehicle well through the following steps:<sup>22</sup>

1. Sending personnel to attend the German Language course at the Indonesian Ministry of Defense Language Training Center, as well as being prepared as potential cadres to become trainers, also continued with training in the automotive, weapons and communication fields in the country of origin of the Leopard MBT, Germany.
2. Conducting Mobile Training Team (MTT) in the form of training in the form of upgrading as cadres of trainers.

<sup>21</sup> The source is processed based on research results

<sup>22</sup> Mulyanto, op.cit, p.96.

3. Working closely with the State of Singapore through the Personnel Exchange Program (PEP), cadres who will oversee the MBT Leopard weaponry.

In addition to the aforementioned policies the Indonesian Armed Forces follows up policies in order to deal with technological changes and to master new defense technologies by taking the following steps:

1. Agreement on the Transfer of Technology (ToT) process without restrictions, so that it does not become an obstacle in the future,
2. Increasing the capacity of human resources through education and training in stages and continuously,
3. Revised education curriculum,
4. Establishment of course to master the technology,
5. Structuring personnel to oversee the technology,
6. Conduct organizational validation in accordance with the needs of the defense technology manning;
7. Revise doctrines and instructions in accordance with the technology; and
8. Revise battle tactics according to the technology.

In order to maintain the continuing capacity building of Army soldiers so as not to be distracted by changes in defense technology (modernization of defense equipment), the Army Personnel Staff formulated personnel policy through the Army Personnel Guidance System is taking anticipatory steps, as below:

- a) Change the grand theory of the management of the Human Resources of the Indonesian Army from personnel management theory to Talent Management.
- b) Changes to implement Talent Management along with the steps have been outlined in the 2015-2029 Army Personnel Field Roadmap.<sup>23</sup>
- c) Implement talent management as a competency-based HR management system that is directed at efforts to ensure the availability of people of superior quality (talented person) to occupy the right positions to do the right work at the right time in accordance with the strategic objectives of the organization, priority organizational activities and other activities which are the core functions of the organization.
- d) Talent Management as an HR management system, conducts a comprehensive and dynamic process to develop high-potential human beings in organizations through HR recruitment activities that have superior potential, make selections to get high-quality personnel, develop their talents, care for these personnel and use according to their competence.
- e) With talent management, human resources development and personnel development are carried out which prioritizes the competency dimension so that organizational performance is improved so that it is able to accommodate all changes that take place quickly in the era of development of science and technology so far. Therefore, talent management plans personnel planning needs in the short term, medium term and long term based on identifying organizational competency needs, recruiting personnel who have potential that can be developed according to organizational competence, developing personnel competencies through education and training, place in positions according to their competence, carry out regeneration in the framework of succession planning in the future (succession planning), perform personnel care to improve organizational performance.
- f) In order to realize talent management, there are four pillars of talent management that can guarantee the success of HR management using this system, first, the mindset that prioritizes the development of personnel in the organization (development mindset),

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<sup>23</sup> Army Personnel Roadmap 2015-2029. Army Chief of Staff Regulation No. 73, 2015

secondly, implements a high-performance culture), third, there is a leader who becomes the main supporter of developing high-potential personnel and fourth, applies an accurate Human Resources information system. In guiding personnel that are no less important is the evaluation of performance appraisal, because the evaluation of the application of performance appraisal in the Army is conducted to find out how the performance appraisal is carried out.

#### 4. CONCLUSION

Changes in defense technology (Armament Modernization) will always have an impact on Army personnel, when these personnel do not have the ability commensurate with modern defense equipment technology crew. However, changes in defense technology do not necessarily cause disruption to army personnel in the context of reducing the number of personnel, because it is stated in the Army "Kartika Eka Paksi" Doctrine that the primary tool of the Army is humans, namely soldiers who are armed. In this study disruption occurred not in reducing the number of personnel but in increasing the number of personnel. This happened because of the implementation of ROK 2013 (MBT), where there was a transition from light tank (Scorpion type) to heavy tank/Main Battle Tank (Leopard type). Another impact of changes in defense technology related to landline defense is the necessity of having three new literacies of all Army soldiers, data literacy, technology literacy and human literacy, because the old orientation is in the form of reading, writing and mathematics or numeracy skills. can no longer fulfill the era of being completely automatic and digital as the basis for working in society.

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## OVERALL LIFE SATISFACTION IN LATVIA

**Kate Cipane**

*University of Latvia, Latvia  
katecipane@gmail.com*

**Biruta Sloka**

*University of Latvia, Latvia  
Biruta.Sloka@lu.lv*

### ABSTRACT

*The concept of life satisfaction has always been important part of providing well-being of population. Life satisfaction of inhabitants of the country is becoming a greater challenge for country to solve as it affects both personal and professional life of citizens and performances that are made in these fields therefore it is necessary to be aware of the current situation in order to know in what situation Latvia is, what are the challenges and what needs to be improved in the future. The purpose of the study is to analyse overall life satisfaction development in Latvia by gender, age group and education level. The tasks of the study:*

- 1. to analyse different approaches of theoretical findings reflected in scientific publications and previous conducted research results of overall life satisfaction;*
- 2. to investigate existing research findings of overall life satisfaction in the regions in EU and OECD countries;*
- 3. to analyse main factors and problems affecting overall life satisfaction among inhabitants of Latvia.*

*Research methods used in preparation of the paper: scientific publication and previous conducted research results analysis and analysis of Central Statistical Bureau of Latvia conducted survey data on Quality of Life results. Survey results are analysed using indicators of descriptive statistics (indicators of central tendency or location – arithmetic mean, mode, median), indicators of variability (indicators of dispersion – range, standard deviation and standard error of mean), cross-tabulations by age groups, by gender, by education level and by type of household. The results of analysis indicated that Latvia is among the most dissatisfied countries in Europe and for decision makers there are several challenges that need to be overcome.*

**Keywords:** *Life satisfaction, Quality of life, Well-being*

### 1. INTRODUCTION

During the last few decades, life satisfaction has been researched by a lot of studies in the all world. These researches have been focused on several areas, firstly, there are studies about the relationship between overall life satisfaction and personality (Siebert, Kunz, Rolf, 2020; Oravec, Dirsmith, Heshmati, Vandekerckhove, Brick, 2020; Schimmack, Oishi, Funder, 2004; Kjell, Nima, Sikstrom, Archer, Garcia, 2013), secondly, researchers have investigating the link between satisfaction on life and various variables such as income (Bomhoff, Siah, 2019; Gere, Schimmack, 2017), education (Powdthavee, N., Lekfuangfu, W., N., Wooden, M., 2015), health (Lin, Cheng, 2019; Deghani, 2018), leisure (Agyar, 2013; Heal, Sirgy, Uysal, 1999) and other. Several studies have explored the link between cultural differences and life satisfaction (Yuen, 2016; Sabri, Hamid, Sahar, Besral, 2019; Park, Huebner, Laughlin, Valois, Gilman, 2004) and have provided some evidence that also gender and age-group could have an influence on the life satisfaction, however, more research is needed.

## 2. THEORETICAL FINDINGS

Life satisfaction is a multi-dimensional construct reflecting the self-assessed quality of an individual's relationship with oneself, significant others, living conditions and community (Diener, Diener, 1995) and is considered to be a key element of mental health and quality of life across the lifespan, and an important indicator of positive development among adolescents (Proctor, Linley, Maltby, 2009). In the scientific literature the terms – life satisfaction, quality of life, subjective well-being and happiness – are often used interchangeably what might not be entirely appropriate, but it is understandable as these terms overlap at some point (Land, Michalos, Sirgy, 2012). As a field of social science quality of life first researched in the mid-1960s in the United States of America when NASA was detecting and anticipating the impact and side effects of the American space program on society (Heinz-Herbert, 2002). From an economic perspective, quality of life is often measured by gross domestic product considering that income is the best measure of quality of life, however, it has been researched that income level really affects people health and longevity (Diener, Diener, 1995). From sociology perspective it is also necessary to analyse such indicators as access to education and health services, crime rate and other social indicators to measure quality of life. Afterall, economic indices, subjective well-being and social indicators should be measured to understand people quality of life and make informed policy decisions (Diener, Suh, 1997). Over time the term of quality of life has evolved in various fields – healthcare, sociology, psychology, politics, economics etc. therefore the definition of the term varies in different fields of research, but also the term itself compile several indicators which combines subjective and objective ones such as environment, employment, physical and mental health, education, social belonging, leisure time etc. Researches on quality of life, life satisfaction, well-being and happiness at work have been growing in recent decades and the newest studies indicate that quality of life increase with the job satisfaction (Akova, Hasdemir, 2019), that job satisfaction plays the central role in terms of relationship between job design and well-being (Magnier-Watanabe, et al, 2019), that subjective well-being is relevant predictor of job performance (Salgado, et al, 2019) and employees who experience higher social well-being are also likely to experience a sense of vitality that helps to successfully accomplish their job performance (Khoreva, Wechtler, 2017). The concept of the quality of life has always been important part of providing well-being of population and within a recent development of internet and modern technology it is accepted almost from everyone that internet and modern technology plays an increasingly high role in people's daily lives (Silva, et al, 2018; Beneito-Montagut, et al, 2018). Whether it is about job or business, information, communication and leisure time – everything is related to this technological innovation. As the new generation so-called millennials who are about to embark on working careers have grown up alongside the Internet and modern technology their values are different from those of older generations (Andrade, Westover, 2018); (Weeks, Schaffert, 2019). therefore company managers in order to retain millennials will have to reshape internal environment of the organization to better reflect to this new generation's views (Črešnar, Jevšenak, 2019). Researchers around the world are increasingly studying the impact of the internet and modern technology on people's civic life (Filsinger, Freitag, 2019), enterprises (Okundaye, et.al, 2018), quality of life in terms of social isolation and loneliness (Beneito-Montagut, et al, 2018) as well as impact of modern technology on quality of life (Ghahramani, Wang, 2019) and other factors, for example, research in Taiwan was studying impact of information and communication technology on older adults' quality of life in Taiwan (Gustafson, et al, 2015). Other researchers have studied internet addictions from different aspects and its impact on quality of life (Longstreet, et al, 2019); (Pontes, et al, 2015). But research in South Africa (Cohen, et al, 2018) about the impact of digitally connected living on quality of life indicate that people with access and digital autonomy (when internet is widely



available) experience greater satisfaction with life and feel less isolated in the city, but people who own digital devices are more satisfied with their life as a whole and their standard of living.

### 3. RESULTS AND DISCUSSION

The most difficult to measure is life satisfaction which is usually measured as a personal evaluation and is included in quality of life measures in economics. The other dimensions are material living conditions, productive or main activity, health, education, leisure and social interactions, economic security and physical safety, governance and basic rights and natural and living environment (Eurostat, 2019). The most recent data of overall satisfaction with quality of life in European Union countries is available only from 2013 and it is included in Figure 1.

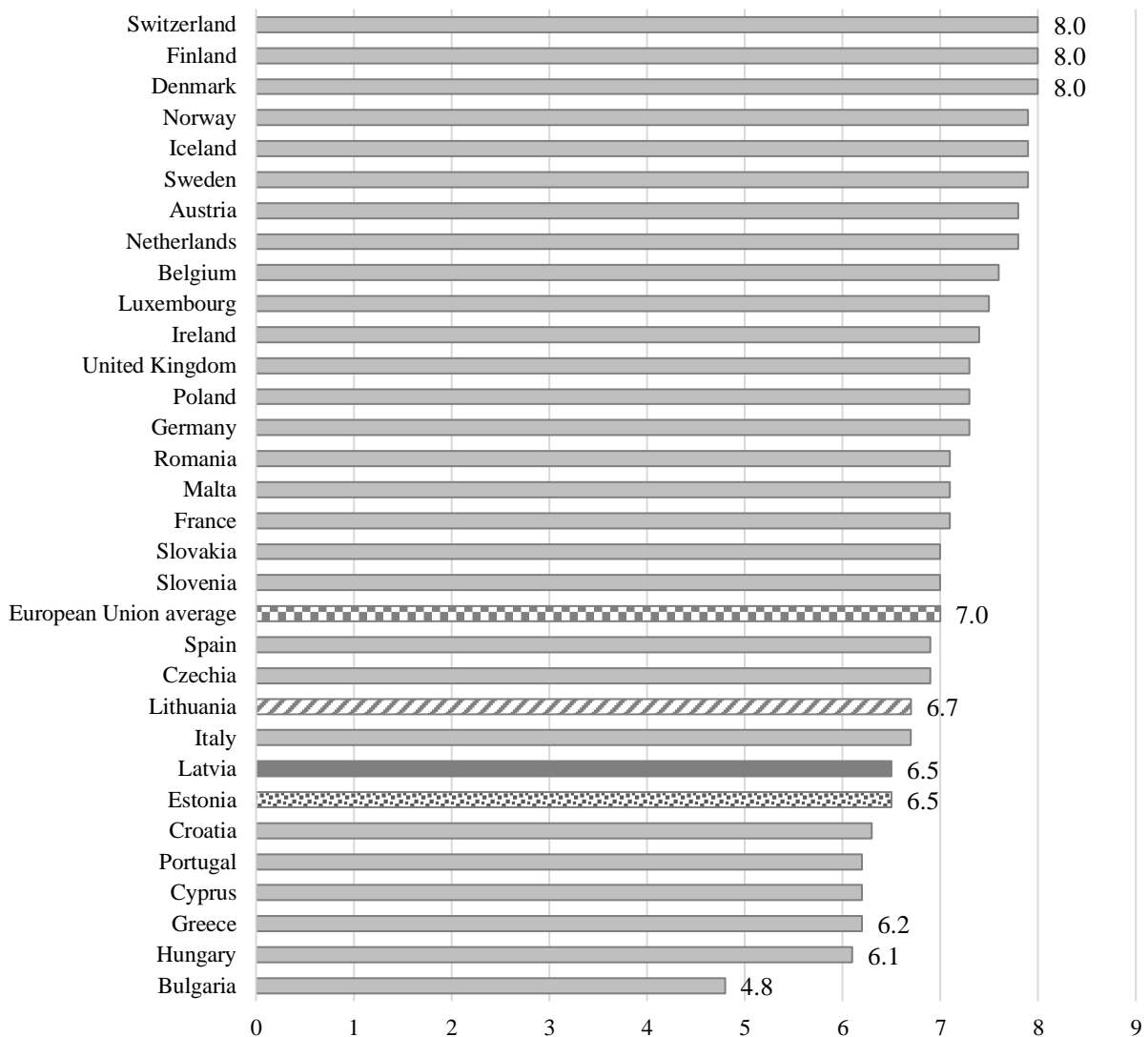
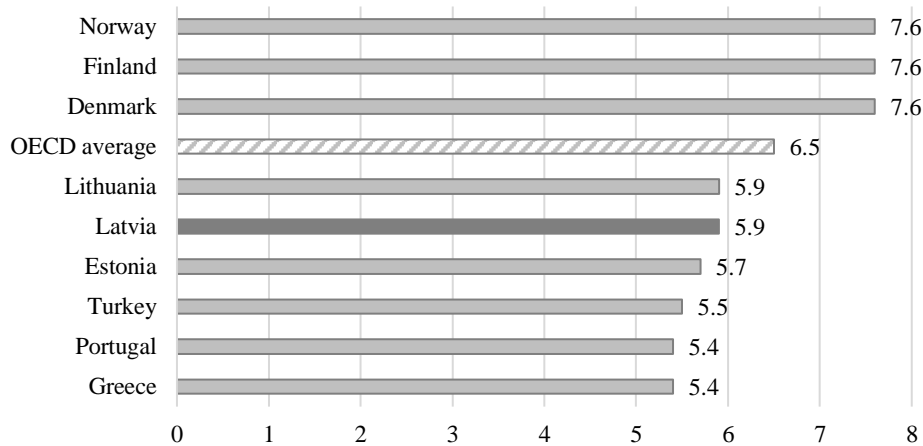


Figure 1: Satisfaction with quality of life in European Union in 2013 (Source: Kate Čipāne construction based on data bases of Eurostat - data on September 20, 2019)

The statistics shows that satisfaction with quality of life in Latvia in 2013 was lower than average in EU and Estonia was in the same level, while Lithuanians were more satisfied with their lives. Swiss, Finnish and Danish were the most satisfied with their quality of life, while Bulgarians, Hungarians and Greeks were the least satisfied from EU countries. However, life satisfaction data from OECD shows different situation which is analysed in more detailed in Figure 2.



*Figure 2: Life satisfaction in OECD countries in 2017 (Source: Kate Čipāne calculations based on OECD data, in 2017, available on OECD, Evaluation scale 0-10, where: 0- fully dissatisfied; 10 – fully satisfied)*

In 2017 life satisfaction of inhabitants in Latvia and Lithuania was in the same level and below OECD average level. It is unusual as Estonia inhabitants evaluations with satisfaction of life was below Latvia and Lithuania. The highest level of life satisfaction of inhabitants already for long time is in Norway, Finland and Denmark, while the lowest life satisfaction of inhabitants already for long time is in Greece and Portugal and Latvia is more close to this lower level. Analysing life satisfaction by age group in Latvia, most satisfied with life are youngsters from 15 to 29 years old. Seniors over the age of 65 are also very satisfied with their lives, which may be explained by the rapid increase in satisfaction right after reaching retirement age, receiving pensions and taking advantage of possibility to be still involved in labour market and receiving pensions and in addition earned salaries and wages (recently it was time when retired persons could receive either pension or salary, but this was finished by the decision of the Constitutional Court of Republic of Latvia – *Latvijas Republikas Satversmes tiesa*). Many retired people are socially active and using the possibly of taking part in many leisure time activities offers for seniors (singing in choirs, dancing in senior dancing groups, acting in arts and crafts circles, participating in many life-long education programs, travelling as well as taking part in other activities often not having time for them during active employment age. Most dissatisfied with life in Latvia are people from 30 to 64 years old. Dissatisfaction with life of inhabitants in this age group could be explained by problematic involvement in labour market in ages before the retirement and often difficulties for covering all expenses for inhabitants having children which do not have municipality places in pre-school education establishments and need to pay for private ones as well as by need to work in several working places to cover everyday expenses and by this lacking enough free time to spend with children and family. Distribution of evaluation results on life satisfaction of inhabitants by age group is included in figure 3.

*Figure following on the next page*

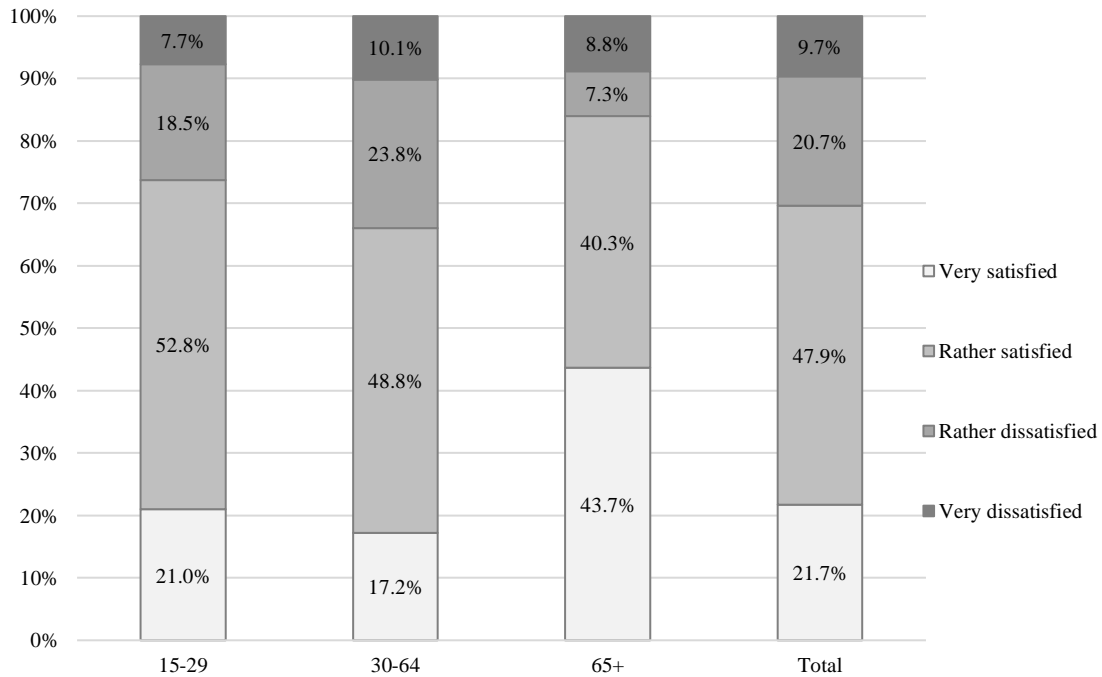


Figure 3: Life satisfaction by age group in Latvia in 2017 (Source: Kate Čipāne calculations based on CSB data, in 2017, available on CSB, n=4033, Evaluation scale 1-4, where: 1- fully dissatisfied; 4 – fully satisfied)

To evaluate – does life satisfaction in Latvia depends on age group – life satisfaction evaluations by respondents is compared using analysis of variance (ANOVA). Results of ANOVA are included in table 1.

Table 1: Analysis on Life Satisfaction in Latvia by Age Group in 2017 with Analysis of Variance (ANOVA) (Source: Kate Čipāne calculations based on CSB data, in 2017, available on CSB, n=4033, Evaluation scale 1-4, where: 1- fully dissatisfied; 4 – fully satisfied)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1217.738	2	608.869	61.427	0.000
Within Groups	39945.428	4030	9.912		
Total	41163.166	4032			

Data of table 1 (results of ANOVA) indicate that there are differences in evaluations on life satisfaction by age group in Latvia and they are statistically significant (sig. 0.000).

Table 2: Main Statistical Indicators on Evaluations of Life Satisfaction in Latvia in 2017 by gender (Source: Kate Čipāne calculations based on CSB data, in 2017, available on CSB, n=4033, Evaluation scale 1-4, where: 1- fully dissatisfied; 4 – fully satisfied)

Gender	N	Arithmetic Mean	Standard Deviation	Standard Error of Mean
Male	1488	3.38	2.430	0.063
Female	2545	3.44	3.567	0.071

Data of table 2 indicate that there are differences in life satisfaction by gender in Latvia. To evaluate – does life satisfaction depends on gender – life satisfaction and gender is compared using t-test. Results of t-test analysis are included in table 3.

Table 3: Analysis of Differences with *t* – test in Evaluations on Life Satisfaction by Gender in Latvia in 2017 (Source: Kate Čipāne calculations based on CSB data, in 2017, available on CSB, *n*=4033, Evaluation scale 1-4, where: 1- fully dissatisfied; 4 – fully satisfied)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.252	0.616	-0.634	4031	0.526	-0.066	0.104	-0.271	0.138
Equal variances not assumed			-0.698	3939.240	0.485	-0.066	0.095	-0.252	0.120

Data of table 3 (results of *t*-test) indicate that there are no differences in life satisfaction by gender in Latvia and they are not statistically significant (sig. 0.526 and 0.485). Level of education is also very important part of life satisfaction, because it affects economic activity status and job opportunities, which can later reflect of life satisfaction. In Figure 4 is revealed life satisfaction by education level in Latvia.

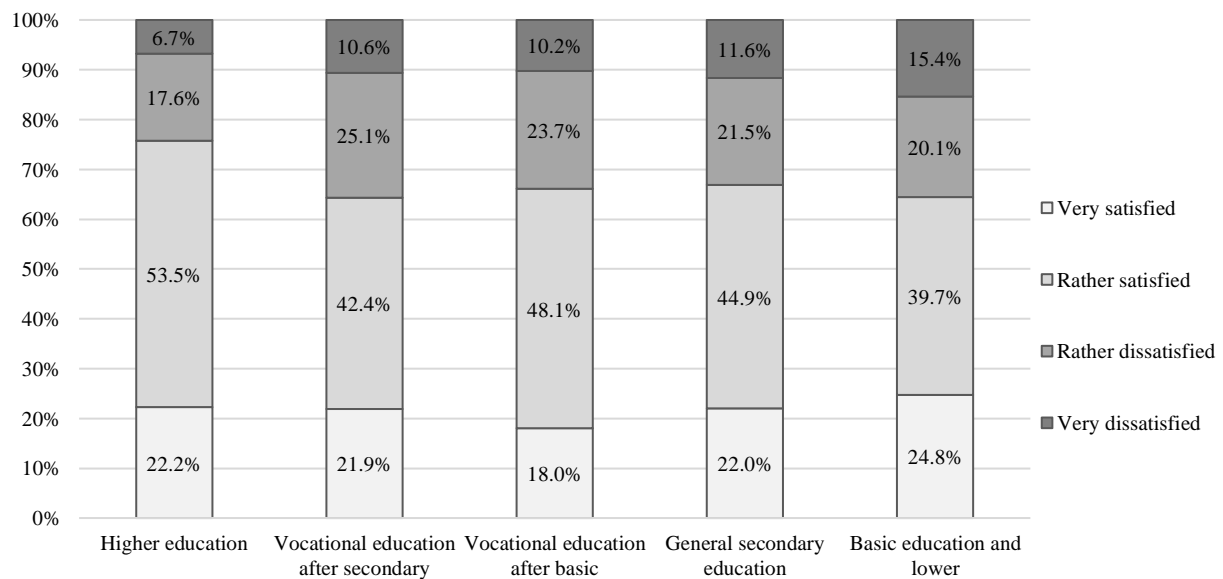


Figure 4: Life satisfaction by Education Level in Latvia in 2017 (Source: Kate Čipāne calculations based on CSB data in 2017, available on CSB, *n*=4033, Evaluation scale 1-4, where: 1- fully dissatisfied; 4 – fully satisfied)

Data of figure 4 indicate the higher the education level is, more satisfied with life people are, because more than 75% of respondents with higher education are satisfied with their life. Very dissatisfied with their life are respondents with basic education and lower, followed by those only with secondary education. Rather dissatisfied are respondents with vocational education after secondary education, but the most respondents who are rather satisfied with their life – more than a half of respondents – with higher education. According to the administrative breakdown, there are 6 regions in Latvia: Rīga, Pierīga, Vidzeme, Kurzeme, Zemgale and Latgale. In Figure 5 is revealed the average evaluations of overall life satisfaction of inhabitants in the regions of Latvia in 2017 and 2018.

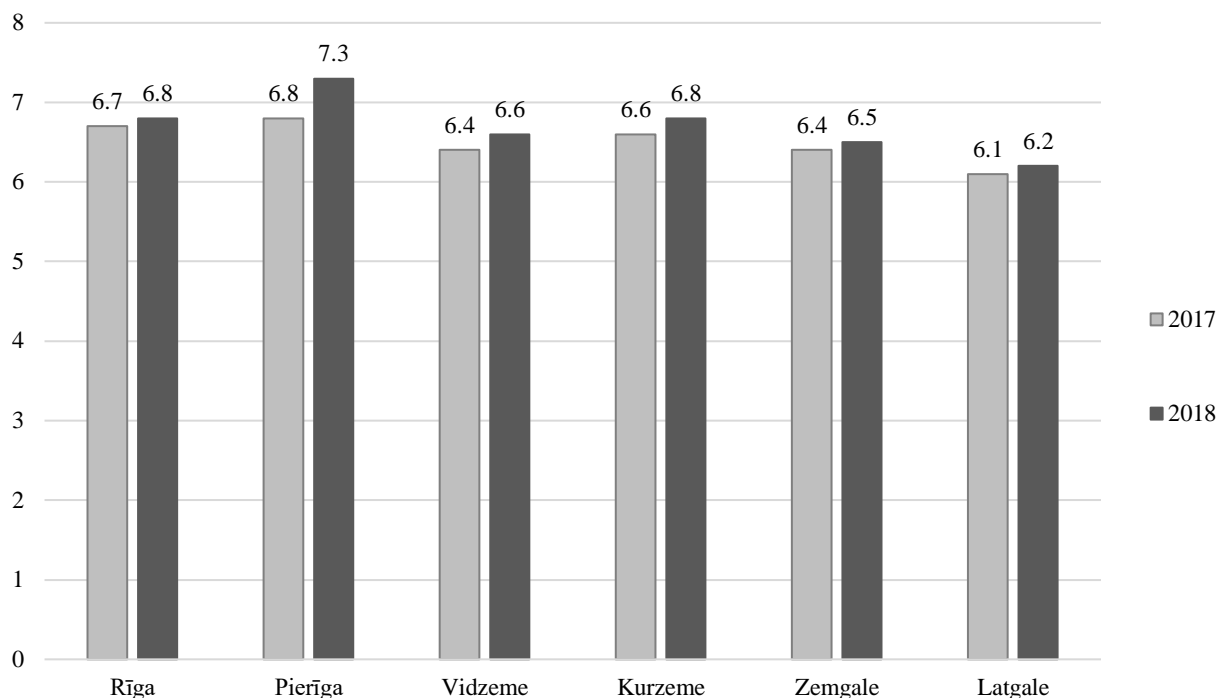


Figure 5: Overall life satisfaction by the Regions in Latvia in 2017 and 2018 (Source: Kate Čipāne calculations based on CSB data in 2017 and 2018, available on CSB, n=4033, Evaluation scale 1-10, where: 1- fully dissatisfied; 10 – fully satisfied)

The statistics show that overall life satisfaction for inhabitants in Republic of Latvia has increased in 2018 compared to 2017, however situation is improving very slowly - exception is Pierīga region (region near capital of Latvia - Riga) where overall life satisfaction has increased the most. Special concern is about Latgale region where overall life satisfaction is the lowest in the country and economic development in this region is major problem during last years.

#### 4. CONCLUSION

1. The analysis of theoretical research showed that life satisfaction has been investigated in different contexts around the world – the link between personality issues and life satisfaction, the link between life satisfaction and various variables such as income, health, education, leisure etc. and the link between cultural differences and life satisfaction.
2. The analysis of theoretical research also showed that life satisfaction is important factor for job satisfaction and for better results in professional career.
3. Latvia and the other Baltic countries are beyond the average level in evaluations of satisfaction with quality of life in European Union as well as in OECD countries, while the highest life satisfaction is in Switzerland, Denmark, Finland and Norway, but the lowest – in Bulgaria, Greece, Portugal and Turkey.
4. Male and female in Latvia are equally satisfied with their lives, while more satisfied are people from 15 to 29 years old, who live in Pierīga region and who have higher education.
5. Special concern is about Latgale region where life satisfaction is the lowest in the country and economic development is a major problem in the last years.

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# CLUSTERS AS A FORM OF EFFECTIVE COORDINATION OF INNOVATION POLICY IN THE CONTEXT OF DIGITAL ECONOMY (CASE OF THE RUSSIAN FEDERATION)

**Aleksandr Kurochkin**

*Faculty of Political Science, St. Petersburg State University  
St. Petersburg, Russia  
alexkur@bk.ru*

## **ABSTRACT**

*The author analyzes the role and importance of clusters in the innovative development of the Russian economy on the example of the chemical industry. The coordination function of clusters in reducing transactional costs and increasing the controllability of the processes of development and implementation of innovations in the new conditions of the digital economy is highlighted. The initial objective of cluster formation in Russia was to help crystallize regional competitive segments of the emerging market economy. The key advantage of clusters in the digital economy is its higher competitiveness due to the interconnections of participants, which can also be defined differently through the principle of rapid and logistically effective feedback on both challenges and opportunities available to individual participants (synergy effect).*

**Keywords:** *clusters, innovation policy, coordination structures, chemical industry, economic development, digitalization, efficiency*

## **1. INTRODUCTION**

Main tasks and goals of Russian innovation policy in chemical industry has been determined by the Strategy for the development of the chemical and petroleum chemical industries for the period up to 2030. This Strategy outlines the key aims for the development of chemical industry as related to its primary transformation factors and corresponding institutional limits [1]. On the one hand, the Strategy prescribes shifting large produce markets to the East, which requires new solutions regarding territorial distribution, procurements and staffing for manufacturing centers in Siberia or the Far East, including the construction of plants close to major ports. On the other hand, Russian chemical industry now finds itself under double administrative control. The Ministry of Industry and Trade of the Russian Federation regulates production of most chemical substances, while the Ministry of Energy controls the petroleum chemical branch of chemical industry, making it difficult to coordinate and plan the development of the chemical industry as a whole. To combat this problem, the Strategy should be modified so as to increase the efficiency of the state's coordinating activities. Today's mechanisms of institutional coordination in the Russian chemical industry correspond to its needs. However, they cannot provide adequate information exchange and management decisions [5]. Although these mechanisms are actively has been improved for the last 5 years, the following factors limit their efficiency:

- As of 2019, there exists no up-to-date specialized database of strategically important substances and technologies. Limited manufacture of such substances hinders the development of Russian polymer chemical industry and related chemical industry branches.
- Manufacturers' requests for updating the industry's roadmaps are not processed quickly enough.
- Low tonnage chemical industry does not receive enough attention to its specific problems. Manufacturers' petitions to officially classify certain low-tonnage products as high technology produce and have their export promoted are not processed quickly enough [11].

Besides, the efficiency of the Strategy depends on the active implementation of other national strategies and programs in various branches of chemical industry. For example, for polymer industry the most important strategic and regulation documents are, among others:

- Russian Energy Strategy for the period up to 2030. A special task proclaimed by this strategy is the construction of major high-intensity pipelines and distribution networks made from polymer materials;
- State program for providing Russian citizens with inexpensive comfortable residential spaces and utilities. This program proclaims active use of polymer materials in construction of residential buildings, for heat insulation, erection of bearing construction, water supply and decoration;
- State program for development of industry and increase of its competitive power. Describing the planned development of Russian automobile industry, this program envisions introducing new plastic automobile components;
- Complex program for development of biotechnologies in the Russian Federation for the period up to 2030. This program includes plans for development and use of innovative biodegradable polymer materials.

Thus, chemical industry has to be organized in such way as to provide adequate coordination and information exchange, easily translated into the terms of official institutionalized management. Most often, today's answer to this challenge is choosing cluster structure [6,7].

## 2. RESULTS

The understanding of clusters in Russian innovation policy was ambiguous from the beginning. Firstly, the implementation of clusters was supposed to help determine the most competitive segments of the developing market economy in every region. However, due to Russian catch-up economic development, a chaotic restructuring of industry and intensification of the state's regulatory and coordination activities starting from the early 2000s, cluster initiatives in industry became representative of the state's industry development strategy. In 2008, the same year when the European cluster memorandum was published, regional industry clusters became a priority goal in Russian Strategy of social and economic development for the period up to 2020. The Strategy conceived clusters as tools that would help maintain a uniform high level of economic development for all regions by increasing their competitive abilities and create conditions for high technology export, guaranteeing global competitiveness. However, the state, represented by federal ministries, was to play an extremely important part in the creation of these clusters, which made their autonomy limited and cast doubts on their status as market agents. Furthermore, legal acts on special economic zones and industry policies were unclear in determining the clusters' capabilities. Experts do not give a common opinion on the first results of the economic clusters' development in Russia. As stated by M. Porter, one of the first cluster theorists, important conditions for the emergence of clusters include a research and scientific base made up of education institutions, high concentration of specialized work force, good infrastructure and procurements opportunities [12]. In Russia, post-Soviet reorientation of military industry towards civil purposes was not completed, while the regional industry frameworks were disrupted following the collapse of the Soviet Union and could not maintain sufficient export diversity. These facts meant that Russian industry had little autonomous incentive to create regional economic clusters. Traditionally, high competitiveness is considered the key advantage of clusters. It is achieved due to increased interconnections between the main actors of the cluster, also understood as fast and efficient synergetic feedback regarding challenges that these members face and the abilities they possess. This consideration reinforces the traditionally recognized importance of local concentration in a cluster, hence O. Sölvell's description of clusters as typological agglomerations [13].

In today's Russia cluster organization is included within the main list of institutional mechanisms belonging to innovation policies in industry. As noted by the Russian Cluster Observatory, there exist now 118 specialized territorial clusters in Russia. Most of them are characterized by low level of organization development. Only 22 clusters show average organization development level, and 5 clusters belong to the high level [4]. The major obstacles to effective institutionalization and management of Russian clusters are as follows. First, due to the state's active involvement in creation of industrial and innovative research clusters, Russian clusters have low independency. The most popular way of cluster development is by attracting new members and resources. Thus, the efficiency of clusters as method of industrial cooperation inevitably decreases. The main reason for diminishing efficiency is that with higher industrialization and extensive growth, feedback channels within the cluster become less flexible. As an example, cluster initiatives transform into brands, which becomes a problem for innovation manufacturers who cannot join the brand or become absorbed, for investors, as the region wants to attract more companies of higher status and requires that large sums be given as first investments, and for the strategy in general, as all mechanisms become formalized and operation management becomes inefficient. N. Smorodinskaia mentions a negative trend: clusters gradually lose their capabilities to form horizontal connections of the triple helix type, which limits efficient cooperation. In this way, clusters lose self-regulation and self-development mechanisms. For cluster development, the most important is the regional level. Here, differences between events in Russia and global development trends are striking. Instead of gaining independency, clusters become more and more subordinate to federal political power structures. As they are managed on the federal level, industry workers find it hard to draw connection between regional initiatives [13]. Second, digitization inspires a new approach to networking [3], and creates additional requirements for management environment and decision. In this situation, traditional Russian principles of cluster creation and management are not very effective, as they heavily involve centralization and hierarchical subordination. As feedback becomes more rigid and management flexibility decreases, it becomes harder for managers to acquire and access relevant information, even though data collection has become an increasingly important coordination and management tool now that it can be done easier and faster using artificial intelligence. Third, regional clusters are primarily created with the aim of forming conditions that will sustain a full-cycle manufacturing process. Such manufacturing conditions will contribute to increasing the competitive abilities of regional economy and of Russian economy as a whole. They will also facilitate import substitution actualized by sanction policies that limit Russian global trade. However, large clusters in Russia are formed with active participation of state-run companies that have fallen under sanctions. This means that sanctions may potentially expand over the whole sector of industry and also cover private companies that have joined industry clusters. With today's high competitiveness requirements, the traditional cluster structure in terms of function and organization and the capabilities of its members are often not enough to bring the knowledge, experience and resources required for knowledge-intensive production together within one region. Such obstacles as listed above call for attention to new important features of innovative industry clusters as they develop. On the one hand, for some clusters, development potential is directly related to translocal features. Global connections and networking break the clusters' local geographical boundaries and bring new competitive advantages due to large (global) collaboration in research and development, manufacture, and expert consulting. On the other hand, for successful development of Russian clusters, an accessible and transparent procedure for assessing scientific and technological novelty is now highly required. It should be accompanied by corresponding evolution of patent protection. These developments will boost the share of scientific institution in cluster management and help implement the innovative triple helix strategy. Chemical industry clusters follow the development pattern in which territorial organization model is adjusted to the

demands of the flexible manufacture market with its high quality and efficient internal and external relations. In today's Russia, cluster organizations are listed as primary mechanisms of innovation policy in industry. As noted by the Russian Cluster Observatory, polymer industry clusters show particularly high flexibility. An analysis of 118 territorial clusters shows that 22 (19%) clusters include polymer manufacture. But their key activities are: production of new materials (6); manufacture of cars and car details (4); environmental protection and waste recycling (3); medical industry (3); chemical manufacture (3); aircraft building (1); textile industry, manufacture of clothes and shoes (1). Clusters that specialize in environmental protection and waste recycling show the highest level of organizational development (above average), while chemical industry and new materials clusters are on the lowest level. A known advantage of industry clusters is faster implementation of innovation technologies. Most segments inside a cluster use similar work strategies and technologies, as well as shared infrastructure. Together with fast communication between the segments, this fosters proactive management and helps implement new technologies and project decisions without obstacles or duplicate steps [1;9;10]. Clusters enjoy a particularly intensive communication, which helps form a flexible task solution process. It also creates a high level of trust, so that information inside a cluster is transmitted not only through formal channels, but also as tacit or non-formal knowledge, to use M. Polanyi's definitions. In systematic terms, this means that horizontal communication plays an important role in clusters. It helps to preserve important knowledge in situations of indeterminacy, characterized by non-standard tasks, flexible regulations and limited standards coverage. It also prompts fast feedback. In addition, horizontal information transmission reduces loss of context, facilitating correct interpretation and preserving the full content of the messages. Finally, horizontal communication also adds value to human capital, that is, to employees and other participants of cluster manufacture. However, studies show that territorial clusters in Russian do not use this advantage to its full extent. The main reason is the attempt to integrate the cluster model into the hierarchic vertical management structure. With vertical hierarchy, communication remains highly regulated.

### 3. CONCLUSION

Quality changes in cluster development shall foreground increased autonomy and a change of communication format. Only in this way will the internal communication in clusters become more efficient. Simply bringing research and education organizations together with manufactures, or joining experts with varied, often unique knowledge into a research and development consortium, is a required but not a sufficient condition for successful work on complex engineering projects. It is highly needed to create an environment of shared knowledge and mutual trust [8]. Digitalization will help here, as it increases communication speed [15]. But it is equally important to maintain a varied team structure, creating project teams where members have different qualifications, are of different ages etc., support all team members and focus their efforts on achieving a commercially applicable result together [16]. To promote efficient communication in clusters, it is required to create new information environments that will integrate all manufacture processes, from applied research to tightly scheduled serial production, using a digital medium. Such environments will guarantee the application of innovation models in all manufacture localities and not only in shared development and infrastructure centers. Moreover, this flexible model will create a shared work space where researchers, developers, testers and constructors can join the production process at various stages. Notably, crowdsourcing systems have shown the benefits of using non-specialized knowledge to various production processes including research and development. A good example is InnoCentive project space [2], which outsources applied research and development tasks. In digital economy conditions, technological platforms should provide remote information storage and communication support for variously configured research and

development chains. Additional functions of the technological platforms shall also provide legal protection for intermediate results of intellectual activities, maintain connection with venture investors and supply end-to-end assessment of production processes and specific technologies. To conclude, efficient development of clusters in modern Russia depends on a shared communicative project environment. This environment will support fast production of applied knowledge such as ideas, best practices, assessments etc., provide validation and assessment of new developments, present projects as chains of tasks that can be split and assigned to one or several participants, maintain complex interaction patterns, including parallel interaction between participants, save information from every work stage and store it under easily accessible conditions.

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## HOUSING AFFORDABILITY AS THE MOST SIGNIFICANT SOCIO-ECONOMIC INDICATOR

**Lyudmila Rudi**

*Novosibirsk State University of Economics and Management, Russia  
l.y.rudi@nsuem.ru*

**Tatyana Tropnikova**

*Novosibirsk State University of Economics and Management, Russia  
tropnikova@inbox.ru*

### **ABSTRACT**

*Housing is known to be vital in the facilities system of social infrastructure. The need for it is considered a basic one along with the needs for food and clothing. Thus the issue of housing is of continued relevance. Shaping of the housing system in the Russian Federation based on market mechanisms of housing provision also made the issue of determining overall trends in housing affordability urgent. This is of great significance in the implementation of public housing policy. There exist various methods of calculating the availability index each one corresponding to objectives of the research. The development of mortgage lending necessitated new approaches to analyzing the population ability to repay (service) the loan and to down pay. The article contains such calculations for the Novosibirsk region population. The obtained results of affordability indices calculations showed that mortgage lending had become an actual way to purchase housing, especially economy class one by a significant part of the population, even by those who do not have adequate earnings. However, it hardly efficient to expand the private housing sector by creating conditions to purchase it by the disadvantaged as they will not be able to maintain the housing. It is essential to search for new tools to increase housing affordability. Solution of the problem can be viewed in terms of the preserving and developing the municipal housing properties and social housing rental, rental in apartment buildings supported by regional and municipal authorities. The authors assume that a valuable experience was obtained by the countries of developed market economies, to use in housing policy of the Russian Federation*

**Keywords:** *housing affordability, mortgage arrears, mortgage*

### **1. INTRODUCTION**

Housing is known to be vital in the facilities system of social infrastructure. The need for it is considered a basic one along with the needs for food and clothing. Analysis of the housing system as a holistic socio-economic system involves the consideration of three aspects housing: as a result of production activities, as an object of distribution and exchange, as a commodity. As a commodity, housing is a multifunctional good, i.e. good that can satisfy the needs of various levels. In this regard, the issue of its affordability becomes very urgent. Without going into the discussion regarding this term, we note that the affordability of housing in general terms means the opportunity to use it as a commodity, without taking into consideration the ways to obtain it. As an economic category, "housing affordability" tends to be the complex of relations between people to satisfy housing needs as a multifunctional socio-economic good based on existing types of housing property. It manifests itself differently in various types of housing systems and has a different quantification. Shaping a market-type housing system the Russian Federation altered the meaning of "housing affordability" concept that it used to have. Housing need turns into housing demand, and housing affordability can be determined primarily by the financial ability of the population to purchase it. Accordingly it necessitated the establishment of particular market institutions.

These institutions should provide such accessibility for citizens for whom the state cannot be obliged by law to provide housing for free under a social contract of employment (Articles 49–59 of the Civil Code of the Russian Federation). The state through the development of the legislative framework and other conditions should provide these citizens with access to the housing market so that they can purchase or build housing in the foreseeable future using their own or borrowed money.

## 2. THE ANALYSIS OF POPULATION HOUSING AFFORDABILITY IN RUSSIAN FEDERATION

We started such analysis in the mid-1990s taking the Novosibirsk Region as example, we initially used the simplest method of comparing the average market price of housing (C) and the average market income of a family per a year (I) [1]. Thus the housing affordability index ( $I_a$ ) recommended in the UN HABITAT (United Nations Settlements Program) was calculated [2]. There is available statistics to calculate this indicator. The calculation enables one to obtain general information about housing markets and find out their weak points, but without showing the complex structure of housing markets and their current situation. Subsequently, the range of methodological approaches was expanded (3, 4, and 5). This allowed us to identify the general trends in housing affordability in a more substantiated way and take them into account when conducting public housing policy. For example, the calculations of the housing affordability index of the Agency for Housing Mortgage Lending (AHML) for the Russian Federation and the Novosibirsk Region show a rather favorable picture presented in Figure 1.

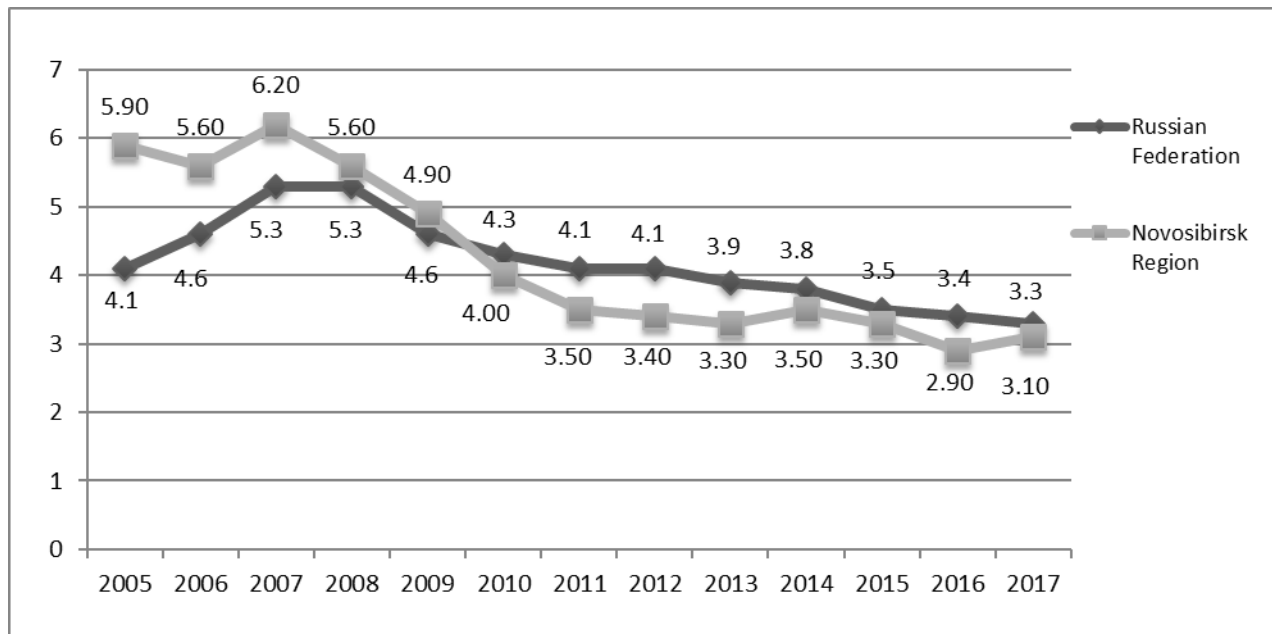


Figure 1: The dynamics of the housing affordability index (price and income ratio) in the Russian Federation and the Novosibirsk Region in 2005-2017

There had been a steady decrease in the housing affordability index in both the Russian Federation and the Novosibirsk Region since 2007 [6]. It had reached almost normative value by 2018. The dynamics of the housing affordability index by type of apartment, presented in Figure 2 can be considered also as a favorable one. So, in the Novosibirsk Region, the affordability index had been decreasing for almost all types of apartments since 2007 and reached the following values in 2017: for 1-room apartments - 3.1 years; 2-room - 2.8 years; for 3-room apartments - 2.4 years (7; 8; 9; 10).



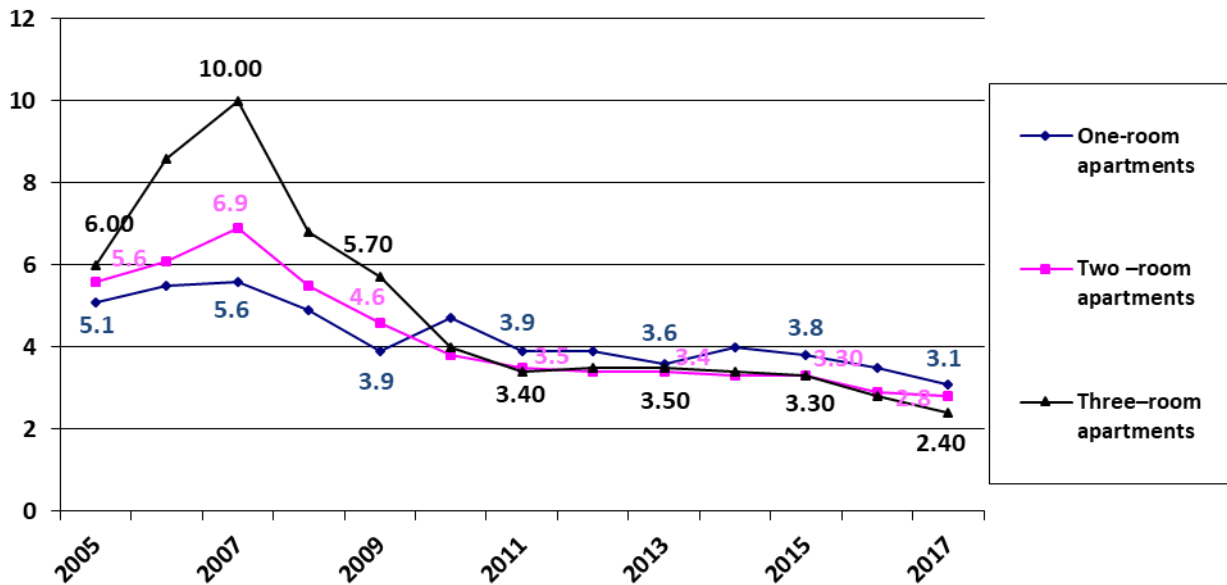


Figure 2: Dynamics of housing affordability index by type of apartment in the Novosibirsk region

This is due to the fact that there had been an increase in the supply of apartments in the Novosibirsk Region until 2016. Specialists tend to think that providing maternity capital for the second child birth within the framework of federal and regional programs to support young families and particular categories of the employed resulted in promoting mortgage loans. This, of course, increased the demand for small and economy class apartments and led to high rates of apartment sales in new buildings and high activity in the secondary housing market in 2011-2013. But did housing affordability really increase over the analyzed period. Housing affordability indices are known to be calculated in various ways depending on the purpose of the study.

### 2.1. Calculating the of population affordability index of loan maintenance

The extensive use of mortgage programs also necessitates changes in the methods for calculating the affordability index. The affordability index is determined by taking into account the ability to repay (service) the loan over a specific period and the ability to pay the down payment, concerning any commercial scheme for purchasing accommodation using mortgage products. Using the method of S.R. Khachatryan, E.Yu. Faerman, R.L. Fedorova and A.N. Kirillova, we will make calculations for the Novosibirsk Region for the period from 2011 to 2018 (Khachatryan, S., Fayerman, Ye., Fedorova, R., Kirillova 112–135; Khachatryan, pp 95–105). The calculation algorithm for all commercial patterns implemented in the Novosibirsk Region includes a number of stages. The first stage is calculating the population affordability index to repay (service) a loan. Firstly, we take the term of 7 years as the one for the family to save the sum of money being equal to the down payment for the purchased housing; the average area and average value of flat, the average price of 1 square meter as constants for all lending patterns. Secondly, we take  $r$  - interest rate per annum;  $D_{BH}$  - down payment, percentage of the flat value;  $T$  - loan term, years;  $K$  - loan amount (value of the flat with the down payment subtracted) as variables for all lending schemes. Mortgage rates in the Novosibirsk Region in 2011 - 2013 ranged 7.00-17.75% per annum for ruble loans and 5.98 - 15.00% per annum for foreign currency loans, down payment for mortgages ranged 5-20%, mortgage loan term ranged 1-50 years. We take the standard conditions of the AHML for Novosibirsk Region particularly:  $r = 11\%$  per annum;  $D_{BH} = 30\%$  of the apartment price,  $T = 15$  years for calculations. "Dom.RF.Ipotechnyi agent" CJSC succeeded operations of AHML in 2018.

The standard requirements for mortgage lending remained the same: the initial payment for an apartment equals 30% of the apartment price, the loan term is 15 years, but the interest rate equals 9.66% per annum. A down payment being available, an individual citizen needs a loan amount for the apartment purchase. Using the data of Table 1, we calculate its value.

*Table 1: Average apartment area, average price and average apartment price in 2011-2018 in the Novosibirsk Region (9; 10)*

Apartment	Average area, sq.m.			Average price of 1 sq.m, thousand. rub.			Average apartment price, thousand. rub.		
	2011	2013	2018	2011	2013	2018	2011	2013	2018
1-room	31	33.4	33.7	53.2	64	63.66	1649.2	2137.6	2143.32
2-room	55	51.6	52.7	50.2	60.5	59.61	2761.0	3121.8	3141.44
3-room	67	76.2	74.3	50.5	60.2	58.29	3383.5	4587.24	4330.94

Taking into account the average apartment price, the amount of the loan to purchase a 1-room apartment in 2011 equaled to 1154.4 thousand rub.; a 2-room - 1932.7 thousand rub. ; 3-room - 2368.5 thousand rub. We give an example of calculating the affordability index for 2011, and we will make similar calculations for 2013 and 2018. We find the minimum income of the borrower necessary for obtaining a loan, having previously determined the amount of the monthly payment of the borrower for the loan according to the formula:

$$P(t)_{\text{month}} = \frac{K}{12 \cdot T} \left(1 + r \frac{T+1}{2}\right), \quad (1)$$

where  $P(t)_{\text{month}}$ - amount of the monthly loan payment of the borrower,  $K$ - loan amount,  $T$  –loan term,  $r$ -interest rate.

So:

- for 1-room apartment

$$P(t)_{\text{month}} = \frac{1154440}{12 \cdot 15} \left(1 + 0,11 \frac{15+1}{2}\right) = 12057.5 \text{ rub. ;}$$

- for 2-room apartment

$$P(t)_{\text{month}} = \frac{1932700}{12 \cdot 15} \left(1 + 0,11 \frac{15+1}{2}\right) = 20186 \text{ rub. ,}$$

- for 3-room apartment:

$$P(t)_{\text{month}} = \frac{2368450}{12 \cdot 15} \left(1 + 0,11 \frac{15+1}{2}\right) = 24737 \text{ rub. ,}$$

A monthly minimum income of the borrower is calculated by the formula:

$$V_{\text{min}} = \frac{P(t)_{\text{month}}}{0,3}, \quad (2)$$

where  $V_{\min}$  – minimum income of the borrower.

$$\text{For 1-room apartment - } V_{\min} = \frac{12057,5}{0,3} = 40192\text{rub.};$$

$$\text{for 2-room apartment - } V_{\min} = \frac{20186}{0,3} = 67286,6\text{rub.};$$

$$\text{for 3-room apartment - } V_{\min} = \frac{24737}{0,3} = 82456,6\text{rub.}.$$

We calculate the monthly minimum required income of the borrower ( $V_{\min KP}$ ) according to formula (3), taking into account the family coefficient ( $K_{cem}$ ), which is 2.8 for the Novosibirsk region and the coefficient taking into account tax payment and payment of housing and utility services ( $K_p$ ) equals to 1.126 (13):

$$V_{\min Ki} = \frac{V_{\min} \cdot K_p}{K_{cem}}, \quad (3)$$

$$\text{for one-room apartment } V_{\min Ki} = \frac{40192 * 1.126}{2.8} = 16163\text{rub.};$$

$$\text{for two-room apartment - } V_{\min Ki} = \frac{67286.6 * 1.126}{2.8} = 27058,8\text{rub.};$$

$$\text{for three-room apartment - } V_{\min Ki} = \frac{82456.6 * 1.126}{2.8} = 33159.4\text{rub.}$$

An important point for calculating affordability indices is that the population of the Novosibirsk Region, like that of the Russian Federation as a whole, is significantly differentiated by income level, as evidenced by the consolidated data of table 2 ( 13; 14).

*Table 2: The distribution of the Novosibirsk Region population of by the amount of the average per capita cash income for 2011-2013 period*

Number of income group		000` People	as percentage of total
		Population at large	2731.2
1	including monthly per capita cash income, rubles up to 3500.0 ( $v_0-v_1$ )	103.8	3.8
2	3500.1-5000.0 ( $v_1-v_2$ )	152.9	5.6
3	5000.1-7000.0 ( $v_2-v_3$ )	256.73	9.4
4	7000.1-10000.0 ( $v_3-v_4$ )	398.75	14.6
5	10000.1-15000 ( $v_4-v_5$ )	551.7	20.2
6	15000.1-25000.0 ( $v_5-v_6$ )	641.8	23.5
7	25000.1-35000.0 ( $v_6-v_7$ )	294.97	10.8
8	over 35000.0 (35000.1-70000.0) ( $v_7-v_8$ )	330.55	12.1

Basing on the data given in table 2. we determine which income group with the  $(v_0-v_1)$ ; interval corresponds to the minimum income required to obtain a loan. The first income group has the  $(v_0-v_1)$ ; interval, respectively; the last income group is closed by the  $(v_7-v_8)$  interval, the interval of the last income group is increased arbitrarily to 70.0 thousand rub. due to a significant part of the population included in this income group - 12.1%. When calculating, we mark the income group number in the desired interval as  $n_{min}$ , so  $v_{i-1} < V_{min KP} < v_i$ . Consequently, the 6-1 income group ( $n_{min} = 6$ ) can afford purchasing a 1-room apartment, the 7th ( $n_{min} = 7$ ) can afford buying a 2-room apartment, and also the 7th income group ( $n_{min} = 7$ ) can afford purchasing a 3-room apartment. So the population affordability index for the Novosibirsk Region to repay (service) the loan ( $d_{KR}$ ) can be calculated by formula (11; 12):

$$d_{KP} = \left( \sum_{k=i+1}^n d_k + \frac{v_i - V_{min Ki}}{v_i - v_{i-1}} \cdot d_i \right) \times 100\%, \quad (4)$$

where  $n$  is the number of income group;  $i$ - is the number of the income group with the  $(v_{i-1}; v_i)$  income interval, including the income  $V_{min KP}$ ;  $k$  - numbers of income groups with income more than  $v_i$ ;  $d_i$  - percentage of population in income group  $i$ ;  $d_k$  is the percentage of the population in the income group  $k$ . The accessibility index calculated this way shows how many percent of the population can afford servicing this loan pattern. It can be calculated not only in percent, but also in shares. So, it can be calculated for a one-room apartment:

$$d_{KP} = (0.108 + 0.121 + \frac{25000 - 16163}{25000 - 15000.1} \cdot 0.235) \times 100\% = 43.66\%$$

for a two-room apartment:

$$d_{KP} = (0.121 + \frac{35000 - 27058.8}{35000 - 25000.1} \cdot 0.108) \times 100\% = 20.67\%$$

for a three-room apartment:

$$d_{KP} = (0.121 + \frac{35000 - 33159.4}{35000 - 25000.1} \cdot 0.108) \times 100\% = 14.1\%$$

We consolidated the calculated data for 2011 in Table3 for convenience.

Table 3: Loan repayment affordability index ( $d_{KP}$ ) in the Novosibirsk Region in 2011, %

Apartment	Monthly payment $P_{(i)}$ , rub.	Minimum monthly payment ( $V_{min}$ ), rub.	Minimum monthly payment ( $V_{min KP}$ ), rub.	Number of income group, ( $n_{min}$ )	Affordability index of loan repayment ( $d_{KP}$ ), %
1-room	12057.5	40192	16163	6	43.6
2-room	20186	67287	27059	7	20.7
3-room	24737	82457	33160	7	14.1

## 2.2. Calculation of the affordability index accumulate a down payment

The next step is to determine the population affordability indicator to accumulate the down payment ( $d_{BH}$ ). It is calculated similarly to the ( $d_{KP}$ ) index but without taking into account  $K_p$ . Since the apartment is not owned yet, housing and utility services and taxes are not paid for it. Using the data of table.2 on the population distribution of the Novosibirsk Region by income groups, we identify the groups being able to accumulate a down payment of new apartment within seven years. The affordability index to accumulate the down payment  $d_{BH}$  was calculated as follows: the down payment for the purchased apartment ( $D_{BH}$ ) equals  $D_{BH} = 1649200 \times 0.3 = 494760$  rubles for 1-room apartment; for 2-room apartment-  $D_{BH} = 2761000 \times 0.3 = 828300$  rubles.; for 3-room flat-  $D_{BH} = 3383500 \times 0.3 = 1015050$  rubles, according to this pattern. Therefore, taking into account the introduced period of accumulation (7 years), the family has to save monthly:

$$D_{\min} = \frac{D_{BH}}{7 \times 12} \quad (5)$$

So, for one-room apartment this sum will make 5890 rub.; for two-room apartment– 9860.7 rub.; for three –room apartment -12083.93 rub. The monthly income of the borrower based on the 30% share of payments should be calculated by the formula:

$$V_{D_{\min}} = \frac{D_{\min}}{0,3} \quad (6)$$

So, the income enabling to purchase a one-room apartment should be not less than 19633.3 rub; two-room apartment– 32869 rub; three-room apartment-40279.76 rub. The minimum monthly required income of the borrower should be calculated by the formula, taking into account the family ratio:

$$V_{\min BH} = \frac{V_{D_{\min}}}{K_{\text{сем}}} \quad (7)$$

For one room apartment it comes to 7011,9 rub., for two-room apartment– 11738.92 rub., for three-room flat-14385.62 rub.. We calculate  $d_{BH}$  using the following formula:

$$d_{BH} = \sum_{k=i+1}^n d_k + \frac{V_i - V_{\min Bi}}{V_i - V_{i-1}} \cdot d_i \quad (8)$$

This implies that the affordability index to accumulate the down payment of one-room apartment should come to 81.14%; two-room apartment-59.57%; three-room apartment-48.88%. This index shows the population percentage being able to accumulate a down payment within 7 years. To clarify this, the obtained calculations are summarized in table 4.

*Table following on the next page*

*Table 4: The calculation of the affordability index of Novosibirsk Region population to accumulate the down payment in 2011*

Purchased apartment	Required initial payment- ( $D_{BH}$ ),rub.	Minimum monthly savings- $D_{min}$ ), rub.	Minimum monthly income( $V-D_{min}$ ),rub.	The minimum monthly income , including $K_{CCM}$ , per person ( $V_{minBH}$ ), rub.	Down payment affordability index ( $d_{BH}$ ), %
one-room	494760	5890	19633.3	7011.9	81.14
two-room	828300	9860.7	32869	11738.92	59.57
three-room	1015050	12083.93	40279.76	14385.62	48.88

Table 5 consolidates the calculations of affordability indices for various population groups of the Novosibirsk Region to repay (service) the loan and make a down payment in 2011-2018.

*Table 5: Dynamics of housing affordability indices for various groups of the population of the Novosibirsk Region to repay (service) a loan and make a down payment, %*

Year	2011			2013			2018		
	1-room	2-room	3-room	1-room	2-room	3-room	1-room	2-room	3-room
P(t), rub.	12057.5	20186	24737	15628	22824	33537	14776	21657	29857
$V_{min}$ , rub.	40192	67287	82457	52094	76079	111793	19890.86	29030.69	40022.58
$V_{minKP}$ , rub.	16163	27059	33160	20949	30595	44957	49253,3	72190.0	99523.3
$n_{min}$	6	7	7	6	7	8	5	6	6
$d_{KP}$ , %	<b>43.6</b>	<b>20.7</b>	<b>14.1</b>	<b>32.4</b>	<b>16.9</b>	<b>9.1</b>	<b>62.2</b>	<b>62.2</b>	<b>28.5</b>
$V_{minBH}$ , rub.	7011.9	11739	14386	9088.4	13273	19504	9112.6	13356.4	18413.8
$n_{miBH}$	4	5	5	4	5	6	3	3	4
$d_{BH}$ , %	<b>81.1</b>	<b>59.6</b>	<b>48.9</b>	<b>71</b>	<b>53.4</b>	<b>35.8</b>	<b>95.6</b>	<b>63.7</b>	<b>60.4</b>

The proportion of the population able to accumulate a down payment for the purchase of various types of apartments ( $d_{BH}$ ) and service a mortgage loan ( $d_{KR}$ ) in 2018 is obvious to increase compared to 2011. Although in 2013 it even decreased despite being awarded a maternal capital. So, for the purchase of a 1-room apartment, the availability of down payment ( $d_{BH}$ ) increased from 81.1% in 2011 to 95.8% in 2018. For 2-room apartments, the growth of the affordability index was 4.1% for the same period, for a 3-room apartment - 11.5%. To make the down payment could afford the population starting from the 4th income group in 2011-2013 with an average per capita cash income of 7000-10000 rubles. per month. And those starting from the the 3d income group in 2018. But it should be noted that the income level for this group is even higher: 10,000-14,000 rub. per month. Obtaining a loan and its further servicing could be allowed in 2011-2013 by groups of the population starting from the 6th income group and having an official average per capita income of 15,000-25,000 rubles. per month. In 2018, this is the 5th revenue group, but the monthly income level for it is higher - 19000-27000 rubles. per month. (<https://fedstat.ru/indicator/31399>, <https://riarating.ru/infografika/20190423/630123908.html>). The availability index to service a loan for a one-room apartment increased from 43.6% in 2011 to 62.2% in 2018. In 2011, representatives of the 7th income group with a monthly average income of 25,000-35,000 rub could keep servicing a mortgage of a two-room apartment and the representatives of the 6th income group with a monthly average per capita income of 27,000-45,000 rub were able to manage it in 2018. The affordability index has grown significantly for them.

Concerning three-room apartments, only representatives of 7-8 income groups with an average per capita cash income of 25,000-70000 rub were able to undergo mortgage burden in 2011-2013. But representatives the 6th income group were able to do it in 2018. Their affordability index rose from 4.1% in to 28.5% in 2011. Thus, the housing affordability index for the population of the Novosibirsk Region calculated according to the method of S.R. Khachatryana, E.Yu. Faerman, R.L. Fedorova and A.N. Kirillova, taking into account the population's ability to repay (service) the loan and the population's ability to accumulate a down payment, differs from the indices calculated according to the UN "HABITAT" method. Mostly those who use maternity capital or receive grants can pay the down payment. However, not everyone has the opportunity to further repay the loan received. It is proved by the debt growth of the population of the Novosibirsk Region on mortgage housing loans (Fig. 3) (<https://www.cbr.ru/statistics/UDStat.aspx?Month=01&Year=2017&TblID=4-5>).

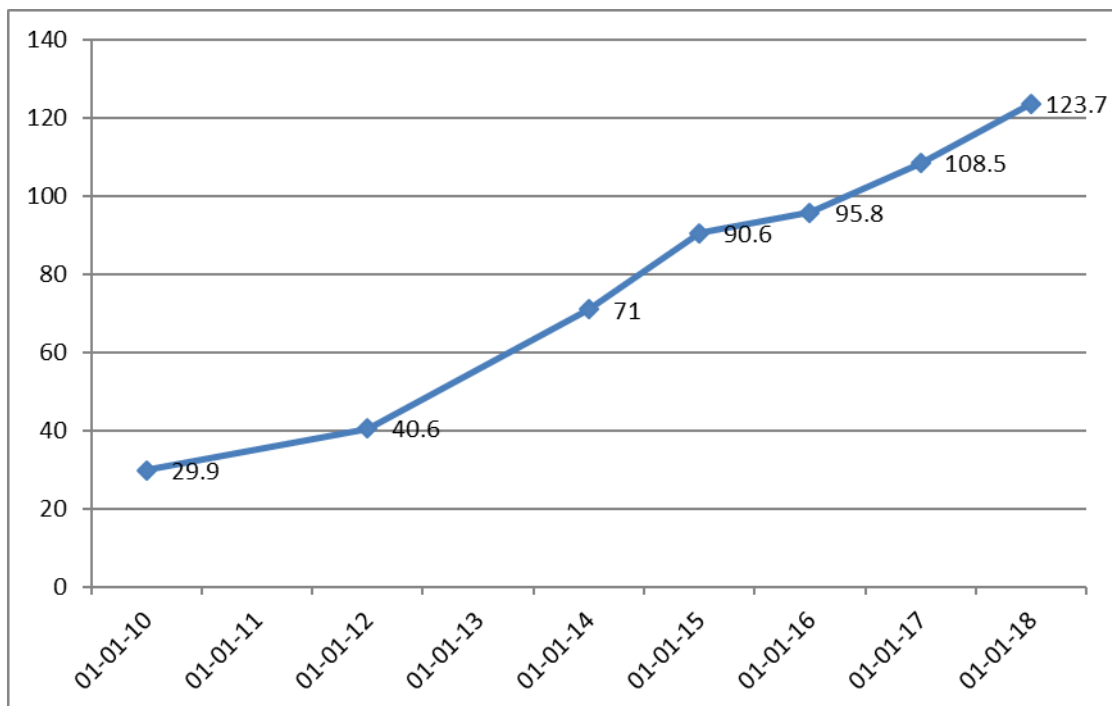


Figure 3: Mortgage debt dynamics of housing loans of the Novosibirsk Region population, billion rub

It is worth mentioning that despite the rapid growth of mortgage lending, the amount of housing commissioned over the past three years has been declining both in the Russian Federation as a whole and in the Novosibirsk Region being caused by the decrease in the commissioning of apartment buildings both by developers and the population. In 2018 75.3 million square meters were commissioned in the Russian Federation, being 4.9% less than in 2017 and 6.1% less than in 2016 [18]. The situation is similar in the NSO, but the fall is more significant. If in 2015 2587.9 thousand square meters were introduced into the NSO, then in 2016 - 2216.2 thousand square meters, or 85.6% of the 2015 level (<https://novo-sibirsk.ru/about/numbers/>). There were 1729.1 thousand square meters commissioned in 2017, or 78% of the 2016 level. All these processes were caused by the downturns in housing construction such as low demand for housing, expensive loans to developers; the rise in price of constructional materials decreased the pace of commissioning of new apartment buildings within the period of 2014-2015. Specifically, these processes were accompanied by the rapid development of mortgage lending. Therefore, it can be assumed that in subsequent years, mortgage lending is assumed not to be able to ensure the growth of housing commissioning and thus guarantee its affordability.

### 3. CONCLUSIONS

Calculations of housing affordability indices for the Novosibirsk Region population and their analysis confirm that housing mortgage lending has become a real way to purchase housing, especially an economy class, by a population having a particular income level. However, this financial tool is obvious not provide an adequate affordability of housing to the population majority of the Russian Federation and the Novosibirsk Region. There is a need for new financial tools to ensure investment in housing and increase of housing affordability. Being new for the Russian Federation housing leasing, based on long-term lease of housing which guarantees the right to purchase is one of these tools. To a certain extent, it can be considered as an alternative to mortgage lending. In this regard, I would like to note the I.V. Salagor dissertation research "Housing leasing as a tool of a financial mechanism for the residential real estate market" (20), containing a comprehensive justification of this financial instrument. A financial model of housing leasing, methodological foundations for the creation and functioning of specialized financial institutions such as housing leasing companies, a methodology of creating their investment portfolio, methodology for calculating lease payments, etc. were developed. However, housing leasing, as well as mortgage lending, contributes to the growth of the private housing sector, which, in our opinion, has already reached its natural limits. Since the beginning of housing privatization, its share in the Novosibirsk Region had been continuously growing and in 2018 amounted to 93.3%. This trend was following the one that was taking place in the Siberian Federal District and in Russian Federation. In Russia, this indicator is one of the highest. It is hardly expedient to expand it by creating conditions for the purchase of housing for low-income groups of the population. They will not be able to maintain it. The solution to their housing problem tends to be in absolutely different perspective first of all the municipal housing fund should be preserved and expanded, and the social rental of housing or rental in apartment buildings supported by regional and municipal authorities should be introduced. Countries of developed market economies have gained Interesting experience. A number of recent research can be useful to study [21; 22; 23]. (Anderson-Baron, pp. 1286-1306, Collins, pp. 932-952, Deverteuil, G pp. 383-399).

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## ANALYSIS OF THE LABOUR MARKET IN CROATIA

**Marina Lolic Cipic**

*University of Split,*

*University department of professional studies, Split, Croatia*

*marina.lolic@oss.unist.hr*

### **ABSTRACT**

*A highly productive labour market, characterized by a high level of labour skills, knowledge and discipline, is a key prerequisite for economic growth. However, labour markets are rather complex. The demand for labour, as well as its supply, depend on a number of factors, often specific for a particular economy. This paper aims at providing an analysis of the labour market trends in Croatia in comparison to its counterparts within the EU28. Croatian labour market indicators imply one of the highest unemployment and lowest employment rates in comparison to other EU28 countries, especially regarding youth unemployment. The analysis also implies high labour costs in comparison to other post transitional EU economies, high wage rigidity as well as employment protection regulation rigidity. At the same time, relatively high labour costs are not accompanied by high labour productivity, as they should be. The observed negative labour market trends cannot be entirely explained by the cyclical movement of the Croatian economy. Dealing with the challenges of the Croatian labour market makes it necessary to take a broader perspective into account as well as the complexity of the transitional heritage. Improvement of the labour market situation in Croatia requires a strategic approach including a wide range of strategically coordinated policy measures at national level.*

**Keywords:** *Croatian labour market, EU28, (un)employment*

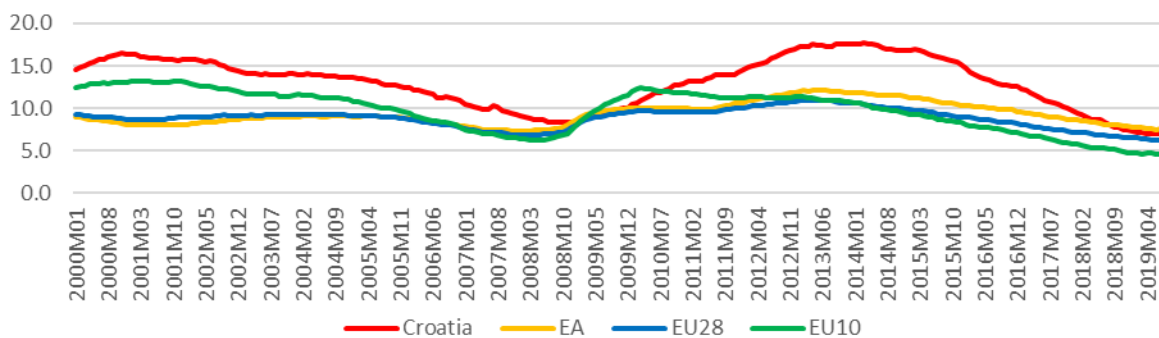
### **1. INTRODUCTION**

A high quality skilled, knowledgeable and disciplined labour market is the most important determinant of economic growth. The demand for labour is derived from the demand for goods and services within a society. On the other hand, labour supply, in terms of available labour force, is shaped by demographic determinants of the population and policies that influence them as well as policies that determine social security and unemployment benefits, minimum wage, retirement conditions (especially early retirement conditions), etc. As businesses and economies face increasing international competition, their competitiveness depends largely on the ability to successfully adapt to market changes and take advantage of the latest technical and technological developments (Lowther, 2003). So to reach their full potential, economies need a flexible workforce and an efficient labour market. The unemployment phenomenon can be found in all economies. High unemployment rates impose an economic burden to society (Gallie et al., 2001) due to the suboptimal utilization of labour as a key production and development resource. The long-standing crisis, Croatia has recently recovered from, has been characterized by high unemployment rates that are usually associated with low economic activity. However, the problem of unemployment is deeply rooted in the Croatian economy and, as such, deserves a thorough examination. The analysis of the Croatian labour market is focused on, but not limited to, labour market trends in the new millennia, primarily unemployment, employment and labour market activity rates as well as the analysis of real wage dynamics and labour productivity. Labour market dynamics are analysed using recent data as well as relevant academic research and compared to labour market dynamics in the European union (EU28) with special emphasis on EU10 countries (Bulgaria, Check Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia).

## 2. UNEMPLOYMENT DYNAMICS

The implementation of the first labour force survey (LFS) in Croatia took place in late 1997. Continuous data on monthly unemployment, employment and activity rates, according to ILO (International Labour Organisation) definitions, is available starting from January 2000. Chart 1 illustrates monthly unemployment rates in Croatia in comparison to EU28, EU10 and the Euro Area. During the observed almost 20-year long period, Croatian unemployment rates were extremely high. At the beginning of the new millennia, unemployment rates in Croatia started declining, reflecting real GDP growth. The same trend, with rather lower unemployment rates, can be observed within the EU10 countries, while EA and EU28 (on average) had lower and rather stable unemployment rates (round 9%). The first indication of labour market disturbances, as a reflection of the 2008 financial crisis, can be seen in the mid-2008 in EA, EU10 as well as in EU28. However, the initial reaction of labour market in Croatia was rather slow, with unemployment starting to increase at the beginning of 2009, falling behind its European counterparts by two to three quarters.

*Chart 1: Harmonised seasonally adjusted unemployment rates (by ILO definition) in Euro Area (EA), EU28, EU10 and Croatia (HR), monthly data*

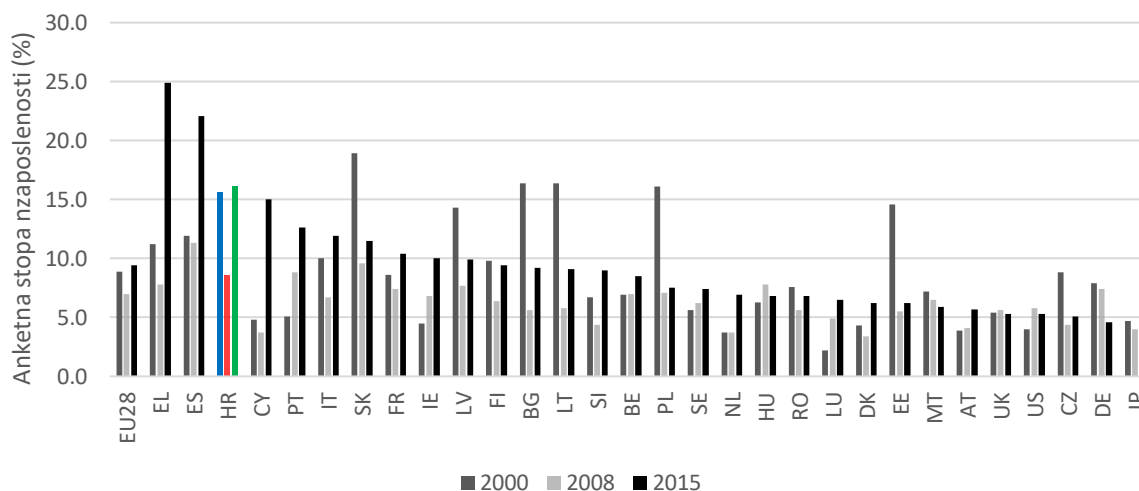


*Source: Eurostat (2019), Unemployment, LFS adjusted series*

The crisis affected all EU members, but its ramifications were rather heterogeneous throughout the EU. The influence it had on Croatian labour market seem to have been much severe in comparison to other EU countries. Labour market reaction to crisis within EA was, on average, limited to a 10% unemployment rate. However, unemployment started to rise again during 2011, as the recession in the EU deepened. As the crises began in 2008, unemployment in EU10 increased at a much faster pace in comparison to Croatia, but reached its peak in early 2010 (12,5%) unlike Croatia where it had continued to increase. The crisis in Croatia lasted for 6 years (2009-2014) with unemployment rate doubling from 2008 (8%) to 2012 (16%), reaching its peak in 2014 (almost 18%). More importantly, as the Chart 1 illustrates, unemployment rates in Croatia were much higher than in other EU countries (with the exception of Spain and Greece) only recently reaching EU28 average unemployment rate. Problems concerning high unemployment rates in Croatia especially relate to high long-term unemployment rates (unemployment 12+ months) as well as high youth unemployment rates (age group: less than 25). Botrić (2009) also highlighted the problem of the persistence of high share of long-term unemployment in Croatia. According to Eurostat annual data (2006-2018), long-term unemployment in Croatia constitutes 56,6% of the total unemployment, placing Croatia in the 3<sup>rd</sup> place within the EU28, with only Slovakia and Greece having higher long-term unemployment rates. Average long-term unemployment rate in EU28 was, on average, 43,3% during the same period. However, it is worth noting that, unlike Slovakia and Greece, Croatia demonstrated the largest fall in the share of long-term unemployed (-16,7 pp) during 2014-2017 period, indicating recent positive labour market trends.

Since the skills the individuals possess might deteriorate if they are not using them actively, the situation when young people after graduation are not able to actively use the knowledge they have acquired, implies that the available human resources are not being used efficiently (Botrić, 2009). Youth unemployment rates in EU28 also place Croatia in the 3<sup>rd</sup> place within the EU28 with 33,4%, with only Greece and Spain having higher youth unemployment rates (round 40%). Average youth unemployment rate in EU28 was 19,5% for the observed period (2006-2018). It is important to note that from 2013, when it reached its peak (49,9%), youth unemployment rate in Croatia was largely reduced to 23,4% in 2018 (with EU average youth unemployment rate set at 15,2%). Youth unemployment rate is more sensitive to the economic cycle compared to elderly unemployment rates as well as total unemployment (Ahn and Hamilton, 2019). However, despite the recent economic recovery, youth unemployment remains one of the main economic problems in the EU (Dietrich and Möller 2016). Despite the afore mentioned improvements, long term unemployment and youth unemployment still present a serious labour market challenge for policy makers in Croatia. An international comparison of unemployment rates according to LFS data (see Chart 2) shows that the unemployment rate in Croatia is well above the EU average in the long run.

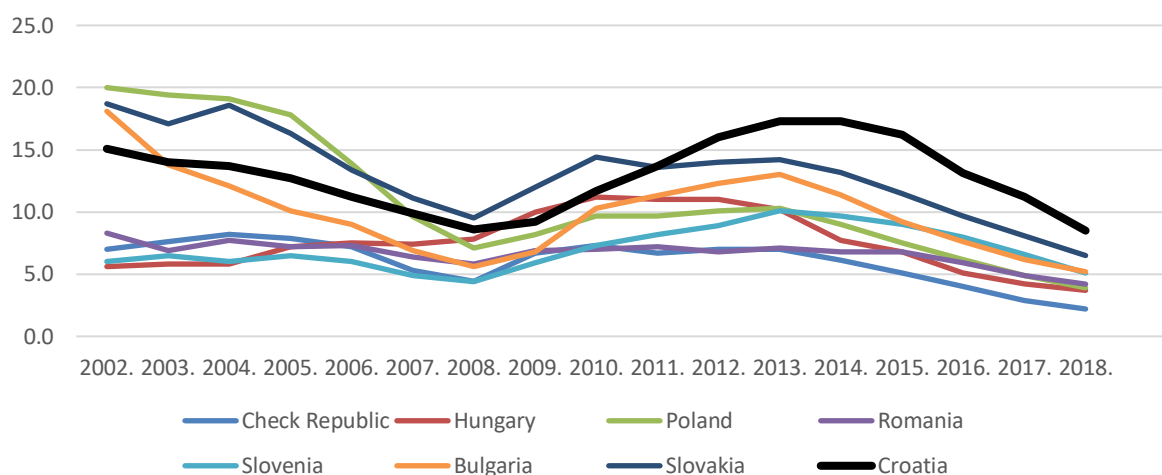
Chart 2: International comparison of unemployment rates in EU28, US and Japan



Source: Data according to Eurostat (2018), Unemployment by sex and age, Annual average

The fact that EU economies are largely interdependent should be taken into account in explaining unemployment, although, there are often large differences among those economies. EU economic interdependencies result in a much higher unemployment rate in Europe compared to the US and Japan. Moreover, for several decades the problem of unemployment has been more pronounced in Europe than in the US and Japan. Furthermore, the comparison of almost every Croatian labour market indicator with its EU counterparts indicates unfavourable trends. In 2015, the Croatian economy recorded the third highest unemployment rate within the EU28, with higher unemployment rates only in Greece and Spain. Although the economy finally emerged from a long-standing crisis in 2015, the problem of high unemployment (as shown earlier) existed much earlier, as evidenced by data for 2000 and 2008, when unemployment was also not only higher than the EU28 average, but also higher than the unemployment rates of other post-transition EU economies (with the exception of Slovakia). Comparing the unemployment rates with respect to selected post-transition EU economies (see Chart 3), data show that unemployment rates in Croatia were above average compared to other post-transition economies. Only Bulgaria (until 2003), Slovakia and Poland had higher unemployment rates in the pre-crisis period.

*Chart 3: Unemployment rates in Croatia and selected post transitional economies (age group: 15-64)*



*Source: HNB (2018), Unemployment rates in comparison to other post transitional EU countries, according to LFS*

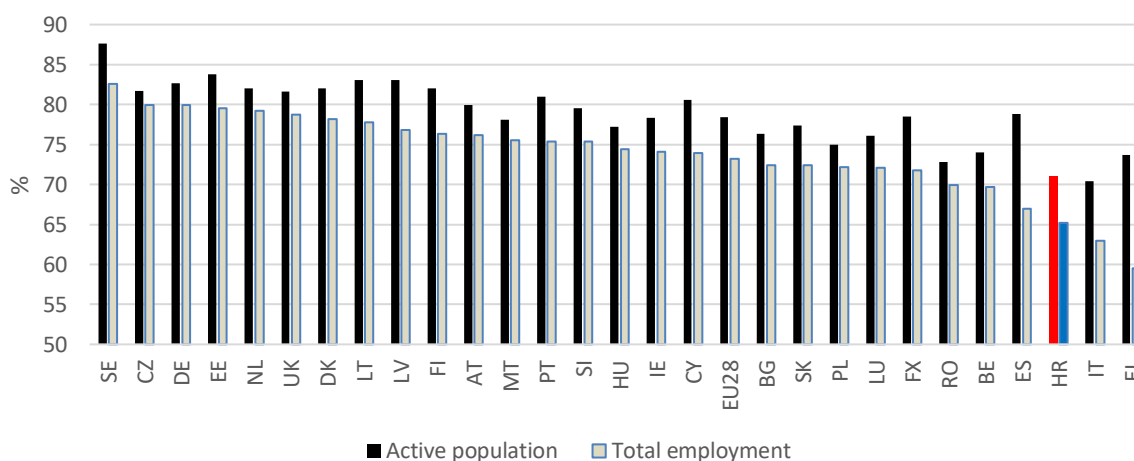
Generally speaking, the labour market in transition economies narrowed by an average of 30 to 40% in the 1990s, resulting in double-digit unemployment rates (Družić, 2004). In the early transition years, the unemployment problem in Croatia was expected to be temporary. Unfortunately, the reduction of unemployment rates was not achieved by creating new jobs but by an exodus of workers from the workforce, primarily through early retirement (Kapoor, 2001). In all EU transition economies, a sharp decline in economic activity, privatization process and the dismissal of a great number of redundant workers as well as the closure of outdated facilities were associated with a sharp decline in employment, the social pressures of which were most often offset by early retirement programs (Mrnjavac, 2011). The massive disappearance of jobs in agriculture and industry (which continued into the early 2000s) was only rarely accompanied by significant job creation in the service sector. Analysing the problem of unemployment in post-transition economies, several common characteristics of unemployment can be identified; (1) unemployment rates vary significantly across regions, with low labour mobility, (2) the share of long-term employment in total employment is steadily increasing, (3) in most countries women are more affected by unemployment than men, (4) the share of youth unemployment is high and increasing, (5) unemployment varies significantly depending on the level of education and training (Obadić, 2005). The reasons behind the high unemployment rates in Croatia are numerous and intertwined, and therefore often depend on the choice of the author. Bejaković (2007), as well as Botrić (2009), attribute unemployment in Croatia to structural changes in the economy, bankruptcy of companies, dismissal of employees as well as spatial and professional mismatch between supply and demand. Tomić (2014), on the other hand, concludes that the mismatch between the supply and demand for labour does not have a (too) large impact on the unemployment trend in Croatia. Bićanić and Babić (2008) argue that, to understand the situation on the labour market in Croatia, it is crucial to take non-economic variables and the so-called "path dependency" into account. They believe that the breakup of Yugoslavia, the war, transition and the privatization processes have had a major impact on the labour market. These processes reflected in current labour market institutions, demographic trends, the educational structure of the unemployed, as well as expectations on the labour supply and labour demand side. Orsini and Ostojčić (2015) attributed the slower adjustment of the Croatian labour market to a decline in economic activity (in comparison to other post-transition EU member states) to the lack of nominal and real wage adjustments leading to a significant increase in unemployment during the crisis years.

Additionally, Obadić and Tica (2016) point to a large mismatch between the education system and the real needs of the labour market in Croatia, which in times of crisis (2008-2014) resulted in (by far) the highest unemployment rates of highly qualified graduates.

### 3. EMPLOYMENT AND ACTIVITY RATE DYNAMICS

Data on population activity rates and employment rates at EU level (see Chart 4) also indicate unfavourable labour market trends in Croatia. Although Chart 4 only shows data for 2018, previously available data (according to LFS) also implies an unenviable labour market situation. In 2003, labour market activity rate in Croatia was 67,7% and the employment rate 58,4%. Both indicators recorded a slight increase in value by 2008 (activity rate of 70,6% and employment rate of 64,9%), after which their values started to decrease until 2014. Recent data (2018) indicates slightly higher activity (71,0%) and employment (65,2%) rates, still far from desirable and not far from their pre-crisis period values.

*Chart 4: International comparison of employment and activity rates and rates within the EU in 2018 (based on LFS data, age group 20-64)*



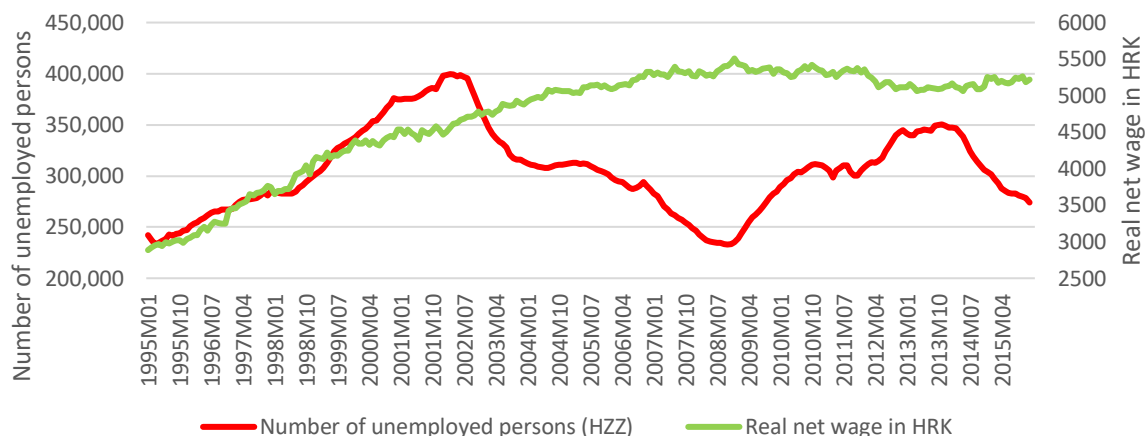
*Source: Data according to Eurostat (2019), Employment and activity by sex and age*

The presented international comparison indicates below-average levels of labour market activity in Croatia (7,4 pp less than the EU28 average), especially employment rates (8 pp less than the EU28 average). Despite the negative impact of the economic crisis, the participation of the population in the labour market is extremely low. Almost 30% of the working age population is not active (neither working nor looking for work!). This is especially evident for the male activity rate (men traditionally have higher participation rates in the labour market than women), which in Croatia is the lowest in the EU28 (in the age group 20-64). A relatively large increase in employment in the third millennium should be viewed with caution. Thus, Družić (2004) states that almost all methodological changes after 1990 were aimed at broadening the definition of employees. In addition to unemployment, the main reasons for not participating in the labour market in Croatia are retirement and education (Tomić, 2015). This is why Moore and Vamvakidis (2008) state persistently high unemployment and relatively low labour activity rates as a potential constraint of economic growth in Croatia. Croatia has the highest share of working-age pensioners among EU countries. Nestić and Tomić (2014) highlight two main reasons for such a high proportion of working-age pensioners; primarily a significant proportion of war veterans and their families receiving disability and family pensions, as well as a significant proportion of disability and early retirement pensions. In addition, Šeparović (2009) and Deskar-Škrbić et al. (2018) cite high tax wedge (the difference between gross and net wage) as one of the key causes of low employment rates in Croatia.

#### 4. ANALYSIS OF REAL WAGES AND LABOUR PRODUCTIVITY

Chart 5 displays the relationship between real monthly net wages and the number of unemployed persons in Croatia. Comparing the two makes it hard to observe any apparent relationship between labour productivity and unemployment. This situation clearly supports the sticky wage hypothesis<sup>1</sup> in the Croatian labour market. During the crisis period real wages generally stagnated or decreased (real wages increased for some time and nominal wages increased through most part of the crisis). From 1995 to 2008, there was a significant increase in real wages of almost 90%, however, by the end of 2015 real wages were about 3% lower than at the beginning of 2009.

Chart 5: Number of unemployed persons and real net wages in HRK, 1995M01-2015M12



Source: Data according to HZZ (2018), Statistics, Registered unemployment (2018), HNB (2018), Average monthly net earnings and Consumer and producer price indices

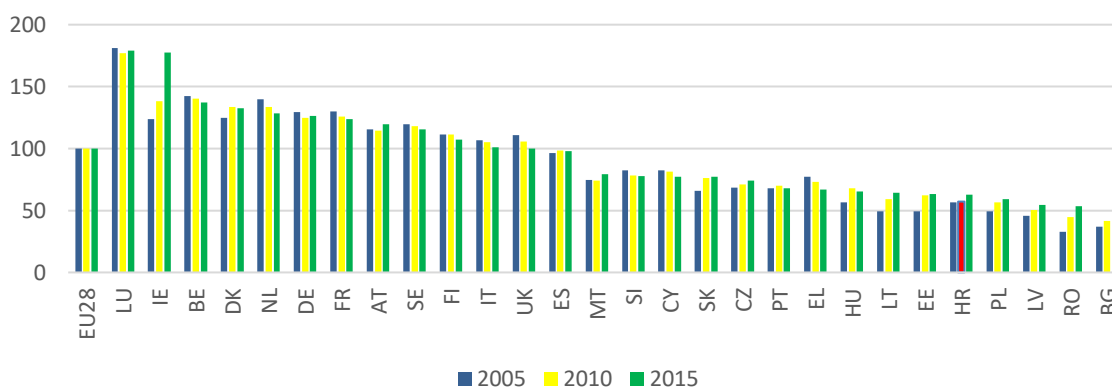
Even during the transition, the adjustment of the labour market to numerous supply and demand shocks was made primarily through a decrease in employment rather than a wage adjustment (Tomić and Domadenik, 2012), which is most often explained in the literature by the strong bargaining power of trade unions on the Croatian labour market (Vujčić and Šošić, 2008; Tomić and Domadenik, 2012), although there is no strong empirical evidence. Kunovac and Pufnik (2015) state that, during the crisis period (2010-2013 in particular), companies adjusted by reducing labour costs, with adjustments being made primarily through a reduction in the number of employees (dismissal and non-renewal of long-term employment contracts, as well as postponement of the increase in the number of employees). Therefore, wage rigidity did not seem to decrease during crisis years. A comparison of employment changes in the private and public sectors, is provided by Tomić (2015). Employment fluctuations are more pronounced in the private sector, which, in the pre-crisis period, was the primary generator of employment growth. During crisis, private sector had borne much greater burden than the public sector. On the other hand, employment growth rate in the public sector remained positive till 2014, throughout the most part of the crisis. Also, Nikolić et al. (2014) and Nestić et al. (2015) suggest that wages have also adjusted significantly in the private sector during the crisis, indicating higher average wages in the public sector than in the private sector (Mrnjavac, 2011; Obadić and Tica, 2016). Wage levels should be closely linked to labour productivity. Moreover, the growth of labour productivity should be a lasting and crucial interest of every economy. Productivity is a realistic phenomenon that does not depend on price movements; therefore, it is the only source of real growth in the long run (Nestić, 2004).

<sup>1</sup> The sticky wage hypothesis indicates that the pay of employed workers tends to have a slow response to the changes in the performance of a company or of the overall economy.



Economic activity in Croatia is generated by a relatively small number of high-productivity enterprises and many low-productivity enterprises, which is, unfortunately, also true of other EU countries (Lopez-Garcia et al., 2014). Analysing data series (1964-2014) on labour productivity (expressed as GDP per employee) and real average net wages, Obadić and Tica (2016, p. 232) indicate a decline in both labour productivity and real wages, from early 1980s until the mid-1990s. A decrease in real wages was more profound than the decrease in labour productivity, which can be attributed to an extremely high inflation. After the mid-1990s both real wages and labour productivity kept increasing until the crisis hit in 2009. Wage growth was comparable to labour productivity growth, although real wage growth rate has been generally higher than productivity growth rate. Valdec and Zrnc (2018) also state that real labour productivity in Croatia declined during the recession. Noting methodological data mismatches for Croatia, Eurostat offers an international comparison of the hourly work productivity in the EU28 (displayed by Chart 6). This analysis places Croatia at the bottom of the EU scale, with Croatia's labour productivity at 60% of the EU28 average. The situation (in 2015) was only worse in Poland, Latvia, Romania and Bulgaria, indicating that the labour productivity in Croatia was worse than in the majority of EU10 countries (with the exception of 2005, when labour productivity was higher in Slovenia, the Czech Republic and Slovakia, which have the highest labour productivity among EU10). Also, according to the European Commission, labour productivity per employee in real values increased in almost all EU Member States from 2006 to 2016, with a decrease in Greece, Italy, Croatia, Luxembourg and Finland.

Chart 6: Labour productivity per hour worked (EU28=100)

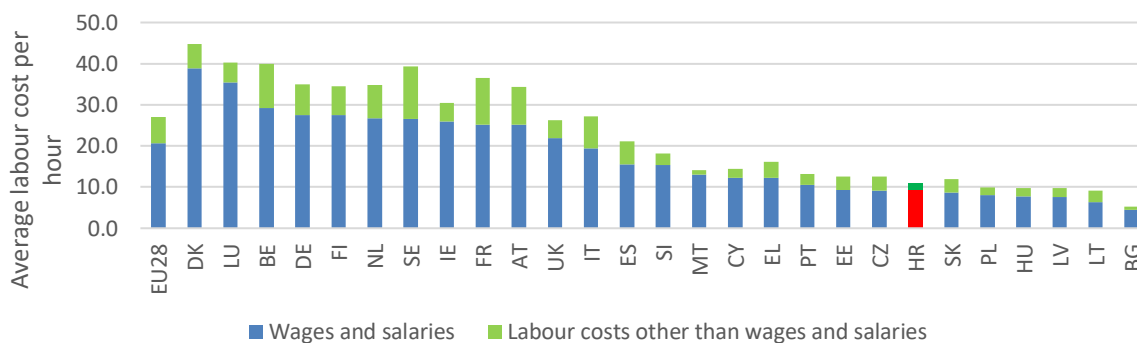


Source: Data according to Eurostat (2019), Labour productivity per person employed and hour worked

From the employers' point of view, the demand for labour is derived from the demand for their products and services as well as the cost of labour (Družić, 2004). Average labour costs in 2018 (displayed by Chart 7) in Croatia amount to 10,9 EUR per hour and are among the lowest within the EU28. However, in other post-transitional EU economies, labour costs are even lower. The structure of labour costs indicates a large proportion of wages and salaries (9,2 EUR) while other labour costs (mainly social security contributions) are less important. Although some studies (cf. Šeparović, 2009; Deskar-Škrbić et al, 2018) cite high tax wedge as one of the key causes of low employment rates in Croatia, Grdović-Gnip and Tomić (2010) point out that the labour tax burden in Croatia is round EU average. Moreover, Urban (2016) states the tax wedge in Croatia as one of the lowest among selected EU countries. Rather frequent changes to the tax system have led to a recent lowering of tax burden on average and below-average wages (to below EU average) while tax burden of above-average wages remained relatively high (Tomić, 2015; Obadić and Tica, 2016).

Deskar-Škrbić et al. (2018) also state that the tax policy in Croatia suffers from frequent changes, lack of coordination between different government bodies, and inadequacy of policy measures. Dolenc et al. (2011) compared tax wedge in Croatia to OECD and EU. They concluded that the tax wedge in Croatia is at EU level but significantly higher than those of OECD non-EU countries. The authors found that increasing taxes and contributions by 10% increases the unemployment rate by an average of 4%, and that in order to reduce unemployment, it is necessary to reduce the tax wedge.

Chart 7: Average labour cost (per hour of work) in EUR in 2018.



Source: Data according to Eurostat (2019), Labour cost levels by NACE Rev. 2 activity

It is also important to emphasize that the business climate and competitiveness indicators published by international institutions qualify Croatia as a country with a rigid labour market and rather strict employment protection regulations (Kunovac, 2014). Comparing the changes in the legal protection of employment in Croatia and the countries of Central and Eastern Europe (2008-2013), the author concludes that, even with the adoption of several amendments, the Croatian labour legislation remains relatively inflexible with high legal protection of permanent employment contracts which discourages employers from job creation.

## 5. CONCLUDING REMARKS

Labour market dynamics in Croatia suggest one of the highest unemployment rates and the lowest activity and employment rates in the EU28. In the context of post-transition EU Member States, Croatia has relatively high labour costs that are not fully aligned with its productivity. High unemployment rates (especially youth and long-term unemployment rates), low activity and employment rates, relatively low labour productivity and high labour costs, legislative and institutional rigidity, wage rigidity, relatively high share of employees in the public sector and labour market mismatch are not just a consequence of financial and economic crisis, but also long-term processes including areas not exclusively related to the labour market. EU28 as well as EU10 unemployment rates are less than the Croatian ones, so the problem of unemployment should be handled in a different matter. In addressing labour market problems, it is necessary to consider the broader economic context and accept the fact that only structural reforms (and not just active and passive employment measures) can result in significant positive shifts. Active employment measures can be helpful but, in the context of current labour market dynamics, active policy measures stimulating economic growth and the creation of jobs should be a priority. The government should enhance public administration and the judicial system efficiency recognizing problems encountered by the entrepreneurs and facilitating business, at the same time taking into account labour and social rights of the worker. Last but not least, the educational system should stimulate entrepreneurship and produce highly qualified graduates in response to the real needs of the modern labour market.

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# CONSTRUCTING AND TESTING INSTRUMENTS FOR MEASURING STUDENTS' PERCEPTIONS OF A UNIVERSITY AND ITS SMART DIMENSIONS

**Mario Jadric**

*University of Split, Faculty of Economics, Business and Tourism, Croatia  
mario.jadric@efst.hr*

**Maja Cukusic**

*University of Split, Faculty of Economics, Business and Tourism, Croatia  
maja.cukusic@efst.hr*

## **ABSTRACT**

*Following the results of a recent study that focused on the difference in the perceptions of the two cities, a pilot study was conducted with the variables contextualised from a city to a university setting. The aim was to explore smart city concepts in the context of universities as they are seen as early adopters of technologies that make students' lives easier and the university more attractive. Starting from the original model, the focus is on the contextualisation of the research variables – the perception of university management, fellow students, and Perceived External Prestige (PEP) as antecedents of university affective commitment. The research is further extended by exploring the effect of smart university features across standard six axes or dimensions (smart economy, smart mobility, smart environment, smart people, smart living, smart governance). The paper presents the preliminary survey results, including the construct validity using exploratory factor analysis and reliability using Cronbach's Alpha.*

**Keywords:** *smart university, students' perceptions, university commitment*

## **1. INTRODUCTION**

International success stories demonstrate that higher education settings and campuses, in particular, are ideal testbeds for smart city technologies that benefit city and campus residents – several notable examples are presented by Koczera (2019) for the area of USA and case studies from across Europe are analysed in the report by British Council (2019). The potential of campuses to serve as data labs has been widely recognized, confirming the view that smart campuses could serve as valuable smart city prototypes due to several reasons (Hanania & Kerkhof, 2019): (1) universities have a fixed and clearly defined geographical area, (2) campus community is homogeneous consisting of young and well-educated people with an inkling to technology, and (3) the academic structures and institutional research capacities ensure an innovation-friendly environment “by default”. On account of this, smart universities and smart campuses are becoming engaging research areas for scholars as evidenced by over 6.800 papers in Google Scholar database as of November 2019 for the two topics, excluding citations and patents. While most of the studies focus on the underlying technical aspects of the concept (such as the use of Wireless Sensor Networks, Internet of Things, Radio-frequency Identification), there are hardly any studies that focus on students' perceptions of the new, smart dimension of a university. One of the exceptions is a survey-based study aiming to assess the importance of particular smart services to a student and the level of campus “smartness” in two settings - one in the Czech Republic and one in Thailand (Pribyl, Opananon & Horak, 2018). The survey instrument was, however not presented around any theoretical framework. In contrast, the aim of this study was to construct and test two survey instruments based on a relevant theoretical model and standard concepts from the smart city area and adapt it to smart universities. The two instruments would provide the basis to investigate the links between the perceived level of

implementation of smart services and students' commitment to the university. The theoretical background and the contextualisation of the instruments are presented in Section 2, followed by the methodological considerations that were taken into account for testing the survey instruments in Section 3. Results of the tests are presented in Section 4, and conclusions in Section 5.

## 2. THEORETICAL BACKGROUND OF THE NEW INSTRUMENTS

The first survey instrument was based on the one developed by Udir Mišič and Podnar (2019) to explore the difference in the perceptions of the two cities. They tested their model based on the feedback from the citizens of two Slovenian cities, demonstrating that the Perceived External Prestige and the Perception of fellow residents of the city were significant drivers of the City commitment, and also that the Perception of city management has significant effect on the Perceived External Prestige and Perception of fellow residents, but without significant direct effect on city commitment. The reasons for testing the variables of the model presented by Udir Mišič & Podbnar (2019) in the HE context have been justified already in the introductory part of the paper. The bottom line is that on one side, the universities are seen as early adopters of technologies, and on the other, there is a growing need for devising focused research on smart cities as the area evolves and matures. Another important benefit of the research on students' commitment dates way back when Tinto (1975) emphasized the importance of students' goal commitments and institutional commitment, proving that the students that achieve increased levels of social and academic integration have stronger goal commitments and institutional commitment leading to decrease in dropout rates. New (smart) services may contribute to an increase in their commitment, a concept that would be tested using the two instruments. To adapt the first instrument, the focus is on the contextualization of the research variables as it is presented in Table 1. The titles of the constructs are adapted, and all the statements are contextualized by way of replacing "city" with "university", specifically: city = university, resident = student, live = study, people = colleagues, tourists = visiting students and scholars.

*Table 1: Instrument - Students' perceptions of a university*

	<b>Initial construct title</b>	<b>Adapted construct title</b>	<b>Number of items</b>	<b>Source</b>
1	Perception of city management	Perception of university management	3 items	Udir Mišič & Podnar (2019)
2	Perception of fellow residents of the city	Perception of fellow students of the university	4 items	
3	Perceived External Prestige	Perceived External Prestige	4 items	
4	Residents' city commitment (affective commitment)	Students' university commitment (affective commitment)	4 items	

As already noted, new technologies can make students' lives easier and universities more attractive which can, in turn, engage and motivate students to select and enroll into a specific university and even lead to decrease in dropout rates. To adapt the smart features of cities with the aim to assess the smart features of universities, a well-known classification by Giffinger et al. (2007) that was later popularised by European Parliament (2014) was used with all six key smart city dimensions. The six dimensions represent the six main constructs, measured by items devised based on the descriptions of the dimensions: Smart Economy (3 items), Smart Environment (3 items), Smart Governance (3 items), Smart Living (3 items), Smart Mobility (3 items), and Smart People (3 items). In addition to students' perceptions, it is important to acknowledge and collect general information about the participants - students. For that purpose, a set of questions was listed as well, including questions about any memberships in student

associations, participation in educational events that are not a part of compulsory university study programs, use of public bike-sharing services, use of student canteens, residency, high schools that students finished before enrolling in the university, and whether or not the university and the faculty where they study was their first choice. Consequently, the questionnaire is composed of three parts: (i) students' perceptions of a university (with 15 items), (ii) students' assessment of smart features of a university (with 18 items), and (iii) general information about the student (with 8 questions).

### **3. METHODS USED FOR TESTING THE NEW INSTRUMENTS**

#### **3.1. Participants and Data Collection**

The participants of the study were the first-year students of the University in Split, Faculty of Economics, Business and Tourism. The respondents come from a relatively homogeneous group (first-year students) and mostly share a similar background in terms of education, economic situation, and the rest. The only imbalance is in gender, as almost 70% of the participants are female, this being coherent with the institutional enrollment data. Data was obtained using an online survey tool (LimeSurvey). The questionnaires were completed voluntarily and anonymously by students before the compulsory classes started. The survey was conducted in a proctored environment, i.e. in computer labs and under the supervision of a teaching fellow. The students were instructed to access the link to the online questionnaire which was available from the e-learning system of the Faculty. They were given enough time to complete the questionnaires finishing in approximately 15 minutes. A total number of 414 completed questionnaires were recorded and analyzed.

#### **3.2. Data Analysis**

First, special consideration is given to validity as it is the measure of the accuracy of an instrument. Out of the several types of validity (Said et al., 2011): content validity, criteria validity, and construct validity – special consideration is given to construct validity in the paper. It is a major component in the testing of all the outcomes of an instrument, denoting that the scales in the questionnaire behave as expected (Shiral et al., 2018) and the degree to which a test measures what it is supposed to measure. Another aspect taken into account is reliability, referring to the consistency of a measure in particular. Out of the three types of consistency: over time (test-retest reliability), across items (internal consistency), and across different researchers (inter-rater reliability) (Price et al., 2017), the focus is on testing the internal consistency of the two instruments. The construct validity and reliability of the instruments were tested using exploratory factor analysis (EFA) and Cronbach's Alpha analysis, following the procedures and examples presented by Chan & Idris (2017) for the TF@Maths questionnaire, Yu & Richardson (2015) for the Student Online Learning Readiness (SOLR) instrument, Hof (2012) for the questionnaire about pleasure in writing, and Jansson et al. (2018) for the JobMatch Talent (JMT) - person-oriented test. In the paper, EFA is carried out to extract two separate factor structures through a principal component analysis and varimax rotation.

##### *3.2.1. Normality Test*

Before the construct validity and reliability tests, the analysis of outliers and missing values are carried out along with the normality test by looking at the values of skewness and kurtosis. Generally, the values for skewness and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010) while some authors promote lower acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013), or even less – Hair et al. (2017) states that if the number is greater than +1 or lower than -1 for skewness and kurtosis, distributions are considered non-normal.

### 3.2.2. *Exploratory Factor Analysis*

Considering that the factor analysis is a multivariate method with the primary objective to define the structure between the variables, it can be a good starting point before using other multivariate methods (Hair et al., 2010). The paper presents rotated component matrices containing manifest variables that have the highest loading on a single factor. Specific items are included in the structure of a factor if they meet the criteria: the difference in the factor cross-loadings should be 0.2 or greater and for factor loading a minimum of 0.4. A factor with four or more item loadings greater than 0.6 is by some accounts considered reliable regardless of sample size (Field, 2009). However, to determine whether the sample size is appropriate for conducting factor analysis, there are also more rigid criteria, such as the Kaiser Meyer-Okin Measure (KMO) of Sampling Adequacy or the measures relating to the ratio of participants to the number of variables/statements. Hair et al. (2010) consider the ratio of participants and variables of 5 to 1 as satisfactory, whereas Kline (2015) regards that a sample size of 10-20 participants per variable is required for the EFA, however, a minimum sample size of 200 is acceptable. For the KMO, Field (2009) considers the values between 0.5 and 0.7 mediocre, values between 0.7 and 0.8 good, values between 0.8 and 0.9 great, and values above 0.9 superb. In the paper, factor analysis is used as statistical evidence of instruments' construct validity.

### 3.2.3. *Cronbach's Alpha Analysis*

Reliability of an instrument is defined as the ability to consistently measure the studied phenomenon; hence, reliability testing comes down to consistency testing. There are two categories for testing the reliability of measurement scales: external consistency testing and internal consistency testing (Ho, 2006, p. 239). In statistics, internal consistency is a standard measure based on the correlation between different items of the same construct; it measures whether several items within the same construct produce similar scores (Cronbach, 1951). By analyzing the internal consistency of measurement scales, comparison of the results between the items could be made based on data collected from only one survey. It is most commonly measured using the Cronbach's alpha coefficient, which has a range of 0 to 1. Intercorrelation between the items increases when all items measure the same construct. There are different views on the acceptability of constructs based on alpha coefficients. Felder and Spurlin (2005) list that  $\alpha=0.5$  is the lower limit of acceptability, while Kline (2015) proposes the following coefficient limits: 0.70/satisfactory, 0.80/very good, 0.90/excellent. Shiral et al. (2018) also deliberate a size of the sample as a criterion for reliable assessment of the Cronbach's alpha coefficient cite authors who set minimum sample size of 300, but also those who advocate a sample size of 400 respondents. Cronbach's Alpha Analysis is used and presented in the paper to create two reliable instruments with items that are well-connected or internally consistent, but also that each item contributes unique information, i.e. that the items are not duplicated.

## 4. RESULTS OF THE TESTS

### 4.1. **Testing an Instrument to Measure Students' Perceptions of a University**

Out of 414 completed questionnaires, due to straight-lining (respondent choose the same answer choice over and over again), 3 were removed, resulting in a total of 411 for further analysis. As a part of normality testing, for range criterion for skewness and kurtosis below +1 and above -1 was considered. Overview of the results is given for all the items of the adapted construct in the following: (1) Perception of university management - skewness for all items (-0.616 to -0.195) and kurtosis (-0.371 to 0.657); (2) Perception of fellow students of the university - skewness for all items (-0.777 to -0.443) and kurtosis (-0.359 to 0.547); (3) Perceived External Prestige - skewness for all items (-1.181 to -0.526) and kurtosis (-0.414 to 1.392) – the reason for skewness above -1 is because the statement "The university where I study is considered reputable" is to a large extent scored with a maximum of 5; (4) Students' university commitment



(affective commitment) - skewness for all items (-0.832 to -0.612) and kurtosis (0.000 to -0.522). All items, with the exception of one, meet the criterion  $\pm 1$  (Hair, et al. 2017), yet all meet the criterion  $\pm 1.5$  (Tabachnick & Fidell, 2013). The item is nevertheless left in, considering it does not affect the normality of distribution for the adapted construct Perceived External Prestige, meeting the criterion  $\pm 1$  (as presented in Table 2). Adapted constructs are normally distributed (skewness from -0.660 to -0.177 and kurtosis from -0.221 to 0.319). Mean value is not very different between the constructs ranging from 3.87 for Perception of university management to 4.04 for Perception of fellow students of the university.

*Table 2: Descriptive statistics and Cronbach's Alpha for adapted constructs measuring students' perceptions of a university*

	<b>Adapted construct</b>	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>STD</b>	<b>Skew.</b>	<b>Kurt.</b>	<b>Alpha</b>
1	Perception of university management	411	1.33	5.00	3.869	0.712	-0.177	-0.221	0.822
2	Perception of fellow students of the university	411	1.25	5.00	4.035	0.688	-0.423	-0.182	0.859
3	Perceived External Prestige	411	1.00	5.00	3.934	0.800	-0.550	0.005	0.839
4	Students' university commitment	411	1.00	5.00	3.999	0.825	-0.660	0.319	0.916

Considering there are 15 items and N=411, the strict criterion for the ratio of the respondents and variables of 10-20 to 1 is met (Kline, 2015) for the factor analysis. Adequacy of the sample is appropriate (KMO = 0.897) and Bartlett's test is statistically significant (Approx. Chi-Square=3412.578; df=91; Sig.=0.000). The factor extraction method used was Principal Components Analysis with varimax rotation. The number of factors was determined using the Kaiser-Guttman's criterion, initially resulting in 3 factors with eigenvalue 1 or greater. The three factors accounted for 68.003% of the total variance (Table 3). Considering that the cut off value of 1 is rather arbitrary, in determining the number of factors it is recommended to look at the scree plot of the eigenvalues and identify points of inflection and to look at the total variance explained by the retained factors (Rust & Golombok, 1999). The scree test is useful when there are several factors near the cutoff, and when the Kaiser's criterion built in the software tool does not need to present the only criterion for determining the structure (Rust & Golombok, 1999, p.101). The first factor has eigenvalue of 6.516, while the remaining 3 have eigenvalue near 1 (Table 3). The fourth factor is, therefore, a suitable candidate for the factor structure. As a part of the interpretative analysis of the factor structure, the derived factor model was compared to a theoretical model of city commitment (Udir Mišič & Podnar, 2019). Four-factor structure fits the theoretical model almost entirely. By some accounts, the total variance explained by the retained factors should be about 70% (Rust & Golombok, 1999), while in the case the four-factor structure 74.973% of the variance is explained. In the table, the total variance explained by each of the factors, the percentage and the cumulative percentage before and after rotation are presented. The first factor explains 46.546% of variance before and 22.840% after rotation, the second factor 11.126% of variance before and 19,648% after rotation, the third 10.332% of variance before and 16.636% after rotation and the fourth factor 6.970% of variance before and 15.850% after rotation, indicating equalization of the variance attributable to each of the group factors after varimax rotation.

*Table following on the next page*

*Table 3: Total variance explained for factor structure for measuring students' perceptions of a university*

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.516	46.546	46.546	3.198	22.840	22.840
2	1.558	11.126	57.671	2.751	19.648	42.488
3	1.446	10.332	68.003	2.329	16.636	59.124
4	0.976	6.970	74.973	2.219	15.850	74.973

The criteria for the inclusion of manifest variables in the factor structure are presented already. All the items except for one fit the theoretical framework as in the instrument presented in Table 1. One item was discarded as it cross-loaded to factors Perception of fellow students of the university and Perception of university management - "University students are proud of their compatriots (inventors, scientists and experts) who study in the university where I study." New Cronbach's Alpha coefficient after excluding the item from the calculation is 0.839. In terms of internal consistency testing, based on the limits set for Cronbach's Alpha coefficient by Kline (2015), all the constructs are either very good or excellent (from 0.822 to 0.916).

*Table 4: Rotated component matrix for measuring students' perceptions of a university*

	Factor			
	1	2	3	4
<b>Students' university commitment (affective commitment)</b>				
At the university where I study, I will continue to study, because I love my university.	0.885			
I wish to continue to study at this university because I enjoy it.	0.852			
I would like to continue to study at the university where I study now because it makes me feel good.	0.816			
At the university where I study, I will continue to study, because this is the best place for me and my family.	0.798			
<b>Perceived External Prestige (PEP)</b>				
Students of other universities think highly of the university where I study.		0.816		
It is believed that it is good to study at the university where I study.		0.779		
It is believed that the university where I study is one of the most prestigious in the country.		0.765		
The university where I study is considered reputable.		0.717		
<b>Perception of university management (UNImansystem)</b>				
University management includes and takes into account various disciplines regarding the development of the university.			0.852	
University management encourages diverse cultural, artistic and sports activities.			0.804	
The university management has a clearly defined vision.			0.722	
<b>Perception of fellow students of the university (UNI people)</b>				
At the university where I study, colleagues show solidarity with each other.				0.829
Students of the university are in favour of and friendly to visiting students and scholars.				0.816
Students at the university where I study, feel safe.				0.676

#### 4.2. Testing an Instrument to Measure Students' Perceptions of Smart University Features

The normality in distribution was again tested by examining skewness and kurtosis, presented here for all the items of the adapted constructs: (1) Smart Economy - skewness (-0.670 to -0.134) and kurtosis (-0.602 to 0.241); (2) Smart Environment - skewness (-0.886 to -0.247) and kurtosis (-0.109 to 0.826); (3) Smart Governance - skewness (-0.781 to -0.238) and kurtosis (-0.405 to 0.473); (4) Smart Living - skewness (-0.641 to -0.267) and kurtosis (-0.392 to 0.259);

(5) Smart Mobility - skewness (-0.368 to 0.015) and kurtosis (-0.705 to 0.071); (6) Smart People - skewness (-0.394 to -0.240) and kurtosis (-0.424 to -0.150). The results supported the variables as normally distributed since the degrees of skewness and kurtosis were less than the absolute value of one. The same is for the adapted constructs presented in Table 5 (skewness from -0.402 to -0.021 and kurtosis from -0.518 to 0.319). Cronbach's Alpha coefficients are all either very good or excellent. Mean value is the lowest for the adapted construct Smart Mobility (3.24) deviating from other adapted constructs measuring smart university features ranging from 3.85 to 4.00.

*Table 5: Descriptive statistics and Cronbach's Alpha for adapted constructs measuring students' perceptions of smart university features*

Smart university features	N	Min	Max	Mean	STD	Skew.	Kurt.	Alpha
1 Smart Economy	411	1.33	5.00	3.9562	0.64453	-0.371	0.265	0.738
2 Smart Environment	411	1.00	5.00	3.8524	0.68460	-0.369	0.319	0.708
3 Smart Governance	411	1.67	5.00	4.0000	0.70538	-0.402	-0.161	0.789
4 Smart Living	411	1.33	5.00	3.9448	0.66844	-0.342	0.127	0.732
5 Smart Mobility	411	1.00	5.00	3.2433	0.91109	-0.021	-0.311	0.812
6 Smart People	411	2.00	5.00	3.9465	0.68420	-0.201	-0.518	0.842

Considering there are 18 items and N=411, the ratio of the respondents and variables of 10-20 to 1 is met for the factor analysis. Kaiser-Meyer-Olkin value of this dataset (0.920) indicates that the adequacy of the sample is appropriate, while Bartlett's test of sphericity is statistically significant (Approx. Chi-Square=3464.837; df=153; Sig.=0.000). Again, for factor extraction, principal component analysis and varimax rotation were used, and the number of factors was determined using the Kaiser-Guttman's criterion, initially resulting in 3 factors with eigenvalue 1 or greater and accounting for 57.182% of the total variance (Table 6). The same rationale was used as before to determine the final factor structure. The first factor has eigenvalue 7.603 while the remaining 5 factors have eigenvalue near 1 (ranging from 0.78 to 1.60). For this reason, interpretative analysis of the factor structure started from comparing the derived factor model to a theoretical model (Giffinger et al., 2007), concluding that the six-factor structure fits well with the constructs of the new instrument. What is more, if the analysis of the total variance explained by the retained factors should be about 70% (Rust & Golombok, 1999), then the six-factor structure is well supported explaining the 71.661% of the variance. Table 6 presents the total variance explained by each of the factors, the percentage and the cumulative percentage before and after varimax rotation and Table 7 presents the rotated component matrix. The first factor that explains the highest percentage of the total variance (before the rotation) 42.236% reflects in its entirety the adapted construct Smart Mobility (with the lowest mean value of 3.2433 out of all smart university constructs).

*Table 6: Total variance explained for factor structure for measuring students' perceptions of smart university features*

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.603	42.236	42.236	2.530	14.053	14.053
2	1.600	8.891	51.128	2.376	13.201	27.254
3	1.090	6.054	57.182	2.162	12.012	39.266
4	0.940	5.220	62.402	2.131	11.842	51.108
5	0.896	4.980	67.383	1.902	10.569	61.676
6	0.770	4.279	71.661	1.797	9.985	71.661

*Table 7: Rotated component matrix for measuring students' perceptions of smart university features*

	Component					
	1	2	3	4	5	6
<b>Smart Mobility</b>						
University where I study contributes to achieving cheaper, faster, and environmentally friendly mobility in the city.	0.849					
University where I study promotes new forms of transportation (e.g. electric vehicles, hydrogen-powered vehicles, autonomous vehicles, bike-sharing, carpooling/car sharing).	0.823					
University where I study aims to improve the flow of people within the campus, while at the same time reducing the negative environmental impact.	0.671					
<b>Smart People</b>						
University where I study offers different forms of education to facilitate better labor market opportunities, such as informal seminars and workshops and other lifelong learning programs for different types of learners.		0.808				
University where I study provides educational programs as an important prerequisite for a more efficient provision of information and services based on new technologies.		0.787				
University where I study supports the creation of an accessible and inclusive environment to increase prosperity and innovation within a city or community (such as Student Business Academy).		0.715				
<b>Smart Governance</b>						
University where I study implements new technology and digital services for common activities (such as communication with student offices, for library services and similar).			0.794			
University where I study implements new technology and digital services to increase efficiency and effectiveness for management of public campus infrastructure (e.g. signalisation, booking of campus resources and similar).			0.743			
University where I study implements new technology and digital services to achieve transparent and trustworthy communication with all stakeholders (primarily using the web and mobile applications).			0.677			
<b>Smart Living</b>						
University where I study uses new technologies to improve service accessibility and overall student experience (studying, living, socializing, and so on).				0.694		
University where I study contributes to improving social and digital inclusion of all groups of users (e.g. through the use of electronic services, wifi connectivity, and social platforms).				0.674		
University where I study uses new technologies to ensure good safety, working and housing conditions (e.g. falling in the category of smart buildings).				0.629		
<b>Smart Environment</b>						
University where I study utilizes new technology and innovative methodology to reduce waste production, achieve energy efficiency, and achieve other goals of "smart environment" initiatives.					0.761	
University where I study promotes the importance of improving efficiency and minimizing the environmental impact.	0.401				0.660	
University where I study manages the built and natural resources (infrastructure, buildings and environment) to improve the working conditions and livability for students and university visitors.					0.642	
<b>Smart Economy</b>						
University where I study encourages the creation of start-ups, working with investors, and new talent development.						0.807
University where I study contributes to the growth of the local economy in an innovative and sustainable way.						0.774

All the items except for one fit the underlying theoretical structure for the second instrument. One item was discarded "University where I study uses technology and intelligent solutions to generate stable and favorable conditions for all stakeholders" as it had a cross-loading on Smart Economy and Smart Living. Cronbach's Alpha coefficient for the factor Smart Economy after removing the item is 0.710, so all factors on this scale either had good or very good rating for reliability (from 0.708 to 0.842).

## 5. CONCLUSIONS AND FUTURE WORK

The results of the tests and the analysis indicate that all the factors within the first – adapted instrument (measuring students' perceptions of a university) have a very good or excellent degree of internal consistency following the thresholds set by Kline (2015), while all the factors within the second - new instrument (measuring students' perceptions of smart university features) have a good or very good degree of internal consistency. Testing the reliability was the first step and the precondition for analyzing the validity of an instrument since measuring against scales that do not reflect a construct consistently can hardly be considered valid. After removing one item from the first and one item from the second instrument, both presented factor structures are valid – the items within the constructs have either medium or high positive correlations and the items do not correlate with conceptually different factors. Fourteen items remained in the final questionnaire about students' perceptions of a university after deleting one item, and seventeen in the final questionnaire about their perceptions of smart university features after deleting one item as well. Four-factor and six-factor structure of the instruments has been confirmed through this study. Although exploratory factor analysis is useful in testing the validity of new instruments and its psychometric properties (Yu & Richardson, 2015), there are also limitations to its use for testing the theoretical underpinnings of the instrument. For that reason, future research plans include testing the instruments and proposed constructs using confirmatory factor analysis to test predictive validity of the instruments and Structural Equation Modeling (SEM) to test and extend the model presented by Udir Mišič & Podnar (2019) in a different context – the one of smart university. One of the main limitations of this research is related to the sample. Although there were over 400 participants in this study, the approach to sampling was the non-probability convenience sampling (from one university, one institution, one study program), which is an important limitation in terms of the potential statistical sampling bias. Therefore, future research plans involve surveying in other departments and universities to make sure that the results could be extrapolated.

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## THE REGIONAL DIMENSION OF POVERTY - THE ROMANIAN CASE

**Nela Steliac**

*"Babeş-Bolyai" University of Cluj-Napoca, Romania*  
*nela.steliac@econ.ubbcluj.ro*

### **ABSTRACT**

*Although the global social phenomenon of poverty has always existed, lately it has brought the attention of scientists more and more. The explanation is given by the fact that poverty has characterized and continues to characterize not only poorly developed countries but also developed countries. This fact implies the need to measure and monitor its evolution through specific indicators. The Europe 2020 strategy, set at the EU level, also aimed at increasing employment, with direct implications on the level of poverty. The present paper focuses on analyzing the evolution of poverty in Romania, at a regional level, using the following indicators: AROPE, relative poverty rate, severe material deprivation rate and the percentage of the total population aged less than 60 living in households with very low work intensity. To capture the possible changes in poverty after Romania's accession to the EU, the period analyzed was 2007-2017. The analysis carried out revealed important aspects regarding the regional poles highlighted by the disparity index. In general, the regional poles were the Bucharest-Ilfov region for the best situations, respectively the North-East region and the South-West Oltenia region for the least good situations. The results highlighted the fact that Moldova (east of the country) and Oltenia (southeast of the country) continue to be the most poverty-stricken areas.*

**Keywords:** *material deprivation, poverty, regional poles, regions, relative poverty*

### **1. INTRODUCTION**

Poverty is a phenomenon that is present in all the states of the world, being a way of life for a large part of the Earth's population. This is determined by the permanent lack of monetary resources necessary to meet some needs that ensure a decent, acceptable way of life in a community. Poverty is a social problem. Therefore, the major objective of social policies is to reduce poverty until elimination (Zamfir, 1995, p. 56). The fight against poverty and social exclusion is an essential goal of the EU which involves setting specific objectives, implementing national action plans to reach the objectives and developing a system for measuring and periodically reporting changes (INS, 2017, p. 8). One of the priorities set by the EU through the Europe 2020 Strategy was the economic growth favorable to social inclusion which is based on promoting an economy with a high employment rate, of at least 75% for the age group 20-64 years. Within the Europe 2020 Program, to promote social inclusion and poverty reduction, a composite indicator, called AROPE, was adopted at EU level to track the evolution of people at risk of poverty and social exclusion. To meet the objectives of the Europe 2020 Strategy, in Romania the National Strategy on Social Inclusion and Poverty Reduction for the period 2015-2020 has been elaborated, establishing as a target the reduction by 2020 the number of people at risk of poverty and social exclusion by 580,000 compared to 2008. In this paper, we focused on tracking the evolution of poverty at a regional level in the period after Romania's accession. For this purpose, we used statistical data from EUROSTAT and NIS (National Institute of Statistics). The paper contains three parts: the first, the review of the specialized literature, the second, the analysis of the evolution of poverty at the regional level and the third, conclusions.

## 2. POVERTY – DEFINITION

In the domestic and foreign literature, there are a multitude of papers dealing with the problems of poverty and social inclusion. The phenomenon of poverty has managed to attract special interest from researchers in the social sciences, and sociologists in particular. In the paper "Poverty, a Study of Town Life," published in 1901, the English sociologist S. Rowntree defined poverty as insufficient income to obtain the minimum necessary to maintain physical performance. However, over time, the definitions of poverty have undergone a series of changes, so that at present, they are multiple and diverse. Currently, the definition of poverty is a multidimensional one: economic, social, political, psychological, cultural, moral and even aesthetic (Ghebrea, 2002, p. 95). The different perspectives of tackling poverty generate a series of explanatory models/theories that underpin the establishment of anti-poverty strategies. At the same time, the level of economic development of the country differentiates the way of perceiving poverty. From this point of view, in developed countries, poverty is perceived more as a result of income inequality, whereas in poorly developed countries, poverty means both deprivation and income inequality (Ghebrea, 2002, p. 85). Some authors define poverty only in relative terms, reducing it to multiple relative deprivation: material, social, cultural, political, etc., deprivation that inevitably leads to social exclusion. Townsend (1979) said that poverty should be defined as the inability of a person to have access to activities considered standard in the society in question. In Townsend's (1993) view, people are in relative deprivation if they cannot get enough of those living conditions (food, consumer goods, living standards, and services) that allow them to assume ordinary social roles, to participate in social relations and have a normal behavior, as they are expected in the respective society. Other authors reduce the definition of poverty in absolute terms, impoverishing the lack of resources necessary to meet subsistence needs, which means establishing a daily basket of goods and services needed for subsistence and establishing an income threshold. At the national level, the Institute for Research on Quality of Life has carried out numerous studies and research in the field of poverty and social exclusion, bringing to the fore a series of theoretical aspects of this phenomenon, implicitly defining modalities. In this regard, Zamfir & Zamfir (1995) states that the general meaning attributed to poverty is that in which the emphasis is placed on the lack of economic resources, therefore poverty is a state of permanent lack of resources necessary to ensure a decent way of life, acceptable at the level of a certain community. The authors emphasize that poverty occurs only when the resources needed to ensure a way of life considered to be normal by both society/community and by the individual are lacking, except for the exceptional periods in their life (wars and natural cataclysms). In the work "Dictionary of quality of life", A. Mihăilescu defines poverty as: "the chronic lack of the resources necessary for daily living on a person, family, category of population". Mărginean & Vasile (2015) see poverty even more simply, as a general state of lack of resources. The same authors mention that some specialists (J. Boltvinik, S. Ringen) believe that the definition of poverty can be realized directly or indirectly. Directly, in terms of deprivation and dissatisfaction with defined social needs, and indirectly, in terms of subsistence, as a lack of the necessary resources for consumption. The EU's vision on poverty is given by the definition agreed by the 1975 European Council: "... people are told to be living in poverty if their income and resources are so inadequate as to preclude them from having a standard of living considered acceptable in the society in which they live. Because of their poverty, they may experience multiple disadvantages through unemployment, low income, poor housing, inadequate health care and barriers to lifelong learning, culture, sport, and recreation. They are often excluded and marginalized from participating in activities (economic, social and cultural) that are the norm for other people and their access to fundamental rights may not be restricted" (European Commission, 2010b, p. 6).



According to the European Commission (2010a), poverty, in its many dimensions, includes a lack of income and sufficient material resources for a dignified life; inadequate access to basic services such as healthcare, housing and education; exclusion from the labor market and poor quality work.

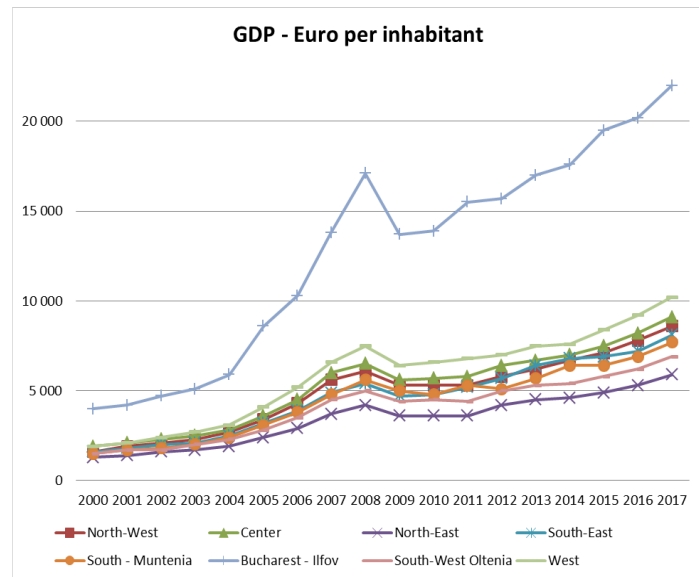
### **3. REGIONAL POVERTY IN ROMANIA**

In 2017, in Romania, 4.637 million people lived below the relative poverty line (23.5% of the population) and approx. 7 million people were at risk of poverty and social exclusion, which meant over 35% of the total population (Mărginean & Precupețu, 2019, p. 260). Such a dimension requires a more accurate knowledge of the phenomenon of poverty, using specific indicators. In order to analyze the evolution of the territorial distribution of poverty, the main indicators used in the present work were: the AROPE indicator, the relative poverty rate, the rate of severe material deprivation and the rate of persons under 60 with very low work intensity.

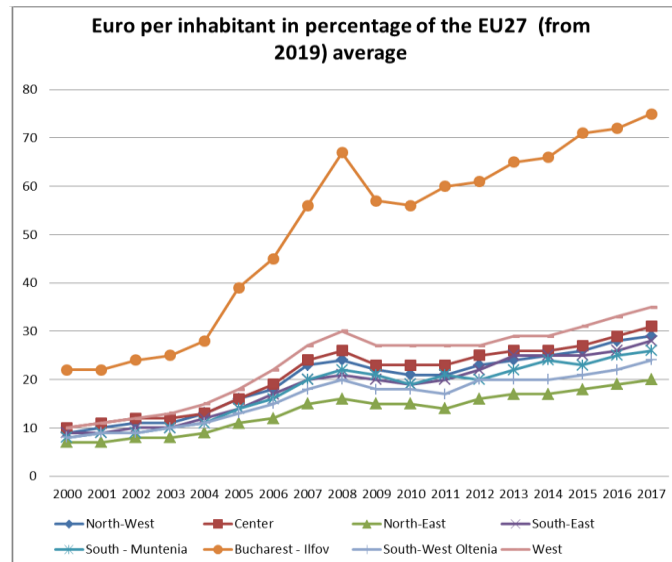
#### **3.1. Regional evolution of GDP, unemployment rate, income inequality**

Before analyzing the concept of poverty itself, it is necessary to review indicators such as GDP, unemployment rate, and income inequality. And this, because regional GDP reflects the level of economic growth, thus influencing the level of the unemployment rate and the inequality of income distribution. We mention that in Romania there are eight development regions: North-West, Center, West, South-West Oltenia, South-Muntenia, Bucharest-Ilfov, South-East and North-East. The most developed region is the one that includes the capital of the country, namely the Bucharest-Ilfov region, and the least developed is the North-East region. The evolution of the GDP/inhabitant at the level of the regions, in the period 2000-2017 (except for the years 2009-2010, years marked by the economic-financial crisis), was a positive one (graph 1). However, there are notable differences between the most developed region of the country and the rest of the regions. As graph 1 also shows, the Bucharest-Ilfov Region is clearly detached from the others. In fact, this is the only region in Romania where the GDP/inhabitant registers the highest percentage of the EU27 average - 75% in 2017 (see graph 2.) At the opposite pole is the North-East region, considered the poorest in Romania, with an EU average of GDP value between 7% (2000) and 20% (2017). The ratio between the GDP of the two regions varies between 2.9 (2002) and 4.3 (2011), which means that in Bucharest-Ilfov a GDP of 2.9, respectively 4.3 times more is obtained than in the North-East region. Taking into consideration the economic development, the Bucharest-Ilfov region is followed, at a certain distance by the Western region (the GDP ratio of the two regions is about 2: 1), while the North-East region is surpassed by the South-West Oltenia region.

*Graph following on the next page*



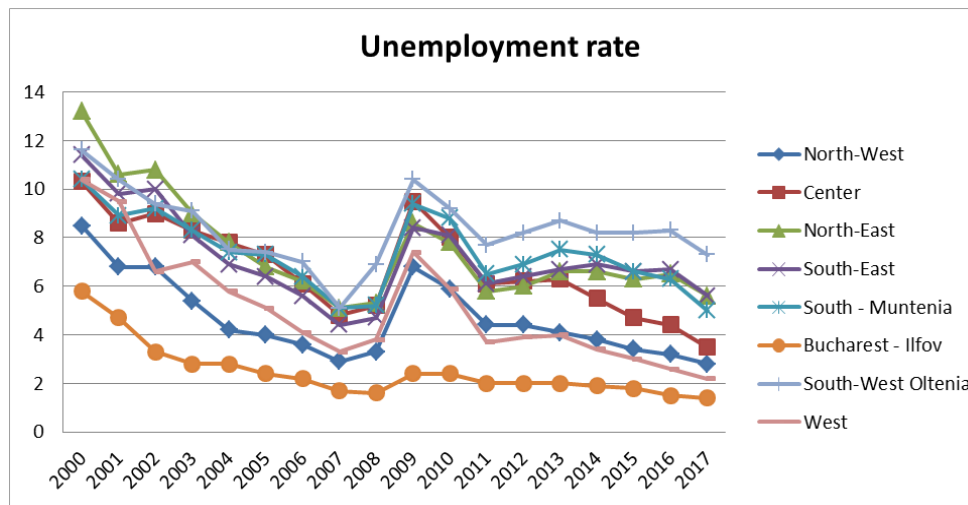
Graph 1: GDP/inhabitant at the level of regions – Romania (2000-2017)  
 (based on EUROSTAT data)



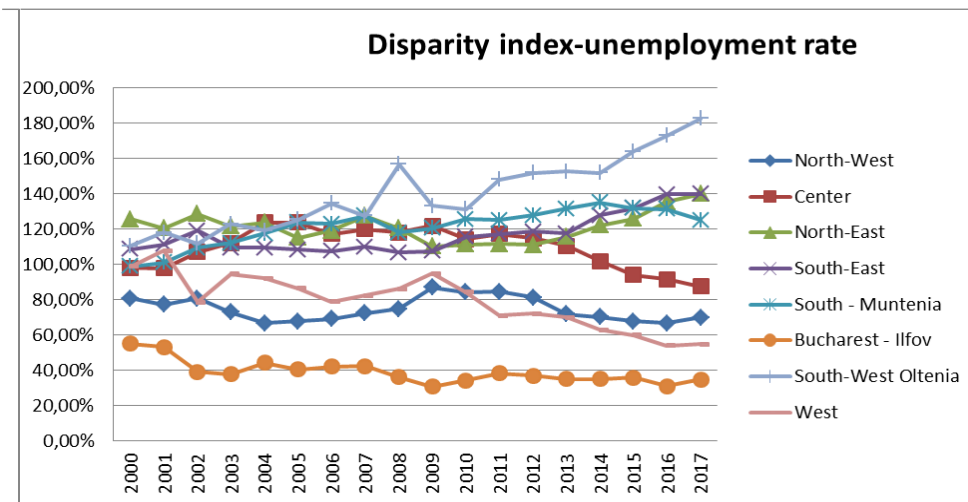
Graph 2: Regional GDP/inhabitant – percentage of EU27 average  
 (based on EUROSTAT data)

It is well known that there are many causes of poverty. Unemployment is one of the main ones. Therefore, it is necessary to know its evolution. From this perspective, there is a reduction in the unemployment rate in 2017 compared to 2000. However, the declared level of unemployment rate does not correspond to reality, and this, because not all people able to work and do not have jobs are registered statistically. The unemployment rate trend is an oscillatory one for all regions. The decrease in the level of this indicator is interrupted by the turbulence of the economic-financial crisis (graph 3). The regional poles of this indicator are the Bucharest-Ilfov region (the lowest level), respectively the North-East region (in 2000, 2001, 2002, 2004) and the South-West Oltenia region (in 2003, respectively between 2005-2017) for the highest level of the unemployment rate (graph 4). Only three regions succeeded, in the analyzed period, to be below the national average, with a disparity index below 100%, namely: Bucharest-Ilfov region, the West region, and the North-West region. Four regions consistently recorded a disparity index of over 100%.

In the case of the Center region, the oscillating evolution of the unemployment rate placed it in certain years (2000, 2001, 2015, 2016, 2017) below the national average, and in other years above the average (graph 4).



Graph 3: Unemployment rate by regions (based on NIS data)

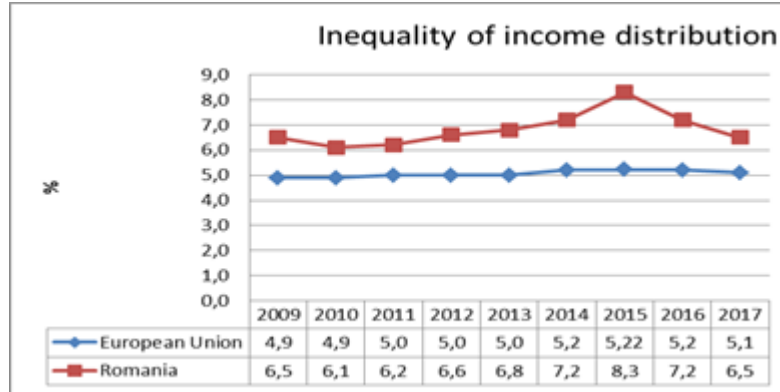


Graph 4: The disparity index - unemployment rate (based on NIS data)

At the beginning of the transition to the market economy, Romania was one of the most egalitarian countries in Europe, with a low Gini index (22.7) similar to traditionally egalitarian countries (the Nordic ones). In 2007, however, it became the most unbalanced country in the EU with a Gini index of 38.3 (Mărginean & Precupețu, 2019, p. 262). Four consecutive years, between 2012-2015, Romania ranked first in the EU in terms of income inequality. This inequality between rich and poor has increased steadily between 2010-2015, from 6.1 to 8.3 (graph 5). The last two years, however, showed a significant reduction in the income difference between the most prosperous 20% of the inhabitants and the poorest 20%, reaching 6.5 in 2017. At EU level, in 2009- 2017, the most egalitarian countries were the Czech Republic and Slovenia, for which the ratio between the incomes of the two social blankets varied between 3.2-3.5. At the regional level, in 2017, the most pronounced gaps between rich and poor existed in the South-West Oltenia, North-East and South-East regions, considered among the poorest in Romania. At the opposite pole was Bucharest-Ilfov, with 4.1. Below the national average, in order, were the regions of West, Center, North-West and South Muntenia (table 1).

Table 1: Inequality of income distribution at regional level - 2017 (EUROSTAT)

North-West	Center	North-East	South-East	South Muntenia	Bucharest-Ilfov	South-West Oltenia	West	Romania
5.5	5.2	8.4	7	6	4.1	8.9	5	6.5



Graph 5: Inequality of income distribution (based on EUROSTAT data)

For all the three indicators presented above, we note the overlap of the regional poles: the Bucharest-Ilfov region for the best situations, respectively the North-East and South-West Oltenia regions for the least good situations.

### 3.2. Poverty evolution at regional level

Progress towards achieving Europe 2020 goals in the field of social inclusion is tracked by the AROPE indicator. It reflects the rate of people at risk of poverty or social exclusion, or more precisely, the share of the total population in one of the following three situations (Direcția Politici Servicii Sociale, 2018, p. 111):

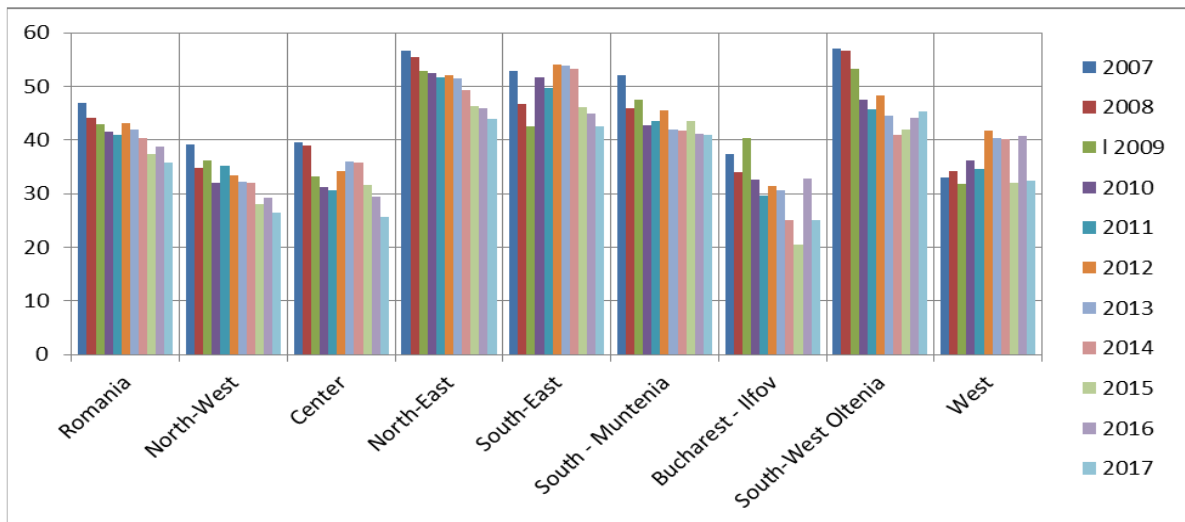
1. exposed to the risk of relative poverty (the incomes of the household to which they belong are less than 60% of the median of the available income per adult);
2. is subject to severe material deprivation (cannot afford at least four of the following situations: 1. payment of rent, utilities, loan rates; 2. one week of vacation away from home each year; 3. consumption of meat, chicken, fish or equivalent protein once in two days; 4. possibility to deal with the resources of unforeseen expenses; 5. owning a landline/mobile phone; 6. owning a color television; 7. owning a washing machine; 8. owning a personal car 9. payment of adequate heating of the house);
3. living in a household where the intensity of work is extremely low (either no one in the household works or all the members of the household work very little).

The AROPE indicator experienced an oscillating evolution both at the national level (table 2) and at the regional level (graph 6). At the national level, there is a decreasing trend, interrupted in 2012 and 2016. The limits of this indicator were 35.7%, respectively 47%. Even if the level of the indicator registered a decline in 2017 compared to 2007, however, the percentage of 35.7% means approx. 7 million people at risk of poverty and social exclusion. It should be noted, however, that there are no constant regional poles for this indicator. For most of the period, the lowest levels were recorded in the Bucharest-Ilfov region (AROPE values between 20.5%-40.3%). However, low values were also recorded for the regions: West (between 31.8%-41.7%) and Center (a minimum of 25.7% and a maximum of 39.5%). At the opposite pole are the regions South-West Oltenia (40.9%-57%), North-East (minimum: 26.4% and maximum: 39.2%) and South-East (42.5%-54.1%).

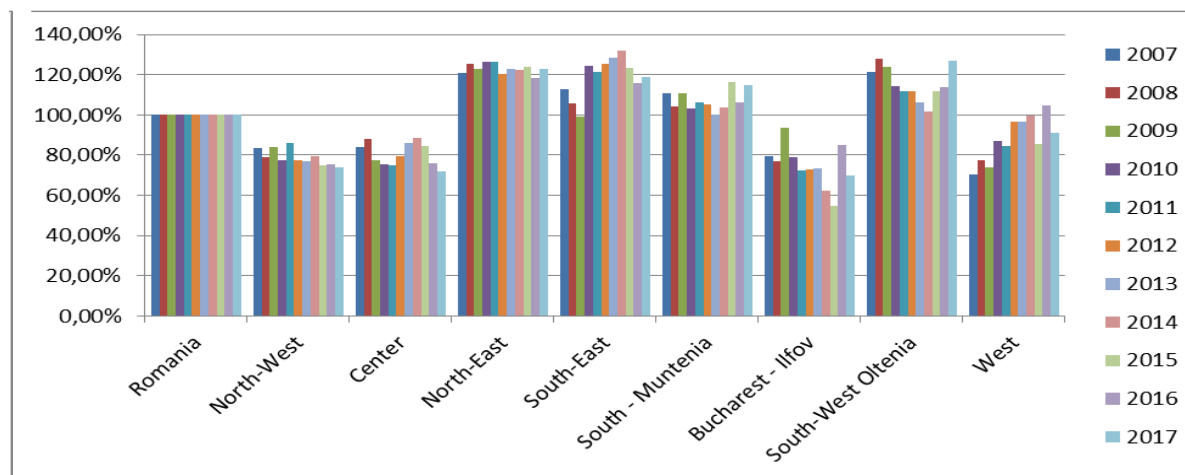
Exceedances of the national average are found for the regions: North-East, South-East, South Muntenia, and South-West Oltenia. The rest of the regions are below the national average (graph 7).

Table 2: AROPE indicator at national level (NIS data)

AROPE indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Romania	47.0	44.2	43.0	41.5	40.9	43.2	41.9	40.3	37.4	38.8	35.7



Graph 6: The AROPE poverty and social exclusion risk rate (2007-2017) (based on NIS data)



Graph 7: Disparity index AROPE poverty and social exclusion risk rate (2007-2017) (based on NIS data)

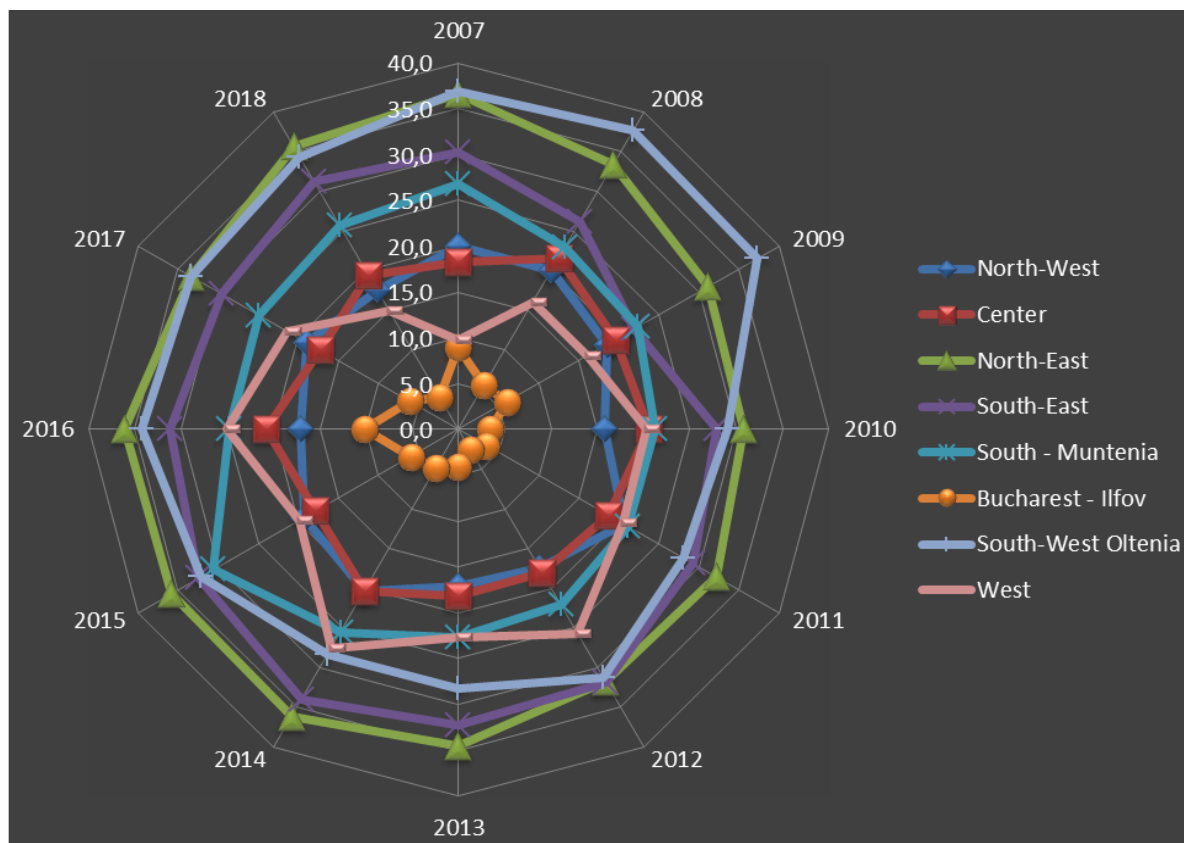
If we refer to the relative poverty rate, then we find that at the national level, it fluctuated between a minimum of 21.6% (2010), and a maximum of 25.4% (2015) (see table 3). Statistical data shows that Romania is the poorest country in the EU. In 2016, for example, Romania had the highest relative poverty rate (25.3%), well above the EU28 average (17.3%) being extremely high compared to countries such as the Czech Republic (9.7%), Denmark (11.9%) or Slovakia (12.7%). Moreover, Romania ranks first in the EU in terms of relative poverty rate in 2007, 2010, 2011 and 2014-2017 period. According to table 3, Romania's outflows from the EU average for this indicator ranged from +5.1% to 8.1%. If between 2007-2010 the Romanian

average got closer to the European average, however starting with 2011 it was removed. Nevertheless, the year 2017 reduced the differences between these rates, reaching a value of +6.7%. Overall, the relative poverty rate in Romania fluctuates over the analyzed period.

Table 3: Relative poverty rate: EU and Romania (%): 2007-2017 (EUROSTAT)

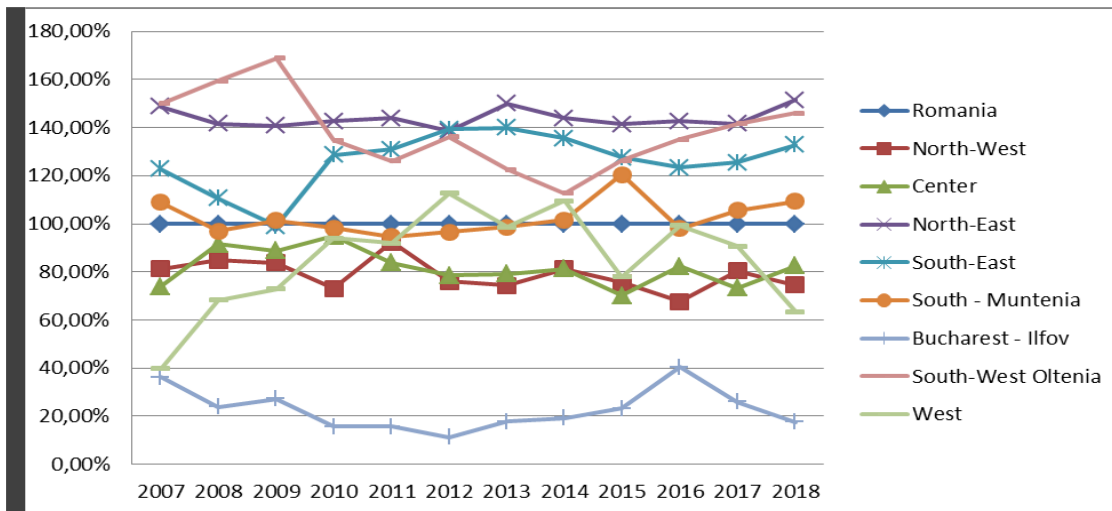
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EU	16.6	16.6	16.4	16.5	16.9	16.8	16.7	17.2	17.3	17.3	16.9
Romania	24.6	23.6	22.1	21.6	22.3	22.9	23.0	25.1	25.4	25.3	23.6
Differences from the EU	+8.0	+7.0	+5.7	+5.1	+5.4	+6.1	+6.3	+7.9	+8.1	+8.0	+6.7

The same oscillating evolution is also noted at the regional level (graph 8). The lowest level of this indicator, with values between 2.6%-10.2%, is found in the case of the Bucharest-Ilfov region, whose disparity index is well below 100% (graph 9). Other regions with low values of the poverty risk rate, were the North-West region (values between 15.8%-20.6%) and Center (with a minimum of 17.3% in 2017 and with a maximum of 21.6% in 2008). To these, the Western region (with values between 9.8%-27.5%) is joined, with small exceptions. The rest of the regions were above the national average. The last position was occupied either by the South-West Oltenia region (minimum: 28.1% - 2011; maximum: 37.6% - 2008) or by the North-East region (minimum: 30.8% and maximum 36.6%).



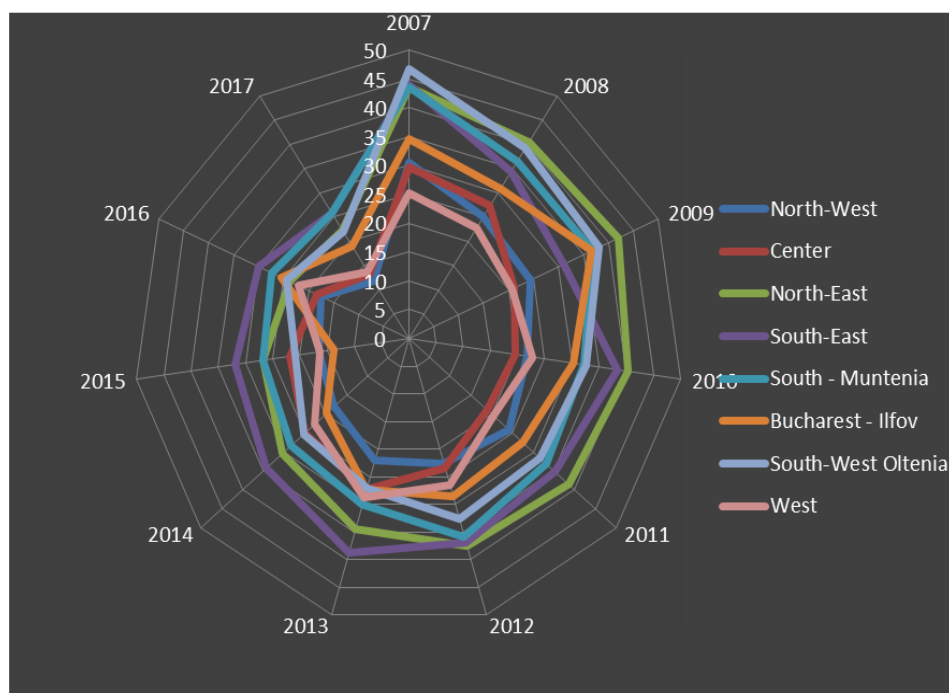
Graph 8: Relative poverty rate (based on EUROSTAT data)

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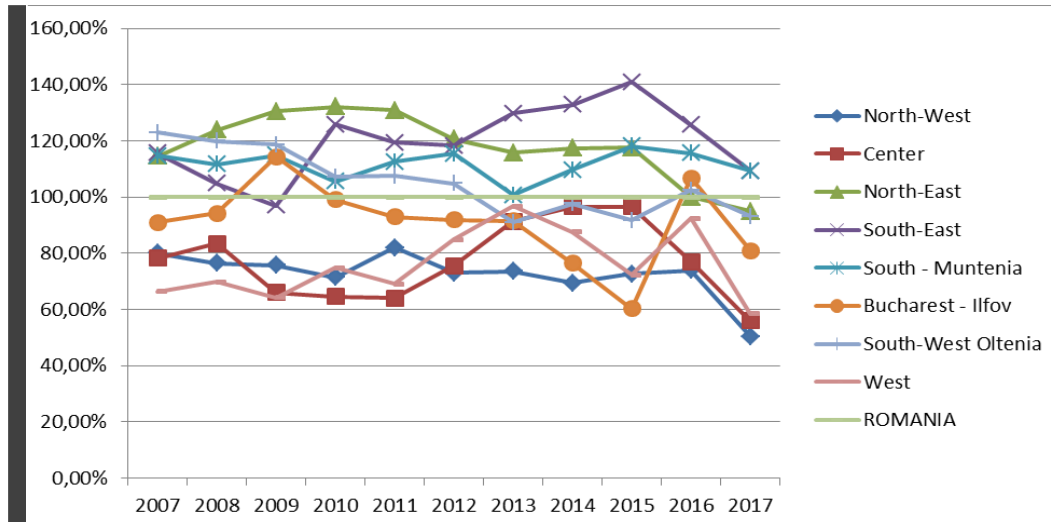


Graph 9: Disparity index – relative poverty rate (based on EUROSTAT data)

Statistical data from recent years show some progress in providing the necessary material resources for a better life. If in 2007, material deprivation affected 38% of the population, in 2017 only approx. 23% of the population was in the situation of lack of basic material resources. The decreasing trend in the rate of severe material deprivation was interrupted, however, by an increase to 31.1% in 2012, from 29.5% in 2011. The same decreasing trend also existed at the regional level, interrupted, nonetheless, in a different way in certain years (graph 10). There is no certain constancy here regarding regional poles. Moreover, surprising in this regard is the Bucharest-Ilfov region. This region registered the lowest value of the indicator only in 2015, in the rest of the years, the North-West regions (2012-2014, 2016, 2017), West (2007-2009) and Center (2010 and 2011) had lower levels (graph 10). At the opposite pole were the regions South-West Oltenia (2007), North-East (2008-2012), South-East (2013-2017) and South Muntenia (2017). Three regions were consistently below the national average. These are the North-West, Center and West regions (graph 11).

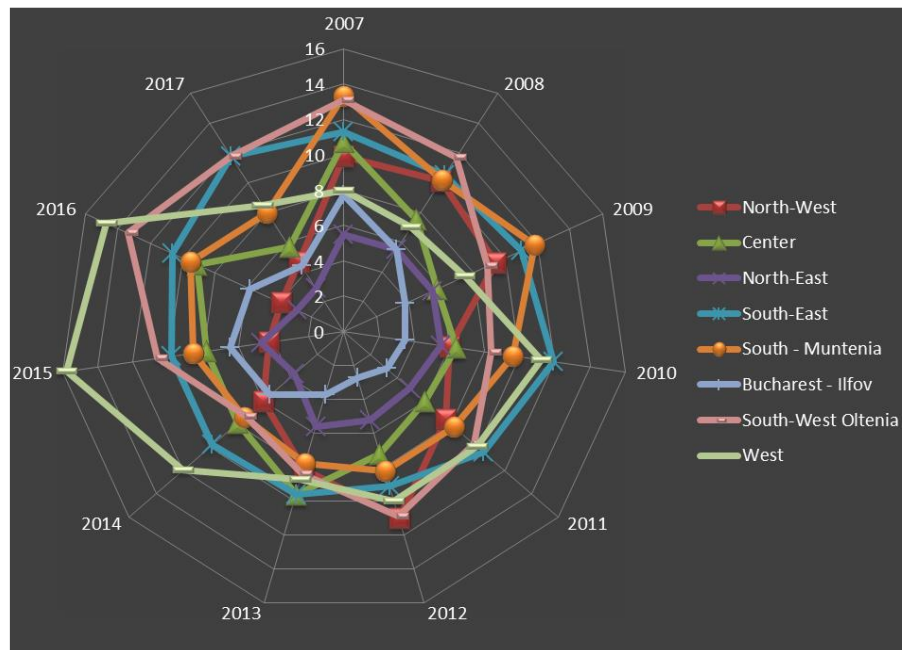


Graph 10: Rate of severe material deprivation (based on NIS data)



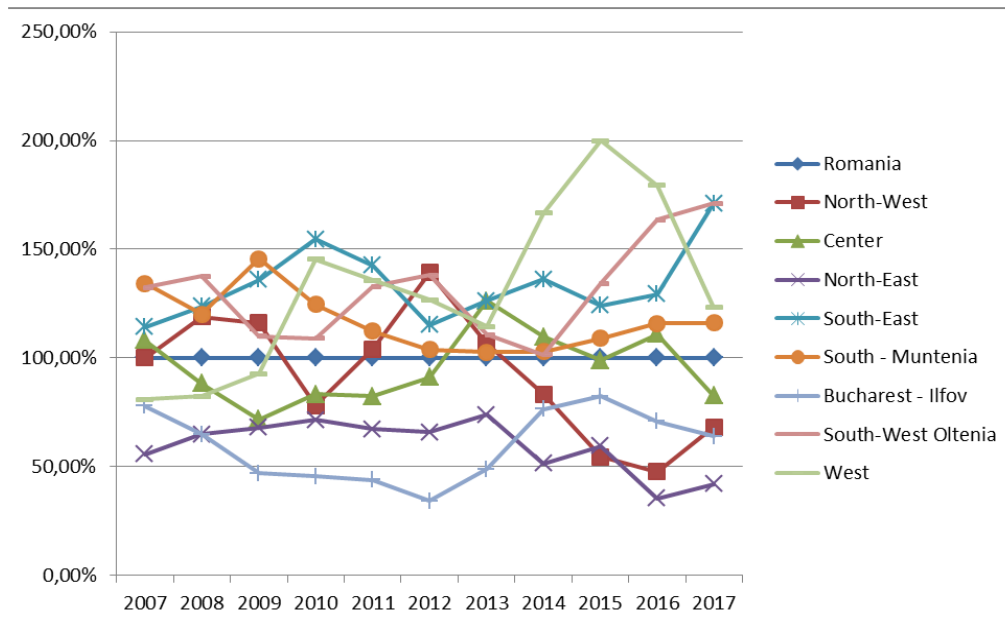
Graph 11: Disparity index-severe material deprivation rate (based on NIS data)

The share of persons under 60 years of age in households with reduced labor intensity has seen an oscillating evolution both at the national and regional level. The extreme values of this indicator at the national level were 7.2% and 9.9%. As it can be seen from the chart no. 12 we cannot talk about the same regional poles throughout the analyzed period. The lowest levels were registered for the Bucharest-Ilfov regions (between 2009-2013), North-East (2007, 2008, 2014, 2016, 2017) and North-West (2015). At the opposite pole were several regions, namely: West (2014-2016), South-East (2010, 2011, 2013, 2017), South Muntenia (2007, 2009), South-West Oltenia (2008), North-West (2012) and Center (2013). Below the national average, only two regions succeeded, with values of the disparity index below 100% (graph 13). This is the case of the Bucharest-Ilfov region (with a disparity index between 34.18%-82.28%) and the North-East region (with disparity index values between 35.37%-73.68%). The largest exceedances of the national average are noted for the Western region, which reached a disparity index of 200% in 2015 (double the national average of this indicator).



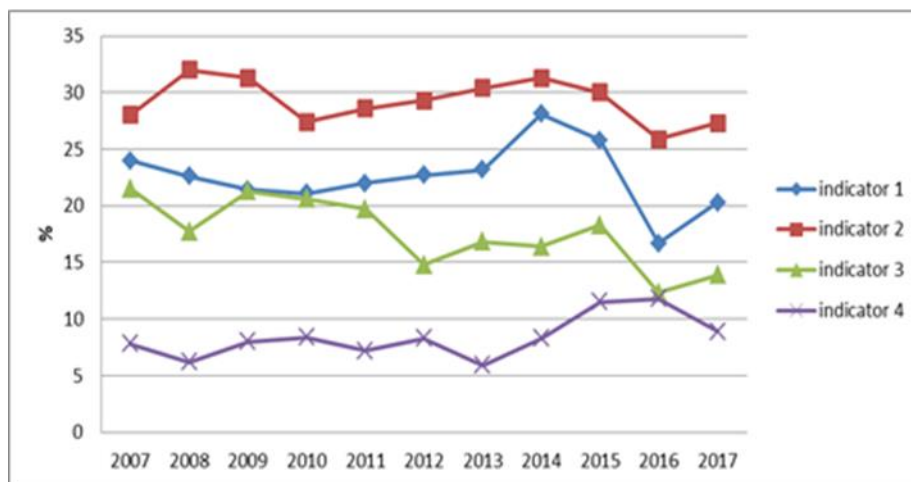
Graph 12: The rate of persons under 60 years of age from households with the reduced labor intensity (based on NIS data)





Graph 13: Disparity index – Rate of persons under 60 years of age from low labor intensity households (based on NIS data)

This process of getting close or getting away of the regional poles in the case of the four indicators used in poverty analysis is evidenced by the evolution of the difference between the maximum and minimum values of each indicator separately (graph 14).



Graph 14: Difference between regional poles (processed based on EUROSTAT and NIS data)

According to the graph above, the biggest difference between the regional poles (maximum and minimum values) corresponds to the relative poverty rate (indicator 2). This fluctuates around the figure of 30%, which means that in the Bucharest-Ilfov region they were with approx. 30% fewer people exposed to relative poverty compared to South-West Oltenia or North-East regions. The difference is followed by the corresponding one: the AROPE indicator (indicator 1), the rate of severe material deprivation (indicator 3) and the rate of persons under 60 with very low work intensity (indicator 4). If we compare the years 2017 and 2007, then, except for indicator 4, we find some reduction of the differences between the regional poles. The largest reduction of the difference is -7.6%, corresponding to the rate of severe material deprivation, followed by the one corresponding to the AROPE indicator, of -3.7%. Overall, the evolution of these differences is oscillating.

#### 4. CONCLUSION

By reading the article we conclude the following:

- taking into account Romania`s level, poverty continues to persist and have its mark on the less economically developed areas;
- the poverty dimension is different at the regional level, being unevenly distributed and generating the appearance of regional poles. The low levels of GDP/inhabitant accompanied by the high levels of unemployment and income inequality generate outbreaks of poverty in Romania: North-East and South-West Oltenia;
- if at the level of the GDP/inhabitant, the unemployment rate and the inequality of the distribution of income we find a certain constancy in the overlapping of the regional poles, we cannot discuss the same for the specific indicators of poverty;
- the Bucharest-Ilfov region, the most developed region in Romania, fails to maintain for the entire period at the lowest level. However, it remained in the best position in most years, while the North-East, South-West Oltenia regions in the last places. The last two regions are joined, in certain years, by the regions: South-Muntenia and South-East;
- although the poverty indicators have undergone fluctuations over time, however, in 2017 compared to 2007 (the year of Romania's accession to the EU), reductions were registered both at the national and regional levels for the AROPE indicator and deprivation rate and severe material rate. The most visible progress is that of reducing the rate of severe material deprivation. For the other two indicators, reductions were observed only at the national level, while, at the regional level, there were either increases or reductions;
- there is some closeness of regional poles in 2017 compared to 2007. Differences between regional poles have decreased. The exception is the rate of persons under 60 years of age living in households with very low labor intensity, at which the difference between regional poles increased by +1.1%;
- as a whole, we can say that the East (Moldova) and the South of the country (Oltenia) are the areas most exposed to poverty.

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## PHYSICAL CAPITAL INVESTMENTS AND LABOUR PRODUCTIVITY ACROSS COUNTRIES – PANEL APPROACH

**Predrag Trpeski**

*Ss Cyril and Methodius University  
Bul. Goce Delcev, 9, 1000 Skopje, Republic of Macedonia  
predrag@eccf.ukim.edu.mk*

**Marijana Cvetanoska**

*Ss Cyril and Methodius University  
Bul. Goce Delcev, 9, 1000 Skopje, Republic of Macedonia  
Marijana.Cvetanoska@eccf.ukim.edu.mk*

**Kristijan Kozheski**

*Ss Cyril and Methodius University  
Bul. Goce Delcev, 9, 1000 Skopje, Republic of Macedonia  
kristijan.kozeski@eccf.ukim.edu.mk*

### ABSTRACT

*It is recognized that gross capital formation has a direct, but also an indirect impact on the labour productivity. Physical capital naturally has an important role for the economic growth and labour productivity. It has always been seen as potential determinant for enhancing productivity growth. Based on an intensive and a comprehensive literature review, the aim of the paper is to analyze the extent of correlation and causal relationship between gross fixed capital formation and labour productivity on different group of countries for the period 2004 – 2016. The countries which are subject of the analysis are divided into three groups based on the geographical location and their economic and structural performance. In order to examine the correlation between the gross fixed capital formation and labour productivity, it is used an uncentered correlation coefficient. For analyzing the casual relationship between variables included in this study, an econometric panel regression analysis of the three groups of countries is employed. Therefore, an attempt is made for an econometric analysis based on panel data. The results of the correlation analysis show a positive correlation in the individual groups of countries analyzed in this study. It pointed out that the degree of correlation differs between the individual panel analysis. Moreover, such a conclusion can be drawn based on the results obtained from the regression panel analysis. That is, the causal relationship in individual country groups is statistically significant and positive. On the other hand, on average the different coefficients of the  $\beta$  coefficients indicate a different degree of causality between the gross fixed capital formation as an independent variable and the labour productivity as the dependent variable in the different groups of countries. The strength of the causal relationship is quite different given the economic, structural and other characteristics of separate group of countries.*

**Keywords:** *gross fixed capital formation, labour productivity, panel data, physical capital investments*

### 1. INTRODUCTION

The importance of labour productivity for the economic development of a country is undoubted. Labour productivity is one of the key factors in any economy. It provides a simple, but powerful indicator of the ability of a country to optimally use its resources for having growth, either short term or long term growth. The positive impact of labour productivity on citizens' welfare also should not be neglected.

These relations are showing that it is fully justified to observe and inspect the labour productivity in a country. Although the reasons for differences in the level of economic development between countries are numerous, it can be assumed that the differences in economic development are due to the productivity differences and the factors that determine it, such as physical capital, human capital, natural resources and technological knowledge. It is related to the fact that labour productivity depends on the availability and quality of labour resources, applied technologies or capital investments and the most frequent answer for achieving productivity gains is about providing better technology and resources to employees so that job operations become more efficient. A stable macroeconomic environment provides support for investment decisions, which can strengthen labour productivity by increasing the capital stock per employee. Labour productivity will be high if its workers accumulate productive resources such as physical capital or if those resources are used more efficiently. Physical capital naturally has an important role for the economic growth and labour productivity. It has always been seen as potential determinant for enhancing productivity growth. Capital formation determines the national capacity to produce, which in turn, also affects labour productivity growth. Labour productivity can be affected directly or indirectly through physical capital accumulation and cross-country differences in physical capital are even larger than those in labour productivity. There are many determinants which had an impact on the labour productivity at the level of the economy. Analysing all determinants that might have an impact on the labour productivity is almost impossible due to different practical, technical and therefore methodological reasons which are associated with missing data needed for the analyses. Our focus is on the impact of gross fixed capital formation as an economic determinant which investments are essential for labour productivity growth. It is seen as one of the required variables for investigating productivity and it also influences country's economic welfare. Fixed capital formation determines the marginal labour productivity, which in terms determines the demand for labour and the employment. In other words, greater gross fixed capital formation will increase the marginal labour productivity, which will further increase the demand for labour and employment. Gross fixed capital formation has a direct impact on productivity, as employees have more resources at their disposal and can produce more. Also these investments have quite indirect effects on productivity: firstly, new equipment changes the working practice, employees acquire new skills and increase their efficiency; secondly, investments cause a transfer of the technology, as well as the knowledge that employees receive using the equipment; and thirdly, the embedded technical changes are not included in the market price of the new equipment (Dupuy and Beard, 2008, p. 3.; Wachter, 2001). Based on thorough literature review and theoretical background, the paper is organized in sections which are focused to answer the question whether there is a correlation or casual relationship between physical capital and labour productivity growth in different groups of countries using panel data approach. After the introduction section, the second part of the paper presents a review of relevant literature, which examines the aspects related to the subject of this paper. The third part of the paper covers the methodological approach applied to the paper's research and data sources included in the panel data. The analysis of the research within the results of the panel data analysis are presented and discussed in the fourth part. Last section covers the conclusion and in the end of the study, the literature review is presented.

## **2. LITERATURE REVIEW**

Physical capital formation is considered to be an important factor of economic growth both in theoretical and empirical literature. It is generally agreed that the main purpose of economic development is to build capital equipment on a sufficient scale to increase productivity in the economy. The economic literature consists of numerous papers and analysis that recognize gross fixed capital formation as a determinant of labour productivity.

Krugman (1994) emphasizes that the labour productivity and the living standards are in strong relationship. Furthermore, he claims that labour productivity is especially important in the long run. Because of the positive impact of labour productivity on wellbeing of the population, it is fully justified to take care and investigate labour productivity more closely. Labour productivity is considered as one of the productivity indicators in the economies. According to Lieberman and Kang (2008), labour productivity, which is the most common indicator for measuring the productivity, is the output corresponding to input obtained from the workforce or is defined as added value per each hour worked. Since 20<sup>th</sup> century, the work of Mankiw, Romer and Weil (1992) concluded that capital accumulation differences explain most of the variation of labour productivity across countries. Ramirez (2001) addresses the question whether public investment spending on economic infrastructure enhances economic growth and labour productivity in Mexico and obtained results suggested that increases in public investment spending on economic infrastructures opposed to overall public investment spending have a positive and highly significant effect on the rate of labour productivity growth. Artige and Nicolini (2006) studied the productivity performance and its sources in a sample of ten European regions belonging to four countries (France, Germany, Italy and Spain) and showed that, in the leading regions in Europe such as Germany and France, gross fixed capital formation was one of the main determinants of productivity. Choudhry (2009) analyzed the determinants of labour productivity growth using a cross country panel data set of 45 countries and while testing whether explanatory variables behave differently for the economies at different stage of economic development, he found that gross capital formation is positive for high income economies, but not significant. For rest of all three income groups (upper middle income, lower middle income and lower income economies), its coefficient value is found to be positive and significant. How the pace of global labour productivity growth has increased in recent decades and how faster capital accumulation per worker in poor countries is the main driver of this development is examined in Inklaar and Timmer (2013). They found that despite the great disparity in average growth pace between poor and rich countries, the importance of the different sources of growth is fairly similar across the two groups and physical capital accumulation accounts for over half of labour productivity growth. Trpeski (2018) examines the link between fixed assets investment and labour productivity in Macedonia in the period 2008 - 2017. The results of the study showed that changes in productivity can not be explained by changes in fixed capital investments. Also, in another study with implemented regression model and clustering method, Trpeski and Cvetanoska (2019) have shown that the impact of gross fixed capital formation on productivity is greater in countries where GDP per capita is higher, employment is also high, and unemployment is low. Contrary, the research has shown that fixed capital formation does not have a significant impact on productivity in countries which are characterized by low GDP per capita, low employment and high unemployment rate. Analyzing the impact of increases in the value of assets on improvement of labour productivity, Jonkisz-Zacny (2016) found that labour in an economy saturated with fixed assets is highly productive. Or, in highly developed countries, the share of fixed assets is increasing and amounts to about 70% while the share of labour costs is decreasing to about 30%. According to Onyinye et al., (2017), gross capital formation and economic growth policies can be beneficial to Nigerian economy in the long run. They also explain that capital accumulation should have a much more dramatic impact on labour productivity in developing countries compared to developed countries. Mendez-Guerra (2017) studied the cross-section dynamics of the proximate determinants of labour productivity. In 2010, differences in physical capital accumulation explained only 14 percent of the differences in labour productivity across countries included in the study. On the other side, according to his paper, differences in aggregate efficiency explain 44 percent of the differences in labour productivity across countries.

### 3. DATA AND METHODOLOGY

In this research we determine labour productivity as an output per employee instead of output per hour. This approach of determining productivity as an output per employee is acceptable for two reasons. Because analysis for labour productivity movements for the Southeastern European countries, Germany, France and European Union require longer time series, this methodology is more simplistic to calculate productivity for a longer period of time, which is very important for our study. Also, in most of the analysed countries, and especially in the Western Balkan countries, overtime work in the analysed period, i.e. overtime working hours, are quite rarely registered and incomplete, which can lead to a distorted picture of productivity among countries. In World Bank statistics, using World Development indicators, physical capital investments are measured using the gross fixed capital formation in constant 2010 US\$ which is applied for all countries included in the study and labour productivity is expressed as a gross domestic product per employee throughout the year, and therefore the partial productivity (i.e. labour productivity) is taken into account. Moreover, in the paper, labour productivity instead of total factor productivity (TFP) is a subject of measure. Both measures have their place in the analysis of trends in productivity and the choice depend on several factors. TFP is more useful over the long run, whereas labour productivity is more reliable in the short run, when there is doubt about the underlying growth process, or when capital stock data are unreliable (Sargent and Rodriguez, 2000). If the aim is to make an analysis in the economy over a period of less than a decade or so, then labour productivity is a better measure. Therefore, we apply the labour productivity measure as our study analyses short term period for the relationship between gross fixed capital and productivity. Moreover, as we make comparisons between different countries, it is more convenient to use labour productivity because when making cross-country comparisons, the procedures used for dealing with TFP are quite different. Furthermore, in order to calculate total factor productivity, level of capital is needed. Since capital data are not available directly and capital is not estimated straightforwardly, labour productivity presents plausible approximation of labour productivity (Žmuk et al., 2018). In order to examine the correlation between the gross fixed capital formation and labour productivity, we use uncentered correlation coefficient. This coefficient is the same as the Pearson correlation coefficient and is defined as the covariance of the two variables divided by the product of their standard deviations. But there is one main difference between that two coefficients, as uncentered correlation means that the sample are set to zero. The uncentered correlation coefficient lies between -1 and +1, hence the distance lies between 0 and 2. The data for the variables which are used in this empirical study are taken from the World Bank database. The used data is comparable among analysed countries and it is based on the generally accepted methodology of the International Labour Organization. Annual data is used for both variables, as quarterly or monthly data series are not available for most of the countries. The countries which are subject of the analysis are divided into three groups based on the geographical location and their economic and structural performance. The first group of countries includes Germany, France, Netherland and Italy, the second group of countries includes Slovenia, Greece, Hungary and Romania, while North Macedonia, Serbia, Albania and Bulgaria are in the third country group. As explained above, the aim of this research is to analyze the correlation and the casual relationship between gross fixed capital formation and labour productivity for the period 2004–2016. In this regard, it should be noted that in this research an attempt was made for an econometric analysis based on panel data. According to the groups of countries noted before, there were conducted three separate panel analysis. The regression estimation is:

$$\text{Log}(\text{productivity}) = \text{constant} + \beta \text{Log}(\text{gross fixed capital formation}) + \mu$$

The  $\beta$  coefficient shows the percentage change in productivity as a response to an increase in gross fixed capital formation of 1%. If the  $\beta$  coefficient is equal to zero, that means there is no causal relationship between that two variables. On the other hand if the  $\beta$  coefficient is equal to 1 that means there is perfect causal relationship between that two variables. But the empirical studies, however, show that the coefficient  $\beta$  is mainly somewhere between 0 and 1 and its value indicates the level of decoupling. For the research purposes in this paper the logarithm values have been used.

#### 4. DISCUSSION OF RESULTS

The coefficients from the uncentered correlation method for the three groups of countries are presented in table 1. The aim of coefficients is to represent the correlation between labour productivity and gross fixed capital formation for the period which is the subject of analysis (2004 – 2016). The correlation coefficient for the panel 1 country group is 0.908343, which indicates a high level of a positive correlation between gross fixed capital formation and labour productivity. Based on the coefficient it can be concluded that the high level of gross fixed capital formation in this group of countries (Germany, France, Netherland, and Italy) has high extend of affects to increase in labour productivity. Furthermore, in Panel 2 (Slovenia, Greece, Hungary, and Romania) the correlation coefficient is 0.84214 which is again a reflect of high level of correlation between the increase in gross fixed capital formation on the one hand and the increase in labour productivity on the other hand. The last group of countries which we analyze (North Macedonia, Serbia, Albania, Bulgaria) has an almost identical correlation coefficient compared to the group of countries in the second panel. The coefficient of 0.845628 also indicates a high level of correlation between the movement of gross fixed capital formation on the one hand and labour productivity on the other. From the results of the correlation analysis presented in table 1, it can be claimed that the extent of correlation between individual variables in individual country groups is high, thus providing a solid basis for approaching regression analysis.

*Table 1: Uncentered correlation*

Group of countries	Panel 1	Panel 2	Panel 3
Variables			
Productivity/ Gross Fixed Capital Formation	0.908343	0.84214	0.845628

*Source: Author's calculations*

Table 2 presents the results from the econometric panel regression analysis of the three groups of countries. The purpose of Table 2 is to provide an answer for the causal relationship between fixed capital formation as the independent variable and labour productivity as the dependent variable. The results in the table are for the individual panel regression estimations for the three groups of countries as we previous noted.

*Table following on the next page*



*Table 2: Regression estimation results*

Group of Countries	Panel 1	Panel 2	Panel 3
Specification	Panel EGLS	Panel EGLS	Panel Least Squares
Depended variable :	Log(productivity)	Log(productivity)	Log(productivity)
Log(Gross Fixed Capital Formation)	1.408558	0.15765	0.133227
	(0.761039)	(0.026924)	(0.052792)
	0.0705**	0.0001*	0.0151*
No. of observation	52	52	52
R-squared	0.980712	0.686334	0.762604
Adjusted R-squared	0.97907	0.579028	0.7424
F-statistic	597.4375	63.96007	37.74534
Prob(F-statistic)	0.000000	0.000003	0.000000
<i>Source: Authors' calculations.</i>			
<i>Standard errors in ( )</i>			
<i>* Significance at the 5% level.</i>			
<i>** Significance at the 10% level.</i>			

*Source: Author's calculations*

The regression estimation for the first country panel  $\beta_1$  coefficient of 1.408558 signifies the percentage change on labour productivity caused by a 1% increase in gross fixed capital formation. The  $\beta_1$  coefficient result of 1.408558 indicates that there is exponential growth of the labour productivity caused by growth of gross fixed capital formation, or on the other hand it can be concluded that gross fixed capital formation is in function of the labour productivity growth. Also, results for R – squared, F- statistic, and probability of F – statistic indicates on stable regression model. The results on the second Panel analysis, especially R – squared coefficient of 0.686334, and adjusted R – squared of 0.579028, and with statically significant F – statistic of 63.96007 also indicates on stable regression model. The  $\beta_1$  coefficient of 0.15765 signifies percentage change of labour productivity caused by a 1% increase in gross fixed capital formation. That means, in this group of countries there is a statistically significant, positive causal relationship between that two variables. Compared with the previous group of countries this causality is weaker. However, given the level of economic development, the level of technological development, and other structural and economic performance that characterize these countries, this ratio is good and offers room for increased effects in the future. In the last country panel (North Macedonia, Serbia, Albania, and Bulgaria), also according to results for R – squared 0.762604 and the adjusted R – squared 0.742400, and statistically significant F – statistic of 37.74534, it is indicated the stability of the regression model. From the  $\beta_1$  coefficient value of 0.133227 it can be concluded that there is a statistically significant and positive causal relationship between the gross fixed capital formation and labour productivity. Compared with the  $\beta_1$  coefficients from panel 1 and panel 2 it can be concluded that in this panel of countries the causal link has the weakest intensity, which is justified by the level of economic development and structural characteristics of this group of countries. It can be noted that these results coincide with results of the previous studies which has been made.

## 5. CONCLUSION

This research aims to analyze the correlation and causal relationship between the gross fixed capital formation and labour productivity for selected groups of countries for the period 2004 – 2016. Correlation and regression analysis using panel data were used for this study. The results of the correlation analysis show a positive correlation in the individual groups of countries analyzed in this study, however, it showed that the degree of correlation differs between the individual panel analysis. Moreover, such a conclusion can be drawn based on the results obtained from the regression panel analysis. That is, the causal relationship in individual country groups is statistically significant and positive. On the other hand, it should be noted that on average the different coefficients of the  $\beta$  coefficients indicate a different degree of causality between the gross fixed capital formation as an independent variable and the labour productivity as the dependent variable in the different groups of countries. Based on the results of the regression panel analysis of the first group of countries (Germany, France, Netherland, and Italy) it can be concluded that there is a statistically significant and positive relationship between gross fixed capital formation and labour productivity. It can be concluded that the increase in gross fixed capital formation on average causes a statistically significant increase in labour productivity of 1.41%, which indicates the investment of capital in highly productive investment ventures in this group of countries. Furthermore, the results obtained from the regression analysis of the second panel of countries (Slovenia, Greece, Hungary, and Romania) as well as the results for the first group of countries indicate the existence of a statistically significant, positive relationship between the variables of interest. However, the intensity of the causal link differs from that of the first group of countries. In this group of countries, a coefficient of  $\beta$  of 0.16 indicates that with an increase in the gross fixed capital formation of 1% labour productivity will increase by 0.16%. Compared with the value of the  $\beta$  coefficient of the first group of countries, it can be concluded that this coefficient indicates a disproportionate increase in labour productivity caused by a 1% increase in gross fixed capital formation. The strength of this causal relationship is quite understandable given the economic, structural and other characteristics of this group of countries. The results of the regression panel analysis obtained for the third group of countries (North Macedonia, Serbia, Albania, and Bulgaria) also indicate a positive relationship between the individual variables, as is the case with the previous groups of countries. However, as in the second-panel countries and this group of countries, the causal link between gross fixed capital formation and labour productivity declines. A  $\beta$  coefficient of 0.13 indicates an increase in labour productivity of 0.13% caused by an increase in gross fixed capital formation 1%. Regarding the degree of adaptation and stability of the regression model to the case of the three separate groups of countries, the individual coefficients of the determination indicate a stable regression model. The paper presents a partial analysis to identify the direction and degree of causality between gross fixed capital formation and labour productivity in individual groups of countries. The study is clarifying the relative importance of physical capital investments for enhancing labour productivity and therefore aims to further investigations of this issue with a more thorough analysis.

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## FINANCIAL ASSETS OF HOUSEHOLDS IN CROATIA – CHANGES IN PREFERENCES: REASONS AND CONSEQUENCES

**Petar Misevic**

*Assistant Professor at University North, Varaždin, Croatia  
pmisevic@unin.hr*

**Zvonimir Savic**

*Director at Financial institutions and economic analyses sector,  
Croatian Chamber of Economy, Zagreb, Croatia  
zsavic@hgk.hr*

**Luka Burilovic**

*President, Croatian Chamber of Economy, Zagreb, Croatia  
lburilovic@hgk.hr*

### ABSTRACT

*Deposits are traditionally dominant in the financial assets of households in Croatia. However, over a longer period, a new trend is becoming visible – a decrease in their share (to 50.7% in 2017). This trend is partly due to the faster growth of investments in pension funds, but also due to the decreasing dynamics of currencies and deposits' growth. Therefore, the structure of household financial assets has changed in recent years, in which the share of currencies and deposits had decreased by 7.9 percentage points between the years 2008 and 2017. Such trends are important in the context of the continued growth in total financial assets of households and the trend of growing bank deposits, which at the end of July 2019 exceeded HRK 205 billion (over EUR 27 billion). This trend is a consequence of the growth of demand deposits (by 24% YoY), but also the decrease in long-term deposits (by 10.5% YoY). The value of time deposits began to decline in 2015, and at the same time, the growth of savings deposits (on demand) and demand deposits increased. All of the above shows that the saving preferences of the population have started to change, that is, a shift towards the most liquid forms of savings is visible (demand deposits and transaction accounts). The main reason for the change in the preferences of the population towards more liquid forms of deposits is the historically low deposit interest rates, which (especially for fixed/long term savings) have become disincentive. Interest rates on time deposits have fallen sharply and have almost equalled interest rates on more liquid deposits. The global context suggests that interest rates in Croatia will remain low for some time and consequently the classic bank savings will remain unattractive. Therefore, this paper focuses on the causes of the change in savings preferences, as well as the consequences in the form of household deposits' movements and the regional aspect of the household deposits' distribution within credit institutions.*

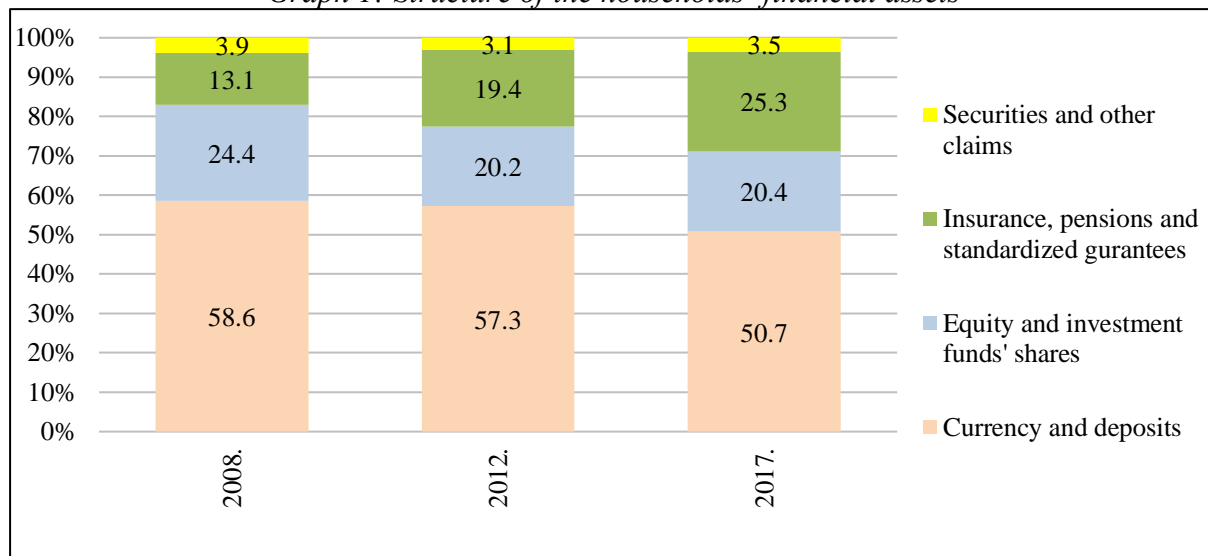
**Keywords:** *Deposits of households, demand deposits, savings of households, financial assets*

### 1. FINANCIAL ASSETS OF HOUSEHOLDS

Although deposits continue to dominate financial assets of households (according to the latest data for 2017, deposits and currencies accounted for 50.7% of households' financial assets), their share has declined in recent years, primarily due to the faster growth of the value of pension funds' investments (due to constant payments into funds and investments of funds in government debt securities that have a safe yield), but also due to a smaller growth dynamics of currencies and deposits (see: Graph 1). Specifically, the total nominal value of financial assets in the household sector has increased by 51.9% in the last nine years, with the "Currency and deposits" item up by 31.5% (see Graph 2) and the "Insurance, pensions and standard

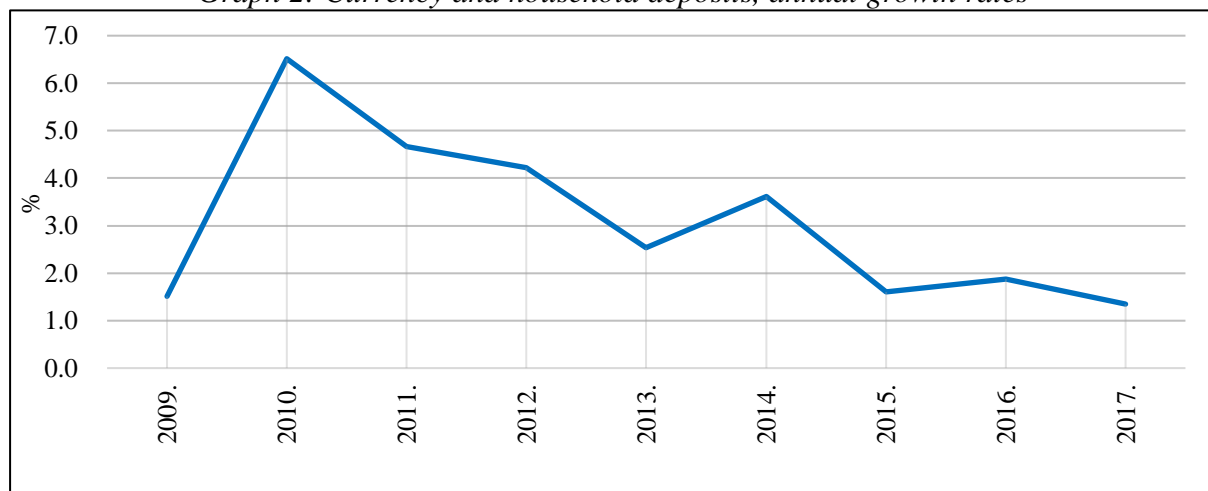
guarantees” item by 194.7%. Therefore, the structure of household assets also changed - the share of currencies and deposits had decreased by 7.9 percentage points from 2008 to 2017, while the share of “Insurance, pensions and standardized guarantees” item had increased by 12.3 percentage points.

*Graph 1: Structure of the households' financial assets*



*Source: Croatian National Bank, processed by authors*

*Graph 2: Currency and household deposits, annual growth rates*



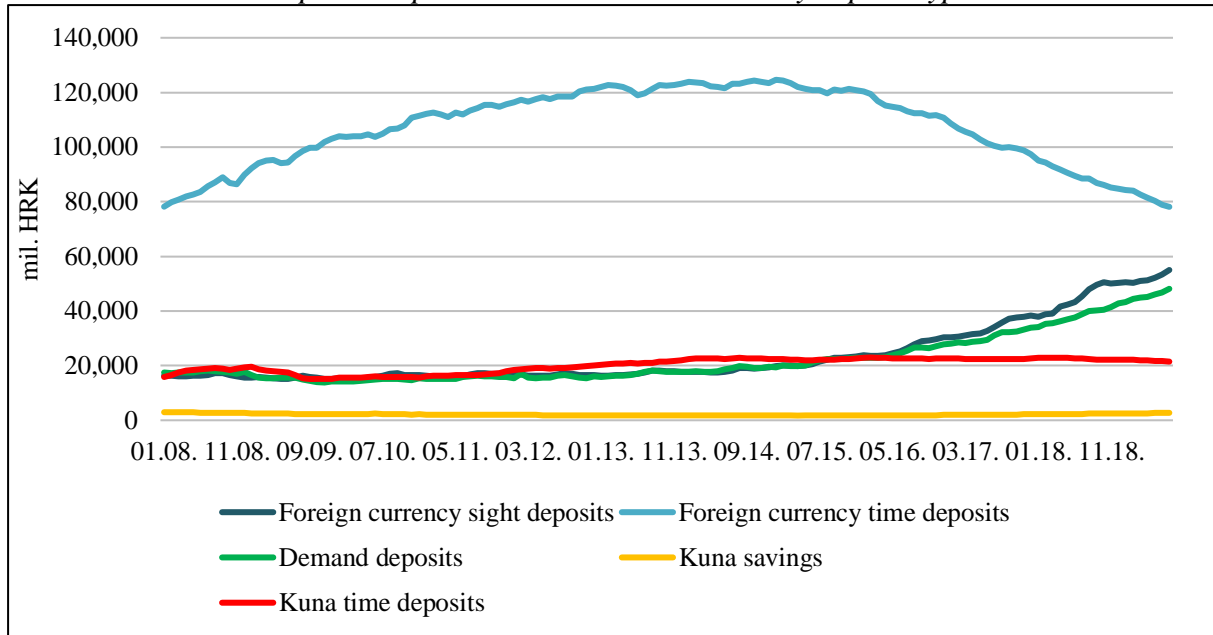
*Source: Croatian National Bank, processed by authors*

## 2. HOUSEHOLD DEPOSITS<sup>1</sup>

At banks, savings banks, housing savings banks and monetary funds (in monetary statistics these institutions are collectively referred to as Other Monetary Financial Institutions - OMFI), the household sector had a total of HRK 205.3 billion at the end of July 2019. Compared to the previous year, it was HRK 7.8 billion more and relatively 3.9% more. The annual growth was recorded in demand deposits (24%) and savings deposits (21.3%), while time deposits decreased (-10.5%) (see: Graph 3).

<sup>1</sup> Deposits include savings deposits, time deposits, and demand deposits.  
 Savings deposits are sight (a vista) deposits and issued payment instruments.  
 Time deposits are time-bound deposits with a fixed-term interest rate.  
 Demand deposits are funds in transaction accounts (current accounts and giro accounts).

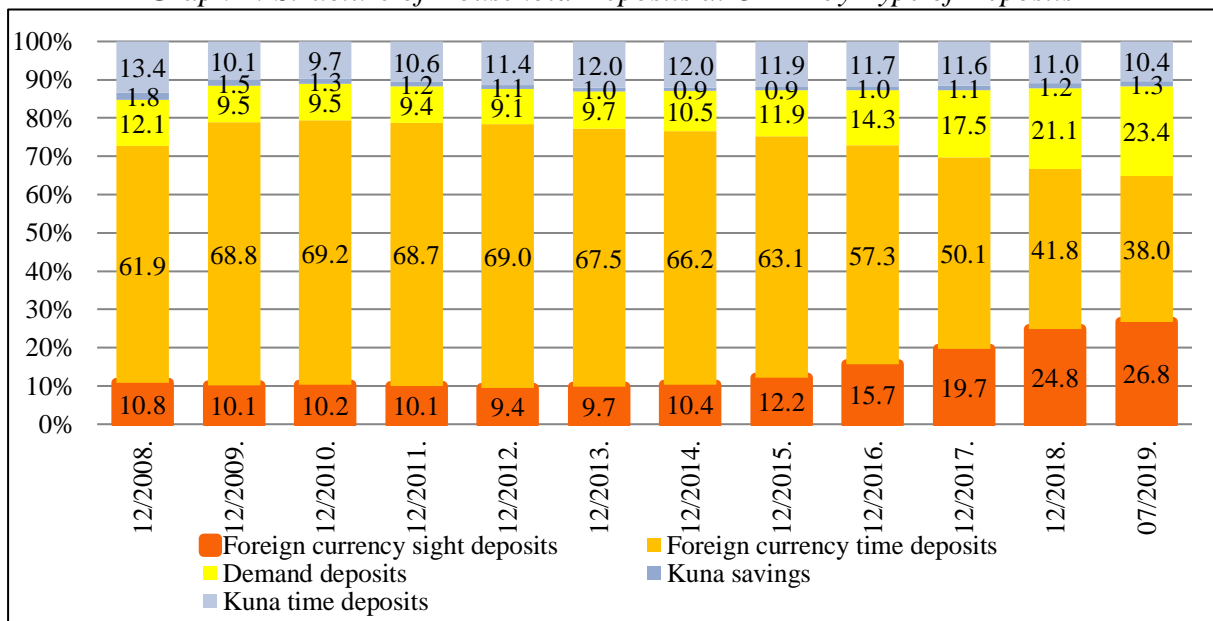
Graph 3: Deposits balances with OMFIs by deposit type



Source: Croatian National Bank, processed by authors

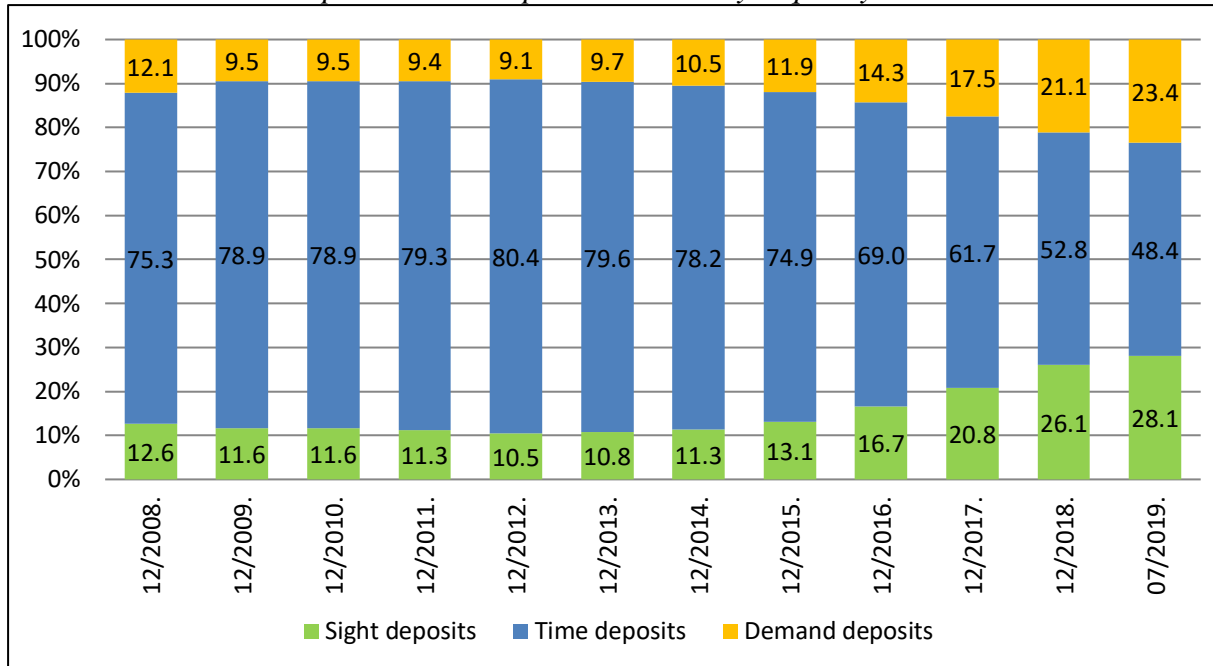
It is evident that the value of time deposits began to move in a downward trend in 2015, and the growth of savings deposits (sight/a vista) and demand deposits grew almost simultaneously. This shows that the preferences in household savings have begun to change, i.e. there is a visible shift towards the most liquid forms of savings (sight deposits and transaction accounts). At the end of July 2019, there were HRK 43.8 billion less of time deposits (Croatian Kuna and foreign currency) than at the beginning of 2016. Although time deposits still have the largest single share in total household deposits (48.4%), this year it has fallen below half of the total value of deposits for the first time (see: Graph 4, Graph 5). At the same time, a sharp increase in the share of demand deposits and savings deposits, which are now at their record highs, is noticeable.

Graph 4: Structure of Household Deposits at OMFIs by Type of Deposits



Source: Croatian National Bank, processed by authors

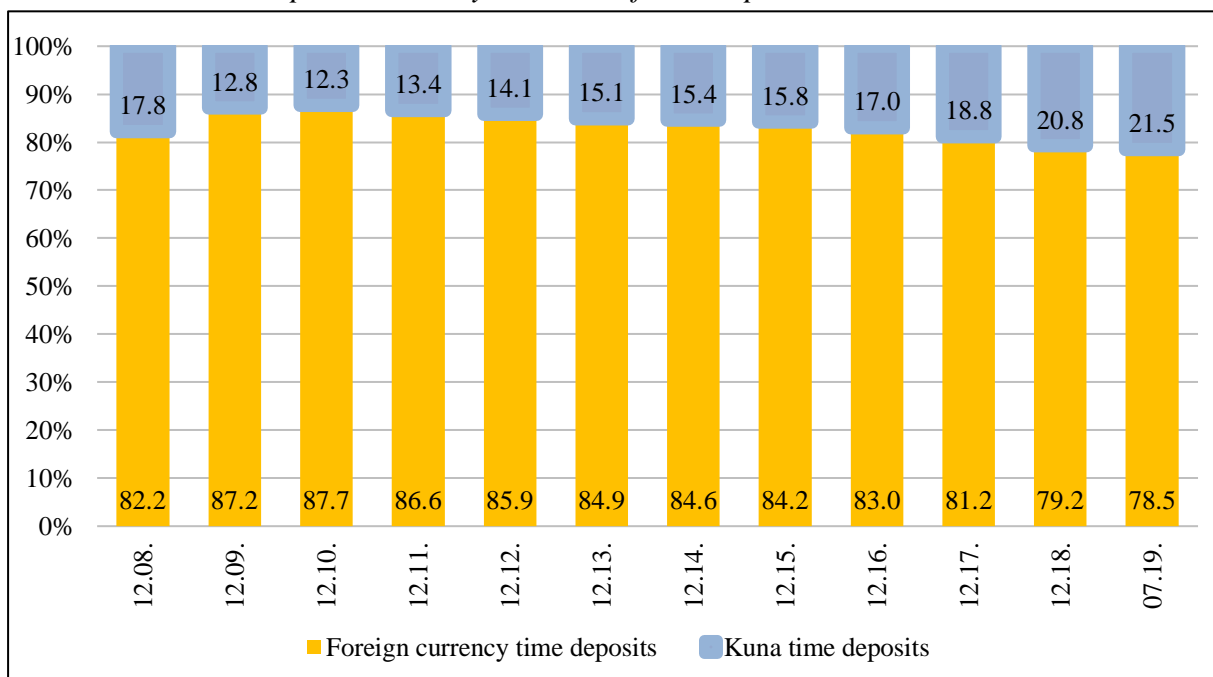
Graph 5: OMF I Deposit Structure by Liquidity Level



Source: Croatian National Bank, processed by authors

Foreign currency deposits continue to prevail in the currency structure of time deposits, but their share has been steadily decelerating since 2011 (see Graph 6). Out of the total time deposits, the share of foreign currency deposits now stands at 78.5%, down 8.1 percentage points from 2011. Although the value of both Kuna and foreign currency time deposits declines, a larger and longer-lasting decline was recorded in foreign currency deposits, which is the reason for their deceleration in the currency structure of time deposits.

Graph 6: Currency structure of time deposits with OMF I

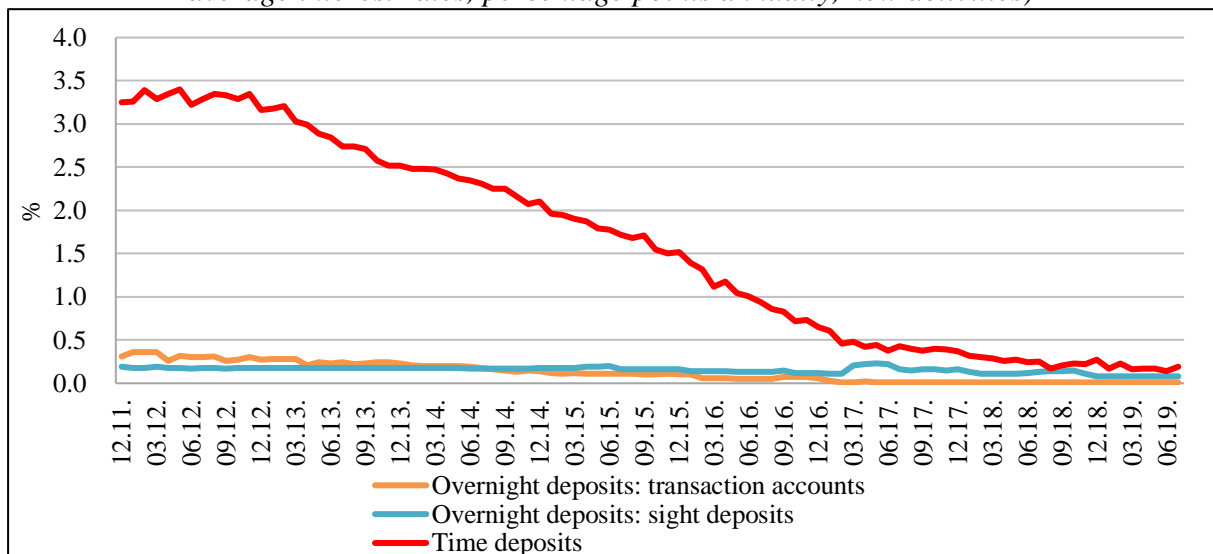


Source: Croatian National Bank, processed by authors

### 3. CREDIT INSTITUTIONS' DEPOSIT RATES AND YIELDS OF MMF INVESTMENT FUNDS

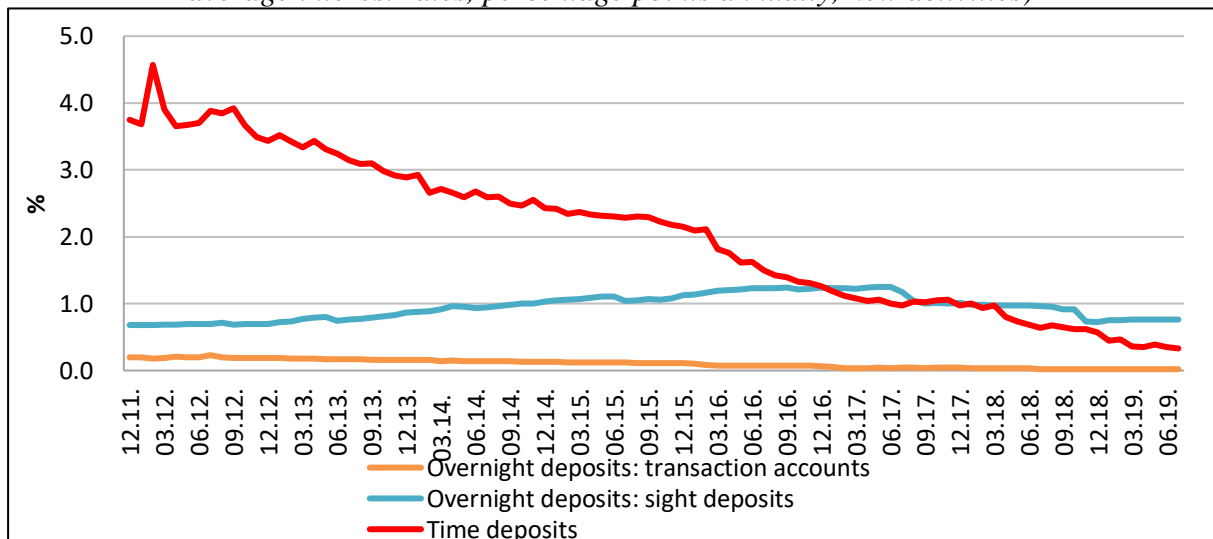
The main reason for the change in the preferences of the population towards more liquid forms of deposits is the historically low deposit interest rates, which (especially in time savings) have become disincentive. Interest rates on time deposits have fallen sharply and have almost equalled interest rates on more liquid deposits (see Graph 7, Graph 8).

*Graph 7: Credit institutions' interest rates on foreign currency deposits (weighted monthly average interest rates, percentage points annually, new activities)*



*Source: Croatian National Bank, processed by authors*

*Graph 8: Credit institutions' interest rates on Croatian Kuna deposits (weighted monthly average interest rates, percentage points annually, new activities)*



*Source: Croatian National Bank, processed by authors*

Thus, the interest rate on foreign currency time deposits has been below one percent since mid-2016 and below 0.5% since the beginning of 2017. Currently (data for July) it is only 0.19%, and for the longest time deposits (longer than two years) it is only 0.27%. The interest rate on Kuna time deposits, which in July was at the level of 0.33% (slightly higher than the foreign currency time deposits' interest rates), has been decelerating strongly. The interest rate on Kuna deposits in transaction accounts was almost zero - in July it was 0.22%.



At the same time, the yields of MMFs are not at all more attractive (it should be noted that since March this year there are only two MMFs and that out of a total of 21 MMFs, due to the entry into force of the MMF Regulation, 19 of them continued to operate in the short-term bond category, which is somewhat riskier). Savings in housing savings banks are also less attractive due to a reduction in government incentives (GI). Specifically, with the introduction of housing savings in 1998, the amount of GI was determined as a fixed percentage, the amount of which has been reduced several times so far. Initially, the GI amounted to 25% of the amount of available housing savings paid in the year for which GI was being paid, up to a maximum of HRK 5,000.00 of available housing savings per housing saver during one calendar year. With the amendment to the 2005 Act, the percentage of GI was reduced from 25% to 15%, and with the amendments to the 2013 Act, it was reduced from 15% to 10%. Also, the amendments to the Law in 2013 stipulate that the GI for housing savings collected during 2014 will not be paid from the state budget of the Republic of Croatia. The most recent amendments to the Law in 2014 and 2015 a variable amount of GI was introduced, which has decelerated from 4.9% or HRK 245.00 per housing saver in 2015 to 1.2% or HRK 60.00 maximum per housing saver. According to the current proposal for a decision on the housing savings collected in 2020, the incentive will be 0.7% or a maximum of HRK 35.00 per housing saver (depositor).

#### 4. THE REGIONAL ASPECT OF HOUSEHOLD DEPOSITS WITH CREDIT INSTITUTIONS

In the regional or county distribution of household deposits with credit institutions, it is noticeable that in addition to the City of Zagreb, coastal counties have the highest concentration of deposits (see: Table 1).

*Table 1: Household deposits with credit institutions by county*

County	Deposits in mn. HRK		Growth rate, 6. 19. / 6. 18., %	Share in Croatia, 6. 19. %
	6. 18.	6. 19.		
Grad Zagreb	53,900	55,692	3.3	28.0
Splitsko-dalmatinska	23,386	24,782	6.0	12.5
Primorsko-goranska	18,297	19,051	4.1	9.6
Istarska	14,286	15,167	6.2	7.6
Zagrebačka	13,900	13,217	-4.9	6.6
Zadarska	8,620	9,000	4.4	4.5
Osječko-baranjska	7,680	8,509	10.8	4.3
Dubrovačko-neretvanska	7,740	8,105	4.7	4.1
Varaždinska	5,006	5,331	6.5	2.7
Šibensko-kninska	4,716	4,961	5.2	2.5
Karlovačka	4,405	4,651	5.6	2.3
Međimurska	4,220	4,436	5.1	2.2
Brodsko-posavska	3,679	3,795	3.2	1.9
Krapinsko-zagorska	3,403	3,593	5.6	1.8
Sisačko-moslavačka	3,318	3,452	4.0	1.7
Bjelovarsko-bilogorska	3,170	3,292	3.9	1.7
Vukovarsko-srijemska	3,136	3,236	3.2	1.6
Koprivničko-križevačka	2,950	3,062	3.8	1.5
Požeško-slavonska	1,890	1,923	1.7	1.0
Ličko-senjska	1,841	1,865	1.3	0.9
Virovitičko-podravska	1,592	1,653	3.8	0.8
Total Croatia	191,134	198,774	4.0	100.0

*Source: Croatian National Bank, processed by the CCE*

Namely, exclusively coastal counties are placed among the top ten counties with the highest absolute deposit values, except for the least-populated Lika-Senj County. E.g. on June 30, 2019, residents of seven coastal counties had HRK 82.9 billion deposited with credit institutions or 41.7% of the value of deposits from all Croatian households. Compared to the previous year, deposits have increased in all counties except for the Zagreb County (-4.9%), with the relatively highest acceleration in the Osijek-Baranja County (10.8%). The acceleration was stronger in the Adriatic region (5.1%) than in the Continental Croatia region (3.2%). When the data is relative to the population, the first ten counties with the largest deposits include the least-populated Croatian county, the Lika-Senj County (see: Table 2).

*Table 2: Household deposits per capita with credit institutions in June 2019*

County	Deposits per capita, in HRK
Istarska	72,652
Grad Zagreb	69,225
Primorsko-goranska	67,024
Dubrovačko-neretvanska	66,867
Splitsko-dalmatinska	55,308
Zadarska	53,520
Šibensko-kninska	49,530
Zagrebačka	42,707
Ličko-senjska	41,280
Međimurska	40,360
Karlovačka	39,807
Varaždinska	31,925
Osječko-baranjska	30,694
Bjelovarsko-bilogorska	30,511
Krapinsko-zagorska	28,665
Koprivničko-križevačka	28,432
Požeško-slavonska	28,338
Brodsko-posavska	27,095
Sisačko-moslavačka	23,232
Virovitičko-podravska	21,961
Vukovarsko-srijemska	20,960
Total Croatia	48,626

*Source: Croatian National Bank, processed by the CCE*

Data on the concentration of deposits in coastal counties do not completely correlate with the development or the level of wages, but it can be related to the fact that in these counties a significant part of the population (households) is engaged in seasonal business i.e. rental of private accommodation for tourists. Namely, the tourism industry is concentrated in the coastal counties - about 95% of total tourist overnight stays are realized in this area. Private accommodation accounts for more than 43 million overnight stays (data for 2018), 48% of all

tourist overnight stays in Croatia. At the same time, it can be assumed that the segment of the population engaged in the tourist seasonal business is more inclined to practice a more conservative way of saving, not only due to the fact that they need to finance the remaining part of the year from the funds earned during the season but also because of the uncertainty that the tourism industry brings. Therefore, the security of savings is primarily sought, followed by the yield in the second place.

## 5. CONCLUSION

The period of historically low-interest rates in Europe and Croatia, which now extends over the last few years, has resulted in the changes in household savings' features. Firstly, the share of currencies and deposits in the total financial assets of the household sector, which has always been dominant, is noticeably decreasing and, according to the latest data (for 2017), was just above half of the total financial assets, the lowest so far. It is also noticeable that the characteristics of the deposit are changing. Namely, the time deposit as the primary form of classic savings is becoming less attractive due to the sharp fall in the deposit rates offered by banks for term savings, which have now almost equalled the interest rates on the most liquid forms of deposits. As deposit rates have dropped very low, close to zero, the real interest rates on deposits are negative (nominal interest rates are generally below the inflation level). Consequently, the share of the most liquid deposits, which are transaction accounts and sight deposits, is strongly increasing in the structure of total deposits. Interests on the deposited funds in transaction accounts are not the tax base for capital gains tax, which was introduced in 2016, while the interests on savings and time deposits are. At the same time, no other forms of savings that have low-risk characteristics such as MMFs are more attractive. For example, yields on cash funds are just above zero and the base for income tax (if alienated within two years), so in such a context the population is now more inclined to invest more in real estate (and property tax has not yet been introduced). The broader context in which such changes occur is a longer period of expansionary monetary policy in Croatia and across the EU (especially in the Eurozone), resulting in an ample banking system liquidity and historically low interest rates. Thus, liquidity surpluses in Croatian banks are at historically high levels: at the end of July, free reserves amounted to HRK 39.5 billion (of which HRK 29.6 billion in domestic currency and HRK 9.896 billion in foreign currency). Signals coming from the European Central Bank confirm that the period of historically low interest rates will be prolonged. Moreover, at the last meeting of the European Central Bank (12 September), the ECB's interest rate on deposits (the ECB's passive rate it lends to banks on deposits), which is zero since 2012 and negative since 2016, further reduced to -0.5% and securities purchases were reintroduced (the so-called quantitative easing). Such a global context suggests that interest rates in Croatia will remain low for some time, and therefore classic bank savings will remain unattractive. It could become even less attractive should a negative interest rate on savings be introduced, which has started to happen in the EU. However, this is not the expected scenario in Croatia right now - the CNB has been holding its passive rate on bank reserves and overnight deposits at 0.00% for several years, and introduction of negative passive rates is not expected, as done by the ECB or some central banks in the EU outside the Eurozone (Denmark, Sweden). Therefore, it is not expected that Croatian commercial banks might introduce a negative interest rate on savings, as it has happened in one of the EU member states. Namely, Denmark (which is not a member of the Eurozone, but since 1999 the exchange rate of the Danish Krone has been fixed to the euro and Denmark is in the ERM II), where the central bank increased its negative deposit rate (-0.75%) in September, so the large local commercial bank (Jyske Bank) announced an extension of the negative interest rate to the savings of -0.6% and for deposits above EUR 100 thousand (so far it has been applied only to extremely high deposits, of more than EUR 1 million).

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## DOES THE YEAR 2020 BRING MAJOR CHANGES TO THE REAL ESTATE MARKET OF GREEN BUILDINGS?

**Raluca Florentina Cretu**

*Bucharest University of Economic Studies,  
Faculty of Accounting and Management Information Systems,  
Department of Financial and Economic Analysis, Bucharest, Romania  
raluca.cretu@cig.ase.ro; cretu\_raluca@yahoo.com*

### **ABSTRACT**

*The targets of the Europe 2020 strategy involve a 20% reduction in greenhouse gas emissions compared to 1990, a 20% level of energy obtained from renewable sources and a 20% increase in energy efficiency. The long-term objective is the reduction, by 2050, of greenhouse gas emissions by 100% and of decarbonisation of the real estate park, in the context in which it is responsible for about 36% of the total carbon dioxide emissions in the European Union. Compliance with these regulations that will become mandatory for all buildings completed starting in 2020 can be done by making the equipment used in buildings more efficient, by implementing efficient air conditioning and ventilation solutions but also by using solutions and principles such as orientation according to natural light, insulation, used or natural ventilation. There are several valid approaches to creating a sustainable home, but they all deal with the design, construction and operation of the home with a view to minimizing or eliminating the impact that the construction or operation of the home has on the environment. In this paper will be detailed some fundamental aspects of this type of housing such as: energy efficiency and green energy, location, sustainable materials, bioclimatic design, evaluation criteria for green buildings, etc. The large-scale implementation of the principles of sustainable development with economic, social and ecological implications, in the case of the new "green" buildings will be doubled by the significant increase of the sustainable certifications. Is green real estate credit an important financial instrument in achieving this target? What are the European practices on the Real Estate Market? These are the objectives of this work.*

**Keywords:** *sustainable certification, green buildings, valuation criteria, real estate market, financial instrument*

### **1. INTRODUCTION**

The quality of living spaces is directly related to the quality of life. Few things are more deeply related to the personal perception of well-being, security and comfort - or, on the contrary, of discomfort, stress and health risk - than the characteristics of the home: lighting, heating, ventilation and fresh air, hot water, no noise, protection and intimacy represents fundamental physiological and psychological needs, but also conditions for participation in the educational, professional effort and social life. In the world, almost 2 billion people live in unsafe housing, often lacking access to energy and utilities. In relatively prosperous Europe, about 50 million citizens live in insufficiently heated and illuminated houses. In Romania, almost one third of the total housing stock, especially from the buildings built before 1985, requires major repairs and technical modernization. Almost half of the Romanians are heated with firewood, under conditions of low efficiency (Anghel & Onofrei, 2013, pp. 67-69). Energy poverty is a widespread phenomenon in Romania, but also throughout the European continent. From the arsenal of tools to combat energy poverty, increasing the energy efficiency of buildings through renovation is one of the most cost-effective. But the urgency of renovating the housing stock depends not only on the quality of the home, but also on reducing greenhouse gas (GHG) emissions. The building sector is a major energy consumer (not less than 40% of final consumption in the EU), and the energy sector is a large GHG emitter (36% of the total in the

EU). The International Energy Agency (IEA) shows that energy efficiency of buildings is essential to reach the goal of the Paris Agreement to limit the average temperature rise to 2°C compared to the pre-industrial era, until the end of this century. The European energy efficiency target for 2020, adopted in 2007, is 20% (20% reduction of EU primary energy consumption) compared to 2005. For Romania, this indicative target is expressed as the level of primary energy savings. of 43 mtoe (millions of tonnes of oil equivalent), respectively of 30,3 mtoe from final energy consumption. The Commission's 2017 evaluation report shows that, despite Romania's position in the group of 15 Member States that achieved energy savings above the annual level required to reach the target, the situation has deteriorated in the residential and transport buildings sectors, which expresses the attenuation of the time lag. energy consumption per capita compared to the Western European countries. For the year 2030, the European energy efficiency target, set jointly for all Member States in 2014, was 27%. This percentage was raised to 32.5% in 2018, with the consensus between the European Commission, the European Parliament and the EU Council, with an additional revision clause up to 2023. Such an increase requires significant investments, supported by public policies and policies. incentives for favorable regulations. The year 2019 brought on the real estate market in Romania a number of important changes, taking into account that all developers and builders of buildings, regardless of their destination, through the projects carried out have contributed to diminishing their impact on the environment. The year 2019 brought to the Romanian real estate market a spread of the norms of sustainable development on the residential segment (figure no. 1).



Figure 1: Green building – example (<https://constructionclimatechallenge.com/>)

## 2. EUROPEAN LEGISLATIVE FRAMEWORK

The European framework for regulating the energy efficiency of buildings is defined mainly by the two major directives:

- The Energy Performance of Buildings Directive (EPBD) and
- Energy Efficiency Directive (EED).

The Energy Performance of Buildings Directive EPBD was adopted in 2002 and introduced energy efficiency requirements in the national building codes. Its 2010 revision introduced the vision of the evolution of the building sector towards buildings with near zero energy consumption (nZEB). It has also established a European framework for a common methodology for calculating the energy performance of buildings and has set minimum standards for energy performance in buildings. Energy efficiency has many other positive effects of economic nature (by increasing employment), macroeconomic (by reducing trade imbalances, due to diminished energy imports), public health (reducing mortality and morbidity as a result of reducing note

emissions. and fine powders) and social (by reducing energy poverty). Energy efficiency of buildings is a priority of European policies on energy and climate change, but also on security of energy supply and the fight against energy poverty. Energy Efficiency Directive (EED) - Energy efficiency is one of the five dimensions of the Energy Union. It is a "no regrets" option, that is an option whose objective is achieved at "negative costs". Energy efficiency contributes to reducing GHG emissions and is closely linked to the development of the sector of renewable energy sources (SRE). The Energy Efficiency Directive (EED) was adopted in October 2012, asking Member States to set national targets for energy efficiency, to collectively reach European targets for 2020.

### 3. TECHNICAL AND ECONOMIC POTENTIAL FOR THE ENERGY EFFICIENCY OF BUILDINGS IN ROMANIA

The current situation of the Romanian fund of buildings according to the data of the National Institute of Statistics 2018 is about 5.3 million, of which 5.1 million are destined for housing and 0.2 million are non-residential (Dudău, 2018, pp. 15-17). In Romania there are approximately 8.2 million residential units (residential sector), distributed in 5.1 million buildings. In the urban area, 72% of the dwellings are in block type buildings, while in the rural area 94.5% of the dwellings are single-family. The houses with single-family housing represent about 98% of the residential fund. There are approximately 81,000 apartment blocks, concentrated in urban areas, representing about 2% of the building fund, but totaling 37% of the Romanian homes - around 3.18 million apartments. As a useful surface, the most frequent are the buildings of single-family housing in the country (43%), followed by the collective ones in the urban area (34%). The total built area is 493 mil.sqm, of which the residential buildings represent not less than 86%. The habitable surface increased steadily from about 270 sqm in 2000 to 425 sqm at the end of 2016. Of the 8.2 million homes, 61% are single-family homes. 88.5% of the dwellings are permanently occupied, and 47.5% of the total dwellings are located in the rural area. In the urban area, 72% of the dwellings are in blocks, which have an average of 40 apartments per block. Over 60% of the blocks of flats have a height regime of GF + 4 floors, and 16% have GF + 10 floors. The apartments in the blocks have an average useful area of 48 sqm, compared to an average of 73 sqm for single-family homes. Of the total fund of residential buildings 84% is privately owned, about 1% of the buildings are publicly owned, and the remaining 15% are held in a mixed property form. Most residential buildings were built in particular from 1961-1980 (Chart 1), in the absence of specific energy efficiency standards regarding the enveloping of the building.

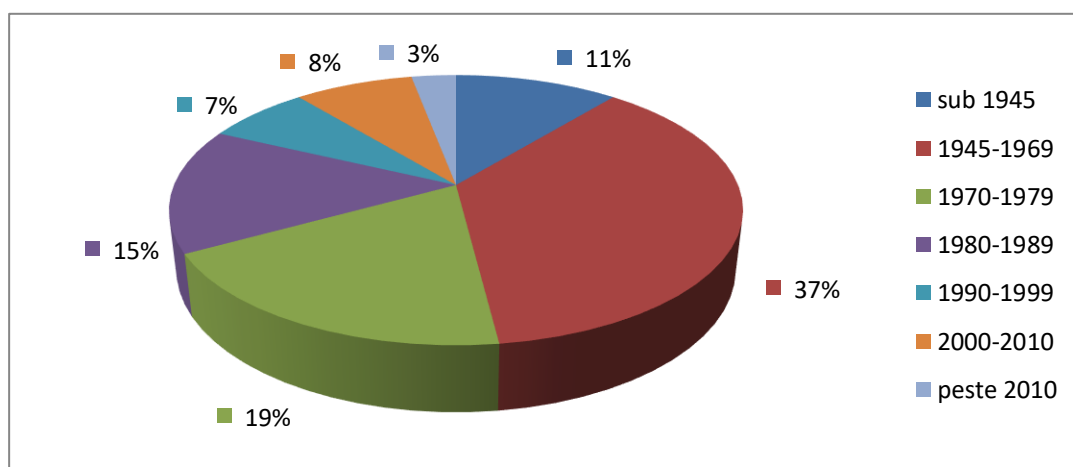


Chart 1: Residential homes in Romania classified by year of construction  
(www.ins.ro National Institute of Statistics 2018)

About 53% of the residential buildings were built before 1970 and over 90% before 1989, with an energy performance level of between 150 and 400 kWh /sqm/ year. Buildings built before 1990 have low energy performance (180-400 kWh /sqm/ year). Therefore, the existing real estate fund has a significant potential to increase the energy performance 2.4 million apartments prior to 1985 require thermal rehabilitation and modernization. According to the INS 2018 report, the living conditions of the Romanian population - in 2017, 96.6% of families occupied the house, in 2017, as owner. The share of homes with bath or shower was 71.4%, and the share of sanitary group of 69.8%. The differences between the urban and rural areas are major in both types of utilities, mainly due to the poor development of the water supply system, respectively of the sewage and wastewater treatment system in rural localities, compared to urban ones. About 45% of the families in the country benefit from the sanitary group inside. A household in Seven faces serious problems regarding the quality of the house, the most common being the deterioration of the walls, floors, window frames, encountered in 51.6% of the total families who claim the existence of housing problems and the wall drainage, the floors. or the foundation of the house (50.3%). In general, problem homes are more numerous in the country than in the city - especially those with problems with walls, floors or windows, and windows. Non-residential buildings represent 18% of the total built area and almost 4% of the total real estate fund (Chart no. 2).

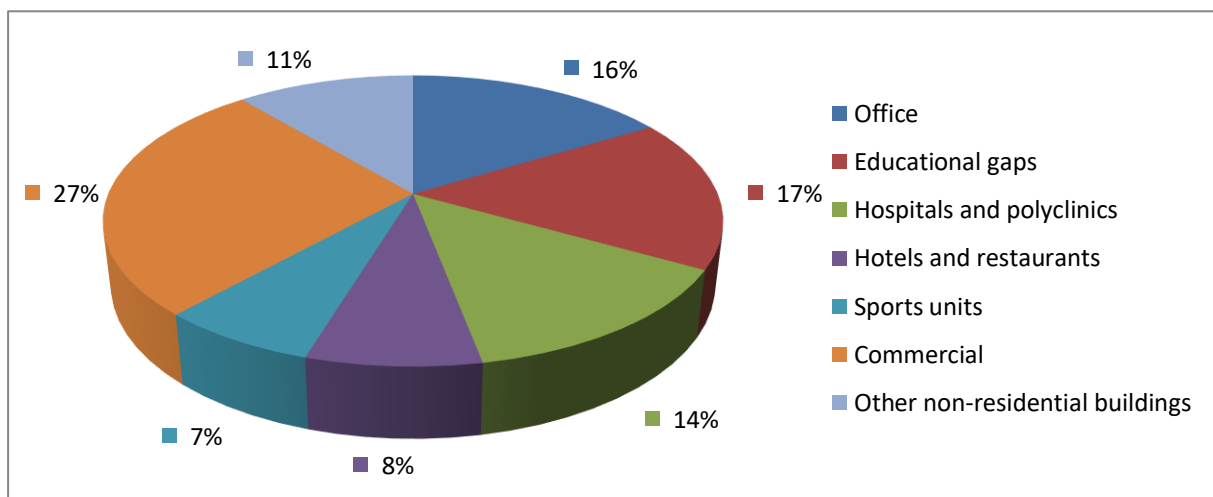


Chart 2: Types of non-residential buildings (Buildings Performance Institute Europe: BPIE, 2018)

#### 4. ENERGY CONSUMPTION AND THE ROLE OF INTELLIGENT BUILDINGS

The building sector is one of the largest energy consumers. The thermal energy consumption for heating and domestic hot water is about 70% of the total energy consumption in a building, with smaller proportions for air conditioning and ventilation, lighting and home appliances. Heating represents about 55% of the total energy consumed in apartments and up to 80% in single-family homes. Depending on the climate zone, a single-family home consumes about 24% more energy per sqm compared to an apartment in the apartment blocks (Dudău, 2018, pp. 46-47). The spaces of public administration, educational and commercial buildings total about 75% of the non-residential energy consumption, each with 20-25% of the total. The buildings in the education sector (354 kWh /sqm per year) are the largest energy users, the other sectors falling in the range of 200-250 kWh /sqm per year. A 2016 study by BPIE (Buildings Performance Institute Europe) examines the transition process of the characteristics of new buildings from the stage of passive (unresponsive) and energy-intensive elements to the stage of energy micro-hubs, which consume, produce, store and supply energy at high efficiency



levels. Buildings with intelligent energy management systems and automatic control of the response to environmental conditions and energy use are the result of modern engineering and capitalization of financial resources in the building sector in four distinct fields of activity: energy efficiency, production of renewable energy, energy storage and intelligent management of energy consumption (demand response). According to the study definition, "an energy micro-hub can consist of a building or group of buildings connected and synchronized with an energy system, being able to produce, store and consume energy efficiently. It can be flexible, adapting to the circumstances and thus strengthening the energy system".

Micro-hubs have the following technical and functional characteristics:

- Maximum energy efficiency of the building, optimizing the combination between the building envelope and the other technical systems;
- It gives the users the ability to control their own production and energy consumption from renewable sources, allowing them to drastically reduce their energy bills;
- Facilitates the increase of the share of renewable energy sources (SRE) in the broad sense, of smart cities and electric vehicles;
- Reduce peaks in energy demand and facilitate energy storage and flexibility. In addition, smart buildings meet the certification requirements for green buildings, which attest to the ecological performance of buildings as measured throughout the life cycle of the building.

The most common standards for evaluating this type of performance are BREEAM (Building Research Establishment's Environmental Assessment Method) and LEED (Leadership in Energy and Environmental Design). As the 2017 Colliers International report shows, in Romania, most buildings certified as green are office buildings, with 80% of the total. In 2017, the surface of offices with green certification approached in Romania of 2.2 mil.sqm, in which over 160,000 employees work.

## **5. GREEN REAL ESTATE CREDIT**

A Green Real Estate Credit is a unique mortgage product of the real estate offered by the participating banks, which rewards the purchase of a home certified by the Romanian Council for Green Buildings (RoGBC), offering them the reduction of the interest rate to minimize the risk of non-payment of the mortgage and to lending a greater value to the building, compared to an ordinary house. A residential project of type Green Homes, certified by RoGBC, will benefit from significant reductions in utilities and repairs, allowing the owner to save money, which he can use to pay the mortgage. This additional income for the homeowners significantly reduces the risk of default on the mortgage compared to the situation when the owner owns a standard home. The bank offers instead the reduction of the monthly interest rate (compared to the interest for a standard house), due to the low risk of non-payment of the loan and due to the high value of the Green Housing type in the bank's portfolio regarding the Green Real Estate Credit. Although the Green Housing certification system requires a new approach, it does not necessarily entail higher costs as a whole. We must, however, anticipate an additional investment of 5%, up to 15%, for the construction of a home that will reach a high quality level both from the point of view of the environment and from the point of view of the profitability of the expenses. Thus, the "total monthly cost of owning" such a home is lower, as energy savings and lower interest rates amortize the larger loan amount needed to purchase a home through the Green Real Estate Credit. Much of the cost involved in building a green home contributes to its high quality. This aspect allows any builder / developer to repay the additional investments to maintain their profit margin without increasing the monthly cost of owning the home for the buyer, thus facilitating the transaction.

## 6. ADVANTAGES OF PASSIVE HOUSES

Passive houses provide energy savings and money, being those buildings with low energy use (Table no. 1). The term passive house originates from the fact that, due to its special construction, this building is less sensitive in terms of thermal conformity to the changes in the meteorological parameters from the outside. Specifically, regardless of the weather outside, the temperature inside remains largely unchanged. The constructions of the future, in an age when the problems related to natural resources are increasing are the only solution. The first passive house was built by Dr. Wolfgang Feist in 1991 in Germany. The concept emerged, but since the 1970s, after the great energy crisis in Europe. Nowadays, passive buildings are certified by the PassivHaus Institute (PHI) in Darmstadt, led by Dr. Feist himself. Worldwide, there are almost 5,000 passive houses built, in Romania being certified about 12 buildings of this type. Most passive houses designed and built in Romania fall into this category of medium-sized passive houses (between 100 sqm and 150 sqm).

Table 1: Advantages of passive houses (Source: Own conception)

Nr. Crt.	Category	Question?	Answers		
1.	Builder	Why build a green house?	Higher sales prices; Low design and construction costs; Quick sales	Self-financing capacity Fast return on assets Increased market value	Reduced renovation costs; Corporate image and prestige value; Compliance with legislation; Lower taxes.
2.	Tenant	Why rent a green house?	Health and well-being; Increased productivity	Low maintenance costs; Reduced expenses with monthly bills	Low renovation costs; Corporate image and prestige value; Compliance with legislation; Lower taxes.
3.	Owner	Why do I need to own a green building?	Low depreciation Low yield on sale Increased employment rate	Low maintenance costs; Reduced expenses with monthly bills Self-financing capacity Fast return on assets Increased market value	Low renovation costs; Corporate image and prestige value; Compliance with legislation; Lower taxes.

These constructions are designed in such a way as to consume as little energy as possible, and thus passive houses generate substantial savings visible in the monthly utility bills and protect the environment. The cost assessment of a passive house is 15%-20% higher than a conventional home, and the impossibility of opening windows in such a building is a false myth. In order for a building to be classified as a "passive house", it must consume less than 15 kWh /sqm/year for heating, a value corresponding to the burning of less than 1.5 liters of gasoline /sqm/year. The measured heat consumption of the first passive house in Germany was less than 13 kWh/sqm/year. Thus, the energy requirement for heating a passive house is 10 times smaller than that of a conventional home (see example). Also, the total consumption of "conventional" energy, obtained from fossil fuels (for heating, hot water, electricity, etc.) of a passive house should not exceed 120 kWh /sqm./year. Designers and builders use some basic principles to keep the house temperature as controlled as possible. The thermal insulation performance and the compact volume of the passive houses play an essential role in reducing the heat losses to the outside. The thickness of the thermal insulation layer of the walls is 30-40 cm, and the windows usually have three rows of windows with low emissivity, so that the thermal bridges

in the walls and the window joinery are reduced to a minimum. The optimal orientation of the building is made according to the sun's trajectory and other aspects related to the microclimate. Passive houses have large vertical facades, provided with large windows facing south, avoiding overheating in summer, but allowing the penetration of sunlight in rooms in winter. On the north side of the building small windows are installed, for the natural illumination of the secondary rooms (the kitchen, the annexes or the entrance hall). The sealing of a passive house is done through a high performance system of pneumatic insulation, obtained by using, during the construction, some polyurethane foams or of another nature. This minimizes air leakage through cracks. In order to provide the air needed for breathing, it is always necessary to have an integrated ventilation system. Heat Recovery: The thermal energy that accompanies the exhausted exhaust air - taken from the kitchen and the bathroom - is partially recovered by the use of heat recuperators, which heat the fresh air introduced into the building. Thus it can recover up to 90% or even more of the energy contained in the air extracted from the rooms. A roof solution can be represented by Solar Roof, its innovative solar panel system.

## **7. CASE STUDY - BUHNICI GREEN HOUSE**

The Buhnici House project was started in May 2017 and in just 7 months it was completed. Buhnici House, is the first "premium passive house" in Romania and the ninth in the world, obtaining this certificate in February 2018. It warms up from the ground and from the sun, produces its own energy and recovers water from the rain. It is located in Tămași Village, Corbeanca, 20 km from Bucharest. The decision-making factors in choosing the land were: the surface of 1600 sqm, with an opening of 19 sqm; positioning, neighborhoods, infrastructure, the area being delimited by three forests. The design of Buhnici House is a minimalist one, with elements reinterpreted from the aesthetics of Saxon houses, anchored and integrated into the local spirit. We wanted a sustainable home from the point of view of the materials used, economical, to protect the environment and to use the latest technologies, thus combining the traditional with the modern. Buhnici House is defined by: sustainable materials, energy efficiency, safety, technologies and automation, but also comfort.

### **7.1. Sustainable materials**

The construction of the house was made of wood, thanks to the advantages it presents: earthquake resistance, due to the reduced weight of the wooden structures, about 3-4 times lighter than the classic brick/concrete constructions, but also the natural elasticity of the wood. wood; versatility, wood can be used for resistance structure, floors, facades, interior finishes, furniture or interior objects and decorations; mechanical strength, providing stability and resistance to construction, but also a good ratio between the useful surface and the built surface; heat transfer coefficient quite close to the thermal insulation materials. In order to give the house the desired shape, it was worked with glued timber panels CLT, these having the advantage that they have almost any size and shape, the wood structure can be completely prefabricated in a fast time, it has a high strength of the structure compared to reduced wall thickness, energy efficiency, but also reduced impact on the environment, being a recyclable and renewable material. CLT fabrication is a fully robotic process, by which the thickness of the resistance walls of the house can be from 8 to 12 cm.

*Figure following on the next page*



Figure 2: The characteristics of Buhnici House (<http://buhnici.ro/category/casa/>)

The foundation was made of molten recycled glass, applied in a 40 cm thick layer, over which was placed beam and concrete slab. The glass foam gravel has thermal insulation properties, protects the foundation from heat loss and frost and provides support to the structure of the house. Due to the modern shape of the house and the foundation, the roofing material chosen for the roof is the sheet for its properties: light weight, durability, malleability and low maintenance. For the sound and thermal insulation, basaltic wool was used, being an ecological insulating material, which offers durability and stability throughout the life of the construction. Basaltic wool panels retain air, maintaining optimum temperature inside the house. Inside the house, for the walls and ceiling was used gypsum board resistant to fire and moisture. Because it was desired to use the traditional elements, the beams were made of massive oak, over 200 years old, coming from an old house near Brasov. These were cleaned, polished, treated with natural oils and integrated into the architectural plan of the Buhnici House. The materials and equipment used protect the environment at all stages of the construction of the house, but also during its lifetime.

## 7.2. Energy efficiency

Spectacular technologies have been set up that aim to reduce energy consumption and use passive strategies. The installations are represented by a complex system, consisting of radiant cooling panels mounted on the ceiling and walls, underfloor heating, heat pump, electric hydrophore, solar and photovoltaic panels, perfectly integrated in the Buhnici House concept. For this house a geothermal heat pump was used, producing energy from renewable sources. It takes the thermal energy from the ground and gives it to the thermal agent, thus being distributed through the underfloor heating system and through the ceiling and wall cooling system. The photovoltaic system consists of 58 panels, an inverter and a smart meter. The photovoltaic panels capture the solar energy, the invertot transforms the collected energy into alternating current and is distributed with priority to the domestic consumers, and the surplus of energy is distributed to the public network, which is one of the requirements of the premium passive house. The solar panels are connected to both the heat pump and the boiler, with a well-developed circuit. Therefore the careful design of the house and the establishment of a circuit between the installations, have led to the creation of a passive, efficient home, which produces and stores its energy alone and protects the environment.

### 7.3. Safe

Safety is given by the materials used, mainly the CLT structure, which is solid, competing with ceramic blocks, concrete columns, even if the walls are thinner, it has earthquake resistance and retains thermal energy; foundation; the materials used for insulation; the treatments applied to the wood to increase the fire resistance, against the appearance of cavities and cracks, the formation of fungi and rot; as well as the systems and installations used.

### 7.4. Technologies and automation

The owner of the building used the most innovative technologies, systems and appliances. Thus, the house has windows controlled by remote control; fire extinguishing systems; sockets with intelligent, programmable and touch screen switches, which can automatically turn off or on the lights in the house, the thermostat, the TV, the lamps or they can draw the blinds; Internet faucet that monitors the temperature and water consumption, as well as possible floods in the house, are just a few of the elements that make Buhnici House a smart home. From the point of view of automation, the house has a system of supervision, monitoring and remote control, with which you can accurately know the consumption or production of the house, or set the optimal comfort you want when you get home.

### 7.5. Comfort

The purpose of any home is to provide its owners with interior comfort, from the level of oxygen and carbon dioxide, to temperature, humidity and natural lighting. Buhnici House ensures this comfort with the help of the materials used for the construction, the installations and the technologies, all working with a low energy consumption.

Table 2: Dimensions of the passive house Buhnici and the market value ([www.casabuhnici.ro](http://www.casabuhnici.ro))

SIZE	SQUARE METERS
<b>BUILT SURFACE</b>	<b>182,8</b>
Ground floor surface area	136,64
<b>Total ground floor surface</b>	<b>140,16</b>
Floor surface	37,71
<b>TOTAL FLOOR SURFACE</b>	<b>42,64</b>
USEFUL SURFACE	174,45
TOTAL SURFACE	182,8
<b>MARKET VALUES</b>	<b>250.500 EURO</b>

The five characteristics of Buhnici House: sustainable materials, energy efficiency, safety, technologies and automation, comfort, define the concept of the house of the future. Thus, Buhnici House became the first premium passive home in Romania. Buhnici House has a built area of 182.8 sqm and a usable area of 174.45 sqm. On the ground floor the house has two bedrooms, kitchen, living room, dressing room, vestibule, pantry, two bathrooms and stairs, while upstairs there is an office, a bathroom, a hall and the technical room where the facilities are located.

## 8. CONCLUSIONS

The population of the globe has begun to become aware of the global ecological crisis in which we are and is trying to find solutions and strategies for mitigating the negative effects, as well as maximizing the life span of energy resources, by addressing a new type of architecture, namely "the houses of the future". These constructions involve the efficient and effective use of resources in two directions: for financial saving and for the protection of the environment.

Thus, green buildings use natural and non-toxic materials, support the production of electricity using renewable sources and are energy independent, improve the quality of life of the tenant and protect the environment throughout the life cycle of the home. The costs of building a house of the future are higher than those involved for a standard house, but the gains are based on the report on the total costs generated by a standard house versus a house of the future, over their lifetime. A "green house" means an integrated system for managing all resources, compared to a standard house where these systems work independently. The constructions of the future can be designed, designed and managed so as to combine the characteristics of a dwelling: appearance, comfort, safety, economy with the environment, offering in the long term a series of benefits: reducing the loss of resources, improving the health of the tenants, reducing the administration costs. and maintenance. The promotion, support and implementation of smart home construction projects must be supported by the state institutions. They must carry out research in order to study the scientific and operational problems of the society, educate the population, so as to increase the degree of their involvement and support, the integration and development of restoration programs regarding the existing constructions, but also the implementation of fiscal measures so that there is support for the population that decides to build ecologically. The concept of this paper is "Think globally, act locally", so we must research, study and analyze in depth the causes of environmental degradation, pollution and look for solutions to solve these problems, and the construction of houses of the future is a viable solution. The house of the future is perceived as an organism that combines the modern with the protection of the environment, which generates economies and uses resources efficiently. It is a sustainable building with a structure built, designed, renovated, used and reused in an ecological way.

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## CHALLENGES OF THE FORMAL PROJECT MANAGEMENT EDUCATION IN THE SENET REGION

**Rebeka D. Vlahov Golomejic**

*Faculty of Economics and Business Zagreb, Croatia*  
*rvlahov@efzg.hr*

### **ABSTRACT**

*In recent years, an increasing number of organizations have been basing their businesses on the use of temporary forms of work, such as projects, to become more flexible and responsive to market impulses. Consequently, individuals participating in managing projects within the organizations should be competent enough to choose the right approaches and use the appropriate tools to achieve project success. However, although a considerable focus has been placed on developing knowledge, as well as acquiring skills and abilities in the field, it appears that the current formal education does not adequately prepare individuals to deal with the complexities associated with this type of work due to the existing gap between what educational institutions have to offer and what is needed in the labor market. With the aim of better understanding the challenges of formal project management education in the Central and South-east Europe (SENET) region, a qualitative empirical research has been conducted among the representatives of IPMA certification bodies in eight countries, namely Czech Republic, Greece, Croatia, Romania, Russia, Slovenia, Slovakia and Serbia. The collected data were analyzed using the grounded theory approach and five main challenges were identified: the way of managing educational institutions, status quo in education system and slow adaptation to changes, late introduction of project management education to the system, insufficient competence of professors and insufficient connection with the industry needs and professional associations.*

**Keywords:** *professional project management associations, project management, project management competencies, formal project management education, SENET region*

### **1. INTRODUCTION**

The field of project management and its development has always been accompanied by numerous challenges (Crawford and Pollack, 2006). The diversity of ventures considered to be projects has never been greater, which in turn causes the need for development of competent individuals across a range of industries to increase (Thomas and Mengel, 2004). Formal education<sup>1</sup> has a key position in developing project management competencies of individuals, that is, their knowledge, skills and abilities for solving theoretical and practical problems, and preparing them for jobs in the field of project management (Turner and Huemann, 2000; IPMA, 2015). In order to introduce progressive development of individuals capable of learning, operating, coping with increased dynamics and effectively adapting to the changing environments in which the projects are implemented, formal educational programs and courses should foster internationally recognized competencies and requirements for successful project management (Winter et al., 2006; Crawford et al., 2006; Mengel, 2008; Thomas and Mengel, 2008; Ashleigh et al. 2012; Mozhei and Lukianov, 2019). This is where professional project management associations and their certification bodies come to place. Previous research showed the possibility of cooperation between educational institutions and professional project management associations and integrating the certification system into the formal educational processes to facilitate planning of future development of individuals with the opportunity to

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<sup>1</sup> systematic, organized education model, structured and administered according to a given set of laws and norms, presenting a rather rigid curriculum as regards objectives, content and methodology; corresponds to the education process normally adopted by schools and universities (Dib, 1988)

create the basis for lifelong learning and progress (Mozhei and Lukianov, 2019). Although over the years several internationally recognized project management associations, standards and certification systems have been developed (Ahlemann et al., 2013), the focus is on the International Project Management Association (IPMA) due to its efforts to develop individual competencies for successful managing and working within the projects. More specifically, the author of the paper is interested in the perception of the project management experts operating within the IPMA certification bodies located in the SENET region, as the key organizations for demonstrating and certifying project management competencies according to an internationally recognized competence standard, on formal education within their countries.

## **2. SPECIFICS OF FORMAL PROJECT MANAGEMENT EDUCATION**

To meet the new demand, many educational courses and programs in the field of project management were added to the curricula of a spectrum of undergraduate, graduate and postgraduate academic studies (Berggren and Söderlund, 2008; Crawford et al., 2006). However, even at the academic level, education in project management is often based on the same standards and bodies of knowledge used in the commercial trainings and professional certification, making them too shallow and narrow for beginners, and lacking necessary rigor and relevance expected at this level of education (Crawford et al, 2006; Berggren and Söderlund, 2008). According to Abernethy et al. (2007) it is crucial to introduce students to the difficulties that might arise from applying the project management concepts and processes, and prepare them to resolve those difficulties when they appear in real situations. Since projects are usually characterized by uniqueness, uncertainty and complexity, education programs should also adopt learning methods and teaching approaches that present and discuss these characteristics with a more active and creative approach, rather than solely introducing basic terms and concepts (Hussein, 2015). This makes teaching project management more challenging, because while terms and concepts are readily accessible and can be taught in a direct way, tools and techniques for their application within projects need to be tried on practical examples to have significance in the learning process (Abernethy et al., 2007). Therefore, a lot of attention has to be paid not only to the content of education courses and programs, such as knowledge to be taught, skills to be transferred, attitudes and traits to be transformed, but also tools to be used for delivering the content to individuals attending them (Hussein, 2015). Different teaching methods should be used within different formal education programs and courses (Geist and Myers, 2007), combining traditional (theoretical inputs and discussions based on quality literature) and modern (case studies, shared experiences, simulations, games and web-based trainings) approaches in order not only to provide degree-specific and technical knowledge, but also to put emphasis on the development of soft skills (Turner and Huemann, 2000; Cicmil et al., 2006; Winter et al., 2006; Crawford and Pollack, 2006; Pant and Baroudi, 2008; Mozhei and Lukianov, 2019). Turner and Huemann (2000) combine all of the above and further highlight the importance of adding several more aspects to create an environment from which experts in the field will emerge: (1) global standardization (in methods of delivery and knowledge taught), but keeping in mind cultural differences and specifics, (2) appropriate structures for education process aligned with all stakeholders, (3) practical relevance of the matter being taught for developing competencies aligned with the individual and business needs, (4) pedagogical needs and the quality standards of university teaching and (5) support of the business and professional organizations to the project management education and development of professionals in the field, as well as recognition of the profession and respective career paths. However, many examples show that educational institutions do not adequately prepare individuals to cope with the increasing complexity of the project-based environment, since the approach to project management education still primarily relies on learning a significant amount of data that has no practical implications (Christenson, Walker, 2004).



Previous research show that, in order to create a valuable project management curriculum at any level of formal education, changes at the institutional level are required. It becomes even more evident due to the fact that rapid development of project management in practice is not accompanied by similar progress in developing teaching and training tools (Davidovitch, et al., 2006). Also, taking into account the important position project managers take in industrial and public sectors in contemporary business, it is important for the educational institutions to stay attuned with the latest research findings, do important research themselves and become leaders in the development of the profession (Berggren and Söderlund, 2008). Administrations of the educational institutions have to be convinced to switch from a scientific mindset to a more project-oriented one (Divjak and Kukec, 2008) and make sure that lecturers in the field are competent and certified experts, in order to help students become proactive problem solvers and critical thinkers, and not just recipients of information (Ojiako, 2011; Mozhei and Lukianov, 2019).

### **3. EMPIRICAL RESEARCH**

#### **3.1. Research methodology**

To better understand the challenges of formal project management education in the SENET region, a qualitative empirical research was carried out among representatives of IPMA certification bodies. Between 2017 and 2019, eight countries in the SENET region were included in the research - Czech Republic, Greece, Croatia, Romania, Russia, Slovenia, Slovakia and Serbia. In-depth interviews were conducted with:

1. the directors of the certification bodies responsible for defining, implementing and developing competence certification systems within their countries, and
2. the assessors of the certification bodies responsible for the preparation and implementation of adequate competence assessment.

The collected data were analyzed using the grounded theory approach and five main challenges of formal education in the field of project management were identified and will be presented and depicted with adequate quotations in the continuation of this paper. They include: the way of managing educational institutions, status quo in education system and slow adaptation to changes, late introduction of project management education to the system, insufficient competence of professors and insufficient connection with industry needs.

#### **3.2. Research results and discussion**

In the context of formal project management education, respondents recognize that there is a gap between what is expected in practice from people involved in project management and what educational institutions offer. Most respondents believe that educational institutions do not pay enough attention to the field of project management and do not give insight into the practical skills needed. The following are recognized as the main challenges of the formal project management education:

- the way of managing educational institutions  
*"When it comes to educational institutions, they are usually led by professors, and things are viewed through the prism of the academic world, and not enough from a business perspective."*

*"Programs, methods of teaching and working with students are changing too slowly, and when they are changed, they are changed by professors or departments, and often do not follow modern tendencies. There is no pressure from the Faculty administration for change, as well as the initiative to innovate the student learning system, especially if it is expensive."*

- status quo in education system and slow adaptation to changes  
*"The education system as it is has not changed for a long time. If we look at how higher education institutions work now and how they operated 20 years ago, not much difference is visible. And that's a big problem. They did not adjust. Successful business schools are adapting so much faster."*  
  
*"The world (in general, not just the project management world) is changing fast. The biggest drawback is the lack of curiosity and adaptability to change. My recommendation for the educational institutions is: ask your clients what challenges they have, review content, methods and forms of education, consider implementing attractive forms of education (games, simulations, online courses) and focus more on soft skills. "*
- late introduction of project management education to the system  
*"Education in project management is already necessary in pre-school education, and certainly later at all levels of education from elementary school to college. We need to achieve that, when young people are hired, they already know a lot about projects, project management and teamwork. Also, when the time comes, this approach could help us distinguish whether individuals are interested in working on projects or would be better off working on other processes in organizations. "*  
  
*"It is too late to start learning about project management at the faculty level. Children should already do projects together in elementary school, not independent tasks."*
- insufficient competence of professors  
*"I want to highlight the problem of knowledge, qualifications, experience and quality of work of lecturers from professors, assistants, laboratory assistants and others involved in project education. I find that someone who has not personally worked on any project cannot teach this field, no matter how good he/she is in teaching."*  
  
*"The biggest problem is when project management is taught by professors who do not have enough practical experience in the field. I find that project management can only be taught by those who are project managers themselves. Project management is not about theoretical concepts, but rather practical."*  
  
*"I think there are too few people who have experience as lecturers and project managers."*
- insufficient connection with industry needs and professional associations  
*"There is no good cooperation between companies and educational institutions in the development of programs and curricula, but the academic community has its own view of what education and training in the field should look like. I think that it is necessary to go to a company and see what needs they have, what they expect, what knowledge they lack and in what form they would like to receive it, then tailor it like that and not just look through the prism of educational institutions. "*  
  
*"There is a lack of teaching at the faculties about the projects and these courses should be raised to the level of compulsory ones. The biggest drawback is the preparation because the courses are not tailored to the needs of the company, and education should certainly not be ex-cathedra."*

*“The biggest problem from my point of view is the lack of relationship and understanding between educational institutions, companies and professional associations. Students learn about things that are of little importance within the companies and their practical experience is at a very low or even non-existing level. Once they start working, the whole process of education has to start over. If educational institutions would hear the needs of the companies and tailor their approach according to them, and then those individuals would be certified for the level of competence they have, it would be much easier for all of us to find the individuals with potential, develop and track their professional project management career.”*

#### **4. CONCLUSION**

As project management gains importance in the business of contemporary organizations, so does the need for competent individuals to manage projects in a professional way, and formal education plays an indispensable role in this respect. However, according to the empirical research conducted in the SENET region, its importance needs to be recognized and introduced into the education system at earlier levels of education, as in pre-school, primary or secondary school. Furthermore, it should be continuously aligned with the needs of the labor market and delivered using modern learning tools at a higher education level curriculum (such as case studies, simulations, games, software, etc.) by competent individuals who not only have good teaching skills, but also possess personal experience in managing projects. Finally, higher education institutions, employers and professional associations should cooperate and jointly monitor trends in the field, adapt to the needs of different market segments, and continually revise and improve their practices to develop key competencies in individuals and prepare them to work on projects in an existing complex business environment, as well as to provide them with an environment where they can continuously learn and improve.

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## **OCCUPATIONAL TRAINING WITHOUT COMMENCING EMPLOYMENT: ADVANTAGES AND DISADVANTAGES**

**Renata Relja**

*University of Split*

*Faculty of Humanities and Social Sciences, Department of Sociology*

*Croatia*

*renata.relja@ffst.hr*

**Toni Popovic**

*University of Split*

*Faculty of Humanities and Social Sciences, Department of Sociology*

*Croatia*

*tpopovic1@ffst.hr*

**Anita Marasovic**

*University of Split*

*Faculty of Humanities and Social Sciences, Department of Sociology*

*Croatia*

*amarasovic@ffst.hr*

### **ABSTRACT**

*Active Labour Market Policy (ALMP) aims to reduce unemployment by increasing the employability of specific categories of the unemployed. Occupational training without commencing employment, officially called Work, Internship and Transportation, is a form of the Youth Guarantee reform. This measure, which has been implemented since mid-2010 by co-financing the work of young people with no work experience, has both advantages and disadvantages that we wanted to explore more closely. Therefore, in May 2018, a survey was conducted on a sample of 207 young people up to the age of thirty, who were beneficiaries of the aforementioned measure in the City of Split. The study aimed to investigate the (dis-)advantages of occupational training without commencing employment, as well as the effects of the implemented measure on further employment. During the study, the majority of respondents were unemployed and limited-term employees. Prior to the implementation of occupational training, they expected interesting work assignments (71.5%), effective work relationships (86.5%), and adequate workspace and equipment (more than 80%). The respondents with a university degree did not rate occupational training more positively than those with lower education, nor did they mention its greater benefits in further employment. As for the main reasons in favour of the implementation of occupational training without commencing employment, the respondents emphasize the need for work experience of any kind, especially such in the professions which they were educated for, and the acquisition of formal work experience. In addition to their positive experiences, such as gaining new knowledge and acquaintances, they also highlight the negative experiences and shortcomings of the measure. These are, primarily, insufficient remuneration and equally poor job prospects after training, lack of acquired expertise, a feeling of working for free, as well as the "circularity" of the measure, which significantly impedes permanent employment in the workplace where the training was conducted. In conclusion, the measure mainly provides a temporary solution of youth unemployment and mitigates its proportions, contributing to an apparent reduction in the number of unemployed.*

**Keywords:** *occupational training without commencing employment, labour market, unemployment, youth, Croatia*

## 1. IN LIEU OF AN INTRODUCTION: THE POSITION OF YOUTH IN THE CROATIAN LABOUR MARKET

Unemployment is a current problem of many countries that are attempting to deal with it in the most effective manner. The term itself refers to all persons above the age limit for the economically active population who meet the following criteria (Ledenko, 2017, p. 105): (1) are not employed; (2) are available for work at any time; (3) are taking necessary steps in seeking employment. Croatia has a low employment-to-population ratio, which is what makes it different from an average OECD country. The youth unemployment rate is extremely high (36.6%), while the overall youth activity rate remains rather low, especially among males in the most productive age group. The high unemployment rate among the youth highlights the rigidity of the labour market. The low youth activity rate, on the other hand, reflects poor employment prospects and is associated with the "discouraged worker" effect. Unemployed persons stop looking for work because their previous attempts to find a job failed. The low employment-to-population ratio in Croatia is a result of the labour market's adjustment to numerous supply and demand shocks, where the main wave of adjustment reflected employment, rather than salaries. Employment dropped, while salaries mainly followed the increase of productivity. Many companies, especially those privatised, reduced the number of employees in order to stay afloat in the competitive market. However, the actual source of the problem in Croatia does not lie in high job cuts, but rather in the fact that few new jobs are being created (Rutkowski, 2003, p. 497-499). Unemployment among the youth, as an important human capital for both economy and the society as a whole, represents a cause of special concern. According to the data of the Croatian Bureau of Statistics, in May 2018 the youth unemployment rate in the age group 15-34 years was as high as 41.4%. Their employment, however, represents a crucial prerequisite for sustainable social and economic growth, especially with regard to the changing demographic picture of Croatia and its aging population. The youth unemployment rate is higher than in other age groups, whereas their employment is more sensitive to business cycle movements than the employment of middle-aged and older workers (Bilić, Jukić, 2014, p. 485-486). A significant rise in youth unemployment in the European Union has caused their successful inclusion into the labour market to become the central focus of political debates again. According to Eurostat data, 23.5% of youth in the age group 15-24 years were unemployed in the EU in 2013. In May 2018, the following unemployment rates by age were recorded in Croatia: 3.721 persons aged 15 to 19 years (2.6%), 12.930 persons aged 20 to 24 years (9.1%), 14.788 persons aged 25 to 29 years (10.4%) and 13.995 persons aged 30 to 34 years (9.9%)<sup>1</sup>. Unemployment and poor working conditions for the youth, accompanied by increasing job insecurity, create social and economic costs and as such represent a problem with long-term consequences not only for the individuals affected, but for communities, economies and societies as a whole (Bejaković, Mrnjavac, 2016, p. 32). Social problems in Croatia, intensified by a structural economic crisis and unsuccessful policies for its solution, affect the lives of youth and prolong their social exclusion. Their transition into adulthood has generally become more difficult. The period of formal education is becoming longer, whereas technological changes are demanding a more flexible and qualified labour force. The mentioned circumstances result in delayed labour market entry and later reaching of socioeconomic independence. Difficulties in finding work also contribute to later family formation as well as minimum involvement of youth in other public spheres, primarily the political one (Ilišin et al, 2003, p. 74). The matter of youth employment in Croatia is governed by a series of regulations, rather than by a single legal act. Some of these are: the Labour Act, the Employment Promotion Act, the Contributions Act, the Act on Scientific Activity and Higher Education, the Regulation on Intermediaries for Employment of Full-time Students and the Regulation on Activities Related to Employment. The Labour Act, as the basic legal act regulating work and employment relations in Croatia, does not recognize youth as a separate

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<sup>1</sup> See: [http://www.hzz.hr/UserDocsImages/stat\\_bilten\\_05\\_2018.pdf](http://www.hzz.hr/UserDocsImages/stat_bilten_05_2018.pdf) (accessed on 5 June 2018)

group whose employment should be regulated by a set of more specific rules (Ledenko, 2017, p. 109). People in this age group do find employment more quickly than those in other groups, but primarily limited-term employment. A small, but nevertheless significant share of youth enters long-term unemployment due to having insufficient or no work experience at all. Thus, they remain exposed to social exclusion and welfare dependency for most of their lives (Bejaković, Mrnjavac, 2016, p. 33). In modern-day society, the youth are faced with the necessity of accepting flexible forms of employment: undeclared work, limited-term employment, part-time work, self-employment etc. Such forms of employment put youth in a precarious position, primarily a position of insecurity and inequality (Koller Trbović, 2009, p. 102). Their unemployment carries negative economic, social and political implications, which are than manifested in the entire society. Fear of the future which is fuelled by unemployment results in delayed family formation and further birth rate decline (Bilić, Jukić, 2014, 493). In such circumstances, there is good reason to believe that an entire generation will become a “lost generation”, afflicted by decreasing prospects for long-term employment over time. Despite the positive measures of active labour market policies, which provide opportunities for further education and professional training, the best instrument for reducing unemployment may only be through the creation of new jobs (Bilić, Jukić, 2014, p. 501-502). Youth emigration changes the picture of society, which loses its technological potential, resulting in further changes of the country's demographic picture. A country without new-born children becomes a “society of old people” (Ciglević, Opalić, 2016, p. 121). One of the key elements in investigating the social position of youth is examining their position in the labour market (Ilišin et al, 2003, p. 74). Although previous research has shown that the youth are not a homogenous social group, their overall professional mobility is rather low. The youth lack knowledge and awareness on being able to initiate change themselves and to create their own business projects in order to solve the problem of unemployment (Ilišin, Radin, 2002, p. 15; Ilišin et al, 2003, p. 77; Relja et al, 2011). Transition increases the level of their insecurity. After completing formal education, they have no clear perspective of their possibilities for employment and professional development (Ilišin et al, 2003, p. 73-74). After graduating from university, the youth turn to the desks of the Croatian Employment Service where some of them get jobs below their qualifications, some in professions they studied for, whereas a growing number of them emigrate.

## **2. YOUTH AND JOB EXPECTATIONS: MISMATCH BETWEEN ASPIRATIONS AND JOB MARKET CIRCUMSTANCES**

The youth unemployment rate in Croatia is highest among those with primary schooling, followed by those with tertiary education, while it is lowest among youth with secondary school education (Bilić, Jukić, 2014, p. 490). Beck argues that modern-day society is coming to resemble a “risk society” which entails securing one’s subsistence in precarious conditions. Work and employment are the key areas that young people plan and consider ahead. In transition countries, the youth are in a less favourable position than their peers in more developed countries. Work and employment hold a high position within their value system, and unemployment is recognised as the most significant problem of their generation (Relja et al, 2011, p. 191-193). The educational composition of the population of Croatia, as one of the indicators of a society’s development and human capital quality, is exhibiting certain changes. On the territory of Europe, each new generation is in average more educated than the previous one. The same developments are present in the Croatian society as well, where a linear growth in the population’s level of education is observed. The younger the generation, the greater the share of those with secondary or tertiary education. The Croatian youth, however, finish their university education later than could be expected. The young with no formal qualifications, on the other hand, have a minimum level of competitiveness in the labour market and their life prospects are rather vague and uncertain (Ilišin et al, 2003, p. 60-63).

Although the youth of today have better education than earlier generations, their unemployment rate nevertheless remains twice as high as the average unemployment rate of the total population at the level of the European Union. In Croatia, it is three times as high. One of the main reasons of unemployment is the mismatch between the education system and the demands of the labour market. One of the solutions to reduce this mismatch lies in training for the labour market, in any form of vocational practice/apprenticeship, traineeship or internship. With its accession to the EU, the Republic of Croatia has accepted the challenge of better labour market regulation (Matić, 2014, p. 40). The gap between education and labour market demands is highlighted as the crucial factor in the youth's inability to achieve rapid social integration after completing formal education. In this regard, lifelong learning as an important factor in the new paradigm of a "knowledge society" is evidently neglected (Žiljak, 2005). The economy of knowledge and intellectual capital are becoming the most essential elements in achieving and maintaining sustainable growth and competitiveness. The Croatian labour market should thus be viewed in the context of globalisation processes and of the fact that our country is a full-fledged member of the European Union. We lack workers equipped with knowledge and skills that are necessary for the country's dynamic development (Ciglević, Opalić, 2016, p.121), primarily those in the field of information and communication technology (Perin, 2008, p. 59). Employers complain of the youth not having the necessary knowledge, skills, professional expertise or work experience. In this regard, the promotion and financing of active employment and job placement policies and programs is particularly important. Otto (2014) points out that programs and measures aimed at increasing youth employment are frequently associated with educational institutions, while not enough attention is paid to training and acquisition of practical skills in the workplace (Bejaković, Mrnjavac, 2016, p. 34). At the same time, the youth believe that success and employment require resourcefulness and creativity, whereas programs offered by educational institutions are outdated and remote from the actual practice. The greatest cause of concern is, however, their belief that good connections and acquaintances, which most of them lack, are vital in finding employment (Ledenko, 2017, p. 125). Educational policy should be a result of close cooperation and coordination with economic policy, in order not to fall behind market trends. Investment in science and education should not be viewed as an expense. Investing in an individual and his/her education is the only way to facilitate long-term (self-)employment (Bilić, Jukić, 2014, p. 491). One of the greatest problems faced by transition countries is the so called "brain-drain". Educated professionals and scientists are those whose knowledge contributes to the growth and development of the society. Their departure causes the country to lose a core portion of its invaluable human capital, thus jeopardising its future prospects. Youth emigration is also detrimental to the country's demographics, primarily since we are already an aging nation. The youth should therefore be motivated to stay in their own country by enabling them to gain knowledge which they will be able to use in their professional lives. Every educated young adult who leaves the country represents an enormous loss with far-reaching consequences both for the economy and the society in general (Bilić, Jukić, 2014, p. 494). Education plays a vital role in self-actualisation, as it fulfils the human need for understanding and creating the world by developing one's own abilities (Jukić, Ringel, 2013, p. 25-26). What makes the problems faced by youth within the education and employment system all the more difficult to solve is the lack of valid data and especially the total absence of key information. What Croatia lacks is an integral strategy aimed at improving the position of youth in society. It is important to (financially) secure mechanisms for extensive research of the labour market in order to collect data from various sources (Ilišin et al, 2003, p. 83-85). In a study conducted by Relja et al (2011) on a representative sample of students from the University of Split, the following results were obtained: 83.3% of youth found work important or very important. No more than 3.2% rated it as not very important or unimportant, while 12.3% attached medium importance to work. Furthermore, a statistically weak and insignificant correlation was observed between the grade point average



of students within the sample and the level of importance they attached to work in their everyday life. The majority of respondents (74.5%) believed work to enable human development, but also to represent a utilitarian value, since most of them (78%) saw it as a means to achieve financial security. A cause of concern in the context of transition countries is the fact that it is also believed to be a means to create contacts and connections which may facilitate unfair career advancement (Vukelić, 2008). As a result of such practices many young people are denied legal access to employment. The youth are aware of the social dimension of work. Most of them (62%) believe work to contribute to the development of the society. Some express negative attitudes on modern forms of work, primarily regarding the high levels of stress caused by competition and rivalry within the business environment (Relja et al, 2011, p. 200-201). In the same study, Relja et al (2011, p. 201-202) highlight the problem of unemployment of youth with a university degree who are willing to accept lower-qualification jobs. Most respondents (70.1%) rated work conditions in the European Union as being better than in Croatia, stating that their ideas, attitudes and behaviour were mostly undervalued in the Croatian society. According to the study by Ilišin et al (2013, p. 140), out of the one third of youth who are employed, almost a half indicate having valid reasons to seek better jobs in another place or country due to not being employed in the profession they were educated for.

### **3. OCCUPATIONAL TRAINING AS AN ACTIVE EMPLOYMENT POLICY MEASURE**

In times of crisis, the youth are in a particularly difficult position. They lack work experience and possess knowledge and education in areas that do not meet labour market demands. Measures to promote employment are used in attempting to curb the threats of unemployment trends (Ledenko, 2017, p. 106). Active labour market policy measures have a long history in developed countries. Such measures were, for instance, proposed by Keynes to governments of developed countries to combat the effects of the Great Recession they were affected by in the 30's of the last century. They were initially designed in correspondence with the principles of demand management, by promoting the supply of labour. In more recent periods, active labour market policies (ALMP) are used in combating unemployment, such as measures to increase employability of specific categories of the unemployed. ALMP measures should be targeted towards the hard-core of the unemployed, i.e. the category of the unemployed with extremely poor prospects of finding a job (Babić, 2012, p. 547). The Croatian Employment Service has been implementing Active Employment Policy measures (Croat. APZ), aimed at promoting (self-)employment, occupational training etc. Keeping in line with trends within the EU, Croatia is slowly putting a stronger emphasis on active measures rather than passive ones. In 2009, the EU Youth Strategy 2010-2018 was adopted, a document aimed at ensuring equal opportunities to the young both within the education system and in the labour market, but also at promoting active citizenship and social participation (Bejaković, Mrnjavac, 2016, p. 35). Occupational training without commencing employment is aimed at stimulating the employment of youth (up to 29 years of age). The measure is financed from the national budget of Croatia and from the European Social Fund (ESF), and its implementation began in mid-2010. Beneficiaries of the measure are the unemployed with tertiary or secondary education (Morosin, 2017, p. 12). Occupational training without commencing employment, officially called Work, Internship and Transportation, represents a method of delivery of the Youth Guarantee approach. In the course of 2011, conditions were created for more successful implementation of this measure in the labour market. The Croatian Employment Service provided a monthly remuneration for the beneficiaries of the measure in the amount of HRK 1,600.00. In the same year, the activity included 4,760 beneficiaries, 3,542 (or 74%) of which were women (Matić, 2014, p. 42). Pursuant to the Employment Promotion Act, this measure aims to secure initial work experience for the unemployed, thus making it easier for them to find actual employment in professions they were

educated for. After completing occupational training, the beneficiaries of the measure may take the professional qualification exam. The costs of the exam are covered by the respective public body with which the person concluded the occupational training. In 2013, an additional transportation compensation in the amount of up to HRK 1,000.00 per month was introduced for the beneficiaries. Based on the provisions of the Employment Promotion Act, at the beginning of 2015 the monthly remuneration for occupational training was increased to HRK 2,400.00. The Regulation on the Conditions and Selection Procedure of Candidates for Occupational Training without Commencing Employment in Public Bodies regulates the selection procedure of beneficiaries of the measure (Ciglević, Oparić, 2016, 122). „A contract on payments and obligations towards the intern is concluded between the Croatian Employment Service and the employer, a contract on remuneration and transportation costs is concluded between the Croatian Employment Service and the intern, whereas the employer and the intern conclude a contract regulating their mutual relations“ (Bejaković, Mrnjavac, 2016, p. 34). The period of training under the measure in question is usually 12 months, and cannot exceed 36 months (which is possible only in case of craft trades in which the intern has to gain the right to take the master craftsman exam) (Bejaković, Mrnjavac, 2016, p. 34). In case of large employers, the measure can be approved for as many persons they can secure mentorship for (Ciglević, Opalić, 2016, p. 123). In 2018, the remuneration for beneficiaries amounted to HRK 2,752.00 per month. The measure is aimed at preparing youth for their professional future, i.e. for future employment. Occupational training should help the beneficiaries gain the necessary knowledge, skills and competitiveness to enter the labour market with valuable and frequently required formal work experience. Occupational training is considered useful as it prepares youth (often with a university degree) for the labour market and increases their level of competitiveness (Morosin, 2017, p. 12). The measure involving subsidized employment of youth with no previous work experience had its advantages and disadvantages (Levačić, 2015, p. 7). Among the latter are the temporary nature of the measure and unsatisfactory results as compared to resources invested, while one of the advantages is surely the youth's acquisition of skills and work experience. For the most part, active labour market policies in Croatia achieved no significant impact, primarily due to a lack of strategically defined objectives (Matić, 2014, p. 40). Critics of the measure express doubt as to its outcomes, stating that it only provides temporary employment which is mostly followed by a return to unemployment. The measure's advocates, on the other hand, point out its purpose in helping youth to gain skills and basic work experience, which improves their starting position in the labour market (Babić, 2012, p. 548). In the period from 2009 to 2014 a significant growth was recorded in the number of beneficiaries of the measure (from some 450 in 2010 to over 15,000 in 2013). A study conducted by Ledenko (2017) showed that most beneficiaries found the measure useful, primarily emphasising the acquisition of practical knowledge and skills for future work in their professions (Ledenko, 2017, p. 122). The advantages of this type of state-subsidized employment for employers are twofold: it involves lower costs of employment of young labour force and at the same time serves as a good mechanism in the selection of candidates for long-term employment. According to Ledenko (2017, p. 124), the measure beneficiaries were generally satisfied with their training experience, and as much as 70% of them continued working for the same employer for some time after the conclusion of the training period. Employees of the Croatian Employment Service found that the total individual and organisational benefits of the measure outweighed its financial aspects, although employers undoubtedly welcomed the provision of "free" labour force as cost-effective. Active labour market policies are especially relevant in times of structural market changes, i.e. during so-called restructuring processes. They can have a social focus (such as public works programs, subsidies or state aids for creating new jobs etc.) or be directed towards strengthening human capital (such as additional trainings organised by employment service centres, job relocation subsidies etc.). Only registered jobseekers are entitled to become beneficiaries of either passive or active labour

market measures. Participation in active policy measures is often used as income support by workers who are no longer eligible for unemployment benefits (Obadić, 2003, p. 535). Recently, quite a lot of public discontent could be heard with regard to the occupational training measure. In cooperation with the Association of Croatian Trade Unions and the Croatian Youth Network, the Association of Independent Trade Unions launched an initiative called Vrijedim više (I am Worth More), which is aimed at improving the position of youth in the labour market. They are urging for the occupational training measure to be cancelled and replaced by internship again. They find the remuneration intended for the beneficiaries of the measure too low to provide for decent living and believe it to be one of the push factors of emigration as it impacts the overall decline in the price of labour. The members of the initiative believe the measure to have completely suppressed other forms of work and employment, serving merely as a clever ruse for short-term reduction of the unemployment rate (Morosin, 2017, p. 13).

#### **4. METHODOLOGICAL AND EMPIRICAL ASPECTS OF THE STUDY**

The subject of the study are the advantages and disadvantages of occupational training, which are analysed based on attitudes and experiences of former beneficiaries of the measure. The objective of the study is to investigate: (1) the reasons why respondents chose occupational training; (2) the new experiences gained through the implementation of the measure; (3) the financial dependence of respondents on their families during the implementation; (4) the effects on future employment; (5) the level of satisfaction with the implementation; (6) how well the respondents were informed on the measure. The research was conducted during May 2018 through a survey based on a questionnaire containing 24, mostly open-ended, questions. The sample included 207 respondents from the territory of Split. The respondents were young people, mostly up to the age of 30, who the measure is in fact targeted at. For the purpose of achieving the research objectives, the following hypotheses were formulated: H<sub>1</sub>: Respondents find the remuneration prescribed by the measure not to be sufficient for meeting their basic needs or proportionate to the complexity of work assignments; H<sub>2</sub>: Respondents with a university degree evaluate different aspects of occupational training more positively; H<sub>3</sub>: Women were financially more dependent on their families than men during the implementation of the measure; H<sub>4</sub>: Respondents with a university degree benefit more from the measure in terms of future employment; H<sub>5</sub>: Respondents mostly wouldn't participate in occupational training again; H<sub>6</sub>: Unemployed respondents are better informed on the measure than those employed.

##### **4.1. Structural features of the sample**

The share of female respondents participating in the study (80.7%) was higher than the share of male respondents (19.3%). Such a ratio is not surprising, since data from the Croatian Bureau of Statistics indicate a greater representation of women among the beneficiaries of the measure. As far as the age structure of respondents is concerned, the majority were persons aged 24 to 29 (78.3%). The second largest age group were persons aged 30 and more (12.6%), while the third group, with a share of 9.2%, were those from 18 to 23 years of age. Most respondents were holders of a graduate (66.7%) or undergraduate (17.4%) university degree, followed by those who had completed secondary school (15.5%). One respondent was a holder of a post-graduate degree (0.5%). It is to be noted that occupational training is not intended for persons with a level of education lower than secondary school, which is why those with primary school, for instance, are not included in the population of its beneficiaries. A third of the respondents reported that their household income exceeded HRK 3,000.00 (33.3%), while just under a half of them (40%) had some HRK 6,000.00 at their disposal. About a tenth of the respondents declared having a household income over HRK 12,000.00, whereas the remaining 4% had around HRK 10,000.00 in their household budgets. Given the general trend toward later transition of youth to adulthood, 73.9% of respondents were not married, as compared to only 22.9% who were.

The high percentage of respondents without children (83.1%) is also associated with the aforementioned factors, but also a result of their unfavourable position in the labour market and poor financial situation. Just under a half of the youth included in the survey were unemployed, but actively seeking employment (41.5%), and an equal percentage of them were limited-term employees. Only 15% were permanently employed, while less than 2% were not seeking employment at all.

#### **4.2. Expectations from the occupational training measure**

Most respondents had high expectations prior to participating in the measure. Almost all of them expected regular salary and transportation payments. At the same time, more than half (57%) did not believe that the remuneration amount would be sufficient to meet their basic needs. Furthermore, more than half (59.9%) did not think that the complexity of their work assignments would be proportionate to the remuneration they would receive. According to the results obtained, the first research hypothesis ( $H_1$ ) is accepted. In addition, most respondents expected interesting work assignments (71.5%), fair co-workers (86.5%) and an adequate workspace and equipment (more than 80%). It is to be concluded that the beneficiaries had quite high expectations from the measure: 75.4% hoped for better resumes based on their results and work assignments, while 81.2% expected to establish contacts for future employment. The most frequent reason of overall dissatisfaction among the beneficiaries was their general impression. The measure represented only temporary support which would most probably not bring them permanent employment. Only a third of the youth did not expect to remain with the employer even after the expiry of the measure. As one of the reasons for not being able to keep the employment, 9.2% mentioned nepotism as a typical "syndrome" preventing the employment of youth. Just under 40% of them nevertheless expected to be kept on even after the expiry of the measure. The respondents' answers to the open-ended question point to the conclusion that their basic reason for participating in occupational training was the need for any kind of work experience and especially the need for experience in the professions they were educated for. Among other important motives the respondents pointed out gaining formal and recorded work experience, which is required for most jobs, as well as the possibility of taking the professional qualification exam.

#### **4.3. Occupational training experiences and rating of various aspects of the measure**

An important element for understanding the unfavourable position of the beneficiaries in the labour market is the information on the types of organisations in which they used the measure. The majority of respondents participated in occupational training in public bodies (ministries, state agencies, civil service bodies, schools, hospitals, etc.) (as much as 77%), while only a fifth received their training in the private sector (21.8%). For only a minor percentage of respondents (1.9%), the measure was implemented in civil society organisations (community groups and associations). Respondents rated their overall satisfaction with their occupational training experience on the Likert scale ranging from 1 (not satisfied at all) to 5 (completely satisfied). Almost half (49.5%) stated they were not satisfied at all with the amount of remuneration/salary received. They were, however, completely satisfied with the regularity of salary and transportation payments. The measure did not fully meet their expectations in terms of professional development, mentorship, interesting work assignments and possibilities to improve their resumes, although they were mainly satisfied with those aspects of their occupational training. Almost a third of the respondents were extremely satisfied both with relations with their co-workers and with their work equipment and workspace. The answers provided point to the conclusion that the measure beneficiaries were relatively satisfied with its implementation but weren't optimistic about it in terms of the insufficient remuneration and poor prospects for future employment. Respondents generally had a negative attitude with regard to the wider impact of the measure, considering it to be of more benefit to

employers (rather than to youth as its actual beneficiaries). As much as 88.4% of them believed that employers used the measure in order to get free workers, whereas 44.3% thought that employers used it to create a "positive image of their organisation" in the eyes of the public. The second research hypothesis aimed to test whether respondents with higher education evaluated different aspects of occupational training more positively. The used Mann Whitney test showed a statistically significant difference only with respect to a single aspect. Respondents with a graduate university degree rated the possibilities of occupational training through lectures and workshops more positively ( $U= 1437,000$ ;  $Z= -3,146$ ;  $p=0,02$ ). Their rating of the remaining aspects of the measure was no more positive than the rating by other respondents. Therefore, the second research hypothesis is rejected ( $H_2$ ). Given the low monthly remuneration for occupational training, amounting to HRK 1,600.00 in 2010 and HRK 2,752.00 today, it is no wonder that as much as 73.4% of the respondents were financially dependent on their families during their occupational training. Their salaries were insufficient to meet their basic needs. The conducted Mann Whitney test established no statistically significant difference in this regard between men and women. Both groups were equally dependent on their families ( $U= 3275,000$ ;  $Z= -0,248$ ;  $p=0,804$ ), based on which the third research hypothesis is rejected ( $H_3$ ). More than half of the respondents (55.6%) felt as if working for free, being given work assignments not related to their profession at all, while a third of them were assigned unhelpful and discouraging mentors. Nevertheless, more than half gained the necessary skills and knowledge to take the professional qualification exam.

#### **4.4. Effects of occupational training on further employment**

Occupational training without commencing employment was introduced as a response to the increasing unemployment rate among the youth. The measure in question is aimed at providing them with professional experience which would, in the long run, increase their prospects for employment. One of the central questions arising from the intervention logic of occupational training concerns the position of the measure's beneficiaries in the labour market after its implementation. Although active labour market policies cannot directly affect the number of jobs in the market, they can nevertheless increase the beneficiaries' prospects for employment. According to the results of our research, formal work experience and the skills acquired within the measure were effective in less than a third of the respondents who stayed with the same organisation as employees. More than a half of the beneficiaries (54.1%), however, remain unemployed even after the conclusion of the measure, or work in jobs that are in no way related to their occupational training. The results obtained show that, for the most part, former beneficiaries of the measure have quite an unfavourable position in the labour market. They were kept on by the employers relatively rarely. A chi-square test was used to determine whether the beneficiaries with a university degree had a greater benefit from occupational training in terms of future employment. No statistically significant differences were established with respect to the following aspects: working for the same organisation after the expiry of the measure ( $\chi^2=4,061$ ;  $df=3$ ;  $p=0,255$ ), recommendations for their present jobs ( $\chi^2=1,020$ ;  $df=3$ ;  $p=0,989$ ) and working in jobs similar to their occupational training ( $\chi^2=2,140$ ;  $df=3$ ;  $p=0,554$ ). The results indicate that the fourth research hypothesis is to be rejected ( $H_4$ ), meaning that the respondents with a university degree had no greater benefit than those with secondary school. If participating in the measure again were possible, 44.9% of respondents would opt for occupational training in a new organisation, while 26.6% would choose the one where they had already been trained. More than a third of the respondents believe that they gained valuable working experience, but only because it is formally required for most jobs. An encouraging fact is that 41.5% of the beneficiaries stated to have gained quite a lot of important knowledge through the training, which, according to their answers to the open-ended question, provided them guidance towards the profession they had been educated for. They gained insight into the practical aspects of their professions, which, in their opinion, was what they lacked after completing formal education.

Respondents mostly would not participate in occupational training again (41.5%). However, a fourth of them would, due to money shortage in case of unemployment (26.6%), and a sixth of them in order to gain new knowledge and skills (15.9%). The results indicate the acceptance of the fifth research hypothesis (H<sub>5</sub>). Furthermore, more than half of the respondents consider themselves very well or well informed on the occupational training measure and continue to follow new developments when they encounter any new information. They are highly critical of the Croatian Employment Service regarding their implementation of the measure. Less than 2% rate the work of the service with the highest grade, while as much as a third of them give it the lowest ratings. The conducted Mann Whitney test established no statistically significant difference between the employed and the unemployed in terms of how well informed they were on the occupational training measure. Both groups were equally informed ( $U= 1239,500$   $Z= -0,606$   $p=0,544$ ), which indicates the rejection of the sixth research hypothesis (H<sub>6</sub>).

## 5. CONCLUSION

The employment of youth is a crucial prerequisite for sustainable social and economic growth. According to Beck, modern-day society is coming to resemble a "risk society" which entails securing one's subsistence in precarious conditions (Relja et al, 2011). The youth in Croatia are in quite an unfavourable situation when it comes to employment. Their position is worse than that of the remaining working-age population. In this regard, Active Labour Market Policy (ALMP) was designed primarily as a means to reduce unemployment by increasing the employability of specific categories of the unemployed. Occupational training without commencing employment, officially called Work, Internship and Transportation, represents a method of delivery of the Youth Guarantee approach. The implementation of the measure began in mid-2010. Various studies aimed at testing its efficiency showed that the measure had both its positive and negative sides. Therefore, wanting to explore the mentioned advantages and disadvantages of occupational training on the territory of Split more closely, in May 2018 we conducted a survey based on experiences of former beneficiaries of the measure. During the study, the majority of respondents were unemployed or limited-term employees. At the same time, a relatively small percentage of the beneficiaries remained employed on the same jobs where they previously completed their occupational training. The results of the study show that a part of those currently unemployed gained certain work experience and passed their professional qualification exams. The beneficiaries mostly expressed positive attitudes as to their overall occupational training experience but found the measure to be of most benefit to employers. What is more, some believed that the measure merely contributed to an apparent reduction in the number of unemployed. In their comments to our open-ended questions, respondents expressed negative attitudes regarding the amount of remuneration which prevented them from becoming financially independent from their families but also pointed out that it was not proportionate to the amount and scope of work involved. No significant deviations have been recorded as compared to previous research. For the last nine years, since it was first implemented in Croatia, the measure has not changed, other than with regard to the remuneration amount. Women remain more frequent beneficiaries of the measure. During the period of occupational training, both men and women are equally financially dependent on their families. Those with a university degree do not rate the measure more positively than other respondents, nor do they benefit more from it in terms of future employment. In view of the above, it is safe to conclude that our economy is stagnating and that the "society of knowledge" is developing slowly in our country. A majority of the beneficiaries of occupational training would not use the measure again, other than in case of unemployment or money shortage.

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## INVESTMENT EFFICIENCY OF TOURISM COMPANIES

**Catia Rosario**

*Centro de Pesquisa e Estudos Sociais, Escola de Ciências Económicas e das Organizações,  
Universidade Lusófona de Humanidades e Tecnologias,  
Campo Grande 376, 1749-024 Lisboa, Portugal  
Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal  
rosario.catia@hotmail.com*

### **ABSTRACT**

*The economic success of a country reflects the success of companies that make up the economic fabric of that country. Tourism is a sector that has a strong weight in the economic structure of many countries, and in some cases is responsible for most of the exporting economic activity. The growth of this sector of activity may boost job creation and increase overall revenues and income. It is considered relevant to evaluate and compare the investment made by companies in order to obtain better results. These results can be translated directly into the economy and in the increase in the number of tourists. In this sense, the present study was carried out in a group of 16 countries of Europe and the data was collected from the database PORDATA (Base de dados de Portugal contemporâneo) for the period of 1997 to 2016. For corporate investments, investments made by companies in the accommodation, catering and similar areas are used. In this case, the investment rate is analyzed. The analysis of the investments made with the results obtained in terms of the number of infrastructures created and their consequent impact on the increase of resident and non-resident tourists is presented. These analyzes are performed through multivariate data analysis, and the correlation structure between the various indicators considered and their evolution over the considered period is also presented. Through the structural equation models, it was possible to verify the mediating effect of the infrastructures created in the increase of the number of tourists.*

**Keywords:** *infrastructures, investment, tourism and tourist attraction*

### **1. INTRODUCTION**

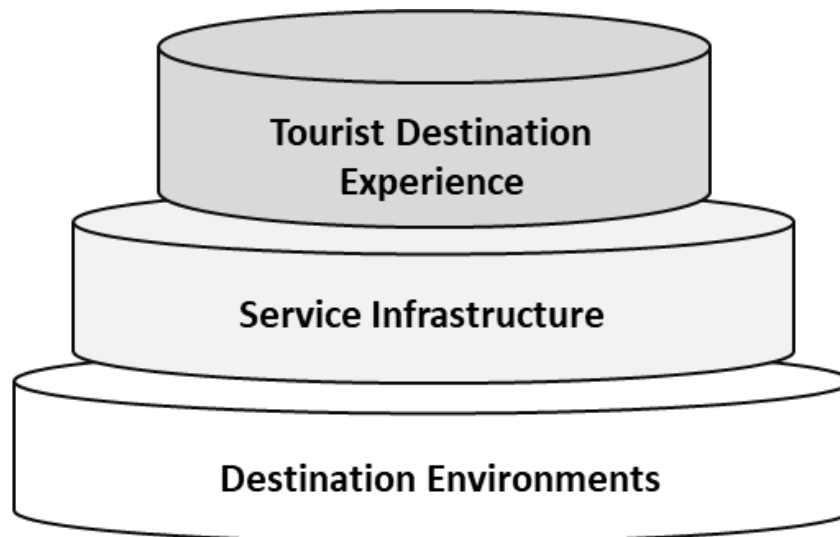
There are several studies and research that show the importance of the tourist sector in the economy of many countries. This sector has been experiencing very high growth rates and its weight in creating wealth of countries is increasing. Companies in this sector make investments in order to leverage their results by attracting tourists. The study presented here is an exploratory study, where the main objective is to analyze the impact that investments made by companies contribute to the increase in the number of tourists. This relationship is studied through the results of investments with a view to creating more infrastructures. The following is a brief review of the literature, which refers to the importance of tourism for the economy. It is also presented the importance of the creation of conditions, namely infrastructures, to attract tourists. This is followed by the presentation of the methodology used to relate the mentioned variables and to evaluate the mediating effect of the created infrastructures. This analysis is performed by type of infrastructure. The success of the investment is measured by the increase in the number of tourists, having been distinguished resident from non-resident tourists. Finally, the main conclusions, limitations and suggestions for future research that may contribute to enrich the knowledge about the success of investments made by companies are also presented.

### **2. LITERATURE REVIEW AND RESEARCH HYPOTHESES**

It is possible to find reference to numerous studies that prove the importance of the tourism sector in the economy of the countries (e.g. Teixeira & Morrison, 2004; Frechtling, 2013 and Andraz & Rodrigues, 2016). Being a sector of high economic impact, the world tourism



organization highlights that tourism regards to activities performed by visitors during their travels and stays in places other than their usual environment, for a consecutive period of time of less than 12 months, for leisure, business or other reasons not related to the pursuit of a paid activity in the place visited. As highlighted by Dinis (2010) the expansion of tourism has its origin in the Industrial Revolution and is related to three factors: the increase of leisure time, the progress and development of the means of transport, and the improvement of living standards mainly in the most developed countries. As noted by the World Tourism Organization (WTO) over the decades, tourism has grown steadily and is one of the fastest growing sectors of activity. Tourism is currently linked to development and covers a growing number of new destinations. This dynamic has made tourism an essential factor for socioeconomic progress. And according to WTO tourism turnover is equal to or higher than that of oil, food or automobile exports. Tourism has become a major player in international trade and at the same time represents a major source of income for many developing countries. As tourism is seen as a set of services and products, the authors Murphy, Pritchard and Smith (2000) elaborated a conceptual model of destination product. Figure 1, referring to this model, presents infrastructures as a fundamental part of this value chain. The economic impact of investments and the structure of the sector has been studied over the years. The growth of this sector of activity can be justified by the investments made. These investments occur at various levels, such as offering different products and / or services, marketing, infrastructure, among others (e. g. Daniel, 2010; Frechtling, 2013 and Banerjee, Cotta & Clowlez, 2016).



*Figure 1: A conceptual model of the destination product (adapted from Murphy, Pritchard and Smith, 2000)*

This research is exploratory, and the main objective is to analyze the impact of infrastructure investment on the creation of more tourist facilities and their impact attracting resident and non-resident tourists. In order to achieve the proposed objective, the following research hypotheses are defined:

- **H<sub>1</sub>**: Business investment leads to the opening of more facilities (hotels, campsites and tourist residences)
- **H<sub>2</sub>**: The increased number of facilities (hotels, campsites and tourist residences) leads to an increase in the number of resident tourists.
- **H<sub>3</sub>**: The increased number of facilities (hotels, campsites and tourist residences) leads to an increase in the number of non-resident tourists.

### 3. METHODOLOGY

The data collected are annual referring to the period from 1997 to 2016 and are related to a set of 16 countries: Austria, Belgium, Slovenia, Slovakia, Spain, Estonia, France, Italy, Latvia, Lithuania, Poland, Portugal, United Kingdom, Czech Republic, Romania and Sweden. We used the PORDATA database, Database of Contemporary Portugal, organized and developed by the Francisco Manuel dos Santos Foundation. The selection of the indicators that represent the variables under study are:

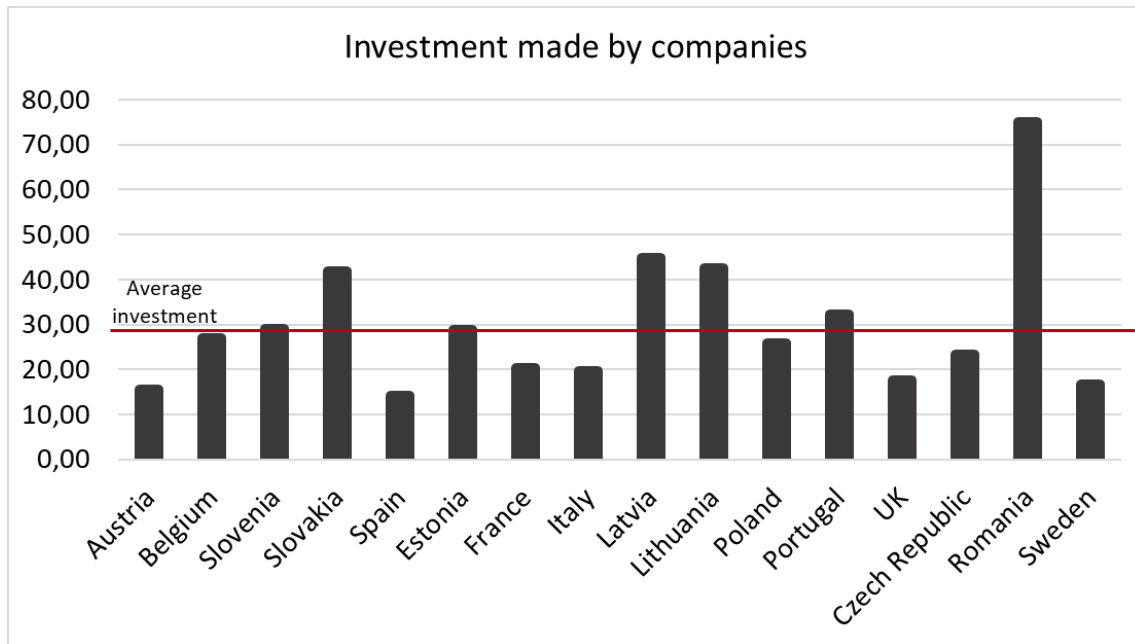
- Average rate of investment by tourism and hotel sector enterprises - Gross investment in tangible assets is defined as the investment during the reference period in all tangible assets. This includes new and existing tangible capital goods purchased or produced for own use with a useful life of more than one year, including non-produced tangible assets such as land. Investments in intangible and financial assets are excluded.
- Tourist accommodation - Collective tourist accommodation includes hotels and other similar establishments such as guesthouses, motels, holiday villages and apartments, campsites, youth hostels, holiday camps or rural tourism. Considering here the data disaggregated by hotels, campsites and other tourist facilities.
- Tourists Entrance - An entry occurs when a person arrives at a collective accommodation establishment or a private tourist accommodation, giving rise to an entry registration. Both adults and children are counted, even if their overnight stays are free of charge. Arrivals of non-tourist guests (e.g. refugees) are excluded. Visitors who only stay for a few hours during the day at the establishment are also excluded. Tourists may be residents whether their country of origin is where they are resident or not if their origin is from another country.

Regarding the available data, it was found that around 2.87% of the data were missing. Such value is reduced and is not considered compromising. Data were imputed based on the average of available data for the country and the variable under study. Based on the variables presented above, a path model (structural equation models) was formulated in order to analyze the impact that investments made by companies have on the opening of more tourist facilities and the consequent impact on the increase of tourists (residents and non-residents). For the elaboration and analysis of the structural equation models, the IBM SPSS AMOS software (v.21) was used. The quality and validity of the models were analyzed based on the analysis of residues, significance of the parameters and individual reliability of the variables.

### 4. RESULTS AND DISCUSSION

The 16 countries under analysis do not show uniformity in terms of average investment made by companies in the sector under study, as can be seen in Graph 1. Romania, Latvia, Slovakia, Lithuania, Portugal and Slovenia have an average investment rate higher than the other countries.

*Graph following on the next page*



Graph 1: Average corporate investment rate

These results are contrary when it comes to analyzing the number of hotel facilities in each country. In this case, Austria, Spain, France, Italy and the United Kingdom have far more hotels than the other countries under review. Regarding the number of campsites, France, Italy and the United Kingdom are once again ahead, with a much higher number than the others. Finally, as regards the number of tourist residences, Spain, Italy and the United Kingdom are the countries with the highest number of tourist facilities. Regarding the number of tourists per year, resident and non-resident tourists were analyzed. The average number of resident tourists is roughly double (20,736,368) than the number of non-resident tourists (12,949,206). When analyzing each of the countries, it can be seen once again that France, Spain, Italy and the United Kingdom have values above these averages. The theoretical model of paths formulated using structural equation models is presented in Figure 2. As it turns out, the infrastructures created are mediating variables, in order to analyze their impact on attracting resident and non-resident tourists.

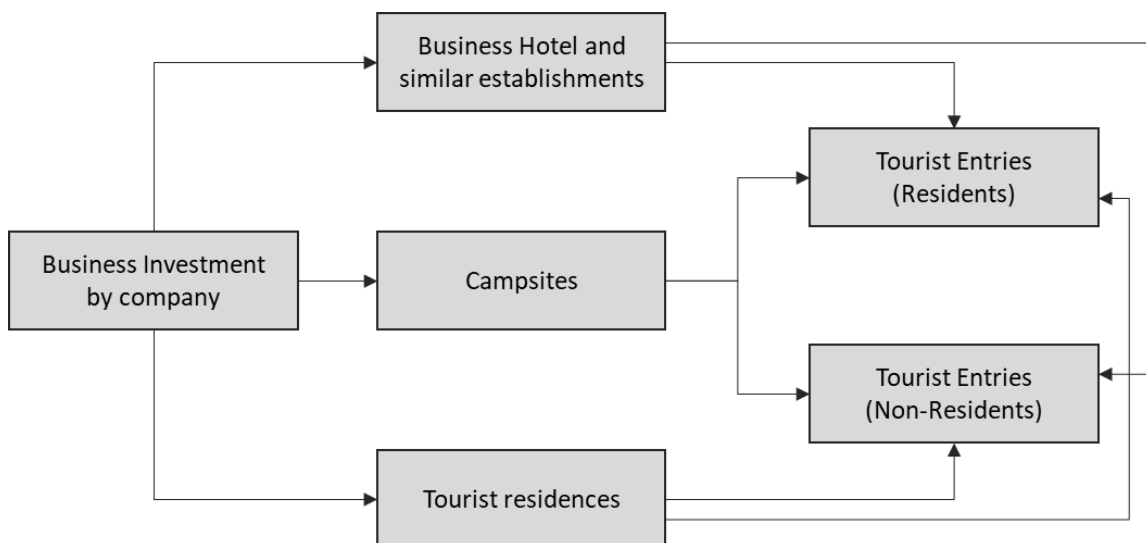


Figure 2: Mediation model of the infrastructures created in the relationship between corporate investment and number of tourists

The results of these models are presented in table 1. This table shows the statistically valid models and the impacts of each variable (positive or negative). From the obtained results, the following observations stand out:

- 10 of the 16 countries considered were validated, with reasonable quality of the formulated models.
- The following observations refer to countries whose models have been validated: Austria, Spain, Estonia, Italy, Lithuania, Latvia, Poland, Portugal, United Kingdom and Romania.
- As can be seen, the investments made by the companies, considering a one-year offset, did not lead to the expected impact. In other words, there is no positive impact on the increase of infrastructure of the 3 types considered.
- Still, in most countries the positive impact is on the rise in the number of hotels, suggesting that this is the type of infrastructure that captures the most investment.
- Spain, Latvia, Portugal and Romania, where the infrastructure considered has a positive impact on the increase of resident and non-resident tourists. These countries have the best results compared to the others.
- As for the impact of the increase in hotels, its positive impact on the increase of tourists was found in about 70% of cases. The increase in campsites was approximately 80% and the increase in the number of residential tourist facilities had a positive impact of around 90%.
- Regarding the research hypotheses formulated, we have the following conclusions:
  - Hypothesis 1 has not been validated.
  - Hypothesis 2 has been validated.
  - Hypothesis 3 has been validated.

Country	SEM Validated (V) or Not Validated (NV)	Impact of investment on opening:			Impact of opening of hotels on the increase of:		Impact of opening of campsites on the increase of:		Impact of opening of tourist residences on the increase of:	
		hotels	campsites	tourist residences	Resident tourists	Non-resident tourists	Resident tourists	Non-resident tourists	Resident tourists	Non-resident tourists
Austria	V	0,79	-0,89	-0,81	-0,87	-0,44	0,12	0,34	0,05	0,34
Belgium	NV	0,61	0,49	-0,45	0,12	-0,14	-0,30	-0,48	0,78	0,38
Slovenia	NV	0,09	0,03	0,02	0,91	0,57	0,00	-0,21	0,33	0,69
Slovakia	NV	0,18	0,39	0,40	-0,36	-0,38	-0,70	-0,51	0,64	0,76
Spain	V	-0,41	-0,47	-0,66	0,56	0,42	0,16	0,31	0,44	0,46
Estonia	V	-0,70	-0,63	-0,54	0,25	-0,07	0,06	0,06	-0,02	0,93
France	NV	0,53	0,55	-0,59	0,42	0,58	-0,17	-0,09	0,95	0,76
Italy	V	0,25	0,07	-0,45	-0,03	-0,12	0,21	-0,03	0,94	0,92
Latvia	V	-0,09	-0,68	-0,53	0,38	0,40	0,27	0,37	0,56	0,61
Lithuania	V	-0,70	-0,82	-0,66	0,48	0,60	-0,05	0,11	0,70	0,46
Poland	V	0,56	-0,29	-0,14	0,96	0,64	0,00	-0,45	0,19	0,53
Portugal	V	-0,12	0,04	-0,02	0,81	0,32	0,31	0,20	0,30	0,89
UK	V	0,74	-0,82	-0,45	-0,49	0,00	-0,32	0,44	0,30	-0,10
Czech Republic	NV	-0,18	-0,19	0,13	0,84	0,82	-0,12	0,11	-0,07	-0,28
Romania	V	0,41	-0,58	-0,61	0,37	0,47	0,21	0,14	0,90	0,93
Sweden	NV	-0,52	-0,66	-0,79	0,40	0,32	0,17	0,33	0,58	0,44

*Table 1: Results of the mediation models of the infrastructures created and the relationship between business investment and the number of tourists*

## 5. CONCLUSIONS, LIMITATIONS AND HYPOTHESES FOR FUTURE RESEARCH

The results highlight the discrepancy between countries. Spain, Latvia, Portugal and Romania are the countries that are most effective. Although the increase in infrastructure through business investments has not been confirmed. These countries are more effective in attracting tourists through the relationship between increased infrastructure and increasing numbers of

resident and non-resident tourists. The differences may be due to the efficiency of investments made by companies in each country or may be associated with other factors such as weather conditions. Another limitation is that no other variables were included and could explain the increase in the number of tourists in the countries analyzed. Thus, future studies may include more explanatory variables that improve the analysis performed. In this study the results were analyzed only as an increase in the number of tourists. Future studies may include other outputs such as job creation in this sector of activity, wealth created by the sector, among others. Finally, it should be noted that the exploratory study presented sought to address the efficiency of the investments made by the companies. This objective has been partially achieved, thus providing insight into how infrastructure investment efficiency issues can be addressed in this sector of activity that has such a high impact on the economy of countries.

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## COMPARISON OF HIGHER EDUCATION SYSTEMS OF FINLAND AND TURKEY

**Sinem Dal**

*Ministry of National Education, Turkey*  
*sinem.dal@hotmail.com*

### **ABSTRACT**

*It is possible to see that there is a linear ratio between the development levels of countries and the rates of having qualified universities. In this research two countries were selected as sample. Finland is one of the developed countries with having highly qualified education system and becomes one of the successful countries according to the PISA results. Turkey has a score under OECD average in PISA exam. That's why these two countries were taken as samples and compared in terms of their higher education system. As these two countries were compared, this research is a comparative education research. In this research, one of the qualitative research methods, comparative survey model is used. First of all, literature review was conducted and acts of higher education systems were examined then similarities and differences were compared. One of the reasons for selection of these two countries is that they have not been compared in terms of higher education systems in a critical way. As data resources; websites of education ministries of these countries and scientific articles published in scientific magazines were used. Document review method was used in data collection. According to the findings, in Finland universities are more independently working institutions. However in Turkey all universities are bounded to a supreme institution which is called Higher Education Institution. In two countries, universities are similar in terms of administrative hierarchy, a rector and three vice-chancellors are the supreme administrators. The most prominent difference between two systems is student selection systems. In Finland, universities can determine their own criteria to select students, but in Turkey a central exam is carried out for all kind of universities. As a result, it is seen that in Finland universities are more independent than the universities in Turkey.*

**Keywords:** *Higher education, comparison, education system*

### **1. INTRODUCTION**

Universities, which are higher education institutions, are very important institutions in science production, in raising the necessary manpower for countries and in contributing to the development of countries. It is necessary for their social progress to work and produce science without being fully dependent on any other institution. When the world is examined in general, it is possible to see that there is a linear ratio between the development levels of countries and the rates of having qualified universities. Giving the necessary support and importance to the universities as a country (especially for developing countries) will help to reach the conditions of the era which is called as Industry 4.0. In this research, Finnish higher education system and higher education system of Turkey were compared. According to the last PISA results Finland is on the 5th rank in science, Turkey is on the 52nd rank (Milli Eğitim Bakanlığı, 2015). It is known that the most important way of having a world-class educational institution is the human capital. Qualified and effective education system makes the society a leader in most of areas. That's why having a qualified education system is crucial for countries' future development. Universities are on the most important level of education systems as they present human capital to the market. With this research, it is aimed to clarify the differences and similarities of the countries' higher education systems, one with a high level in PISA while the other with a low level.

## **2. METHOD**

This section includes information about the research model, data sources, data collection and analysis.

### **2.1. Research Model**

As it is aimed to compare the higher education systems of Finland and Turkey, this research is an educational comparative research. Qualitative research method was used, comparative scanning model was preferred. For this purpose, literature review was conducted first (Delibaş, 2007). In this research Turkey and Finland were chosen as sample according to the PISA results which best shows the comparative indicators between two countries. Finland is one of the top countries according to this international exam whereas Turkey stands under the OECD average. The education system is compared very often. However the higher education systems of these two countries are not critically compared so often. That's why these two countries were taken as samples.

### **2.2. Data Sources**

In the research, websites of education ministries of these countries, articles published in scientific journals and other related websites such as OECD were examined.

### **2.3. Data Collection and Analysis**

Document analysis, which is one of the qualitative research methods, was used to collect the data in the study (Yıldırım ve Şimşek, 2011). While collecting data the process followed as; accessing documents, checking originality of documents, understanding and interpreting documents and using data. Data were analyzed accordingly. To ensure validity and reliability; data were collected in the most up-to-date form and then presented for expert review.

## **3. FINDINGS**

In Finland The Ministry of National Education and Culture is responsible for planning higher education system, science agencies and research institutes (Ministry of Education and Culture, 2019). The Finnish higher education system comprises universities and universities of applied sciences. The universities conduct both education and research, universities of applied sciences conduct research and development and they are multi-field institutions of professional higher education (Finnish National Agency for Education, 2019). Universities offer educational and research opportunities and provide theoretical knowledge; universities of applied sciences offer multi-disciplinary professional development opportunities, focus on practical skills and engage in industry development projects. The Finnish higher education system is regulated by the Bologna Declaration. The aim of the process is to facilitate the transition of students from one European country to another and to improve the quality of European higher education (Finlandeducation, 2019). The fields of study in universities are; theology, humanities, law, social sciences, economics, psychology, educational sciences, natural sciences, agriculture and forestry, sports sciences, engineering and architecture, medicine and dentistry, health sciences, veterinary medicine, pharmacy, music, fine arts and theater and in universities of applied sciences; humanities, social sciences, business and management, natural resources and environment, technology-communication, natural sciences, social services, health and sports, tourism, service. Bachelor's degree, master's degree and doctorate degree are offered in universities. In universities of applied sciences, open education can also be provided with undergraduate, graduate and doctoral degrees. The legislation gives autonomy for higher education institutions and due to this autonomy they can make independent decisions on their administration, education, research activities and plans (Eurydice, 2018). For example universities determine their own selection criteria for students to enter higher education.

Universities choose their own students independently. Candidate students can apply to four different universities with the same application form. The Bologna process seems to have emerged with the aim of increasing the quality in universities, however it is the determinant of what the student will learn, what he / she should learn and what information s/he should have as an "output". This hyper-bureaucratic structuring transforms universities according to the needs of the labor market and makes academicians conduct researches in line with the mentality of the business world for their research choices (Appleton, 2009; Morgan, 2010). The process causes uniformity and this is just for the use of global market and raise the rate of employment (Puhakka, Rautopuro and Tuominen, 2010). Despite all the criticism and reactions, The Bologna Process addresses geography and the number of member countries continues to grow. Besides this Bologna process, Finland has a high share of international students. The share of international students rose from %6 to %8 between the years 2010- 2017 and it is above the OECD average. Among 24-65 year olds the average of having doctoral degree was % 1.2 which is very close to OECD average of % 1.1. Holding a tertiary degree also decreases unemployment level in Finland. As education level increases earning gets better. People who have tertiary education is %40 more than individuals with upper secondary education. Unemployment rate by educational level (tertiary education) is %4.2 in Finland (OECD, 2019). To sum up, higher education institutions are autonomous institutions and responsible for the development of their own activities as well as their own education and research. As part of the government, the Ministry of Education and Culture directs and finances the activities of higher education institutions. The aim of Finland's higher education policy is to develop higher education institutions as an internationally competitive institution, where each institution meets regional needs (Ministry of Education and Culture, 2019). In Turkey, Higher Education Institution is responsible for directing the activities and policies of universities. It was established in 1981. Universities are not that independent institutions as they are bounded to the Higher Education Institution. For example they cannot choose students on their own, in Turkey a centralised understanding prevails the works. A national exam is carried out and student selection is done accordingly. This prevents universities from determining their own criteria for selection. As for the administrative structures, the rector is the top administrator and s/he is appointed by the government, universities cannot choose the rector with the participation of their academicians. That's another indicator of being dependent. Universities should be more independent for more qualified researches. When unemployment rate is examined by educational level (tertiary education) it is possible to see that %18.7 of young people is unemployed (Türkiye İstatistik Kurumu [TUIK], 2019). In Turkey, among 24-65 year olds the average of having doctoral degree is under %0.5 and the rate of foreign students in Turkish universities is % 1.5. By entering doctoral programme students are expected to expand their knowledge base, produce and create (OECD, 2019). That's why it is important to have more qualified graduates from doctoral programmes. In Finland, it is spent 17.541 USD per student for tertiary education in a year, however in Turkey it is 10.510 USD (OECD, 2019). Finland is one of the countries having no tuition fees and generous student-support system. Students do not pay for tertiary education. In this country more than % 55 of students benefit from scholarships and grants (OECD, 2015). In Turkey if students pass the national exam and enrol to a public university, s/he does not pay tuition, however they pay much for private universities which are getting more in number. Higher Education Institution announced that in Turkey universities are divided as Research and Application Universities (Yükseköğretim Kurumu, 2018) as it is in Finland. However, the system is new and it has not been settled yet. In this comparative research, the higher education system of two countries (Turkey and Finland) have been explained here. To sum up, the findings are given in Table 1 below.



*Table 1: Comparison of higher education systems of Finland and Turkey*

HIGHER EDUCATION SYSTEM OF TURKEY	HIGHER EDUCATION SYSTEM OF FINLAND
Higher Education Institution is responsible for universities	Ministry of Education and Culture is responsible for universities
Students do not pay for university education (public universities)	Students do not pay for university education
Private institutions are independent	Private institutions are government-dependent.
Students are selected with a centralised exam	Universities can determine their criteria to select students.
Rate of unemployed university graduates is % 18,7	Rate of unemployed university graduates is % 4,2
Foreign student rate % 1,5	Foreign student rate % 8,2
Rate of having doctoral degree is under % 0,5	Rate of having doctoral degree is % 1,2
Rector is the top administrator	Rector is the top administrator

As it is seen in Table 1 statistical rates of two countries are far different from each other. In Finland rate of unemployed university graduates is lower than the rate in Turkey. In Finland, universities are preferred from other different countries; however, it cannot be said for Turkish universities. In Turkey there is an institution called Higher Education Institution and all the universities are bounded to this institution. Universities are not that independent; their policies are determined by this institution. On the other hand, in Finland Ministry of Education and Culture is responsible for universities like the other education levels (primary, secondary, high schools). As it is seen in the acts of Ministry of Education universities are more independently working institutions. They can determine their own criteria to select students and they can choose their administrators on their own. In Turkey there is a centralised management structure. The administrator, rector, is being appointed by the government and students are being selected through a nationally conducted exam. One of the important difference between the two countries is the structure of private universities in Turkey. These private institutions are independent, not government-dependent universities. However in Finland private institutions are government-dependent not independent (OECD, 2019).

#### 4. CONSLUSION

The development of universities can positively affect the development levels of countries. Therefore, higher education structures, how they work, student selection, education programs, student assessment systems are very important. In this comparative research, two different systems are compared and it is found that universities should be independently working. In lots different researches it is concluded that independence levels of universities should be increased (Gedikoğlu, 2013; Çelik and Gür, 2014; Özcan and Çakır, 2015; Gökbel and Seggie, 2015) and they should work on critical topics without anxiety to reveal the problems and suggest solutions. It is also concluded that unemployment rates in Turkey among university graduates is higher than the rate in Finland. Moreover the number of people with doctoral level is lower in Turkey. To make science and production, this number should be increased. Because for effective research and development works qualified personnel is needed (Tezcan, 2018). It is possible to see similarities between these two countries. For example the hierachical structures of universities are similar.

Universities are divided as Research and Applied Sciences in both countries. However student selection systems are different; in Finland universities determine their own criteria, they evaluate the students who apply for the programmes, in Turkey a national exam is carried out for selection and universities do not determine their criteria to select among the students who apply for the entrance. This prevent universities to find the most suitable students for the suitable programme. This may seem as a disadvantage for the universities in Turkey but it is also important to note that there is a significant population difference between the two countries. Finland's population is less and the number of students is much lower when compared to Turkey. Therefore, it may be easier for students in Finland to be evaluated and settled in universities and employed when compared to students in Turkey. As for Bologna process, it has caused to make students concentrate on finding a high salary job, they do not have any desire to widen their knowledge on a particular subject (Honkimäki, 2001). Universities should teach to think in a critical way and deepen knowledge. Focusing on a well-paid job and study with this specified curricula will prevent individuals from having broad horizons, they cannot do different things if they lose their jobs, and universities from making effective science. That's why it is important to deepen knowledge, think critically and be versatile. Within the lights of the findings it can be suggested for the researchers to work on university independence and its effects on qualified education, how effective are universities to provide employment to the graduates and how effective are they for countries' development in accordance with globalisation and Bologna process.

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# SEAPORT - CITY COOPERATION ON THE EXAMPLE OF THE CITY OF GDYNIA

**Slawomir Skiba**

*Gdynia Maritime University, Poland  
s.skiba@wpit.umg.edu.pl*

## **ABSTRACT**

*Seaports are the backbone of the maritime transport infrastructure, constituting one of the most important links in the entire supply chain. As highly complex and technologically advanced facilities with numerous logistics networks, they have an impact on the immediate and more distant surroundings in which they operate. In addition to commercial opportunities or the value generated for the state budget, seaport activities affect the local environment and the general public. The purpose of the article is to analyze and assess the functioning of the Port of Gdynia, and in particular to identify the areas within which the facility affects the city and the life of its residents.*

**Keywords:** *port infrastructure, economic environment, seaport*

## **1. INTRODUCTION**

The growing global trade and current logistics trends related to the change in the needs reported by consumers and technological advancement have led to a situation in which the largest ever volume of cargo is transported by sea. Thus, ports have grown to play an extremely important role in supply chains, becoming logistics centers rendering a wide spectrum of services - not only for cargo, but for vessels as well. Seaports, as highly complex and technologically advanced facilities which form numerous logistics networks, affect both the immediate and more distant surroundings in which they are located. This concerns not only the growing commercial opportunities or the value they generate for the state budget, but also their social or environmental impact. This is not any different for the Port of Gdynia, which has always been a centerpiece in the lives of the Gdynia residents, given that its construction gave rise to the city itself. At a time when Gdansk was not a part of Poland, it was precisely the Port of Gdynia that served as the main gateway for Polish trade as one of the principal ports in the Baltic Sea. Today, the Port is a symbol of the fight for freedom, in addition to having a high historical and sentimental value for the inhabitants of Gdynia.

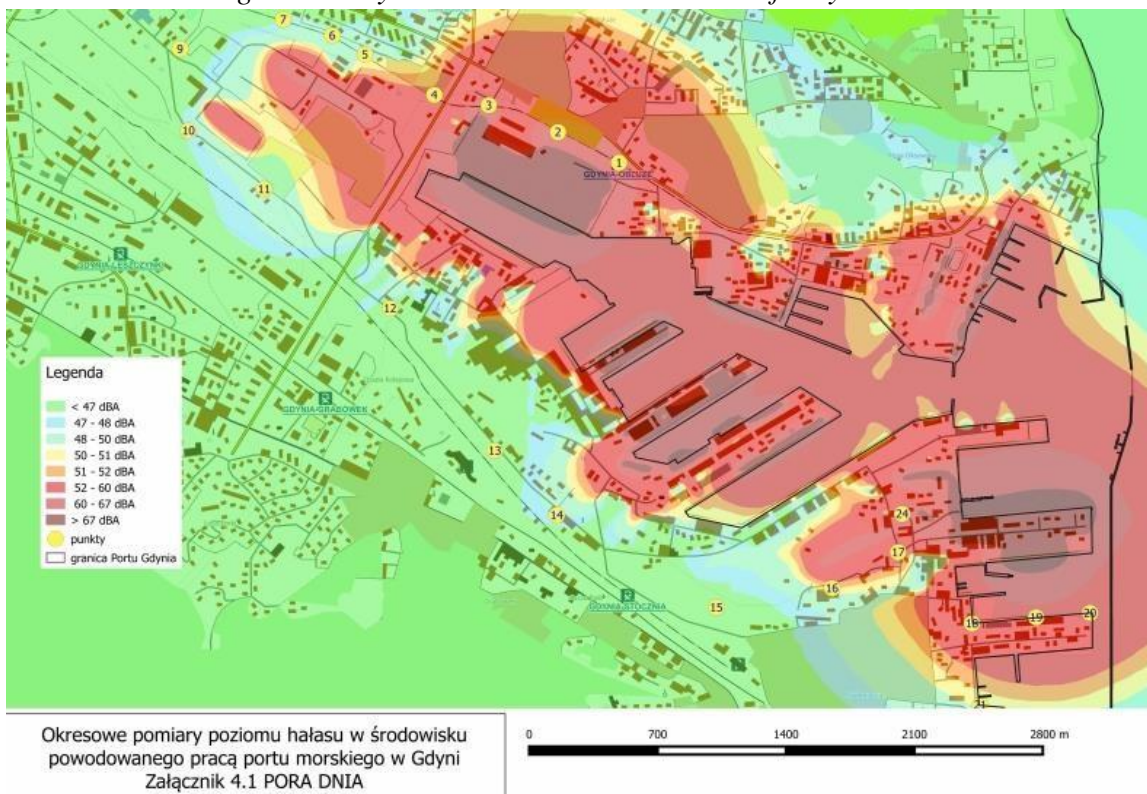
## **2. THE POSITIVE AND NEGATIVE IMPACT OF SEAPORTS**

Seaports perform a number of functions related to the basic nature of their services, yet it would be unwise to neglect the impact they have on domestic or regional economy as well. Port operations generate economic activity, create added value in the area, and stimulate the labor market (Maczak, 2016, pp. 24). An increase in the volume of transshipments carried out in a port attracts business entities which then embed in the port's landscape, both directly and indirectly through TSL. The development of seaports leads to the creation of a prosperity zone in port regions, thereby pushing into emergence economic growth poles (Grzelakowski, 2009, pp. 26). The functioning of the port sector favors GDP growth. Port production generates revenues that cover the labor costs of employees and expenses related to obtaining raw materials or receivables from land lease (Biernacki, 2012, pp. 30). Tax duties are imposed on many activities related to the operation of port facilities, with the main sources of such revenues at port level coming from VAT, PIT, CIT, excise duties, and customs duties. Meanwhile, at regional and local level, key revenues are drawn from PIT and CIT, alongside property tax revenues. In 2018, the management of Polish seaports paid to the state budget PLN 40.6 billion in taxes: VAT, excise duties, and customs duties.

This is almost 10% of total such revenues in the entire domestic budget. In 2018, taxes and customs revenues due by ports were PLN 18.1 billion more than in 2017, marking an increase of 80.3%. The scale of transshipments in ports has a direct impact on taxes paid by their management boards and relevant private operators, including Poland's right to keep 20% of customs duties when goods are cleared in an EU country for the first time. An example is the DCT Gdansk, the only hub in the Baltic that handles cargo arriving from the Far East, which paid as much as PLN 10 billion in taxes in 2018 (Wnp.pl, 2019). It is also worth mentioning how ports can boost tourism. Port facilities serving passenger ships, namely cruise ships and ferries, enable handling tourist traffic and therefore generate revenues. It is estimated that the average tourist on a cruise trip who arrived in 2018 at a port in Pomeranian Province spent EUR 80 during their visit (Port Gdynia, 2018). Not only that, in cities where passenger-carrying vessels dock for an overnight stay, even higher revenues can be obtained from strictly tourist services such as: hotel accommodation, transportation, cuisine, guidance and piloting, agency, or information services (Hącia, 2011, pp. 624). Such businesses have to pay taxes arising from their activity, which then feed the local and state budget. Port activities fuel the economy, generating revenues in many sectors and providing inflows to many budgets, and also creating jobs. Having said that, the transport infrastructure can also have a negative impact on the local community. This refers mainly to external costs of transport not incurred directly by users or operators of this system (Kwaśnikowski, Bińczak, 2017, pp. 239), which are of particular importance because of the harmful effects they can pose to human health and life, as well as to the environment. They include:

- noise and vibration emissions,
- environment pollution,
- increased accident rate,
- congestion (Burdzik, Kabot, Cieśla, 2014, pp. 1727).

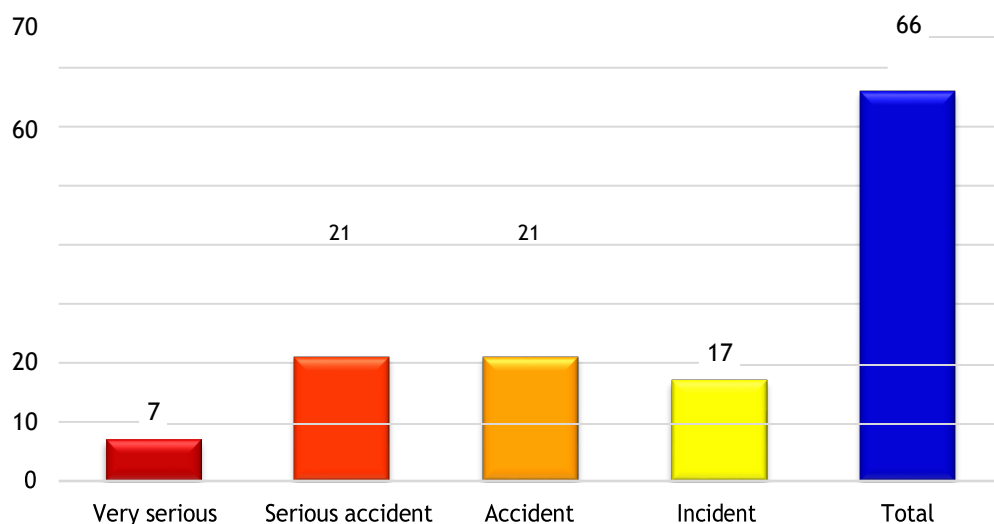
Figure 1: Daytime noise levels in the Port of Gdynia in 2015



Source: Port of Gdynia, 2017.

External costs of maritime transport can arise both during a sea voyage and while a ship is docked in port, but their impact differs depending on the place of origin (Skiba, 2017, pp. 229-236). Vibration and noise emissions are of particular concern when a ship is docked in port, such as during the operation of port facilities and cargo handling. Large port facilities conducting transshipment operations, both during the day and at night, may generate noise at a level comparable to a busy road frequented by vehicles (Barańska, Deja, 2014, pp. 1696). Noise evaluation measurements performed at the Port of Gdynia in 2015 found that the permissible standards were exceeded. Figure 1 shows the extent and frequency of daytime noise generated by the Port of Gdynia. It can be observed that the highest noise levels are recorded at port quays. Environmental pollution that negatively affects air and water quality is another problem regarding the operation and development of sea transport activities. The main issue here is the emission of gases such as sulfur oxides, carbon oxides, nitrogen oxides, or of solid particles. It should also be noted that ships are legally required to use fuels of various types, depending on the zone in which they are located. However, their functioning may cause daily emissions to the atmosphere of even several dozen tons of harmful compounds (Witkowski, 2016, p. 468). Air pollution also arises in ports as a result of the ship's dockage, transshipments and other handling operations. In addition to the emission of harmful gases into the atmosphere, water quality may also be affected as a result of leaks caused by failures, illegal rinsing of ship tanks, or due to poorly protected cargo residues or water used to clean the hold (Stankiewicz, Gwiazdowicz, Sobolewski, 1994). Although the accident rate in maritime transport is relatively low compared to other modes of transport, the incidents that occur tend to be very hazardous, meaning they can have a high environmental, human and economic cost. In 2018, for example, the Polish State Commission on Maritime Accident Investigation, whose task is to investigate accidents involving ships registered in Poland or incidents that took place in Polish waters, was notified of 110 accidents and incidents, and in 66 cases further investigation was launched. Figure 2 shows a breakdown of the number of accidents and incidents by type in 2018.

Figure 2: Breakdown of the number of accidents and incidents by type in 2018



Source: Państwowa Komisja Badania Wypadków Morskich, 2018, pp. 7.

In total, seven very serious accidents involved nine vessels, three of which sank (one fishing boat, one fishing trawler, and one commercial yacht). It is also worth adding that many accidents occur in port areas, where large vessels perform complicated maneuvers within a limited space, and port employees must demonstrate knowledge of many rules and great

responsibility. It is especially here where even a small mistake can be tragic, not only because of repairs costs, but human costs as well. Another undesired phenomenon is congestion, which is most often associated with road transport but which extremely often occurs in seaports. Congestion tends to be the result of the lack coordination of operations, such as inefficient transport of cargo from the port, which means that ships have to wait for loading or unloading. Congestion in a seaport entails the necessity of incurring costs, such as fees related to the operation of ships that use other fuels during their dockage in port, and also triggers delays in delivering goods to their destination (Wilk, Pawlak, 2014, pp. 11118). Location of seaports in city centers leads to a situation in which a greater number of vehicles move along the main roads, causing congestion, noise, as well as other nuisances to residents such as unpleasant smells or a very particular landscape that may not be to everyone's liking.

### **3. THE TOURISM ATTRACTIVENESS OF A CITY AND PORT REGION**

Seaports have a significant impact on the shape of cities and regions, not only because of the positive or negative aspects related to their activities and development, but also resulting from how they influence the life of a port city population. Nowadays, the desire to work out competitive advantage does not apply only to ports, as port cities themselves are also involved in the fight to attract potential tourists (Kozłowska, 2014, pp. 73). Tourism attractiveness is a complex concept, which can be defined in the simplest way as natural or non-natural features that make a city or region considered worth visiting (Bąk, 2011, pp. 7). It is, thus, the force by which an area attracts potential tourists, and this force is determined by a number of factors:

- the multiplicity and quality of non-natural and natural assets that constitute the main premise for tourism development in an area,
- tourism development rate,
- accessibility of the region in terms of communication and providing a sufficient level of mobility,
- level of pollution (Rapacz, Jaremen, 2011, pp. 136).

The notion of tourism attractiveness may refer to cities, regions, localities or specific objects, and it can be assessed either objectively or subjectively by tourists and residents (Rapacz, Jaremen, 2011, p. 136). Tourist values that are behind the desire to visit a given place can be divided into two groups - natural and anthropogenic (Bąk, 2011, pp. 7). The natural values are mainly climatic or landscape conditions, while the anthropogenic factors include elements related to human activity, such as: architecture, buildings, e.g. museums or places of religious worship, but also any musical, religious, cultural or sports events (Gaworecki, 2003, pp. 125-126). Gdynia, a port city with the population of approximately 250,000, has many tourist values, resulting from both natural and anthropogenic factors. In addition to having access to the sea, as much as 14,000 ha, 46% of the city area, is green (Rada Miasta Gdyni, 2017). The greater part of the greenery is owed to the Tri-City Landscape Park, although there are also three natural urban reserves in Gdynia: Kępa Redłowska, Kacze Łęgi, and Cisowa. The city's major driver of tourist traffic, especially in the summer season, is of course its proximity to the sea. In Gdynia, there are several bathing areas located in the districts of Śródmieście, Babie Doły, Orłowo and Redłowo, as well as undeveloped beaches in Oksywie and Kolibki. Aside from natural values, which largely determine tourism attractiveness, Gdynia also boasts many attractions related to history, culture, or modernist urban architecture. One of the most important such sites, and a symbol of the city, is Kościuszko Square where ships such as Dar Młodzieży, Dar Pomorza and ORP Błyskawica sometimes dock at the quays. Also nearby is the Sea Towers, Gdynia's tallest building. In addition, there is a wealth of other places and sites potentially attractive for tourists, such as the light rail going to Kamienna Góra, the Seaside Boulevard, or fortifications and museums.

Furthermore, a strong cultural agenda consisting in concerts, festivals and sports events can also markedly boost tourism in a city or region. Port cities are increasingly tapping into their specific characteristics to offer residents and tourists different opportunities to enjoy maritime culture and leisure – from regattas, through shows, to local food crawls. However, it is not just the natural and non-natural values that decide the tourist potential of a city or region. Other factors are also at play, including affordability, overall atmosphere, or the local lifestyle (Kula, 2013, pp. 248). Moreover, optimal spatial development plays an important role, too, as it indicates the degree to which the area is adapted to handle tourist traffic, both in terms of providing access to tourist attractions and offering the necessary existential conditions for travelers (Guzik, Strzelczyk, 2014, pp. 24). By existential conditions, we mean, of course, accommodation and catering services. Accommodation is extremely important from the standpoint of tourism, especially in the case of overnight stays. There are many such establishments in Gdynia - from hotels, hostels and holiday resorts, to guest rooms and private rooms. In total, Gdynia is home to 13 three-to-five-star hotels, 14 hostels, 3 students' dormitories, and one youth guesthouse. This offer is further expanded by two seasonal holiday resorts and nearly thirty establishments operating as guest rooms. An increasing percentage of residents now rent their flats or rooms seasonally.

#### **4. THE ASSESSMENT OF SEAPORT-CITY COOPERATION IN GDYNIA - ANALYSIS OF RESEARCH RESULTS**

The survey method was used to assess the degree of satisfaction of Gdynia residents with the location and impact of the Port of Gdynia on their daily lives. Gdynia residents were the subject of the study, while the goal was to collect data concerning their opinion on the seaport. The questionnaire was uploaded to a social networking site. A total of 160 respondents participated in the study, of which 60% were women. The largest group, as many as 80%, fell within the age range 18-40. The majority were holders of higher-education diplomas and have lived in Gdynia for over five years. The level of satisfaction with the standard of living in the city - measured against opportunities to find employment, administrative and social conditions, visual aesthetics and safety - were rated at nearly 4 out of 5 points. Among the factors most frequently indicated by respondents, and affecting the assessment of the quality of life in Gdynia, the number of jobs, transport accessibility, landscape and amount of greenery were mentioned. More than half of the participants lived more than 5 km away from the port, while 30% lived within the range of 3-5 km, and the rest lived in close proximity to the port – within a 2 km radius. Analyzing the responses, it can be observed that the quality of life in Gdynia was rated negatively only by people living in the immediate proximity to the seaport (within 0-2 km). Most residents of the areas located about 3-5 km away described the quality of life in the city as either good or very good, and so did respondents living farther than 5 km away from the administrative borders of the port facility. Therefore, a correlation exists between the distance of the respondents' place of residence from the port area, which in turn affects how they assess the quality of life in Gdynia. Respondents gave similar answers with reference to the distance of their workplace from the port area. The collected data shows that only people who work in close proximity to the port - up to 2 km and from 3 to 5 km – assessed the quality of life in Gdynia negatively. As in the case of the distance of the place of residence from the port and the level of satisfaction with the standard of living in Gdynia, here also the distance from the port area is correlated with the ratings of the quality of life in the city. Respondents whose workplace was located more than 5 km away from the administrative borders of the port most often rated their level of satisfaction with the standard of living as either good or very good. Interestingly, some rated the quality of life in Gdynia at 4 or 5 out of 5 points, despite the close proximity of their workplace to the port. It should also be noted that such assessment could have been influenced by the fact that most of the respondents were port employees or worked in related



industries. The research shows that the most bothersome aspects for residents include congestion generated by the port, as well as air and water pollution and the negative impact on the fauna and flora of the Baltic Sea. Factors indicated as the least bothersome were the impact on the city's safety and the impact on its landscape. Having analyzed the responses, it appears the degree of nuisance of individual factors was most often estimated as either moderately bothersome or neutral, especially in the case of those respondents whose place of residence or work was more than 5 km away from the administrative borders of the port. This level increased along with the proximity of respondents' place of residence or work to the port. Looking at the responses from residents living 3 to 5 km away from the port, we observe that factors such as congestion, water and air pollution or unpleasant smells caused by transshipments are considered bothersome. In what concerns respondents whose place of residence or work is within the 2 km radius, the degree of nuisance caused by individual aspects increased. Air and water pollution generated by port activities and congestion in the vicinity of the port were most often referred to as very bothersome. Unpleasant smells arising from transshipments, increased noise and vibration levels near the port area, as well as changes in the city's landscape, were given the average rating of 4 points on a five-point scale. Summing up, it can be seen that the nuisance of negative aspects related to the operation of the Port of Gdynia decreases along with the distance of both the place of residence and work of the respondents from the administrative borders of the port. Factors resulting from port activities, most often rated as very favorable, concern primarily the ability to create new jobs and stimulate city development, e.g. by building roads. Another highly rated aspect was the stimulation of the development of industry, business, and the impact on Poland's attractiveness as an investment hub. Most of the positive aspects of port activities were assessed by respondents as either important or very important. Taking into account the findings of this research, the less important benefits of the port include providing access to alternative forms of travel, stimulating the development of tourist establishments, and supplying revenues to local governments. As many as 70% of respondents rated the impact of the Port of Gdynia on the residents' lives as either definitely positive or rather positive. The average of 3 out of 5 points was recorded for the satisfaction with the standard of living in the city, with the port's impact being described as either neutral or rather positive. Respondents who rated the quality of life in the city as good or very good most often indicated the rather positive or definitely positive impact of the port's activities on the city and its residents. It can be deduced from the data analysis that the attitude of Gdynia residents towards the Port is reflected in their assessment of the level of satisfaction with the standard of living in the city. A low assessment of the quality of life in Gdynia was associated with a negative perception of the port, whereas high scores in this category were indicative of a positive assessment of the port's activities. The research shows that the perception of the investments planned in the port, the purpose of which is, among others, to increase the volume of transshipments, also depends on where one lives or work. Having said that, the vast majority of respondents described the planned investments as positive. The data obtained from the survey suggests that the attitude to planned investments changes along with the distance of respondents' place of residence from the port. Those who show a positive attitude towards the expansion of the facility tended to live in areas located 3-5 km or more than 5 km away. It can therefore be assumed that the perception of the planned port investments is correlated with the where one lives, or more precisely, how far away from the port one lives. Somewhat different responses were obtained when investments were paired up with workplace location, revealing a correlation between the two in which the farther away one works from the port, the better their perception of the port's economic expansion. Having said that, some residents assessed the planned investments as positive despite being employed at a workplace located in close vicinity of the port (0-2 km). This, however, may have been due to the fact that those respondents were port employees or worked in related industries.

## 5. CONCLUSION

Today's seaports are highly complex facilities serving a wide range of functions, and there are several factors that determine their market position. Seaports must build and improve their competitive edge by adjusting the market offer and quality of services, which is dictated by the crucial importance of maritime transport in today's trade. The Port of Gdynia has for years played a particular role in the lives of the city's residents, due to its historical and sentimental value. Over the years, the facility underwent a significant transformation to become a leading transshipment facility in the Baltic Sea. In spite of the many investments that have been made, more are still needed to maximize the port's potential and reap a number of benefits associated with its activities. Given the location of the Port of Gdynia in the city center, resulting from the specific trajectory of its creation, the Port has a significant impact on the daily life of Gdynia residents. Apart from providing employment to many people, it also drives up Poland's domestic economy and stimulates the development of both the city and the region. The conducted survey research found that respondents agree with the statement that the seaport has a positive impact on the everyday life of local residents. Furthermore, the presence and operation of the facility are a contributing factor in residents' assessment of the quality of life in the city regarding aspects related to the port's activities, mainly the fact of generating new jobs and stimulating the city's development thanks to the funds obtained from taxes. However, due to the aforementioned location of the Port of Gdynia, residents whose place of work or residence is located in close proximity to the administrative borders of the seaport must deal with the negative effects of port activities, the most bothersome of which include congestion and the pollution of air and water. The study ultimately identifies a correlation in which these aspects become less bothersome the farther away from the port area one lives or works.

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## METHODOLOGICAL ASPECTS OF ASSESSING THE MARKET STRUCTURE: CONCENTRATION AND EFFICIENCY

**Sofia Lyubyashenko**

*Novosibirsk State University of Economics and Management, Russia  
lubsofia@yandex.ru*

### **ABSTRACT**

*The article describes the growth trend of market concentration in Russian industries which is the result of the firm's competition for a leading position in the market. Antitrust policy in Russia and foreign countries is aimed at countering the formation of cartels. Their identification is associated with great difficulties. The article proposes a methodological approach to assessing the level of concentration and the results of industry activity, if firms have formed strategic groups (cartels). The essence of the approach is to use the apparatus of the theory of industrial organization in the study of oligopoly markets. The initial version of Cournot, in which coalitions act as market participants, is taken as the basis. This approach allows us to evaluate the effectiveness of the industry on the basis of parameters such as profit, output of coalitions and enterprises, average total costs, industry profitability (Lerner index), as well as calculate the real level of market concentration taking into account the tendency of cartelization firms. The actual level of concentration corresponds to a certain number of coalitions and their composition, which functioning gives the best approximation to the statistics of production volumes and shares of enterprises in the market.*

**Keywords:** *Concentration, cartel, efficiency, oligopoly, strategic group*

### **1. INTRODUCTION**

The growth of concentration in the Russian industry markets is an objective process, which is explained by the desire of firms to increase their market shares and take a leading position. Considering the monopoly power as a key to the company development, inevitably raises the question on how to achieve it. To reach reach this objective, market players use not only mergers and acquisitions as the tools, but also informal interactions: the formation of strategic groups (coalitions, cartels). In all these cases, the concentration level increases. This article shows that the number of strategic groups in the industry, as well as the composition of the enterprises constituting the group, jointly determine the results of the market functioning. At the same time, an industry structure with a higher level of concentration often demonstrates higher performance than a structure with a lower level of concentration. In this regard, it is necessary to objectively assess the processes of the concentration growth in relation to the performance of enterprises and industries in order to prevent state unjustified sanctions against companies. Since the interests of producers and consumers are different, the state, when enforcing the antitrust policy should find a reasonable compromise. The fundamental conclusion of the theory of industrial organization is the causal relationship between the level of concentration and profitability of the industry. The ongoing transformation of the sectoral structure of the Russian industry indicates the desire of firms to act in a coordinated manner in order to achieve higher profits. Therefore, it seems relevant to study the processes of concentration in the strategic groups formation. The article proposes a methodological approach to the assessment of the concentration associated with the informal amalgamation of enterprises.

## **2. ANTIMONOPOLY REGULATION IN RUSSIA: DEALING WITH ANTI-COMPETITIVE AGREEMENTS**

The observed changes in the structure of Russian industries, manifested in strengthening oligopoly and increasing the concentration, are the result of the competitive struggle of companies for the leading position in the market. Such transformations are accompanied with large global mergers and acquisitions, both between competitors in the relevant commodity markets ("horizontal" transactions) and between participants in the relevant segments of the global value chains ("vertical" transactions). In the case of such transactions, the Federal Antimonopoly Service monitors the economic concentration, the growth of barriers to entry into the market, the strengthening of the incentives for anticompetitive concerted actions, the change in the market share of a merged company as a result of the company transaction. The strengthening of inter-company interaction and the desire of the participants to create cartels in domestic and foreign markets is also an important aspect of the analysis in the context of the increasing globalization of the world economy, the rapid development of digital technologies. Such actions lead to technological and socio-economic transformations of traditional markets. Coordination of companies' actions in the digital economy can have significant consequences both for the competition and for the dynamics of the Russian industry technological and innovative development. Annually, agreements of firms in the Russian commodity markets are revealed annually by the joint efforts of the RF Federal Anti-Monopoly Service and law enforcement agencies. Cartel cases account for a significant proportion of the total number of anti-competitive agreements. Cartelization is considered to be a serious problem for the state, as a result the society suffers loss from monopoly power. Meanwhile, choosing a behaviour strategy in the market, the company considers possible losses resulting from the collusion detection and the benefits. Under the conditions of unstable markets, subjected to cyclical fluctuations of demand, fierce competition from foreign players, in the industries with excess production capacity, burdened by high production costs, the organization of the cartel can become a tool for the long term survival with no decline in the sector performance. Thus, it is necessary to view the consequences of economy cartelization at different angles, in order to prevent the formation of 'harmful' and take advantage of 'desirable' cartels. Statistics shows that most often anti-competitive agreements are detected in the field of repair (roads repair in particular), construction, food markets, transport, the purchase of medicines, including by tender. Currently, the situational application of the provisions of the law "On protection of competition" prevails in the practice of the RF Federal Anti-Monopoly Service in the cartel detection. Law enforcement has an accusatory bias, the charges are stated prior to the selection of the evidence base. An objective economic analysis is not being carried out in the course of the investigation, the boundaries of commodity markets, the composition of sellers and buyers are often incorrectly determined, and economic indicators of companies' activities, indicating the absence of negative consequences for society, are often not taken into account. A priori, it is believed that the cartel is evil. Decisions of antimonopoly authorities are often based on the circumstantial evidence. A substantial number of antitrust authorities' decisions are of poor quality, are not backed by insufficient evidence and often lead to unfounded accusations and incorrect conclusions about the company influence on the market, resulting in administrative and criminal liability.

## **3. RESEARCH METHODOLOGY**

### **3.1. Problem statement**

Determining the level of concentration in a coordinated environment remains a challenge. Official concentration indices neither reflect the actual level, nor they allow to prove the informal relations of rivals. When strategic groups are formed, the actual level of concentration is significantly higher.

The number of strategic groups in the industry, as well as the composition of the companies comprising the group, jointly determine such indicators as profitability in general, average total costs, reflecting the efficiency of resource use, and the results of market functioning - price and volume of sales of goods. At the same time, an industry structure with a higher level of concentration may be more efficient than a structure with a lower level of concentration. The model of market structures functioning, well known in the theory of industrial organization, can be used as a tool to assess the level of concentration and to study the impact of the concentration on market activity. The original version of Cournot is used as the basic. Let  $TC(q_i) = TFC_i + \alpha_i q_i + \beta_i q_i^2 + s_i q_i$  ( $i=1(1)n$ ) be a function of aggregate total costs of enterprises, where  $q_i$  is the volume of goods offered by the  $i$  enterprise to the market,  $TFC_i$  is aggregate fixed costs of the  $i$  enterprise, and  $s_i$  is the average transport costs. Then the concept of profit maximization by strategic groups (coalitions) assumes the definition of production volumes and their supply to the market by each coalition, a single price for the goods and production volumes at each enterprise from the solution of the following problem:

$$\begin{aligned} \max_{Q_k} \Pi_k(Q_k) &= P(Q)Q_k - TC_k(Q_k), \quad k = 1(1)k_0 \\ \sum_{k=1}^{k_0} Q_k - Q &= 0 \\ \sum_{i \in I_k(k_0)} q_i - Q_k &= 0, \quad k = 1(1)k_0, \quad \bigcup_{k=1}^{k_0} I_k(k_0) = \{1, 2, \dots, n\} \\ q_i &\geq 0, \quad i=1(1)n. \end{aligned} \tag{1}$$

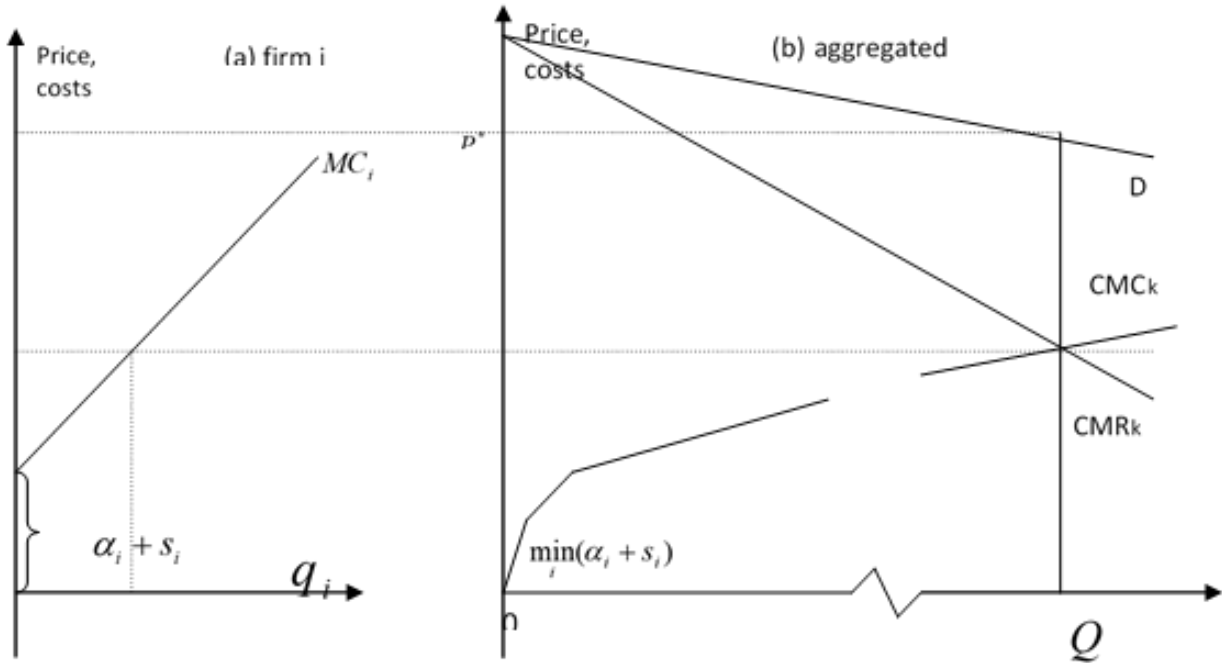
where  $Q_k$  is the production volume of coalition  $k$ , the number of which is equal to  $k=1(1)(n-1)$ ;  $I_k(k_0)$  is a part of coalition  $k$  (the set of numbers of enterprises, constituting coalition  $k$ ), the number of which in the industry is equal to  $k_0$ ;  $Q$  is cumulative (industry) supply of goods on the market equal to  $\sum_{i=1}^n q_i = Q$ ,  $P$  is the price of goods on the market. In the analysis of equation (1) the assumption about the linearity of the inverse demand function  $P = a - bQ$  is accepted. The economic interpretation of the equation's solution is as follows. Since there is an organization of aggregate output by coalitions, the greatest profit takes place in the distribution of the output between the enterprises in the coalition, when they are equally effective and their marginal costs are equal; profit maximization requires the equality of the value of the total marginal costs to the total market marginal profit of the coalition:

$$CMR_k(Q_k) - CMC_k(Q_k) = 0, \quad k = 1(1)k_0$$

Thus, the solution of the equation required the construction of a function of total marginal costs (the horizontal sum of which is the coalition's proposal). Given the quadratic nature of the aggregate total costs function  $TC_k(Q_k)$ ,  $k=1(1)k_0$  the total marginal cost function has the linear form  $CMC_k(Q_k) = V_k + W_k Q_k$ , where  $V_k$  and  $W_k$  are the parameters of the last section of the direct piecewise linear total marginal cost function. Picture 1 is a graphical interpretation of the company joint aggregated production/output in the coalition at different production and transport costs. Picture 1 a) shows the marginal cost function of firm  $i$   $MC_i = \alpha_i + s_i + 2\beta_i q_i$ . Total profit reaches its maximum when  $CMR_k(Q_k) = CMC_k(Q_k)$ , which corresponds to the price  $P^*$  and output  $Q^*$ .

The intersection point of the  $CMR_k(Q_k)$  and  $CMC_k(Q_k)$  curves is projected on the ordinate axis and the intersection of the line with the marginal cost function curves of enterprises determines profit-maximizing output volumes  $q_i^*$ ,  $i=1(1)n$ .

Figure 1: Graphic interpretation of the aggregate output in the coalition



Source: Scherer, 1997, p. 231-235

If the industry is represented by  $n$  enterprises, the number of coalitions is  $(n-1)$ . The number of options for grouping enterprises into a coalition, even taking into account the restrictions imposed by the permissible level of market concentration, can be quite substantial. The solution of equation (1) for a specific number of coalitions and the membership of certain enterprises in these groups does not have a generalizing character. Therefore, it is necessary to study the

behaviour of the industry profit  $\Pi(Q) = \sum_{k=1}^{k_0} \Pi_k(Q_k)$  indicator for all the values of the coalitions number ( $k_0$  is a variable) and for different composition of enterprises forming a group (the set is  $I_k(k_0)$ ,  $k=1(I)k_0$ ). The analysis of the maximum values of industry profit depending on these parameters allows us to interpret the patterns of the coalition formation. The solution of equation (1) in order to establish the interrelation between the structural concentration and profitability of the industry leads to the result:

$$\frac{P - \overline{MC}}{P} = \frac{HHI_{k_0}}{|e_p|}, \quad (2)$$

where  $\overline{MC} = \sum_{k=1}^{k_0} CMC_k(Q_k) s_k$ ,  $HHI_{k_0}$  is the index of the concentration level (Herfindal-Hirschmann index) in the industry when enterprises form a number of coalitions equal to  $k_0$ ,  $s_k$  is the market share of coalition  $k$ .

Currently, the HHI of the concentration level is calculated in accordance with the number of enterprises and the share of output that correspond to the statistical reporting characterizing the procedure of their registration with the state authorities. However such statistics does not reflect real trends: i.e. coordination of activities, agreements on the consumers and market-sharing, groups and coalitions in a 'loose' form. The equation (2) becomes a strict inequality:

$$\frac{P - \overline{MC}}{P} > \frac{HHI}{|e_p|} \quad (3)$$

The correspondence of HHI to the real value is established by the methodological approach proposed by the author. The essence of the approach is to use (1) to obtain the equality (2) through the formation of various strategic groups by economic entities, when the market shares of enterprises correspond to the officially published ones.

### 3.2. The stages of the methodology for determining the real level of concentration in the industry

This approach appeared to be constructive and provided the formulation of the main stages of the methodology for determining the real level of concentration in the industry. The first stage includes the analysis and evaluation of various quantitative indicators of the commodity market, as well as the level of concentration: number of suppliers operating in the commodity market; suppliers' market shares; market concentration index HHI. The second stage involves the calculation of the main characteristics of the industry functioning (output and prices) in the case of its structural compliance with the indicator of the concentration level, calculated using official data. If there is a correspondence, then formula (3) rather turns into an equality. If there is an inequality (3), it indicates an excess of the concentration level in comparison with the calculated one, i.e. when the number of participants decreases due to coordination of actions and organization of aggregate output in coalitions. The third stage involves the construction of the demand function  $P(Q)$ . Next, the parameters of the demand function based on the elasticity of demand are to be estimated. In the fourth stage, the use of approach (1) allows us to determine the desired number of coalitions and the number/composition of firms in them, which are closer to the actual existing volumes of output and companies' market shares. Since the approach (1) provides a state of equilibrium in the market, the condition (2) is satisfied, where  $P$  is both the values of price and elasticity of demand, at which they provide the output in the volume officially recorded. Thus, the real concentration coefficient can be calculated using the

expression  $HHI_{k_0} = \sum_{k=1}^{k_0} s_k^2$ , where  $s_k$  is the share of coalition  $k$  in the market.

In the case when the enterprises' shares in the market are known and the intentions to form coalitions are determined, the actual level of concentration is determined as follows:

$$HHI_{k_0} = \eta(k_0) HHI \quad (4)$$

where the correction factor  $\eta$  is:

$$\eta(k_0) = \varphi(Q, P, CMC_1, \dots, CMC_{k_0}) \quad (5)$$



#### 4. EMPIRICAL EVIDENCE

This methodological approach was used to assess the level of concentration in the building bricks market of Novosibirsk and experimental verification of the corelationship between the structural concentration level and the results of market functioning (table 1). In the course of the study, it was found that the enterprises in this market have a monopoly power, due to the coordinated policy. The actual concentration level at which condition (2) is met is  $HHI=0.4046$ . Thus, the construction bricks market belongs to the category of highly concentrated markets. The number of strategic groups in the industry, as well as the composition of the enterprises constituting the group, jointly determine such indicators as profitability in general, average total costs, price and sales in the market. At the same time, an industry structure with a higher level of concentration may be more efficient than a structure with a lower level of concentration. Table 1 shows the results of calculations (for the building bricks market in Novosibirsk), where  $\pi(Q_{k_0})/\pi(Q_7)$  denotes the ratio of profits in the industry when the number of coalitions equals  $k_0$ . In the table, the number of coalitions equaling 1 and 7 indicates the cartel agreement and the original version of Cournot, respectively.

Table 1: Values of indicators for different number of coalitions in the industry

Number of coalitions ( $k_0$ ) / Indicators	1	2	3	4	5	6	7	Indicators of the actual state of the market (statistical data)
$(\min \frac{\pi(Q_{k_0})}{\pi(Q_7)}, \max \frac{\pi(Q_{k_0})}{\pi(Q_7)})$	1.089	(1.004, 1.076)	(0.934, 1.074)	(0.880, 1.043)	(0.862, 1.015)	(0.866, 1.014)	1	0.934
$(\min \frac{ATC_{k_0}}{ATC_7}, \max \frac{ATC_{k_0}}{ATC_7})$	0.961	(0.966, 0.980)	(0.967, 1.030)	(0.980, 1.051)	(0.990, 1.060)	(0.993, 1.062)	1	1.070
(min $HHI$ , max $HHI$ )	3000	(2500, 2800)	(2120, 2700)	(2100, 2460)	(2070, 2300)	(2050, 2250)	2190	2123
$(\min HHI_{k_0}, \max HHI_{k_0})$	1	(5100, 5200)	(3450, 4400)	(2600, 3050)	(2300, 2930)	(2700, 2900)	2190	4050
$(\min \frac{P - \overline{MC}_{k_0}}{P}, \max \frac{P - \overline{MC}_{k_0}}{P})$	0.54	(0.49, 0.53)	(0.45, 0.53)	(0.42, 0.52)	(0.41, 0.51)	(0.40, 0.50)	0.49	0.453

Thus, the method of multivariate calculations allowed us to obtain a set of values of relative economic indicators between the maximum and minimum values of each of them. It is established that the results of market functioning can be almost the same for different number of coalitions in the industry, providing there is a different composition of enterprises forming these coalitions. It is important to note that the level of concentration can be significantly different for similar market parameters.

In the conditions of an organizational cartel, output volumes are distributed among the participants most efficiently (the lowest level of average costs per a unit produced is provided). In addition, the growth of costs at one of the enterprises (or several), including the transport tariff, leads to a redistribution of output in favour of enterprises with the lowest marginal costs; however, the system as a whole does not fully compensate for the decrease in industry output, but only a part of it. Regarding the mechanism of interaction within coalitions, the conclusions are identical as well. It is established that with an arbitrary number of coalitions in the industry, maximum profitability is achieved when a group of enterprises is formed on the principle of similarity of the dynamics of marginal costs. In the formation of coalitions consisting of leading enterprises and less efficient producers, there is an effect of suppressing the capacity of enterprises with high marginal costs. The more marginal costs differ, the lower is the economic motivation to form a coalition on the part of a less efficient producer. When the enterprise has a significant competitive advantage, expressed in the lowest marginal costs and a significant market share, the alternative to the formation of coalitions is the desire of the enterprise to dominate the market.

## 5. CONCLUSION

The proposed methodological approach to the assessment of concentration allows us to conclude that, if the actual shares of enterprises do not correspond to the equilibrium situation in the market, it is highly likely that informal agreements between producers have taken place. In this case, the calculation of the Herfindal-Hirschmann index (HHI) on the basis of official statistical information on the shares of enterprises will be understated, and does not reflect the actual value. In determining the level of concentration, the share of the entire coalition as a single market player should be taken into account, rather than the share of the enterprises forming the coalition. It is established that the equal level of concentration in the industry with a varying number of coalitions and the composition of enterprises in them demonstrate varying market activity results. This provision should be taken into account in antitrust practices so that the rule of competition law would not contradict the objective processes of the concentration growth and would not interfere with the required competitiveness level of domestic enterprises and especially in world markets. Thus, the concentration of production in the industry should be a result, a characteristic of the industry structure, which functions effectively thanks to the mechanisms of the state regulation. In general, the approach proposed in the article should be considered as a method of identification (deduction) of the actual structure of the industry, reflecting the informal agreement of the participants, as well as a way of determining the best performance in coordinating the actions of the participants.

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## CROSS-REGIONAL COOPERATION IN THE EU FOR EFFECTIVE INNOVATION DEVELOPMENT: EXPERIENCE FOR RUSSIA

**Alexander Kurochkin**

*St Petersburg University, Russia  
alexkur@bk.ru*

**Svetlana Morozova**

*St Petersburg University, Russia  
s.s.morozova@spbu.ru*

### **ABSTRACT**

*The article is devoted to the study of the European experience of cross-regional cooperation in the field of innovation. The implementation of Smart specialization strategies in EU member states is considered. Based on the Smart specialization platform, which provides support to develop national and regional smart specialization strategies, the specifics of the four EU macro-regional strategies implementation and the possibilities for increasing cooperation in innovation investment across regions are examined. In conclusion, recommendations on the application of the European experience in Russia to increase the effectiveness of regional innovation policy are given.*

**Keywords:** *Innovation policy, regional policy, cross-regional cooperation*

### **1. INTRODUCTION**

The accelerating processes of globalization, the growth of international competition and rapidly developing technologies create an objective prerequisite for a paradigm shift in regional innovation policy. Although there exists some problem of insufficient integration in the processes of globalization, largely due to the low rates of innovation activity in the regions. In this regard, close attention is paid to various tools of regional development, such as the strategy of "smart specialization" (regional innovation strategies of smart specialization, RIS3), which, as practice has shown, can stimulate innovation in lagging regions. The rich experience of such strategies application can serve as a lesson for dynamically developing states. The article is devoted to the study of the implementation of the "smart specialization" strategy in the EU, as well as the possibility of its application in Russia in order to stimulate innovation and increase the effectiveness of regional innovation policy. The practical significance of the study is due to the increasing demand for cross-regional cooperation in the field of innovation caused by globalization. This study contributes to the theory of regional integration. The results can be used by local authorities as a key to increasing the effectiveness of regional innovation policy.

### **2. LITERATURE REVIEW**

The literature of this study can be divided into three parts. The first part includes works devoted to the study of various aspects of modern innovative regional policy. An analysis of modern studies (Crescenzi, Rodríguez-Pose, 2011; Pilyasov, 2012) shows that one of the effective mechanisms for intensifying the creation and application of new technologies is the formation of territorial innovation systems or innovation ecosystems. Moreover, regional policy should be aimed at identification and support of territories with the greatest potential. There is a discussion in the scientific community concerning the level of innovative processes studies and research: global, national or regional level (Feldman, 1999; Boschma, 2005; Brenner, Broekel, 2011). The study of the potential of the regions is based on the concepts of "knowledge spillover" and implicit knowledge.

The peculiarity of knowledge is its indivisibility, the ability to use an unlimited number of times and the limited ability to exclude other agents from the processes of their use (Nelson, 1959). Therefore, the innovative activity of one agent naturally generates positive external effects for others, the so-called "knowledge spillover" (Romer, 1990; Audretsch, Feldman, 2004). At the regional and local levels, there are agglomeration (Jacobs, 1969) and localization effects (Marshall, 1920), which positively affect innovation (Asheim, Isaksen, 1997; Feldman, 1999). The model of "smart specialization" as a policy tool, its conceptual structure and conditions for successful implementation are widely represented and form the second block of this research literature. The most valuable for this study are the works of Boschma (2013, 2016); Foray (2015, 2016, 2017); McCann, Ortega-Argilés (2013, 2016b); Radošević (2017), which will be discussed further. The third part of literature consists of a review of European Commission documents related to "smart specialization".

### **3. METHODOLOGY**

The methodological base of the study consists of using the theoretical approaches to researches in the field of regional integration and "smart specialization". The information and empirical base of the study was made up of the European Commission statistical information databases available on its official website. Of particular note is the smart specialization Platform, which provides support to implement national and regional smart specialization strategies. Graphical method was used to analyze the empirical research base. This paper is based on such general scientific methods as comparative, integrated and systemic approaches. The comparative method made it possible to compare 4 successfully implemented macro-regional strategies of RIS3. An integrated approach to the problem made it possible to connect the spheres of innovation policy of the EU and the Russian Federation. A systemic approach was used to clarify concepts and create tables.

### **4. DATA ANALYSIS**

The fundamental source of data for this study analysis was the database of priorities for Smart Specialization EYE @ RIS - a tool for aggregating priorities for innovative development in the regions of the EU and neighboring countries. Eye@RIS3 visualizes public investment priorities for innovation across Europe. It enables public managers and stakeholders to position their territory in comparison to other territories and to find potential partners for collaboration. Inside the EU, priorities are linked to the use of the European Regional and Development Funds (ERDF). Data are based on the information found in Smart Specialization Strategies and related strategic frameworks. Outside the EU, they depict R&I priorities reported in various government strategy documents (Eye@RIS3, 2019). The database contains four categories: description, economic domains, scientific domains, policy objectives. To date 28 EU countries (215 regions) and 8 foreign countries (30 regions) are members in the smart specialization Platform. Thus, we have identified the total number of regions 245, with 1421 being the total number of declared priorities. The most common priorities are energy, healthcare, ICT, culture and creative industries, materials, services, culture, tourism, advanced production systems (Eye@RIS3, 2019).

### **5. DISCUSSION**

Modern innovation policy in the countries of the European Union (EU) is based on the delegation of differentiated powers to regions as part of the concept of smart specialization. The approach involves the development and application of regional innovation strategies, which determines the development priorities of each region based on its competitive advantages and both the advantages of the scientific and technological sphere and business needs. Thus, the set of competencies and support measures are geographically differentiated, which allows you to

quickly respond to market trends, avoiding duplication and fragmentation of efforts (European Commission; 2014). The concept of “smart specialization” was proposed in 2009 by the EU expert group “Knowledge for Growth” as a way to increase the attractiveness of European regions for the investment of global companies in research and development (R&D) and other activities (European Commission, n. d .; Foray, 2015). In order to create competitive advantages, regions must build capacity in technology development (European Commission, 2018c; Foray, 2017). “Smart specialization” is aimed at diversification the structure of the regional economy through the development of new core areas (Landabaso, Foray, 2014; Landabaso et al., 2014). To achieve this goal, it is necessary to cooperate with local authorities, science, business and civil society on a bottom-up principle (European Commission, 2018a). The development of strategies includes several stages: analysis of the innovative potential of the region, identification and involvement of key stakeholders, scientific and technological forecast, selection of priorities and determination of an appropriate set of support measures, implementation of mechanisms for monitoring and evaluation strategies. Separate regional innovation strategies have been developed in many EU countries: Austria, Belgium, Germany, Spain, the UK and Italy (Cooke, Memedovic, 2003). For example, Spain is developing «Smart specialization strategy for Galicia 2014-2020». The design of a Smart Specialization Strategy for Galicia rests upon those activities based on knowledge rooted in the territory that shows the greatest potential for competitiveness in the global context and in which entrepreneurial discovery dynamics are already being concentrating in an endogenous way (RIS3 Galicia). Table 1 illustrates the stages of the Galician smart specialization strategy.

*Table 1: Defining stages of the Galician Smart Specialization Strategy (Smart specialization strategy for Galicia 2014-2020)*

Diagnosis	The first stage consisted of a formal analysis of the regional context and of the potential for specialization, which resulted in a document entitled Diagnosis, made possible thanks to the Galician Innovation Observatory and to the Galician Innovation Platform (PINNG)
Governance	The next stage consisted of creating a Governance structure for the Galician Innovation System, adequate for channeling agent participation in the system during the analysis and planning processes of the Strategy, which was formally granted to the Galician Innovation Agency (GAIN)
Vision	7 Working Groups were then created which, based on the prior diagnosis carried out, performed a strategic reflection exercise on key ideas and particular characteristics of Galicia within the scope of innovation, and produced 30 Opportunities. By applying objective criteria, the identified opportunities were ranked obtaining, through a process of elimination, the 18 key priorities which were grouped around 3 Strategic Challenges defined to place Galicia on the European Innovation Map. A unique and shared Vision for the future of Galicia was defined based on these strategic challenges.
Objectives	After obtaining a consented shared vision on the basis of the Strategy, the next step was to establish 10 Strategic Objectives to realize the previously defined challenges.
Instruments	The Mulannual Action Plan to operate the Strategy was finally defined, based on 5 Lines of Action, and articulated into 4 Framework Programs on which 25 Instruments will be finally established.
Evaluation	The Monitoring and Evaluation Structures have been transversally developed with the remaining actions.

A necessary prior stage to the Vision definition was to establish the future opportunities for development in Galicia, which was done jointly with the other Galician Innovation System Agents. To this end, two plenary Forums were organized and seven Working Groups were created, with two of them being general ones and five being thematic ones, along with citizens' consultation. As a result of this stage, 240 Galician Innovation System Agents were directly involved in the process, 5 Capacities Inventories were made in strategic Galician sectors, and 30 potential future niches were identified for smart specialization in Galicia, summed up later in 18 Prioritized Niches (RIS3 Galicia). The following three challenges defined the Smart specialization strategy for Galicia: innovative management of natural and cultural resources, future industrial model of Galicia and technology solutions for a healthy lifestyle model (RIS3 Galicia). According to EYE @ RIS, agriculture, forestry and fisheries are among the highest priority of economic domains in this region; with health being the highest one of the scientific domains; with public health care and safety being among the highest priorities in the category of "policy domains". There are other examples of successful identification of priorities in smart specialization strategies (European Commission, 2017). So, in Emilia-Romagna, Italy, the regional partnership has identified health and wellbeing as a priority and is bringing different key enabling technologies together with biomedicine to develop customized precision grafting and implants. In Extremadura, Spain, farmers and researchers are addressing the lack of capacity to meet market demand during peak season by participating together in a European network which develops high tech farming. In Lapland, Finland, smart specialization contributed to develop the region's leading position in exploiting and commercializing Arctic natural resources while delivering sustainable development and job creation. In addition to separate regional innovation strategies, on the basis of "smart specialization", cross-regional cooperation and cross-border cooperation are carried out. An example of successful cross-regional cooperation is InnoBB, the combined innovation strategy of Berlin and Brandenburg. The development of a joint innovation strategy was initiated in 2007 based on the current strategies Berlin's "Coherent innovation strategy" and the "Land Brandenburg innovation concept"(LIK). Given its excellent science and research facilities and the broad range of business oriented research and development, the capital region holds a top position in Germany's and Europe's innovation landscape (InnoBB). The joint innovation policy core element of these regions is Clusters, which rely on growth- and competition-oriented innovation policy instruments. Table 2 shows the priority clusters for cooperation.

*Table following on the next page*

*Table 2: Priority Clusters for InnoBB Cooperation (Author's own work)*

Cluster	"Future field of excellence"	Staff
Cluster power engineering Berlin-Brandenburg	Solar energy, turbomachinery and power plant technology, energy networks and stores/e-mobility, energy efficiency technologies, and wind power/ bioenergy	47 000 jobs in power engineering
Cluster healthcare industries	Biotechnology, medical engineering and pharmaceuticals	350 000 jobs in the health industry
Cluster ICT, media and creative industries	Security and IT, digital media, mobile applications (including RFID and NFC), and the „Internet of Services“ and „Connected Living“ initiatives, geoinformation/ visualization industry, telecommunication networks and services or some e-processing sectors	91 000 jobs ranges from international companies in the television and film industry, multimedia businesses, media services, e-businesses through to data processing and telecommunication technologies
Cluster optics	Laser technology, photonic components and optical communication technology, light technology, process measurement technology and analysis, and microsystem technology	16 000 jobs in optical technology and the closely related microsystem technology
Cluster transport, mobility, and logistics	Road traffic/automotive, rail technology, traffic telematics, aviation and space flight, as well as logistics	158,000 jobs in manufacturing companies, large operators, logistics service providers, and science facilities

As it can be seen from the table, the strategy is aimed not only at stimulating economic growth, but also at creating additional jobs in the region. InnoBB identifies the following requirements for cluster development: critical mass, joint interests, dynamic growth and international dimension. Another important aspect of cross-regional "smart specialization" collaboration is the political planning framework that affects companies' capacity for innovation. In this case, it is necessary to work on harmonization of innovation and technology funding, optimal combination of promotion and funding instruments in terms of content and time. A joint financing of the clusters' cross-border management structures as part of the EU's regional structural support program in compliance with the Commission's instructions should be organized. The central task areas of the cluster/future field of excellence structures to be and the respectively coordinating institutions in particular include (InnoBB):

- **Strategy / Innovation profile**  
It concerns development of a growth path and profile for the cluster/future field of excellence.
- **Acceleration of the knowledge and technology transfer including innovative start-ups and „transfer via heads“**  
The first part of the task includes both the consistent conflation and advancement of the knowledge and technology transfer system, as well as the further development of incentive mechanisms for entering into collaborations between industry and science, as well as for the success and quality control regarding the entire system. The second part of the task involves working to secure skilled labor over the medium to long term, as well as support

for innovative start-ups, coordination in the creation of start-up networks, the expansion corresponding higher education offers, and the securing of the corresponding funding.

- International networking

In this case, the main objective of the innovation strategy is to support the private and science sector of the capital region in the enhancement of their competitiveness internationally via: international networking of the companies and clusters, international research collaborations and expansion of the systematic integration in EU funding structures.

- Marketing and profile focusing

Coordinated marketing efforts are needed to track the location's existing advantages in the regions' international competition. Equally important is to work on a permanent sharpening of the capital region's profile in the sector of both marketing and the clusters/future fields of excellence. To achieve this objective it is important to have a suitable, broad-based communication policy such as, for example, joint attendance of trade fairs, online portals and public relations. Therefore, the existing marketing tools available in both states should be combined, optimized and reinforced in strict alignment with the guidelines of the joint innovation strategy.

Another significant achievement of the EU's regional innovation policy is the application of the EU Macro-Regional Strategies (MRS), which emphasize greater coordination between different stakeholders and the alignment of resources and strategies in order to address common challenges in a defined geographical area. The EU Macro-Regional Strategies (MRS) serve as multi-level platforms combining in an organised way national, regional authorities, sectorial ministries and agencies, managing authorities of programmes, academia, research, entrepreneurs, local associations and other stakeholders such as civil society to tackle the common challenges (RIS3 Platform). To date the European Union has put in place strategies for four macro-regions (Table 3). These strategies all together concern 19 EU Member States and 6 non-EU countries.

*Table following on the next page*



*Table 3: EU Macro-Regional Strategies (MRS) (Author's own work)*

Macro-region	Cooperative members	Stakeholders	What facilitates S3 cooperation
EUSBSR(Baltic Sea Region)	8 EU countries (Sweden, Denmark, Estonia, Finland, Germany, Latvia, Lithuania and Poland) Norway, Belarus and Russia are welcome in the collaboration	Council of the Baltic Sea States (CBSS), Baltic Sea States Subregional Cooperation (BSSSC), Conference of Peripheral Maritime Regions (CPMR), Union of the Baltic Cities (UBC), Baltic Development Forum (BDF), Nordic Council of Ministers	Policy Area Innovation (PA INNO) of the EUSBSR, Baltic Sea Region Programme, DG Regio and BSR countries and regions
EUSDR (Danube Region)	9 EU countries and 5 non-EU countries (Bosnia and Herzegovina, Montenegro, Moldova, Serbia and South-Western and Southern regions of Ukraine)	Danube Rectors' Conference (DRC), Danube Universities (DU), Council of Danube, Cities and Regions (CoDCR), Urban Platform Danube Region (UPDR), Danube Alliance and etc.	The Danube Transnational Programme (Interreg) Danube-INCO.NET (advancing research and innovation in the Danube Region)
EUSAIR (Adriatic and Ionian Region)	four EU Member States (Croatia, Greece, Italy and Slovenia) and four candidate and potential candidate countries (Albania, Bosnia & Herzegovina, Montenegro and Serbia),	inter-governmental Adriatic and Ionian Initiative (AII), Adriatic and Ionian Interregional Group at the Committee of the Regions, Forum of the Adriatic and Ionian Chambers of Commerce (AIC Forum), Adriatic Ionian Euro-Region.	The Interreg Adriatic-Ionian (ADRION) Transnational Cooperation Programme First EUSAIR Annual Forum held in May 2016
EUSALP (Alpine Region)	7 countries, including 5 EU Member States and 2 non-EU countries (Liechtenstein and Switzerland)	General Assembly, Executive Board, Action Groups and Action Group leaders, the Alpine Convention	Alpine Space programme, the Launch Conference of the EU Strategy for the Alpine Region EUSALP

A comparative analysis of macro-regions has revealed several features of EU Macro-Regional Strategies:

- Some territories have become part of only one macro-region (for example, the Czech Republic, Ireland, the central provinces of Spain and the voivodship of Poland), while others are part of several (for example, some administrative regions of Northern Italy are simultaneously included in the macro-regions of the Alps, Central Europe, Southeast Europe, Mediterranean). An explanation of this fact can be given in the context of the objectives of the formation of these structures. For example, the Russian macro-regions are part of the vertical of the executive branch and instrument for monitoring the implementation of state policies at a level intermediate between the federal and regional ones enshrined in the Constitution of the Russian Federation. At the same time, European macro-regions in any vertical of power (the EU or countries outside the EU, or their regions)

are not integrated and institutionalized only as a regional cooperation tools to achieve some of the goals of a united Europe (Volkova, 2013).

- The formation of administrative units takes place around a certain “center”. In our case around a geographic feature: sea (the Baltic sea); river (the Danube river); mountain system (the Alps). However, the principles for the formation of macro-regions differ. Thus, the analysis of the S3 priorities in the EUSAIR countries and regions confirms a single focus on Blue Economy with a prioritization of the areas such as Tourism, Fisheries, Environment and Transport/Logistics. The EU Strategy for the Baltic Sea Region is built on long traditions of collaboration and established cooperation in the field of innovation among the countries. The S3 cooperation is a policy driver to tackle common challenges and needs in specific S3 priority domains in order to achieve a higher degree of territorial integration of the very heterogeneous Danube region. The basic principle of the Alpine region formation is the need for transnational learning and collaboration in smart specialisation based on complementarity competences in order to further strengthen regional innovation ecosystems.

Linking of research and innovation actors with stakeholders from different policy levels and sectors helps macro-regions to exploit complementarities in the development of products and process design. For more effective innovation policy it is necessary to attract investment resources for the financing of innovation activity priority directions by public and private entities. It is thus necessary to develop further the inter-regional and cross-border dimension by creating interregional investment opportunities which will facilitate scaling up regional and local innovation, as already kick-started in the context of the Communication on Clean Energy for all Europeans (European Commission, 2017). Member States and regions with support from the Commission should build on clusters and the European Institute of Innovation and Technology's Knowledge and Innovation Communities (KICs), to develop investment pipelines for projects which are bankable for support from financial instruments, in particular through the European Fund for Strategic Investments, helping to attract private investment by backing up innovative projects that may need risk-coverage. Projects which are small in nature can be bundled together in investment platforms, bringing together different EU funds in the most efficient way and involving the private sector where appropriate (European Commission, 2017). The information from the Table 3 also shows that the EU Macro-Regional Strategies are open for cooperation with non-EU countries, including the Russian Federation. However, in Russia there are systemic obstacles that impede the formation of “smart specialization”. They are associated with the centralized and universal nature of strategic planning for economic development, which does not take into account the conditions and needs of specific regions. Existing mechanisms aimed at economic development, such as creation of special economic zones, do not have instruments that would provide for the characteristics of the regions: geographical, resource, environmental, their existing production and infrastructure. The policy space available to regional authorities in the framework of national strategies remains too limited for possibility to take into account all these factors. Two significant problems are identified in the framework of regional economic strategies: firstly, they focus primarily on the creation of new industries, not taking into account the development and restoration of existing ones, which would allow efficient use of the resources of a particular region. Secondly, in many cases, when drawing up strategies for socio-economic development, their authors strive to cover the largest possible number of areas, neglecting the specifics of the region, the understanding of which is one of the key aspects of “smart specialization”. In Russian practice, specialized mechanisms for analyzing economic conditions in the region are not widespread, which does not allow identifying the most promising areas of activity and focusing on them. In addition, the Russian system of economic development is characterized by fragmentation and isolation

of regions from each other, does not form cross-regional production chains. Nevertheless, these problems, although they are systemic, can be resolved if there is an integrated approach, initiated in the regions.

## 6. CONCLUSION

Smart specialization strategies are implemented by EU member states with varying degrees of success; nevertheless, they have managed to concentrate resources on priority areas, intensify knowledge generation and creation of innovations. Partnerships between business and universities, internationalization and the creation of new technology enterprises have increased the number of jobs and new value chains, as a result of which the expansion of the latter has been intensified in many European regions (EUA, 2018). Such experience should indicate the attractiveness of RIS3 strategies for their importing by other dynamically developing countries. However, there are obstacles that depend on the specifics of individual countries and regions. These obstacles were considered by us taking as an example the Russian Federation, without overcoming them it is impossible not only the implementation RIS3, but also cooperation in the framework of the EU macro-regional innovation strategies. Based on this study, we have prepared recommendations for the federal and regional authorities of the Russian Government aimed at improving the effectiveness of public innovation policy. The common goal of all smart specialization strategies is the transformation of the regional industry structure: the evolution of the industry (basic technology, new product); modernization (new technologies, old product); diversification - the emergence of new industries associated with existing, for example, a common value chain; the rapid emergence of new industries.

The main stages of the RIS3 implementation are:

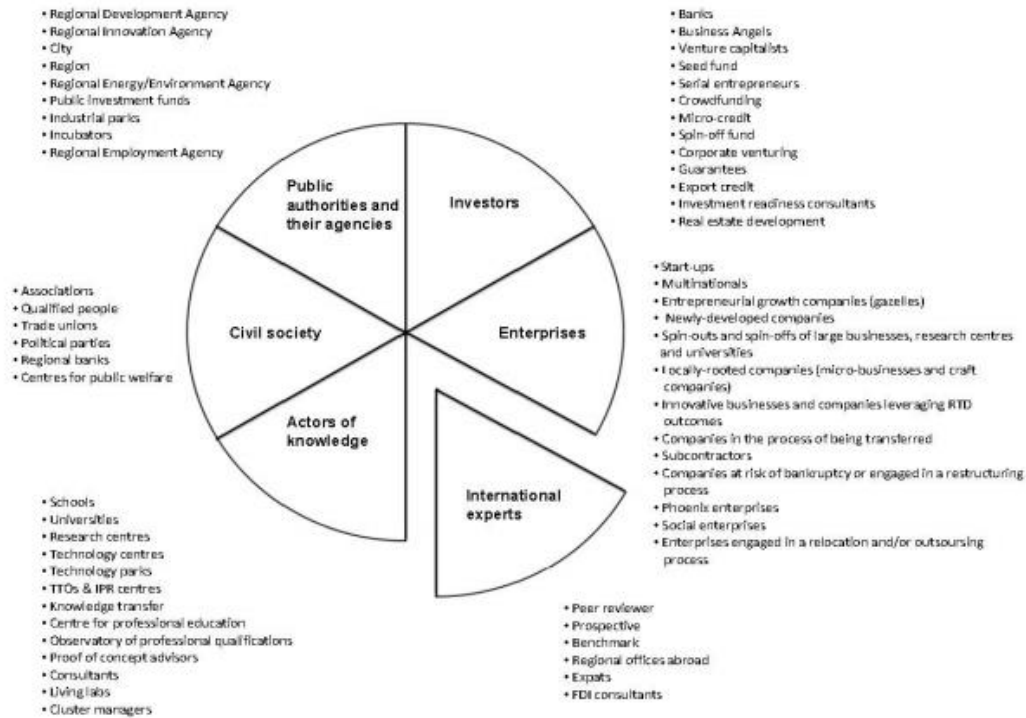
- Analysis of regional context and potential for innovation
- Management: stakeholder engagement
- Formation of a common vision of some strategy for the future of the region
- Select a limited number of priorities
- Determination of the relevant “mix” of state policy measures, development of a roadmap
- Integration of monitoring and evaluation mechanisms in the implementation of regional strategies

From our point of view, the innovation policy of the Russian Federation requires the formation of regional projections of the Innovation Development Strategy, the Long-Term Forecast of Scientific and Technological Development, and the National Technological Initiative. Each region must find its own unique niche, either in the development of technologies, or in their practical application in existing production areas. To perform this objective, firstly it is necessary to conduct a foresight of the region, in particular, to identify the positioning of the region relative to Key Generating Technologies (KETs): micro and nanoelectronics, photonics, nanotechnology, industrial biotechnology, new materials and advanced manufacturing technologies. Unique competencies in the region also should be defined (intersections of specialization sectors / clusters; their combination with new rapidly growing scientific fields (knowledge domain), which according to the patent and bibliographic analysis of the region can be qualified for leading position. In this context two important aspects should be noted:

- innovations related to culture and creative industries, as well as design and new business models (including social innovation), are no less significant priorities
- it is also crucial to focus on solving the major social problems facing the region, examples of which are improving the environmental situation in cities, providing additional employment opportunities for special categories of the population, overcoming social inequality, etc.

A classification of groups of regional actors proposed for involvement has been developed (Figure 1), which can be guided by implementing the second stage of the strategy. In addition to the groups included in the traditional categories of “business”, “science” and “state”, “civil society”, “investors” and “experts” are also highlighted. The business community is a priority group to engage.

*Figure 1: Involvement of Regional Actors (EC Guide to Research and Innovation Strategies for Smart Specialization (2012))*



For the successful implementation of RIS3, it is also necessary to create specialized management structures in the region. This paper has reviewed the positive experience of the Galician Smart Specialization Strategy application, which can be partially borrowed. Improving the quality and diversity of regional strategies and, on this basis, the development of cross-regional cooperation (macro-regions) should not be overlooked. A key element of RIS3 is the smart specialization Platform. Without its creation, the strategy cannot be implemented. The main functions of the Platform are (RIS3 Platform):

- continued development of the concept and methodological support of regional and national authorities; updating the Smart Specialization Guide;
- support and updating the database and interactive tools to compare regions with each other
- review of strategies for the smart specialization of Platform participants, including the organization of specialized seminars to discuss strategies involving representatives of interested regions and experts;
- organization of mutual learning between regions that implement smart specialization strategies;
- support of the specialized site of the Platform

The Guide on Research and Innovation Strategies for Smart Specialization, additional techniques (including self-assessment), the assessment strategies RIS3 procedure, a bank of examples of strategies for Smart specialization - valuable information to improve the quality of strategies for innovative development of Russian regions.

Results of this study can become the basis for comparative analysis of the effectiveness of using the RIS3 in different countries and can be used by government authorities as a key to implementing "smart specialization".

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# THE MOUNTAIN PARADIGM: THE ROLE OF THE ATLAS MOUNTAINS IN SHAPING THE LIFE OF MOROCCAN MOUNTAIN INHABITANTS

**Jamal Fezza**

*Faculty of letters and Humanities,  
Mohamed V University, Rabat, Morocco  
fezzajamal2@gmail.com*

**Sadik Maliki**

*Faculty of letters and Humanities, Ain Chock,  
Hassan II University, Casablanca, Morocco  
sadikmaliki@yahoo.fr*

## ABSTRACT

*The Mountain is the predominant territorial element in the northern part of Morocco. It structures its inhabitants' life and forces its dynamism to pulsate at the pace of movement and transhumance. Morocco's history attests to the importance of the Atlas Mountains in understanding the foundations of Moroccan life; throughout its history, Morocco has been mountain-dependent; the key to understand Moroccan reality, the relevance and complexity of its economic events must resort to the in the mountain paradigm or matrix. Morocco, known for its diverse terrain and climate, is home for different life patterns and life styles characterizing geographically distant peoples. Consequently, its environmental balance and social cohesion remain precarious and vulnerable, which makes it the country of contrasts par excellence. However, the most striking contrast, one around which re the life of Moroccans has revolved for centuries, is the "Dir", i.e., the natural belt that forms from the point of the sudden contact between the mountain and the plain. In the present article, we argue that the word "Dir" represents the most appropriate and suitable concept to describe the general living conditions of a great number of Moroccans. It explains how the geographical unity of the natural parts of Morocco are not governed by the principle of the territorial homogeneity; instead, they are governed by the co-existence of contrasting territorial parts, namely the hill, the plateau and the desert. In our view, any who wishes to understand the nature of Moroccan society and its political system can by no means overlook this geographical fact.*

**Keywords:** *Morocco, territory, 'Dir', mountain, transhumance, desert, Amazigh*

## 1. INTRODUCTION

Sociologists have always distinguished between urban and rural sociology and made sure they adhered to the methodological and technical requirements of this distinction. Such a distinction may increase rather than allay confusion with regard to the subject under study (the study of the mountain as home for the life style of specific human beings). It may also lead to chaotic rather than organized thoughts with concise contents. Can a reasonable person accept that the life pattern of the inhabitants of "Jamaa of Sehim" or "Sebt Gzoula"- two country sides on the western coast of Morocco- applies or is similar to the life pattern of the inhabitants of Imilchil or a Ksar of the ksars of the region of Tafilalet? The difference between the Moroccan country sides on the coast and those in the mountainous regions seems to be bigger and clearer than the distinction between the city and the country side as usually described by sociologists, especially that metropolization makes the matter more complex and makes the distinction between country sides and cities a difficult, not to say an impossible issue. To settle this issue, many urban sociologists concerned invoked a space where the characteristics of rural life and urban life overlap and coexist to the point that they form a "rurban" spatial unit.



The metropolitan spreading is governed by several mechanisms, one of which is suburbanization. The congestion of the city centers entails that its suburbs are pushed towards the country side far from the city's ancient center. This very fact reduces the city/country side dichotomy and subsequently gives birth to mixed demographic groups and communities. It should be noted, however, that this mechanism does not go for the mountain country sides. Instead, the expansion of cities adjacent to the mountain sides takes place to the detriment of the mountain country sides, which increases their isolation and reduces their vital space. This peculiarity of mountain country sides is perhaps what motivates us to 'negotiate' the possibility of there being a sociology of the mountain'. The present article, which seeks to shed light on one of the aspects of the vital relationship between the mountain and the life pattern of humans, will therefore represent one of the building blocks of a bigger and wider 'edifice', i.e., the sociology of the mountain. Such edifice is big and wide enough to 'host' other disciplines, namely history and historical geography, which are concerned with the re-writing of the history based on the geographical determinant. The mountain paradigm is an expression that first appeared in Lugan's book "History of Morocco: from origins to our times" [1] and that was inspired by the writings of Célérier, a geographer, especially his book "Morocco", where he argued that throughout history, the country as a whole was part of the mountain; and the paradigm or matrix of the mountain is sine qua non and key for any attempt to understand the country's reality and the economy and complexity of its event [2]. In this connection, we, in turn, will review Célérier's point of view as to the topic of the mountain and its value as an analytical tool that will give us a new opportunity to rethink and reinterpret not only the history of Morocco alone, but also the history of North Africa as a whole [2]. The mountain is a power that rejects central authority and is a protection of the "Dir". This fact may be an explanation for why the influence of all the incursions that the strong empire of Cartago and the Roman Empire was confined to the plains and coasts and could not extend to the mountains and the "Dir". Therefore, the Berber or Amazigh tribes remained the leaders of the mountain and the support of the "Dir" until the first half of the 20<sup>th</sup> century. The history of Morocco/ the state, which started with the coming and spread of Islam in the country, shows that Islam managed to invade the mountain; however, this does not mean that the mission of the new religion coming from the arid and barren east succeeded in dissuading and taming the mountain and ultimately substituting Islamic law (Charia) for the customary laws. Instead, Muslims left it to the local population to take responsibility of itself in accordance with what was customary as long as that did not affect the general treasury and sovereignty; this is perhaps the reason for the wide islamization of Amazigh people (indigenous inhabitants of the Atlas mountains) together with the persistence of customary Amazigh elements in an Islamic dress or attire up to the present.. It should be noted that we cannot examine the issues that the mountain raises without first reconsidering the territory as the axis of any policy and administration. The inhabitants of the mountain are a good example of the vitality, resilience and adaptability of mountain communities. Throughout the centuries, they managed to invent techniques that are consistent with the local conditions. On top of that, they succeeded in implementing a social system suited to the said local conditions. Hence, the importance of attending to the administrative and political institutions and ensuring they are compatible with the natural specificities of the given territory. All this is the key to sustainable territorial development. Therefore, whatever, their area of interest, researchers should prove they are capable of oscillating between the macro-picture of the harmony of human living patterns/ space and the micro-picture of such harmony.

## **2. MEDITERRANEAN MOROCCO AND THE ATLAS GIFT**

Unlike Morocco primarily, and Algeria and Tunisia to a lesser degree, the terrain and topography in Egypt and Libya allows Africa to crawl and overtake the coast/shore, for in these two countries there is no barrier than can that can repel the great Sahara and prevent it from

overtaking the region until the Mediterranean sea except the sea itself and the humidity it sends southward. The Atlas Mountains in Morocco stand up as a natural barrier that divides the country into two large territorial parts: the Mediterranean part made of Morocco more a European – like country than an African one, to use De Martonne's terms, and the African part which made of Morocco a link between pure Africa and Europe [3]. Thanks to its (geographical) structure and Mediterranean climate, Morocco remains a European country, but it has become African due to the impacts of the desert. This is probably what has led us to describe Morocco, several times and on many occasions, as the country of both encounters and violent collisions [4]. In this respect, [2] invokes the main function that Morocco plays, i.e., to ensure communication between the two sections of Africa and Europe (Sub-Saharan Africa and North Africa). Apparently, Moroccans have a general representation of their position in Africa; whether they are officials or grass-root communities, Moroccans have always invoked the multiple and diverse relations their country has with African countries, their importance and objectives using one single expression including a reductive dichotomy, namely "Morocco's relations with Africa". Things remained the way they were, a fact that irritated some levelheaded minds who have undertaken to, in a note of call for wisdom mixed with blame and reproach, raise Moroccans' awareness that their country has always been in Africa in the first place. Some of the Moroccan levelheaded minds who call for wisdom, it seems to me, lack the necessary insightfulness. A quick glance at the significance underlying the names used by Arabs and Europeans to refer to North African in General and Morocco in particular may help us feel the elements that strengthen and value our point of view. The word "Morocco", is a word used by Muslim Arabs that came to the region either as travelers or conquerors. It is a name that reflects the general feelings and impressions of these people (Muslim Arabs) coming from far after a long and arduous journey before reaching the place where the Sun "goes out" (sets). In fact, it is the feeling of those who have reached the end of the earth/world (the Ocean beyond which there is no land). Morocco, according to those coming from the east, is the farthest land which they have stepped foot on and their most distant colony located at the extreme end (side) of earth. Such a general feeling is similar to the feeling which preoccupied certain European travelers and historians, who did not conceal their surprise to find that Islam has become a marker and an identifying feature in this part of the world far distant from the east. The image of Morocco these travelers and historians have portrayed is mixed with a sort of grievance or distress of having lost something of value belonging to them, as if they were wondering: what have Islam and the east have come to do in so distant a geographical area that is nothing like them? The French colonizers used the name "Africa Minor" to indicate the North West of Africa, precisely Tunisia, Algeria and Morocco. As is clear, this name was used to refer to the region by analogy with Asia Minor or what is known as Anatolia, i.e., the East of sunrise in ancient Greek. Anatolia is a mountainous area which, separated from Asia by mountains to the east, stretches towards Europe to the extent that it looks like part of Europe that is attached to Asia. The French colonizers looked at North Africa at that time (i.e., Tunisia, Algeria and Morocco) along the same lines. They considered this piece of land as part of Europe attached to Africa. We are aware that underlying such a view was an imperialist wager appropriate to the size of the then- French empire, an empire that was planning to sweep Africa via its French north, particularly Morocco. We should not forget here that the strategy of France considered North Africa as a geographical unity that could play a vital role in favor of the project of the French empire. We are, however, compelled to confirm Morocco's isolation from Africa. Even Arabs did not hesitate to use the word "island" to refer to the region of North West of Africa because it is completely separated from the Sub-Saharan Africa region by the great desert on the one hand and from Europe by its northern and western coasts on the other hand. It is certain that the Atlas Mountains represent a natural barrier that protects from the desert influences coming to Morocco from the south and the east, but it is also true that these same influences

make of the desert a passable land; the heavy snows that cover the Atlas Mountains in winter and its calcareous soils turn it into a natural water reservoir par excellence and a source of several water courses and rivers that cross arid deserts and high plateaus over a long distance. Just as the great Sahara looks like a large sea, so it is the Atlas Mountains that endowed it with life thanks to the green oases it creates and that, for their part, serve as seaports and rest areas for trade convoys. The Atlas Mountains, it appears, do not only fend off Africa and opens up on Europe, but also pushes Africa back, and it is perhaps this very fact that allows us in Morocco to talk about the 'desert gate', which is far from the feet of the mountains. Thanks to the waters and cold humid currents it sends southward and eastward, the Atlas Mountains represent the first factor behind exporting and stretching the Mediterranean climate toward Africa. It is the 'territory' that holds Morocco's doors open wide to Europe and, at the same time, makes it possible for the old continent to meet Africa through narrow and arduous pathways. Besides endowing the Hauts Plateau and the desert with life, the Atlas Mountains, unlike the Alps, make it possible to host and shelter human lives and special lifestyles. In Europe, the Mountain shows enmity and hostility towards man who prefers to settle down in the fertile plains, where the climate is temperate and mild and where the pathways are less arduous and rough. However, this equal does not seem to be entirely valid and pertinent in Morocco. The high mountains (1800 m and 2400m in the north and south, respectively) is not fit for any human lives throughout the whole year because the heavy snows and extreme cold in winter make life very difficult, not to say impossible. In Morocco, however, winter is followed by a hot and dry summer that turns the mountain upside down. The soil gets dry and the mountain turns summer into an attractive force in so far as it makes medium quality grasslands and pastures available and its springs gush forth generously to provide warm water. It is water that makes highlands more advantageous than the flat lands because (1) the rainfalls there are very important and (2) mountains can serve as reservoirs for rain waters, a fact which makes it more likely to develop irrigated agriculture and farming. Both the relative abundance of water and the farming methods which it brings about make the life of mountain dwellers different from that of plain dwellers; it also makes life in the Atlas Mountains and in the Alps, though similar in many respects, different. Perhaps, the description of North Africa as Mediterranean Africa by the French is due particularly to this wet and dry alternation or rotation as well as to the important role that water plays in such a natural milieu or environment. After describing North Africa as having a relatively dry climate with sporadic and erratic rainfall, [4] claims that "in such a climate, water is considered to be the greatest magician: As far as The more generous or stingy it is, the more it flows continuously or intermittently and seasonally; the more scarce or abundant it is, the more human life becomes either a life of happiness or a life of misery and deprivation." In North Africa, humans subjugate their lives to the conditions of water, for it is this natural wealth that determines their needs, regulates their activities and controls the nature of their residence and living. Accordingly, there are two types of farmers in North Africa, namely those who live on irrigated farming and those nomadic farmers who practice camel or livestock –breeding in general [2]. It seems that the name that better suits Morocco, one that is far from any 'civilisational ego or expansionist stakes whatsoever, is "the country off Atlas". It is important to note that Ptolemy, son of King Juba II used to call the Rif Mountains, "the Anti Atlas". However, such topographical unity should not make us ignore the existence of two different Atlas mountain systems in Morocco: the Mediterranean one and the Saharan one. Despite this very fact, we cannot deny that the Atlas, as [2] has rightly put it, represents the skeleton of North Africa, of which the parts are organized around and in relation with it.

### **3. THE “DIR””: THE UNITY OF THE CONFLICT OF CONTRADICTIONS**

Morocco is known for its diversified topography and climate and is the shelter of various life patterns and lifestyles that characterize geographical distant peoples. If snow covers the widespread Siberia and sand dunes cover vast areas in the great desert, the land of Morocco brings together both snow and sand dunes in a relatively narrow area, a fact which makes of Morocco the country of contradictions par excellence. However, the most obvious and evident contradiction in the life of Moroccans throughout the centuries is the “Dir”. In order to have a clear idea as to this specific geographical fact, we have to pay attention to an essential difference between the Rif and Atlas Mountains. While the Rif Mountains lean gradually towards the Sebou River Delta via a series of hills which form the beginning of the Rif, the Atlas Mountains suddenly emerge as if they have just erupted from beneath. There is nothing that can alleviate the brunt of the shock of the sudden sight of the vertical heights and the horizontal surfaces. When a person plans to travel from a Western coastal city, the city Rabat for example, to a city in the far south east of Morocco, the city of Errachidia for example, they will find themselves climbing great heights and high altitudes where life is almost impossible then descends via dangerous cliffs towards vibrant flat lands and plains. Such alternation between heights and plains provides the conditions for a special life referred to as transhumance. During this journey, the traveler will find themselves compelled to cross a long and narrow passageway that hardly suitable for vehicles and one can hardly sneak away between its gorges. They will also easily realize that the neighboring Algeria is farther than Europe and that for Morocco, Mauritania, Niger, Mali, Chad and Sudan are all countries located in another continent. The longitudinal division of Western region of North Africa into three national units has remained an established historical fact since the Roman invasion. Archeology has proved that great Berber kingdoms ruled the region. The kingdom of Masaesyli controlled the territory today known as Tunisia and the kingdom of Massaesyli took control of what is known today as Algeria. Today’s Morocco, however, was referred to as Mauretania. Such a longitudinal division of the region made it that each national territorial unit had two opposite territorial elements, namely a European and Mediterranean unit in the north and an African unit in the south. It is perhaps this very fact that enabled Western North Africa to play a role of transit between Europe's economy and civilization on the one hand and Africa's economy and civilization on the other [2]. The question here is how did such a transit take place? Sometimes, the crossing or transit between Africa and Europe takes place through a gradual and smooth transition, but most often it occurs through blatant and flagrant contradictions; each national territory in Western North Africa is divided into parallel territorial spheres, each having unique characteristics, with an increasing and concentrated presence of African characteristics from North to South. These regions are referred to as hill, plateau and desert\_ names whose significance derives, first and foremost, from the nature of the plant cover and the agriculture dominant in each region. While the hill refers to the sea country where rainfall is important enough to establish wasteland agriculture, mainly for cereal crop production, the plateau is the continental area with scattered vegetation composed mainly of thistles and nettle plants; pasture is, therefore, the only way of life suitable for this region. Finally, the desert remains an anti-human land where permanent residence is possible only within a small and limited number of spots; these spots are isolated island-like oases in amid a vast sea where only a small number of permanently moving travelers are constrained to live. In short, the hill is the area of cereal crops, the plateau of sheep and goat breeding, and the desert is for the production of dates and camel breeding. Whereas the hill indicates the part of Europe that crosses the sea toward Africa, the plateau embraces clear African elements before Europe finally disappears into the desert [5]. Each of the aforementioned regions hosts a population that is active in a particular domain; the hill is home for farmers settled in highly populated small cities likely to embrace an urban lifestyle. The desert, on the other hand, is home for dwellers of ‘Ksars’ (i.e., fortified villages) who live oases,

and whom we cannot imagine without the great tribes of nomads who live on camel rearing. Between these two land poles, as it were, lies the Plateau, an area with a relatively limited and narrow form of transhumance via fixed and seasonal routes. Although the three regions (i.e., the hill, the plateau and the desert) have different lifestyles and crops, they are related through exchanges of necessary things they need for their existence and continuity; however, these exchanges usually turn into violent clashes. This geographical disparity between the three regions, caused mainly by the mountain, is certainly what makes Moroccan unity a problematic issue. This very fact runs counter to what Ennaciri (2003:25) alludes to when he states that "the mountain has been central to the Moroccan pattern, whereby we mean all the processes that have formulated the country's identity and unity.... It is from these mountains and their open-ended desert borders that the political revival and social and religious reforms came to strengthen the country's identity and unity" [5]. It is true that, as Ennaciri (2003) has pointed out, the mountain was the element around which the life of Moroccans was structured. However, it has never been the element that enhances and values the unity of the country. On the contrary, the mountain has always been a threat to any sort of stable life in the plains because it needs them in winter. The "Dir" is the foot of the mountain, i.e., the contact area between height and flatness. Respecting the geographical dictionary, Algerians call it 'hill', failing to notice that such a name might create confusion in meaning. In Morocco, the Amazigh chose a word with a cultural dimension; the "Dir" in Amazigh stands for the belt or strap that links the saddle to the neck of the horse, or, to be more precise, to the point where the horse's neck meets its shoulders. The Amazigh sought the strength and charm of the metaphor and called the mountain's foot the "Dir", pointing to the fact the geographical and historical significance of the "Dir" with regard to the plain stems from the importance of the said belt/strap with regard to the saddle. Put differently, the saddle on the horse back cannot stand stable without a belt/strap that ties it to the horse neck. As the current Amazigh proverb goes, "If you want to cause the saddle to fall off the back of the beast, suffice it to remove the belt/strap that tightens it to its neck". It seems that Arabs were fascinated and infatuated with the strength and vigorous influence of the Atlas Mountains on the lands surrounding them, especially westward and northward. They, therefore, decided to borrow the term "Dir" from Amazigh and used it to denote the sudden contact between the plains and the Atlantic Heights, which was behind the indigenous people's invoking of the notion of "belt/strap". It should be noted as well that the local dwellers have been acutely aware of the special and vital role that the violent contact between the height and flatness when they used synonymous words to indicate similar geographical locations. They usually call high lands bordered by a steep cliff "the mountain with belt". In this connection, it is important to remember the name of the place where the mountain festival takes place in the city of Khenifra, i.e., Ajdir, which means the wall or fence. Here, it is blindingly obvious that this place is located amid a medium-sized courtyard bordered by mountains that appear to have just abruptly emerged from underground or fallen from the sky. The image of the "Dir" in our minds is a physical and morphological one, but its practical significance has widened; the tribes living in the "Dir" are thought to be enjoying the privilege of "being in the saddle", i.e., living on plains and low-level mountains. These tribes, therefore, have possession of a series of plains, low or medium-height slopes, and valleys expanding all the way down towards the plain. The "Dir" is an appropriate term to describe the general living conditions of a large category of Moroccans; it accounts for why and how the geographic unity of the natural parts of Morocco are not governed by the principle land homogeneity, but rather by the co-existence of opposing but complementary territorial units. The fact that there are plains which are suddenly separated by steep cliffs is clear to anyone with a modest knowledge of the landscape of Morocco; when it comes to the southern border of Meknes plain between Akurai and Sefrou, we can invoke the "Dir". The same holds true for both the line of scattered oases, such as a Rekou in the eastern base of the Mediterranean Atlas and the intersection

between the Sous Plain and the Great Atlas. However, the "Dir" par excellence is at the base of the western slope of the Mediterranean Atlas and the northern slope of the Great Atlas above Tadla and Al Hawz; it constitutes a contiguous area from Zaouiat Sheikh and the north-eastern border of Tadla until Chichawa. Among the tribes living in the "Dir" are Ait Oum Albaght, the various branches of Ait Sri, Ait Taleb, Enntifa, Oltana, Damnat, ElMasfiwiya, Ourika, Sektana, Elkedmounia, Amizmiz and Imintanout. It should be noted here that a number of these tribes have branches in the high mountains [4], [7].

#### **4. THE MOUNTAIN PARADIGM**

Castells, inspired by Harvey Brooks and Daniel Bell, defines technology as the use of scientific knowledge that makes it possible for a person to perform and execute their work in a replicable and reproductive way; technology, then, is the complete structuring of scientific knowledge, such that there is no longer any room for intuition nor personal smartness responsible for creativity and innovation [6]. When technology is placed at the heart of defining society, as Castles and Karl Marx before him did, and society is place at the heart of defining history, one gets a definition of society as a historically defined form of social use of technology. Society is, on this basis, a relatively consistent and stable form of socio-historical use of technology. One talks about changing society only when this overall relative stability is followed by major events in the form of violent and rapid upheavals that combine to create the subsequent stable phase. Such perception of social change is what enables Castles to talk about society in terms of a technological paradigm. In this, he follows in Stephen Jay Gould's footsteps, a paleontologist who put forward the governing idea that "what remained engraved on the rocks and resisted the difficulties of time, attests to the fact that the history of life was by no means a gradient history of progression and communication, and that change, according to this view, did not occur in a smooth, slow and systematic way." [6, [7]]. If technology is the tool whereby people can transform nature into culture, then defining society as a form of social use of technology becomes more important and more relevant as society progresses, through work and technology, control nature and transform things into products. However, not all societies are as equally technologically advanced nor are they equally independent of nature and its laws. In Morocco, the mountain exhibits primitive lifestyles that hardly makes it possible for humans to survive. Dwellers of mountainous areas use very simple techniques which cannot ensure the implementation of significant and complex exchanges given the natural environment they live in; therefore, natural factors, especially the geographical factor, remain decisive when it comes to their life and production styles. It would be absolutely wrong to insist on defining the mountain society as a technological paradigm; or at least, it would be right to define it in light of the limited and insignificant impact that a simple and primitive technology can have on its formation and its general features. For this reason, natural factors remain the first and foremost determinants of mountain society. The mountain paradigm proves to be way to depict the way of life and production style prevailing in the mountain; if at all there exists a relative stability characterizing mountain society, it thanks to the mountain itself as a source of wealth (water), how to access it (cliffs, gorges and valleys) and its meeting point (river mouth and Dir). The Mountain paradigm is an expression that implies that the mountain is the element around which Moroccans' social life, in all its economic, cultural and political dimensions, has revolved. It is the explanatory element of the history of war and peace in Moroccan society. If anything at all should be taken seriously in any analysis, it is that Morocco did not have natural center, and this very fact is the result of the mountain. The mountain actually divides Morocco into four parts, each of which turns its back to and shows hostility and competition towards the other. All the mysterious history of North Africa can reveal its great secrets if we conjure up this historical, human and geographical perception. Thanks to such perception, the history of North Africa becomes similar to that of other regions where arid and water-abundant areas are

adjacent, namely Egypt, Mesopotamia, Turkestan and others [2]. In all these areas, the term military front takes all its powerful connotations on the contact and confrontation between stable farmers and camel breeding nomads. It should be noted here that the terms "line", "belt" or "contact" are not entirely appropriate to describe the natural contact between a life of stability and that of transhumance, which actually takes place on a relatively broad land separating the two above-mentioned areas, where each human group exercises full sovereignty; the region that the "fittest" controls is the region of transhumance: life style of half nomads [8]. Historical data and archeological testimonies attest to the fact that farming, which provides for a stable life in its fields, dwellings and cities, requires the implementation of an institutional system to ensure security and progressive development. Nomads, however, are organized in tribes which are like military units led by a chief or powerful gangs that, to some extent, resemble herds of hungry and fierce wolves. Only when they found a state and abandon their individualism and chaos in favor of a sustained institutional system and collective discipline, can stable farmers defend themselves against attacks and natural threats on the part of nomads. On this basis, the history of North Africa can be reduced to the succession of stable countries constantly threatened by nomads. When a powerful state is established on the hill, people's life develops, social well-being is achieved, agriculture thrives, and pasture life disappears. However, once these countries experience internal cracks and weakness, nomads crawl over cities, rob fields, destroy plants, and drive urban life toward the coast.

## 5. CONCLUSION

This article is based on a semi-mathematical equation: The less technologically developed a human community is, the more it is related to and dependent on natural factors, and the more its history is dependent on its geography. The more a human community innovates sophisticated techniques, in its dialectical relationship with nature, the more it enhances its independence, the more its history is independent of its geography and the more it is closely linked to its production style and the level of technological development that structures it. Thus, lifestyles in the mountain remained geographically determined at least until the Moroccan State adopted the policy of dam building, which officially and realistically meant the transfer of water control to the State through its possession of modern and advanced technology. It is certain that technological development, through which man can control geography and overcome the boundaries that nature sets between regions, understates the importance of many historical and geography data and limits its relevance and analytical value. However, the constant is to the struggle to hold the connecting thread that explains the importance and value of the mountain in structuring and preserving Moroccans' life. Perhaps, the keyword that should constitute the starting in our struggle to re-arrange things and obtain a homogeneous overall vision is sustainable territorial development. The question of the mountain, within this overall problematic domain, is in keeping with the problem of elaborating an integrated approach to the national territory creation and planning. From this perspective, the problem of mountain development takes the form of a question on the place of the mountain in national development which advocates the return to it as a central challenge. The sustainable territorial development paradigm, of which the relevance derives from the rising chasm (gap, concerns) of human civilization vis-à-vis the destruction of the very conditions of its existence by its technical superiority, is perhaps what leads to the protection of the mountain as a water reservoir and the upgrading of its natural qualities and assets to benefit future generations. The central question, then, is not whether mountain development is marginalized, but whether the concept of development is reformulated taking the mountain into account. In this sense, the mountain is a paradigm and not an object/subject; it calls on us to reformulate our intervention and change our challenges and stakes, or, say, change the entire development problem; it is not a cumulative/ compilation logic based on the addition of the mountain to the rest of the territorial

spheres, considering that it was excluded and did not get its share of development, but rather a transformational logic that calls on us to rearrange priorities, examine the taken-for-granted, and re-ask the foundational questions of development taking the mountain into account. If at all sustainability is related to territory, it is because it is certain that immediate and obligatory intervention to enforce radical solutions, regardless of whether the local population agrees or not, inevitably leads to resistance and hesitation. In order to avoid intervention from above harming private life, it is necessary to check whether such intervention, which shies away from exposing alternatives and ignores them, is the main reason for the growing impoverishment of mountain dwellers. "One cannot think of mountain protection in isolation from the efforts mountain dwellers make or in isolation from their innovative solutions and knowledge of the features of this rough and rugged terrain. The involvement of mountain dwellers, the careful examination of the strategies elaborated by farmers, the consultation with local groups and the introduction of contracts defining the rights and duties remain by far the only effective guarantee in view of an adequate management of natural and cultural resources." [9]

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## THE PRINCIPLE OF PROTECTION AS A PRINCIPLE OF INTERNATIONAL LABOR LAW

**Maria Joao Mimoso**

*Researcher at IJP – Portucalense Institute for Legal Research,  
Associate Professor at Law Department, Portucalense University, Porto, Portugal  
mjmarbitragem@gmail.com*

**Bruna Duarte**

*Researcher IJP – Portucalense Institute for Legal Research,  
Assistant Professor at Cândido Mendes University, Law School,  
Ipanema, Rio de Janeiro, Brasil  
brunadtm@gmail.com*

### ABSTRACT

*The aim of this study is to explore the Principle of Protection as a Principle of International Labor Law and its application to International Labor Contracts, given the precariousness of working conditions, under the current perspective issued by the International Labor Organization - ILO. We will base this principle on the grounds of the employee's inadequacy given the need to protect the most vulnerable part of the relationship in question, as means of safeguarding the dignity of the human person, in this case, the worker. This is intended to protect the worker from the employer's arbitrariness. Given the current deterioration in working conditions, it is important to understand its content as a guiding principle applicable as a General Rule of International Labor Law.*

**Keywords:** *Labor, Law, Principle, Protection*

### 1. INTRODUCTION

The aim of this study is to explore the Principle of Protection as a Principle of International Labor Law and its application to International Labor Contracts, in the performance of the International Labor Organization - ILO. The technological domain and the phenomenon of globalization in the economy are real and, in the globalized world countries and their economies, are interconnected in such a way that labor relations deserve protection from universally imposed rules (Kolb, 2005). This reality demands the existence of minimum international standards to be applied in labor relations and the recognition of certain labor rights as the Universal Human Rights, being the Principle of Protection at the core of the labor sphere (Valticos, 2013). The reports and recommendations issued by the ILO indicate that several aspects, so far outdated, still need broad debate and insight. We no longer speak only of unemployment, but of decent employment for the human person as worker. Therefore, this article does not seek to conceptualize the well-known expressions of soft and hard law, but to recognize the needs of its rules - whether they are the result of law or not - *in natura* to labor law at international level (Kott, 2011). Importantly, in parallel with the evolutionary cycle of humanity, came the improvement of the concept and the importance of work within a structured society, especially in the most modern and evolved nations, which are based - mostly - on the Capitalist model, which aims at the accumulation of goods and capital. In this context, the initial figure of work, as the primary source of simple occupation and guarantee of subsistence, was superimposed, giving rise to labor as a vital social function and also with an important role in the development of the society in which the individual is inserted, especially under the premise of imprint of capital. In this light, we realize the importance of the Principle of Protection in labor relations and also the diffusion of the Norms of International Labor Law, strengthening and unifying the need for the constant maintenance of such Principle (Soares Filho, 2009).

As a major player and important instrument for the protection of workers, the International Labor Organization (ILO) acts with focus and specialization in labor issues, becoming an important inspector of compliance with International Labor Standards. Therefore, what will be left will be to understand its effectiveness.

## **2. PROTECTION PRINCIPLE: OUTLINES OF THE INTERNATIONAL PANORAMA**

Concerning the founding principles of international labor law, these are laid down in the three central, and most important, existing International Labor Laws: (i) 1945: Article 2 of the United Nations Charter - Purposes and Principles - which outlines the General Principles of International Labor Law, with a focus on mutual cooperation, achievement of common goals, equality of its members and peaceful resolution of conflicts; (ii) 1919 and 1944: Constitution of the International Labor Organization, and more specifically the Annex the Philadelphia Declaration, created to reaffirm the ILO's central and protectionist objectives on the international scene; and (iii) 1998: Declaration on Fundamental Principles and Rights at Work, aimed at promoting sound social policies, with justice and the predominance of democracy in institutions (Sussekund, 1986). The Philadelphia Declaration is noteworthy because it sought to reinforce initial values and add new values to the ILO, branching out into two points, the first being the Human Rights as the central theme of social policies and the second the importance of implementing international economic planning. Thus, we sought to adapt the Organization to the new world reality without, however, altering its central and primary function, namely the access to "decent work" by men and women, based on the maintenance of employee protection in employment relationships (Delgado, 2011). Thus, the International Labor Organization acts as guardian of the Principle of Protection before the international community in general, having as its guiding principle the maintenance of social justice in order to reach its goals in the construction of increasingly equitable and fair working relations, adapted to the social and marketing variations of each historical moment, since its creation. In this context, the Principle of Protection, analyzed under an international bias, proves to be an important tool in the construction of an isonomic working relationship, in which formal equality is broken, as the issues that lead the parties inequality (employer and employee) are taken into account, seeking the parity of the relationship through the application of material equality (Sussekund, 2010). In other words, it can be concluded that the International Labor Organization - ILO stands for International Labor Law allied to the Principle of Protection, in the same proportion as the United Nations - UN stands for the Universal Declaration of Human Rights allied to the Principle of Dignity of the Human Person. Thus, in general terms, these two Principles together, seek to bring greater balance to labor relations on the most diverse continents of the Planet, under the most different social, climatic, political, economic, cultural, ethnic and religious conditions, with a point of intercession between them: the fragility of the employee before his employer (Alvarenga, 2007). Thus, the 1998 Declaration of Fundamental Principles and Rights at Work, as a guideline of International Labor Law, made effective the principles and minimum rights recognized as fundamental for the worker, which has the bias to recognize and adopt International Labor Conventions. Labor - recognized as fundamental because they deal with the Human Rights of Workers. The basic principles and rights within the Declaration of Fundamental Principles and Rights at Work cover four essential areas of the International Labor Organization, namely: (i) freedom of association and effective recognition of the right to collective bargaining; (ii) elimination of all forms of forced or compulsory labor; (iii) effective abolition of child labor; and (iv) elimination of employment and occupation discrimination. Contrary to what it suggests, the denomination of these Conventions as a kind of "pact" is - in fact - a true rule, whose content obeyed the purpose of giving greater effectiveness to the 1948 Universal Declaration of Human Rights itself. So much that for example in Brazil, with the approval of Decree No. 10.088, of November 5, 2019, the theme was the object of consolidation

of the ILO Conventions, ratified by the Federative Republic of Brazil -therefore characterized as hard law. Another appropriate legal perspective for the analysis is that all Member States must comply with the principles of fundamental rights of international declarations, whether or not they have been ratified in the Core Conventions, precisely because they are principles already in force, the ILO Constitution and its Annex, the Philadelphia Declaration, and establishes obligations to the International Organization itself, which should assist Member States in the effective enforcement of such Fundamental Rights (Baptista, 2012). It is also worth remembering the understanding of the norm under analysis as soft law, since it demonstrates the concern with which international society faces labor issues, in order to create flexible normative mechanisms that tend to seek answers, besides delineating a Thinking and guiding state actions, also sign of the future normative stance towards the implementation of a hard law norm, if it is interesting for the international and internal relations of states. Because they are universal values capable of providing a minimum standard of protection for work and human dignity, international guidelines are important instruments to be observed by the Member States of the International Labor Organization. Thus, it is of utmost relevance to develop an analysis and reflection on the importance, as well as a note on the necessity and effective application, of the Principle of Protection as a Standard of International Labor Law. The strong argument for respecting the Conventions should be the fist that supports and rejects their implementation and concretizes their application. The ILO needs to go beyond its original frontiers, influencing and demanding from Member States the effective practice of acts consistent with the establishment of a fairer society, thus nourishing the normative tendency of the Organization.

### **3. NEED FOR ILO SANCTIONING POWER**

In this context, it is essential to promote a debate around the current configurations of labor relations, constituted for many decades as the main mechanism of integration and socioeconomic participation, in the face of increasingly complex and unpredictable dynamics, such as causes and consequences of globalization; the constant change of society and workers to the technological changes of work; the growing precariousness and randomness as structuring factors of current experiences; the disregard of the pillars of social models; and the difficulty in reconciling social and economic dictated between equity and competitiveness. These various aspects put the debate on poverty and employment on nowadays' forefront. To this end, the international body must have a sanctioning capacity to express and punish governments and their rulers, in order to encourage change of posture. It is also important to remember that international organizations seek peace as an alternative to the use of military force. Thus, the regulation of guidelines - issued by the International Labor Organization - is the focal point to sow the balance between peoples and promote equality between individuals, even in the face of the dynamic and accelerated transformation of our daily lives today. On a regular basis, the ILO produces reports containing reviews and complaints about the work landscape in the world. However, its disclosures are not repressive, nor does it have an effective court that promotes the trial when it finds any breach in the international labor sphere, which cooperates to mitigate the level of action of the Organization. In line with the ILO's 2019 Global Employment Trends Report - published in February of this year - unemployment is falling globally; however, working conditions have not improved, warning that some businesses - driven by new technologies - are threatening the social achievements of the last decades. The 2019 Report assessed the impact of new and old challenges on the global labor market. It also considered the recommendations contained in the Report of the Global Commission on the Future of Labor (also ILO Report, 2019), which calls for by a new focus on changing the nature of employment, both in the economic and social spheres. According to the International Labor Organization (ILO), more than 3.3 billion people employed in the world as of 2018 did not have adequate levels of economic security, material well-being or career advancement opportunities.

Thus, it can be inferred that the ILO regularly examines the application of the world's norms and employment situation and indicates their improvement. The Organization has the function of supporting the countries involved through social dialogue and technical assistance, but its sanctioning character is not yet accepted internationally, promoting the relativism of noncompliance, with the argument of prevailing national sovereignty. Today's only possibility of imposing sanctions on labor rights would be through the International Court of Justice, when a complaint or claim brought by one Member State to another State arrives to court. However, such a possibility, beyond its exceptional character, is not allowed to individuals (Cenci, 2015). In the same line, they explain that if dialogue with the violating state has no effect, the only way would be to promote moral coercion by presenting and discussing the case and exposing the situation vis-à-vis to all other EU Member States' International Labor Organizations. Considering, therefore, the perspective - which aims to bind more imposing characteristics in the ILO's control activities - it must be vested with jurisdictional power, which could contribute to the effectiveness in the applicability of the Conventions and to the establishment of jurisprudence on Universal Labor Rights. Another factor that would undermine the endowment of such power would be to allow workers' associations, non-governmental organizations and the wronged worker himself to be able to lodge complaints with the Organization and have his case tried internationally, in effect erga omnes. It remains clear, then, that the moral strength derived from the Conventions and Recommendations and the Organization's attempt to universalize labor law standards in such different countries - as regards economic and social conditions - are not enough to maintain justice in the international labor market (Barrientos, 2008).

#### **4. APPLICATION OF THE PRINCIPLE OF PROTECTION AS A STANDARD OF INTERNATIONAL LABOR LAW THROUGH THE ILO**

As in the Brazilian legal system, the legislation itself admits the incidence of the General or Fundamental Labor Principles as a formal source of application of Labor Law, as evidenced by the provision contained in Article 8 of the Consolidation of Labor Laws. For the majority doctrine, the Fundamental Principles of Labor Law are those that guide and promote its existence, based on the assumption of the inequality of the parties at the time of the employment contract and during its development (Carrion, 2012). It should be noted, therefore, that the Brazilian labor law expressly admits the existence of the Principles of Labor Law and International Labor Law, as well as their existence as a formal source. For international labor law, while respecting the fundamental laws of the state, boundaries are weighed within the limits of their sovereignty and their welfare. Armed with this ideal, we enter into the ILO's rules, whose aim is not only to improve working conditions, but also the human condition as a whole, emphasizing the fight against inequality, aiming at material progress and security as the defense of the values of dignity and equality - in particular equal opportunities, regardless of race, belief or sex (Delgado, 2015). The action of the Organization briefly insists on the need for a concentrated effort - international and national - to promote the common good, ensuring the material and spiritual well-being of humanity (Sussekind, 2010). These founding principles of the Labor Organization underline that action to improve the social conditions of humanity, in the broadest sense of the term, should not constitute a separate sector from national policies or international action, for they represent the very object of internal economic and financial programs. The ILO's overriding proposal lies in international legislative action on labor issues, with political and social justification. Thus, the policy consists in ensuring a solid foundation for universal peace, while the social one aims at implementing social justice and universalizing the dignity of the human person, which are central to the effective operation of international labor law. International labor law is committed to ensuring the promotion and expansion of social achievements already attained by workers.

All the ILO's objectives are to establish basic criteria, exclusively for worker protection, to regulate them at the international level, in order to ensure more consistent standards of dignity and social welfare. Therefore, international labor law does not only deal with the specific rules or sources (whether formal or material) arising from the ILO International Labor Conference, but also with all international diplomas containing social provisions and influencing in some way by ensuring the protection and promotion of human rights of workers on an international scale (Delgado, 2005). Thus, it is inconstant to assert that International Labor Law is the branch of law that promotes the implementation of the Principle of Protection arising from universally imposed rules, given that applying only the internal legal system, historically, has not presented the fullness of the necessary results. Several international documents, considering the Dignity of the Human Person and the idea of decent work, propagated internationally, have led to the conclusion that there is currently a list of universally recognized and enforceable Labor Rights, including part of national sovereignty of each state. As well, it is not enough, however, to regulate rights that guarantee the minimum civilizing standard; an institution capable of enforcing them in the international / transnational community will be necessary. Although the International Labor Organization has sought to fulfill this role, it is necessary to advance the mission of this Organization through policies to be carried out internally within the institution and others to be implemented externally with the Member States (Cenci, 2015). The right to work is a human right, inserted in the international sphere, and a fundamental right, in the legal scope of each country, always seeking social justice (Salvatori, 2010).

## 5. CONCLUSION

For the completion of the Social and Protective Rights of Workers, which represents an important instrument for the realization of Fundamental Human Rights in the context of labor relations, it must be lost in order to eradicate poverty and marginalization, to reduce social and regional inequalities and, above all, for the recognition of the social value of work. From this perspective, it is essential to realize - increasingly - the urgency of the need for the adoption of a new paradigm for labor relations: to serve to guarantee the worker a dignified existence in this unequal relationship. For this reason, the main factors that contributed to the emergence of the International Labor Organization (ILO), as well as its substantial relevance and the achievements of the Declaration of Fundamental Principles and Rights at Work, were analyzed. These, therefore, are historical and legislative moments or records that have shed light on the path taken to secure and solidify the process of recognizing and enforcing the Human Rights of Workers at the international level. There is no need to talk about human rights, even to affirm their real existence in the lives of men and women, without, in fact, such well-developed international protective standards for workers being effectively respected and applied internationally, which it requires all active and vigilant workers and organizations, inserted in this work of the Labor Law field, with extreme attention and firm determination. For it must be even more protective of his noble mission. Although the International Labor Organization has been striving to fulfill its international function, it is necessary to advance the function of this Organization by broadening it through policies to be carried out and implemented externally, together with the Member States, with a view to effective dignity of all human work.

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## INTERNATIONALIZATION OF SMES IN ICT INDUSTRY: BUSINESS MODEL PERSPECTIVE

**Tihana Koprivnjak**

*J.J. Strossmayer University of Osijek, Faculty of Economics  
Trg Lj. Gaja 7, Osijek, Croatia  
tihana@efos.hr*

### **ABSTRACT**

*The internationalization of small and medium enterprises can be defined as a process in which a firm conducts some or all of its business activities across national borders. That process is an important step for every firm's development. Firms can ensure sustainability and growth through the process of internationalization, what is important especially for firms situated in smaller economies. However, internationalization is related to new, uncertain situations, challenges and decisions. Business model of the firm needs to be congruent with that process and the fact that firms become part of global value chains. Business model can show motives and patterns of internationalization, but also to what extent is the firm committed to doing business on international markets. Firms need to ensure competitiveness in order to be able to successfully participate in business activities on the global level. Taking into account the importance of internationalization and business model development for small firms, it is necessary to get a deeper understanding of the relationship between these two processes and their connection to the firm's competitiveness. This paper aims to analyze and present cases of three small firms from the ICT industry in Croatia that developed a successful business model for internationalization. The study is based on qualitative research. Data was collected through in-depth semi-structured interviews with owners and publicly accessible information about firms. Conclusions from this study can contribute to the knowledge about motives and patterns of internationalization of small firms and the role of business model development for international business.*

**Keywords:** *Business model, Competitiveness, Internationalization, Patterns, Value chain*

### **1. INTRODUCTION**

The entrepreneurial process is a term that describes steps in new venture creation, from idea to implementation. There are several overviews of the entrepreneurial process (Gartner, 1985; Moore, 1986; Timmons and Spinelli, 2003, Hisrich et al., 2008; Bygrave, 2009; Barringer and Ireland; 2010) and all of them include some basic elements: idea development, venture creation and venture growth. A crucial part of entrepreneurial process is business model development. A business model is often the core element that differentiates one firm from another. In order to be competitive, a firm must have a different set of business activities to be able to deliver a unique mix of values to its customers (Porter, 1998). A conscious choice to be different from the competition means that a firm has to continuously work on creating competitive advantage. Competitive advantage means that a firm has its own way of being better than other firms in the same market (Daraboš, 2015). Solely firms that can ensure their competitiveness are able to sustain and grow. Without growing, firms cannot survive on the market. One possible way of growing a business can be found through internationalization. Small and medium firms that are trying to internationalize their businesses are encountering uncertain situations on different markets and various challenges. On top of that, their business model needs to reconfigure to be able to include new factors related to the internationalization process. This paper gives an overview of the theoretical aspect of the internationalization process of small and medium enterprises (SMEs), as well as the importance of the business model in that process.

Furthermore, it presents three cases of small ICT<sup>1</sup> firms that have different internationalization patterns and their business models with an analysis of core elements necessary for internationalization.

## **2. LITERATURE REVIEW**

### **2.1. Internationalization of small and medium enterprises**

The internationalization of small and medium enterprises (SMEs) is a crucial part of every firm's development. Internationalization can be defined as a process of geographical expansion of business activities across the national border (Ruzzier et al., 2006). Another definition states that internationalization is the process of creating business relationship networks in other countries, through expansion, penetration, and integration (Johnson and Vahlne, 1990). Internationalization is inevitable for maintaining the competitive advantage of SMEs, especially in small economies such as Croatia. In such economies, companies are forced to internationalize their businesses in order to survive and grow. Considering the importance of small and medium-sized enterprises for the economy of every country this issue becomes even more important. SMEs are 99% of all businesses in the European Union (and Croatia) and employ two-thirds of the private sector workforce. SMEs can no longer operate even in the domestic market without taking into account the risks and opportunities from the global competition (Ruzzier et al., 2006). Firms need to ensure competitiveness in order to be able to successfully participate in business activities on the global level. There are various theoretical approaches to the process of internationalization, such as process model, network model, born global, and international entrepreneurship. The process model describes internationalization as an incremental process. *Uppsala model* is widely acknowledged process model, in which the firm goes through several phases: (1) no international activities, (2) export activities via agents, (3) export activities via firm's sales subsidiary and (4) production subsidiary in a foreign country (Johanson and Vahlne, 1977). The network model is, in a way, development of the *Uppsala model*, and it considers the process of internationalization as a way of the growth of business activities, realized through social and business relationships, or creating networks (Barbosa et al., 2005). After the rapid development of technology and knowledge, there are more and more firms that are going through the process of internationalization since the beginning of their business. That phenomenon is called born global (Madsen and Servais, 1997). The latest approach to the internationalization of SMEs is international entrepreneurship, which is defined as behavior based on innovativeness, proactiveness, and risk-taking, that goes beyond national borders, in order to create value in the organization (McDougall and Oviatt, 2000). Taking into account the importance of internationalization and business model development for small firms, it is necessary to get a deeper understanding of the relationship between these two processes and their connection to the firm's competitiveness.

### **2.2. Business models**

Business models are providing a thorough overview of organizations, which can help in firms' success and search for competitive advantage. Rising interest for business models came from several reasons: new technologies, the Internet, new markets, changes in firms' organization and decision making (Zott et al., 2011; Wirtz et al., 2016; Mendelson, 2000). Osterwalder and Pigneur (2014) defined a business model as the outline of a firm's strategy, including organization structure, processes and systems. Barringer and Ireland (2010) see the business model as a firm's plan for dealing with competition, using the resources, structuring relationships with partners and customers, as well as creating value based on the realized profit. Additionally, Teece (2010) says that the business model is defining how is firm creating and delivering value to customers, and turning those transactions into profit.

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<sup>1</sup> Information and communications technology



Wirtz et al. (2016) states that the business model is a simple conceptual framework of all firm's relevant activities. Morris et al. (2006) consider that for defining the business model, three perspectives need to be taken into account: strategic, operational and economic. The business model shows how a firm is generating revenue, how operations are structured and administrated, and finally, what are the firm's vision and market position, including opportunities for growth. Business models are related to creating a competitive advantage of the firm. Firms need to analyze all elements of the business model to be able to create a sustainable competitive advantage (Wirtz et al., 2016). A somewhat broader view is that a firm's competitiveness relates to the interaction of its business model with its environment, not only the elements within (Casadesus-Masanell and Ricart, 2010). This is essential when firms are internationalized and are part of the global value chains.

### **3. METHODOLOGY**

The main goal of this paper is to analyze and present cases of three small firms from the ICT industry in Croatia that developed a successful business model for internationalization. The study is based on qualitative research. When using qualitative research, the author intends to interpret, understand and explain specific problem or phenomenon (Eriksson and Kovalainen, 2016). For that reason, the qualitative approach was appropriate for this study. This paper presents and analyzes three case studies of small firms in the ICT industry. The case study indicates intensive research of a specific unit or system which has characteristics of entity (Halmi, 2005). The ICT sector was chosen for its undeniable importance, for the development of society as a whole, and for the economy of each country, including Croatia. It is an extremely competitive industry where companies find it difficult to achieve a sustainable competitive advantage, but also they often need to compete in the global market. The purpose of these analyses is to compare the business models of these companies and understand their internationalization process. Data was collected through in-depth semi-structured interviews with owners and publicly accessible information about firms. In-depth semi-structured interviews are one of the three types of qualitative interviews, designed for discovering the answers for "what" and "how" research questions (Eriksson and Kovalainen, 2016). The interview questionnaire was based on Osterwalder and Pigneur's (2014) business model canvas. Their illustration of business model consists of nine elements: (1) value proposition, (2) customer segments, (3) channels, (4) customer relationships, (5) key partners, (6) key activities, (7) key resources, (8) cost structure and (9) revenue stream. Authors state that the business model can be most thoroughly described through these nine elements because they cover all relevant areas of the firm's activities: customers, offer, infrastructure and financial viability. The value proposition is a set of products and services that create value for chosen customer segments. Customer segments include all groups that the firm chooses to satisfy its needs. In order to reach those customers, the firm has to decide what the proper channels for communication and delivery are. Customer relationship describes what type of relationship is firm establishing with specific customer segments. Key partners are those who can help the firm to attain its goals and create a successful business model. Key activities explain what the firm must do to have a sustainable and successful business. Key resources are all firm assets needed for business activities and operations. Cost structure defines all expenses that are a result of business model implementation. Table 1 shows basic business information about firms. They are small firms, established in different period of time. Case A has been established in 1990, a period that is characterized by various economic changes and problems. Case B has been established in 2003, period with more economic stability, while case C has been established in 2008, in the time of the beginning of the great economic crisis in Croatia. All three firms are still in business today, well-known and successful in the market.

*Table 1: Basic information about firms*

	Case A	Case B	Case C
Year of establishment	1990.	2003.	2008.
Number of employees	48	42	44
Total revenue	18.536.300	21.265.400	15.537.600
Export	2.939.400	19.642.500	13.740.000
Expenses	12.636.900	10.474.600	11.908.300
Net profit	4.838.200	8.844.600	3.301.500

*Source: Poslovna Hrvatska. Business Report for the year 2017, author's compilation*

## 4. RESULTS

### 4.1. Overview of the industry

Nowadays, the ICT industry has an important role, due to the great significance of technology in everyday life and business. ICT is a general term that includes various types of technologies that enable the generation, handling, storage, processing and exchange of information (Croatian Information Technology Association, 2012). The importance of the ICT industry for a country's economy goes beyond just its share in the country's gross domestic product and the number of workers it employs, because, in addition, the ICT sector is an infrastructure business and has a major impact on the country's competitiveness (Žitnik, 2015). Analysis of ICT industry for period 1999 – 2009 shows that the development of this industry in Croatia started with basic work (hardware compiling and simple maintenance services) and business activities were focused on the local market (Croatian Information Technology Association, 2012). Afterward, those who were more entrepreneurial gained additional knowledge, partnerships with international IT companies, and started to stand out as they were able to grow and expand. These companies are becoming significant in various fields such as IT equipment sales, systems integration, software production, and implementation. In the Industrial Strategy of Croatia for the period 2014 – 2020 distinction was made for subindustries. According to different criteria, subindustries were categorized as initiators, keepers, questionnaires, problematic and without influence. Software programming, consulting and related activities have been recognized as important and categorized as initiator subindustry, meaning that it is considered to be a key industrial subdivision expected to achieve high growth, employment and export rates. The importance of this subindustry has often been mentioned, and results of a research made by the Ministry of Economy of the Republic of Croatia, entitled Economic Analysis of the Professional and Business Services Sector, has shown the importance of software programming and consulting. This subindustry was yet again recognized as the industry that is able to grow and recruit faster than the national economy average (Ministry of the Economy of the Republic of Croatia, 2014). Three firms that are chosen for case studies are all part of this perspective subindustry.

### 4.2. Internationalization from the business model perspective

As it can be noticed, the ICT industry is highly competitive and it can be rather difficult for the firms to create and maintain their competitiveness. Three cases that are presented in this paper have managed to do so for many years, despite the changes and influences from the global market.

#### 4.2.1. Case A

The main product of firm A is integrated business software, for the integration of business processes and is built of enterprise resource planning, business intelligence, customer relationship management, asset management, warehouse management. The goal was to develop a software with maximum functionalities (800 particles, with constant development). The most important characteristics are expertise, flexibility, and configurability.

The software offers vertical solutions for specific industries and customers' specific needs. A significant part of the offering is implementation, consulting and support. The firm is operating on business to business (B2B) market and is primarily focused on the domestic market. Their internationalization is through its customers, meaning when their customers internationalize their business, they are following them on the international market in order to satisfy their needs for that market. The most important industries for them are manufacturing, retail, and agriculture. The main communication and sales channel is the firm's website. The firm is trying to build long-lasting relationships, therefore they have an individualized approach to every client and strong after-sales support. Employees are identified as the key resource of this firm. There are three main activities of the firm: software development, consulting and implementation, and support. This firm does not rely on having key partners for their business, because they believe it is important to develop independent business. However, their software development is based on Microsoft technologies and they are Microsoft Gold partner. Their revenue stream is based on license sales, consulting and support. Customers are paying what they really need, and it is based on the standard license and additional particles of the customer's choice. The cost structure is in line with their activities and resources, meaning that over 60% of their costs are employee expenses.

#### *4.2.2. Case B*

Firm B has three different offerings: developed software (pharmacy and bookkeeping), outsourcing services and semi-finished solutions for other IT firms. The firm has a fully customized value proposition for its customers and particularly strong support. Customers are firms and government organizations, spread globally and the company operates with clients in over 70 countries around the world. Their focus is on high-end industries, such as pharmacy, banking, medicine, and energetics. The website is the main sales channel, but sales are also made through partners in specific countries. Their intention is to build strong and long lasting relationships, of which some can become partnerships. There are several key activities, which are based on their products and value proposition. However, a common link to all activities is constant and fast customer support and prompt problem-solving. The most important resource of this firm is their employees, who always use cutting edge technologies, and their knowledge becomes the intellectual capital of the company. The main sources of revenue are sales of products and services and post-sales support. Considering that employees are the key resource, the most important expenses are costs related to employees (over 70%).

#### *4.2.3. Case C*

Since its establishment, firm C intended to specialize in offering one service – webshop development based on the Magento platform. This includes the development of the new webshop or redesign, development, and optimization of an existing online store. Their service covers also various integrations with existing systems that the customer has, such as ERP, their marketing channels, POS devices, shipping calculations, synchronization with courier services. It can be seen that this firm has a fully customized offering for the clients. Their clients are mostly international, in over 45 countries around the world. Most clients are from the following countries: the Netherlands, the United Kingdom, Denmark, and the USA. They have direct sales, without agents or partners. Communication with customers is done through website, and their strategy was content marketing based on that website. The firm is focused on long-lasting relationships with their customers. The firm has two important partnerships: local IT cluster and Magento community (status of the gold Professional Magento Solutions partner). Activities of the firms are very specialized, in a narrow domain, on a specific platform, and therefore employees are the main resource of the company. They have the necessary knowledge, and because of their importance, around 70% of the expenses are related to employees.

The main source of the firm's revenues are sales of services and post-sales and complementary activities. Overview of business models is given in Table 2.

*Table 2: Business models of the firms*

	<b>Case A</b>	<b>Case B</b>	<b>Case C</b>
<b>Value proposition</b>	<ul style="list-style-type: none"> <li>• Integrated business software</li> <li>• Expertise, flexibility, and configurability</li> <li>• Specialization for specific industries</li> <li>• Vertical solution</li> <li>• Continued support</li> </ul>	<ul style="list-style-type: none"> <li>• Range of products and services</li> <li>• Quick delivery for a reasonable price</li> <li>• Strong on-time support</li> </ul>	<ul style="list-style-type: none"> <li>• Best buy option</li> <li>• Client approach and communication</li> <li>• Full-service agency</li> </ul>
<b>Customer segments</b>	<ul style="list-style-type: none"> <li>• B2B</li> <li>• Focus on the domestic market, internationalization through domestic customers</li> <li>• Manufacturing, retail, agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• B2B</li> <li>• Focus on the international market</li> <li>• Pharmacy, medicine, energetics, banking</li> </ul>	<ul style="list-style-type: none"> <li>• B2B</li> <li>• Focus on the international market</li> <li>• Firms that need a webshop</li> </ul>
<b>Channels</b>	<ul style="list-style-type: none"> <li>• Website</li> </ul>	<ul style="list-style-type: none"> <li>• Website</li> </ul>	<ul style="list-style-type: none"> <li>• Website</li> </ul>
<b>Customer relationships</b>	<ul style="list-style-type: none"> <li>• Building long-lasting relationships</li> <li>• Individualized approach</li> </ul>	<ul style="list-style-type: none"> <li>• Building long-lasting relationships</li> <li>• Individualized approach</li> </ul>	<ul style="list-style-type: none"> <li>• Building long-lasting relationships</li> <li>• Individualized approach</li> </ul>
<b>Key resources</b>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> <li>• Broad spectrum of cutting edge technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> <li>• Magento technology</li> </ul>
<b>Key activities</b>	<ul style="list-style-type: none"> <li>• Software development</li> <li>• Implementation and consulting</li> <li>• Support</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying and adapting the customer needs</li> <li>• Support</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the customer needs</li> <li>• Developing an individualized solution</li> <li>• Consultant support and maintenance</li> </ul>
<b>Key partners</b>	<ul style="list-style-type: none"> <li>• No partners</li> </ul>	<ul style="list-style-type: none"> <li>• Customers - partners</li> </ul>	<ul style="list-style-type: none"> <li>• The local cluster of IT firms</li> </ul>
<b>Revenue stream</b>	<ul style="list-style-type: none"> <li>• License and particles of customer choice</li> <li>• Implementation</li> <li>• Hardware (project-based)</li> <li>• Education (project-based)</li> <li>• Maintenance and support</li> </ul>	<ul style="list-style-type: none"> <li>• Licenses and maintenance</li> <li>• Outsourcing services</li> <li>• Semi-finished solutions for other IT firms</li> </ul>	<ul style="list-style-type: none"> <li>• New webshop development</li> <li>• Maintenance and upgrade of an existing webshop</li> </ul>
<b>Cost structure</b>	<ul style="list-style-type: none"> <li>• Fixed costs</li> <li>• Salaries</li> </ul>	<ul style="list-style-type: none"> <li>• Fixed costs</li> <li>• Salaries</li> </ul>	<ul style="list-style-type: none"> <li>• Fixed costs</li> <li>• Salaries</li> </ul>

*Source: Interview transcripts*

Case A builds its competitive advantage through a personalized approach and value proposition, with the help of the knowledge and experience of its employees. An important foundation for building competitive advantage, as well as a source of revenue, is ongoing customer support and long-term relationships. Their internationalization process is based on the internationalization of their customers. Case B is achieving its competitive advantage through a rich value proposition, with a focus on continuous and prompt support.

Employee knowledge and the use of the latest technologies provide the foundation to create a value proposition and provide support. The presence of partners in the relevant markets that facilitate their access to those markets is essential. The relationship that was built with several international customers was transformed into partnerships that are the basis for further international growth. Case C builds its competitive advantage on a narrow specialization, offering specific services, based on the specific technology. The essential part is the employees who are certified experts in the technology used by the company, and because of this, they have become recognizable in Croatia as well as in the world. They are reaching international markets directly, without partners and they are on the verge of opening subsidiaries in the significant countries to be closer to their customers and to grow. The ICT industry is a global industry and firms are often competing with other firms from all over the world. Due to technology development, products and services can easily be offered globally. Firms in this industry cannot build their business models based on the local market and domestic assumptions, they need to ensure global competitiveness. Furthermore, they can find different patterns of internationalizing. Even the firms as seen in Case A that would prefer to focus on domestic markets, need to find a business model that allows them to satisfy the needs of their customers who want to do their business activities internationally. Some firms choose to develop partnerships or find agents who will help them to internationalize, and this is an important part of the business model of the case B. On the other hand, some firms prefer to go directly to their customers, first over the direct contact and communication, followed by opening the subsidiaries in foreign countries.

## **5. CONCLUSION**

In the context of internationalization, firms need to take into account many factors influencing the development of their business model, especially because they will be a part of global value chains. Technology-based firms, such as the ones that are in the focus of this study, are affected by rapid changes in their market and it makes it even harder to ensure sustainable competitiveness and furthermore, growth of the firms. They need to have a business model that can endure in those circumstances. Three cases presented in this paper are building their competitive advantage in carefully selected markets, with a thoroughly thought out value proposition. What they have in common is the fact that they have succeeded in building their business model so that the combination of all the components, helps them to achieve sustainable competitive advantage and exceptional business results, and thus further growth and development. Although they have different internationalization patterns, they are aware that the ICT industry is global industry and their business model needs to be built and innovated in a manner that helps them seize opportunities in the global value chains. Conclusions from this study can contribute to the knowledge about motives and patterns of internationalization of small firms and the role of business model development for international business. Limitations of this study are the fact that all three companies are from the same subindustry, so for further research, it would be interesting to see what are the findings in other subindustries within the ICT sector. Somewhat more complex research could be done in order to better understand the interactions of all components of the business model in companies that are currently in the process of internationalization.

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## EXPLORING THE IMPACT OF CONSUMER IDENTIFICATION WITH USERS OF THE SPORTS CLUB SOCIAL NETWORK

**Zeljka Marcinko Trkulja**

*Libertas International University, Croatia  
zeljka.marcinko.trkulja@gmail.com*

**Jasmina Dlacic**

*Faculty of Economics and Business, University of Rijeka, Croatia  
jasmina.dlacic@efri.hr*

**Denis Tomse**

*Faculty of Commercial and Business Sciences Celje, Slovenia  
denis.tomse1@gmail.com*

### **ABSTRACT**

*Rapid growth of sport industry leads to intensive research in the fields of sport marketing management. Sport is important part of the social structure and significantly influences modern society. As it is strongly correlated with profit related activities, such as ticket sales, licensing or media coverage it is obvious that sport industry and sport itself will spur research interest also in the future. Sport team brands recognized importance of digital platforms and social media networks in process of attracting new consumers and developing relation with existing consumers. Although digital media is ubiquitous, insufficient research of the concept of consumer engagement on the social networks of sports clubs is evident. Aim of this paper, is to explore consumer identification with members of a sports club social network and its relationship with developing and building loyalty of the sport club. Analysing and critically evaluating existing instruments for measuring the concept of consumer engagement in the sports industry and synthesizing existing theoretical knowledge in the mentioned areas, the basis for the empirical analysis of the concept is founded. Furthermore, research results indicate that consumer identification with members of the sports club is positively associated with loyalty to the sport club. This can serve to marketing managers in the social networks of sports clubs, increasing the practical value of this research.*

**Keywords:** *consumer engagement, consumers' identification, social media, sports club, loyalty, virtual community*

### **1. INTRODUCTION**

Today, sport is present in all elements of the social structure, and as a consequence impacts contemporary society. Understanding the economic dimension of sport is a must for all sport organizations in order to continue to develop the sport, and society as a whole, in a positive direction (Filo, Lock and Karg, 2015). Likewise, business organizations that want to be involved with sports need to be aware of the opportunities in the sports market. Maximizing consumer satisfaction is the basic premise of any business that organizes its business on the marketing concept and strives for long-term and sustainable business success (McAlexander, Schouten, & Koenig, 2002). It is clear that sports clubs, by understanding consumer behaviour in the digital environment, will positively influence the degree of consumer satisfaction, and consequently can expect higher profit margin (Filo, Lock and Karg, 2015). Global business trends have identified the importance of building long-term consumer relationships, either producer-consumer or brand-consumer relationships (Acar and Puntoni, 2016). Establishing consumer loyalty is of a great importance for companies, and it is more easily to retain existing consumers than to capture a new consumer (McAlexander, Schouten, & Koenig, 2002).



Understanding and adapting the concept of a consumer engagement, sports clubs can achieve a number of goals such as: increasing market share, increasing sales revenue, reducing costs, and increasing brand perception, increasing consumer confidence, increasing consumer satisfaction and consumer loyalty (Scafarto, Meridionale and Scafarto, 2016). Consumers who want to participate in sports and watch sports and number of healthy lifestyle enthusiasts, leverage new unique variants in sports. They have transformed the sports industry into the fastest growing sector and are present in industrial entertainment, the fitness market, professional and academic sports, and many other sports-related fields (Filo, Lock, & Karg, 2015). The aim of this study is to research consumers' identification with virtual brand community of the sport team brand and its relationship with developing and building loyalty of the sport club. It is important to explore different aspects of the consumer relationship with the virtual sports club brand community and its impact on the activities and behaviour of consumers in the sports industry. Focusing on consumers' identification with virtual brand community will help to determine the influence of the dimensions of consumer identification with members of the sports club social network on sports club loyalty. As consumer engagement on social networks is considered to be the prerequisite of a sport club loyalty it is needed to focus also on this relationship in understanding behaviour within the virtual community. Paper is organised as follows. After the Introduction a Conceptual framework is described, followed with Research method and hypothesis section. Research results are pointed out and conclusion offered.

## **2. CONCEPTUAL FRAMEWORK**

### **2.1. Consumer engagement: theoretical foundations**

Consumer engagement as a concept is often underlined in a phrase that describes different consumer terms and conditions such as consumer satisfaction or, for example, repeated consumer shopping (Apenes Solem, 2016). Although these behaviours are attractive to businesses, they do not provide assurance of loyalty. The concept of consumer engagement in marketing can be seen as an act of engagement (van Doorn et al., 2010) or an engagement state in which consumer engagement is viewed as an inherently associated part of the psychological state (Brodie et al. 2011; Hollebeek, 2011a). Obviously, consumer engagement varies from consumer to consumer and it is dependent on their characteristics. Consumer engagement can be seen as an act of exclusive consumer activity on social networks, and therefore it is important to measure it through a metric of a digital behaviour (e.g., likes, comments, content sharing) (Plummer, 2006). Thus, the task of marketers is to encourage and convince the consumer that the brand deserves the investment of their personal time, effort, money with the aim of total immersion in the brand through building, supporting and protecting relationships (Hollebeek and Chen, 2014). Consumer engagement is reflected through a variety of behaviours that subsequently result in a stronger and firmer consumer relationship with the sports club, which goes beyond the traditional metric of consumer loyalty, such as visitation frequency, shopping behaviour and future consumer intentions (Vale and Fernandes, 2018).

### **2.2. Consumer engagement in sport industry**

With the growth of social networks users, new dynamics have been established in the field of sports marketing management (Vale and Fernandes, 2018). Digital marketing has systematically changed the paradigm of consumer behaviour of the modern age, and social networks have been transformed into communication channels through which it is possible to stimulate consumer engagement with the brand. Digital platforms enable consumers to engage in extensive brand-related activities (Hollebeek, Glynn and Brodie, 2014), foster dynamic and ubiquitous brand-to-consumer communication and real-time communication, as well as various interactions between brand and consumers and among consumers as well (Dholakia, Bagozzi and Pearo, 2004).

With the development of social networks, consumers become co-owners and co-creators of brands and play a strong, decisive role in the process of building brand loyalty and trust. The sports club has been highlighted as the perfect example of a strong shared interest in developing successful virtual communities (Popp et al., 2016). High levels of worship, identification of fans with a sports club, and emotional attachment to a sports club are related to the concept of consumer engagement (Yoshida et al., 2014). Consumer engagement on sports club social networks can result in positive electronic communication, worship statements and interaction with other members of the sports club social community. Consumer engagement research to date has focused on highlighting the benefits that businesses have from consumer engagement and largely neglects the consumer perspective. Sports consumer engagement is realized through watching their favourite teams at sports events, watching sport events on television, buying licensed club products, reading sports magazines and newspapers, and talking with others about sports (Funk and James, 2001). An engaged sports consumer is more likely to focus not only on activities for personal gain (eg. attending matches, watching a match through the media, reading about sport club and shopping licenced sport club products), but also on activities that benefit their favourite sports club (eg. a vivid display of sports worship) and group attendance at sporting events (Swanson et al., 2003); and activities for the benefit of other fans like sharing club knowledge with other fans, communicating with each other, supportive and encouraging behaviour within the cheerleading atmosphere (Funk and James, 2001). All this engaged cheerful behaviour is reflected through a persistent and long-lasting loyalty to the sports club.

### **2.3. Consumer identification with members of the sports club**

Identification process is an important contributor to strategic decisions regarding the optimal allocation of efforts to encourage consumer identification with a brand, virtual community, or both. Identification with the brand encourages the consumer to disseminate a positive word of mouth and to spur beneficial consumer activity towards the company and its products. It is important to determine that consumers identify with more specific identification objects. According to Tajfel and Turner (1986), social identity is defined as that part of an individual's notion of himself that arises from his awareness of being a member of a particular group or groups, but also from the emotional importance that affinity has for him. Social identity theory explains that an individual acquires social identity on the basis of belonging to particular groups, so his social identity consists of those aspects of his own self-image that emerges from those groups to which he belongs (Tajfel and Turner, 1986). Because consumers are often associated with a range of brand-related identifying characteristics, including brand, business, and other consumers, analysis of one factor alone does not result in an adequate understanding of the concept of consumer identification with the brand. Therefore, it is necessary to analyse different dimensions of consumer identification with the brand in order to understand consumer engagement on social networks. Therefore it is needed to analyse different reasons of consumers' identification with a virtual social community of a sports club, as well as it is needed to analyse the identification of consumers with other consumers within the virtual social community of a sports club. McAlexander, Schouten, and Koenig (2002) identified the importance of understanding brand social network management, which is based on a structured set of brand consumer relationships (Muniz, Jr., and O'Guinn, 2001). Many factors point to the need for a detailed analysis of social communities, including the potential for the impact of the virtual community on the perceptions and activities of other members. Consumer interaction on social networks is often broadband and consistent. It affects the speed of information dissemination, influences consumers' perceptions of new products and offers, and increases the ability to engage with loyal consumers. Consumer engagement with a sports club brand has been found to contribute to the development of personal identification and loyalty to the sports club brand social community.

The brand is at the centre of the consumer identification process in the context of sports club brand communities and directs affiliation with the group. The consumer can begin the process of self-categorization by selecting the brand with which he or she identifies and seeking other consumers who share the same passion for the brand (Algesheimer, Dholakia and Herrmann, 2005). Thus, it can be said that the consumer relationship with the sports club brand is influenced by the relationship with members of the sports club brand community. Typically, consumers first identify the value of a brand with the functional and symbolic benefits of the brand itself, and then seek and interact with consumers who share their enthusiasm (Algesheimer, Dholakia, & Herrmann, 2005). Consequently, personal identification with the sports brand social community may result in increased consumer engagement on sports brand social networks. The need to explore different aspects of the consumer with the virtual club brand community is evident and it impacts the activities and behaviour of consumers in the sports industry.

#### **2.4. Sports club loyalty**

Brand loyalty is considered to be a significant indicator of marketing management success in many industries, including the sports industry (Yoshida et al., 2014). Thus, from a consumer perspective, brand loyalty largely depends on the consumption perception of a particular brand. Customer loyalty is a deeply held commitment to rebuy or re-patronize a referred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behaviour (Oliver, 1999). In contrast, the notion of consumer engagement is tied to activities that have occurred outside the scope of consumption and purchase of the product itself (Brodie et al., 2011). Marketing research to date has identified the impact of consumer engagement on increasing loyalty which is manifested through a strong psychological connection, supported by interactive brand experience beyond the scope of the product purchase process itself (Brodie et al., 2011). Consumer engagement on social networks influences consumer outcomes through perceptions and attitudes toward the brand and consequently affects brand loyalty (Brodie et al., 2011).

### **3. RESEARCH MODEL AND HYPOTHESES**

From a consumer perspective, loyalty to a sports club brand largely depends on evaluating the consumer's experience of interacting with a particular brand (Chaudhuri and Holbrook, 2001). Numerous studies have suggested that loyal sports fans will participate in various sports club activities (Funk and James, 2001), therefore the impact of consumer engagement in the process has been identified creating brand value and loyalty. It is likely that an engaged consumer on sports club social networks will develop a greater affection for the club, which is manifested through loyalty (Yoshida et al., 2014).

Thus: H1. *Consumer identification with members of the sports club is positively associated with loyalty to the sport club.*

According to literature review and suggested hypotheses, the following research framework is proposed (Figure 1):

*Figure following on the next page*

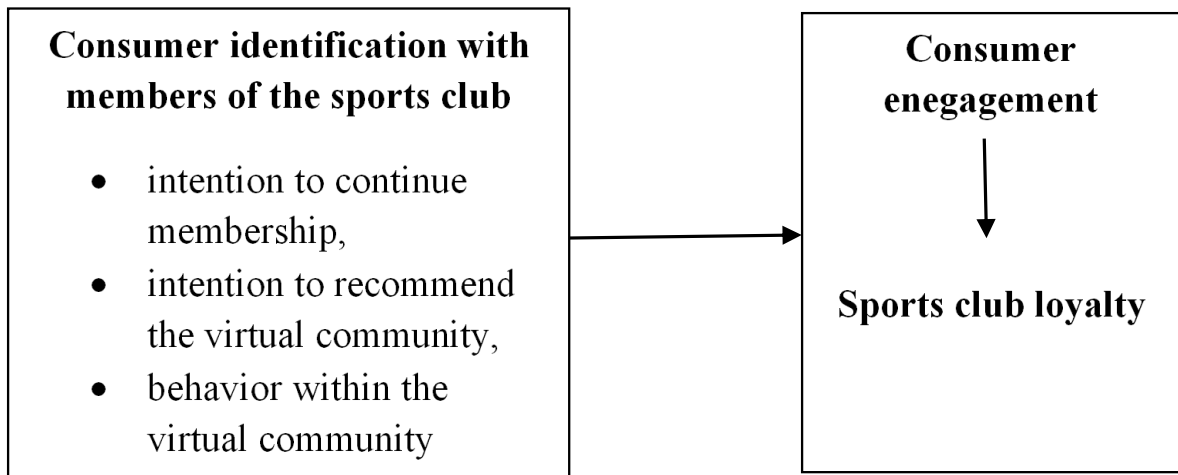


Figure 1: Research framework

### 3.1. Method

The research model was tested using a sample of consumers and fans of sports clubs in the field of basketball, football, handball in the Republic of Croatia. Our target respondents were individuals who have joined and participated in social media Fan Page. An invitation e-mail with a URL to the online questionnaire was sent to over 1.500 consumers and fans of sports clubs. The participation was completely voluntary and 260 validated responses were recorded. Resulting in response rate of 17,3%. Several screening questions were used to ensure that the respondents were active social media members of sports clubs. The respondents were asked to complete the questionnaire based on their experience with a particular social media Fan Page. Among the 260 respondents, 49 percent were female and 51 percent were male.

### 3.2. Measures

The constructs of interest in this study included consumer identification with the members of the sports club expressed through the intention to continue membership, intention to recommend the virtual community, behaviour within the virtual community and sports club loyalty. All measures were borrowed from prior literature (Algesheimer et al., 2005 and Apenes Solem, 2016, see Appendix 1). All constructs were measured using multi-item perceptual scales and involved seven-point Likert scales, anchored from strongly disagree (1) to strongly agree (7). Analysis was done using Matlab and SPSS ver 21. Results of the research are presented below.

### 3.3. Data analysis and results

According to boxplot in Fig 2 and histograms in Fig 3, a number of responders are considered passive answering strongly disagree (1) to measures Q1 – Q6 regarding consumer identification. These responders use social networks to gather information about sport clubs. The median of 2.5 for Q4, and especially median 1 for Q6 indicate that consumer do not value friendship in social media networks and they are certain that members of social media networks of the sport club they follow make no influence on them.

Figure following on the next page

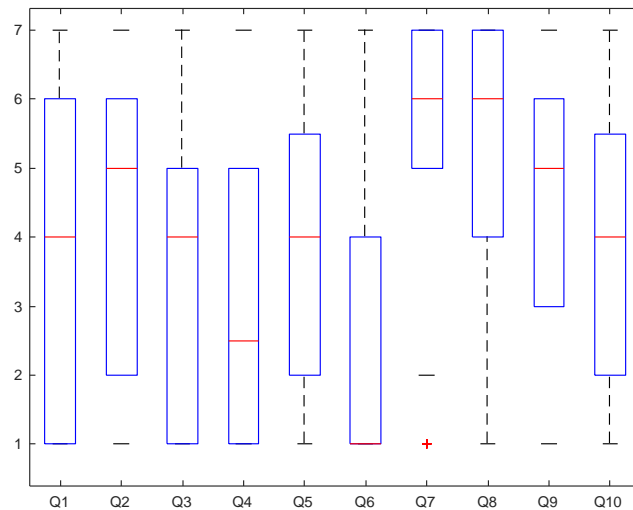


Figure 2: Boxplot representation of list of measures utilizing Likert scale

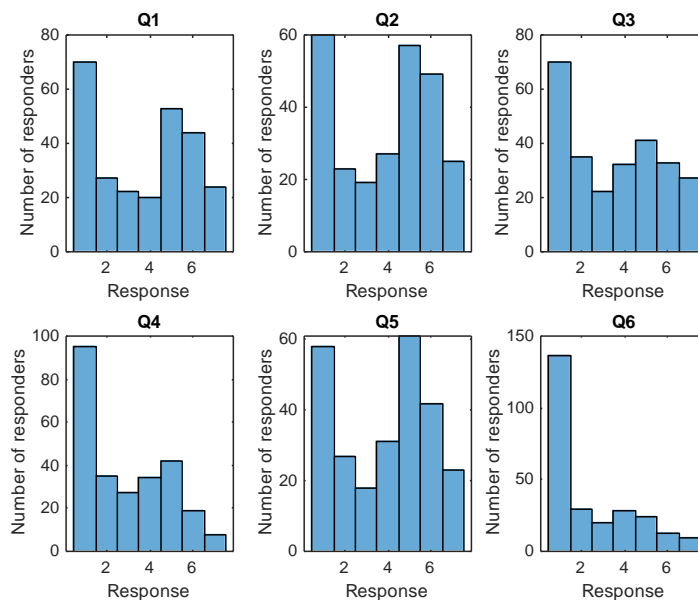


Figure 3: Histogram representing responses on Likert scale and number of responders regarding consumer identification measures Q1 – Q6

On the other hand, measures regarding loyalty Q7 – Q10, are presented in boxplot and Fig 4. Significant values of median in Q7 and Q8 represent loyalty to the sport club with median at 6. However, responders' utilization of social media network of sport clubs regarding recommendation to follow has median 5 for Q9. Responders' willingness to actively participate in social media networks is again of slightly lower median of 4 indicating passivity of population. Further analysis included explorative factor analysis using principal component analysis and Varimax rotation and Kaiser Normalization. Results of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity indicate:  $KMO=0.861$  and  $\chi^2=1716.692$  ( $df=45$ ,  $p<0.05$ ). Results are in accordance with suggested threshold value for KMO as 0.7 and with Bartlett's test that is statistically significant (Hair et al, 2010). Research results have identified two factor solutions that explains 69.854% of variance in the results. Also, the sample was checked for reliability using Cronbach's alpha. All Cronbach alphas are above suggested threshold of 0.7, indicating that measures are reliable. Results are presented in Table 1.

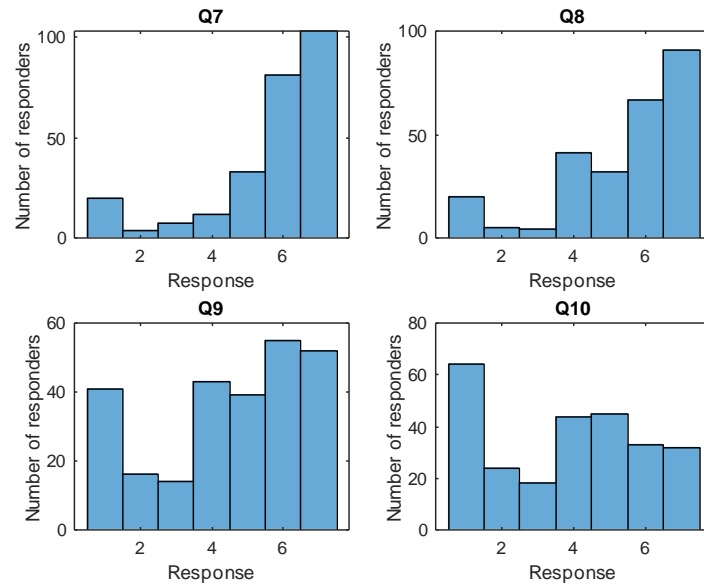


Figure 4: Histogram representing responses on Likert scale and number of responders regarding loyalty measures Q7 –Q10

Table 1: Descriptive statistics and reliability analysis (Research results)

Items	Mean	Std. Deviation	Factor loading
Consumer identification with members of the sports club ( $\alpha=0.885$ )			
Q1_identification	3.72	2.139	0.753
Q2_identification	3.94	2.087	0.697
Q3_identification	3.56	2.114	0.849
Q4_identification	2.93	1.879	0.819
Q5_identification	3.88	2.042	0.740
Q6_identification	2.44	1.856	0.740
Sports club loyalty ( $\alpha=0.862$ )			
Q7_loyalty	5.65	1.734	0.936
Q8_loyalty	5.40	1.769	0.943
Q9_loyalty	4.52	2.064	0.705
Q10_loyalty	3.80	2.103	0.500

To test stated hypotheses correlation analysis was conducted. Results indicate that there is strong correlation  $r=0.58$  ( $p<0.05$ ) between Consumer identification with members of the sports club and Sports club loyalty. So, it can be concluded that H1. Consumer identification with members of the sports club is positively associated with loyalty to the sport club is accepted.

#### 4. CONCLUSION

Social networks contain large amounts of user data and are very convenient for analysis because information that users self-publish are closely related to their views, opinions, interests and personality in general. Over the last few years, there has been an increasing number of researches based on data from social networks (Acar and Puntoni, 2016). In the sport marketing literature, limited attention has been devoted to fan engagement and identification, particularly within a social media context. Consumer identification with members of the sports club social network and other relational concepts of sports club social networks need to be explored, thus

contributing to an understanding of the nature and characteristics of consumer engagement in virtual communities. Research results show that consumer identification with members of the sports club contributes in developing loyalty to the sport club. As loyalty is closely related to consumer engagement it is needed to explore if sport club loyalty is mediated through consumer engagement and if consumer engagement is positively contributing to develop customer loyalty. As participation in a like-minded community is an important factor contributing to brand success (Algesheimer, Dholakia and Herrmann, 2005; Vale and Fernandes, 2018) whereas customer loyalty and customer engagement should have their part. The results of this research should encourage sports clubs to engage consumers in the value co-creation process by integrating consumers into the sports activities of the sports club, which would consequently increase consumer engagement on social networks, and thereby develop brand satisfaction and brand loyalty effects. This research is not without limitations. They are seen in sample that is collected only in Croatia and in focusing on members of virtual communities of team sport clubs. Further research should focus beside on exploring more profoundly role of customer engagement in this relationship between consumer identification with members of the sports club and sport club loyalty, also on exploring this relationship in different countries and to focus on specific team sport.

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## *APPENDIX*

*Consumer-identification with users of the sports club social network. (Algesheimer et al., 2005)*

1. Please indicate to what degree your self-image overlaps with the image of the other users of the sports club social network.
2. I feel attached to the other users of the sports club social network.
3. Other users of the sports club social network and I share the same objectives.
4. The friendships I have with other users of the sports club social network mean a lot to me.
5. If other users of the sports club social network planned something, I'd think of it as something 'we' would do rather than something 'they' would do.
6. My actions are often influenced by the expectations of members of the sports club social network.

*Sports club loyalty (Apenes Solem, 2016)*

1. I intend to stay loyal to the sports club social networks in the future.
2. I intend to stay on as a customer of the sport club for the next three years.
3. I intend to recommend following the sports club on the social network
4. I intend to actively participate in sports club social network.

# THE ROLE OF RISK MANAGEMENT IN CORPORATE DECISION- MAKING

**Veronika Machova**

*Institute of Technology and Business in Ceske Budejovice,  
School of Expertness and Valuation  
Okruzni 517/10, 37001 Ceske Budejovice, Czech Republic  
machova@mail.vstecb.cz*

## **ABSTRACT**

*Risk and uncertainty are a key attributes of all human activities, especially business activities. Research and development of new products, introduction of modern technologies, entry into new markets, mergers and acquisitions, large investment projects, business restructuring are examples of activities whose future results are uncertain and may deviate from the planned or anticipated results. Risk management is a prerequisite for a successful business, and so the risk analysis has become an integral part of business analysis in current global and dynamically changing market environment. There are various sources of uncertainty in the risk assessment and risk management process of enterprises. The degree of uncertainty and variability of available market information shall be explicitly taken into account in the risk analysis. Thus, the aim of the paper is to assess the corporate decision-making using the non-parametric bootstrap method, which simulates what would happen if we observed repeated samples from the basic set in such a way that the available data creates new random selections. The purpose of the use of the bootstrap method is to gather information cheaply in a timely fashion and to calculate standard errors, construct confidence intervals, and perform hypothesis testing for numerous types of sample statistics. The focus is given to the introduction of the core concepts of bootstrap than its application, however, a concept illustrating is used. The results determine the average risk factors influencing the corporate decision-making. The results may be used as a source of the comparison of effective risk elimination in the corporate decision-making process.*

**Keywords:** *bootstrap method, corporate decision-making, risk management*

## **1. INTRODUCTION**

Risk management is currently one of the most important areas that private or public institutions have to face. Some identify risk management as a competitive advantage, others as a necessity (Wu et al., 2015). Companies are now operating in an environment with many business or other risks, and the current period is characterized by an increase in risk factors which companies have to consider (Vochozka et al., 2018). Organizations today have to respond flexibly to sudden changes caused both by their internal factors and by external effects of market fluctuations, structural changes in the economy, globalization, enormous growth in competition and various other impacts (Vinczeova, Kascakova, 2017). There are many exposed cases in the world that prove that underestimation of risk management, i.e. the lack of risk management had regressive effects not only for small and medium-sized companies, but also for large-scale organizations. There are many opportunities created daily for risk, which can result in high profits but also large losses. Obviously, increasing risk can have adverse effects not only on economic outcome but also on overall future prosperity and development (Valaskova et al., 2018). Therefore, it is important to know how to work properly with various risks affecting the business operations. Risk is an integral part of business. However, it may not only be seen as a negative aspect of business, but can also be seen as a tool for better understanding of potential threats, further development and opportunities. The art of risk management is precisely in their timely and objective identification, correct analysis, constructive proposals for action and

consequent close monitoring. Risk management is a decision-making process building on the results of the risk assessment process (Valakova et al., 2019; Nacol, 2019). Thus the aim of the paper is to assess theoretically the risk management process in business entities considering the risk factors enterprises face when making-decisions using bootstrap analysis. Bootstrapping is a resampling technique used to estimate statistics on a population by sampling a dataset with replacement (Singh, Xie, 2003). As declared by Wu et al. (2016), bootstrapping is an alternative approach, which may be used to estimate efficiency and examine the impact of risk management of corporate efficiency. The use of non-parametric methods to determine the corporate risk factors is analysed in study of Valaskova et al. (2015) and confidence sets and confidence bonds are discussed in the paper of Kiatsupaibul et al. (2017). There are innumerable sources of risks that an organization must take into account before deciding on its strategy and taking action to eliminate risks. The source of risk is any factor that can negatively affect the performance of the company. And thus as claimed by Kliestik et al. (2018) it is increasingly challenging to predict bankruptcy risk as corporations have become more global and more complex. Bankruptcy risks occur when corporate financial position is uncertain and significant in its impact (Kovacova, Kliestik, 2018). The risk level is clearly and fundamentally influenced by the objective and performance criteria of the project. Goals that are set inappropriately are a source of risk themselves. Business failure or loss can occur for various reasons. The differences between these causes form the basis for risk classification.

## **2. MATERIALS AND METHODOLOGY**

To identify the most significant risk factors that enterprises have to face when making decisions, a pivot questionnaire was addressed to enterprises operating in the Czech business environment. The questionnaire was realized mostly in an electronic form in the period of May to August 2019. More than one-thousand enterprises were addressed to meet the criteria of minimum sample size to generalize the results. However the return rate was very low, only 13 %, as only 132 questionnaires were fully answered. Mostly the small and medium-sized enterprises participated in the survey, which corresponds with the market conditions, as the share of small and medium-sized enterprises in the Czech Republic is slightly about 97 % considering all enterprises in non-financial sector (Slovak Business Agency, 2018). The objective was to choose the risk factors that have the highest impact on the decision being made, however, to have relevant results of the pivot study, enterprises might choose risks in these categories – political, market, economic, operational, financial, credit, project, technological, safety, environmental, legal, personal and informational risks. As it is not possible to demand a reaction of every enterprise on the market, the resample method – the bootstrap method – is used. It simulates what would happen if samples from the basic dataset are repeated in such a way that the available data creates new random selections, (replication). Such random selections may be made with or without repetition and may be smaller in scope than the original random sample. The best results are obtained when random samples are designed with repetition and the range is the same as the original dataset (Forsyth et al., 2019). The bootstrap method is based on a creation of more B selections with extend of  $n$  based on the original selection with the same extend of  $n$ . New selections are determined by the selection of elements from the original set with replication (Leng, Tsai, 2014). Then the statistical analysis is realized on the basis of statistics calculated from these B bootstrap selections. Thus, we can obtain relatively reliable results without any restrictive assumptions. The following table 1 depicts the basic principle of bootstrap method (Valaskova et al., 2015).

*Table following on the next page*

*Table 1: Basic principle of the bootstrap method*

X	(original) → (repetition)	X1*	X2*	X3*	...	XB*
X1	random selection with repetition →	X3	X2	X3	...	X1
X2		X1	X2	X6	...	X6
X3		X6	X3	X5	...	X2
X4		X4	X4	X2	...	X1
X5		X1	X1	X3	...	X4
X6		X6	X2	X1	...	X4

Suppose having a random selection  $X_1, \dots, X_n$  of observed values. As  $X_1, \dots, X_n$  are random variables, they have a distribution function  $F$  and let  $\theta = \theta(F)$  be an unknown parameter which is to be estimated using the statistics  $T_n = T_n(X_1, \dots, X_n)$ . Otherwise, a point estimation of the parameter  $\theta$  needs to be find;  $\hat{\theta} = T_n = T_n(X_1, \dots, X_n)$ . As the statistics (estimation) are assumed, the character of this estimation can be found. The most common statistical issues reflect on the deflection of estimation variance, standard deviation of the estimation, confidence intervals or critical value for hypotheses testing. The study is realized in the following steps:

1. Assessment of the data from the pivot questionnaire.
2. Resampling of a data set  $x$  times.
3. Finding a summary statistic (bootstrap statistic) for each of the  $x$  samples.
4. Estimation the standard error for the bootstrap statistic using the standard deviation of the bootstrap distribution.

### 3. RESULTS AND DISCUSSION

Realized pivot questionnaire summarizes the most relevant risk factors enterprises have to face when making various managerial or operation-related decision. The dataset consists of 132 measures, which is number of returned questionnaires. Table 2 portrays the number of risk factors identified by individual enterprises.

*Table 2: Number of identified risk factors*

6	6	1	2	1	1	1	1	0	3	0	3	2	3	7	4	3	5	3	2	1	1
6	2	1	1	2	2	2	2	3	1	2	0	1	0	1	2	8	0	1	2	3	2
2	3	0	1	0	2	2	1	3	1	0	1	0	0	1	5	4	5	0	3	3	4
4	0	5	2	3	3	4	1	5	2	1	3	0	2	1	2	1	8	1	4	3	2
3	2	0	0	2	0	2	1	4	0	1	4	0	3	1	2	1	1	1	0	4	3
3	2	1	0	2	2	3	3	2	3	2	2	1	4	3	3	4	0	6	0	2	2

The point is to determine the unknown parameters of the population (in our case the population is represented by the total number of enterprises operating on the market) as accurately as possible based on the values obtained from the sample (132 respondents), which can be done using interval estimation. Such an estimation is predetermined with some probability and contains the fair value of the estimated population of the original dataset. The confidence level is determined at the level 0.95, which represents the error rate, which needs to be accepted in the interval parameter estimation. Having the basic information from the questionnaire the mean value and standard deviation are calculated as follows:

$$\bar{x} = \frac{\sum_{i=1}^{132} x_i}{n} = \frac{283}{132} = 2.144 \quad s^2 = \frac{\sum_{i=1}^{132} (x_i - 2.144)^2}{131} = 2.979 \quad (2)$$

The confidence level is also used to determine the confidence interval limits for the mean  $\mu$  and variation  $\sigma^2$  of the random variable  $X$  of the original dataset, thus the interval estimation can be calculated as:

$$\bar{x} - t_{1-\frac{\alpha}{2}} \frac{s}{\sqrt{n}} < \mu < \bar{x} + t_{1-\frac{\alpha}{2}} \frac{s}{\sqrt{n}} \Rightarrow 2.144 - 1.978 \frac{1.726}{\sqrt{132}} < \mu < 2.144 + 1.978 \frac{1.726}{\sqrt{132}} \Rightarrow 1.847 < \mu < 2.411 \quad (3)$$

where  $\mu$  interval estimation  
 $\bar{x}$  mean value  
 s standard deviation  
 n number of observations  
 $t_{1-\frac{\alpha}{2}}$  quantile of t-distribution

The calculated results claim the addressed enterprises have to consider 1.847 to 2.411 risk factors. However, these results cannot be generalized as the number of enterprises involved in the survey is very low, the sample needs to be increased artificially using the bootstrap resampling. The statistical office of the Czech Republic announces that there are almost 1.5 million enterprises operating on the market. The resampling is done for the whole market and thus the replication table is built having 132 columns and 11,360 rows. The mean value, median and standard deviation should be calculated for each resampling. Table 3 depicts the first rows of the bootstrap resampling.

Table 3: Descriptive statistics of bootstrap replication

Mean	Median	St. dev.
1901515	1	1.759857075
2.143939	2	1.653737732
1.984848	2	1.671425083
2.121212	2	1.528509242
2.121212	2	1.845275804
2.330303	2	1.794560883
2.098485	2	1.605619181
1.871212	2	1.608210342
2.045455	2	1.552459936
1.810606	1.5	1.644479898

The frequency and likelihood of random values are to be determined. The values from 0 to 3.5 were entered in the column, since the other values equalled to zero. These values could have occurred several times, and we also drew data was used from the median column for each replication row. Table 4 summarizes the calculated values.

Table 4: Characteristics of bootstrap replications

Possible values	Frequency	probability
0	0	0.00 %
0,5	0	0.00 %
1	189	1.67 %
1,5	97	0.85 %
2	11,052	97.29 %
2,5	5	0.04 %
3	17	0.15 %
3,5	0	0.00 %
<b>Total number</b>	<b>11,360</b>	<b>100.00 %</b>

To illustrate the results, a graph (Figure 1) of probability density of the bootstrap resampling mean values was constructed.

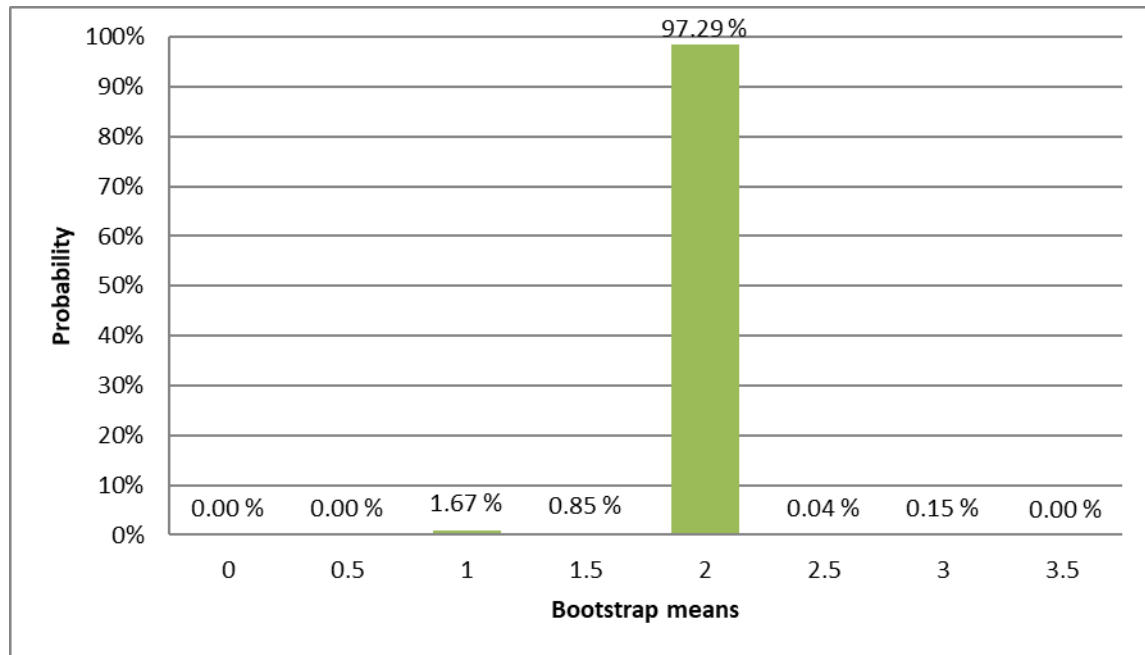


Figure 1: Bootstrap means

Finally, the confidence interval is determined. Having the total sample of 11,360 rows and the confidence level of 0.95, than the lower and upper bounds are calculated. To calculate the lower bound, the values of median and a multiple of resampling number and significance level (0.05) were used. The calculation of the upper bounds is based on the median values and the difference between the number of resampling and significance level. The realized calculations revealed that considering the 95% confidence interval, the average value of significant risk factors affecting the decision-making process of enterprises is min 2 and max 3 risk factors. Considering the groups of risks under assessment, the results unveil that the factors, which markedly influence the decision-making of enterprises are financial, credit and economic risks. Similar studies on enterprises risks are conducted also at a global level. The research of Liu (2019) found that the most influencing are environmental, social and governance-related risks considering the risk management philosophy. The credit risk, as the most significant risk factor influencing the enterprise operating businesses, is identified in the study of Peng (2017). Hosomi and Nagasawa (2018) in their study confirm that economic risks are of a vital importance, especially the cost structure of individual enterprises.

#### 4. CONCLUSION

The goal of doing business is to bring value – profit. Risk management serves to increase this value and stabilize the market position of an enterprise. Risk management is a complex process that aims to identify areas of business that are exposed to some risks, to identify and introduce measures that either lead to the elimination of the risk or reduce it to an acceptable level. Risk management processes are relatively new parts of the business, the introduction of competitive pressure and rapidly changing market conditions. In this paper, the focus was to assess the corporate decision-making using the non-parametric bootstrap method in the process of the identification of the most important risks that the company may encounter. Bootstrap is a resampling method for statistical inference. Under fairly general conditions, the technique can be used to approximate sampling distributions of almost any statistics, by recycling data from the observed sample, that is, resampling. The bootstrap method is one of the computer-intensive methods for statistical data analysis. It is mainly used to calculate confidence intervals and test hypotheses.

With the development of computer technology, its use becomes increasingly easier, and thus increases its use in practice, solving the problem of how to make a statistical analysis based on a sample that has a very low frequency. At that time, it is desirable to use less common data processing techniques that do not require such strict prerequisites as classical methods. The bootstrap method is one of these unusual methods. The bootstrap method simulates what would happen if the repetitive samples from the base file is observed by examining repetitive random selections from the available data. These random selections may be smaller in size than the available data and may be created with or without repetition. Empirical research has shown that the best results are obtained when random selections are made with a repetition of the same size as the available data. The core concepts of bootstrap method was described and the basic principle of its application was illustrated. The calculation unveils, that enterprises do face two or three most significant risk factors, financial, credit and economic, which need to be taken into consideration when making decisions related to business operation. Identification of crucial risk factor help enterprise to adopt relevant measures to eliminate risks and react flexibly to changes on the market.

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# THE EFFECTS OF GLOBALIZATION ON GROWTH IN BRICS ECONOMIES

**Aleksej Kondulukov**

*Faculty of Economics, Business and Tourism,  
University of Split, Croatia  
akondulukov1994@gmail.com*

**Vladimir Simic**

*Faculty of Economics, Business and Tourism,  
University of Split, Croatia  
vsimic@efst.hr*

## **ABSTRACT**

*The impact of globalization on economic growth has not yet been fully explored. This influence cannot be theoretically defined as strictly positive or strictly negative. Empirical studies show that different countries receive different benefits from globalization. Also, the dimensions and subdimensions of globalization often vary in the intensity of their impact on countries or even vary between positive and negative effects. Due to their specificity, the impact of globalization on developing countries is of particular interest. Five of those countries, the so-called BRICS countries are analyzed in this paper. This paper finds positive and statistically significant impact of globalization on economic growth in BRICS countries from 1993 to 2016.*

**Keywords:** *BRICS countries, Globalization, Growth*

## **1. INTRODUCTION**

This paper explores the impact of globalization on economic growth in BRICS economies. These countries are of particular importance as they represent an important part of the world (and in particular of the emerging economies) in terms of population and the size of the market. This paper contributes to the empirical literature on the effects of globalization. Both the theoretical and empirical literature seems to provide mixed evidence on the effects of globalization on growth. These effects are often found to depend on the sample of economies or time periods being investigated. The current paper applies modern econometric techniques (panel data analysis) to investigate empirically the effects of globalization on economic growth in the group of BRICS economies in the period from 1993 to 2016. The paper is also valuable as it applies the new version of the KOF index of globalization (Gygli et al., 2019) which has been shown to exert a number of advantages as compared to previous indicators of globalization. This particular advantage allows us not only to estimate the impact of the general KOF index of globalization or its economic subcomponent (as usually applied in the literature), but also to differentiate between the trade and financial globalization. Our findings seem to suggest that globalization has a positive impact on economic growth in BRICS economies. The paper is structured as follows. A brief literature review is presented in Section 2, together with measurement of globalization. Section 3 explains the research methodology applied and reports the main findings. Section 4 presents the main concluding remarks.

## **2. A BRIEF REVIEW OF THE RELATED LITERATURE AND MEASUREMENT OF GLOBALIZATION**

### **2.1. Literature review**

Globalization and its consequences have been hotly debated issues in economic literature. As globalization is a very complex process many attempts to define it are present. The one adopted in this research builds on Gygli et al. (2019) which relates back to Dreher (2006) observing

globalization as a process that erodes national boundaries, integrates national economies, cultures, technologies and governance, and produces complex relations of mutual interdependence. This definition is broad enough to account for different economic aspects of globalization that we are interested in. From the voluminous literature on this topic both positive and negative effects of globalization on different economies can be observed. Theoretically globalization is expected to provide positive effects on economic growth. Many reasons can be listed to support the theoretical case for globalization. In this context, Grossman and Helpman (2015) and Potrafke (2015) list the following reasons: international knowledge spillovers, access to larger markets, increased competition, better opportunities to exploit comparative advantages and gains from specialization. While other reasons may be added to this short list, it is expected that most of them will allow production (and the use of scarce resources) to become more efficient and increase economic growth. Many studies provided empirical evidence to support this view. Das (2004) states that globalization has increased the average world per capita income three times in 25 years, having a particularly strong impact on economic growth in emerging economies (in particular in China, India, Indonesia), whilst at the same time making the grave state of Sub-Saharan countries even worse. Majority of the literature suggests that the economic dimension of globalization has had the major impact on economic growth in countries around the world (see for example Dreher (2003)). However, it is also the economic globalization, in particular the financial globalization, that raises the most controversies in the literature. Mishkhin (2009) thus suggests that economists agree on the positive consequences of trade globalization, but also adds that the financial globalization remains controversial. Still, this author believes that there are strong theoretical arguments not to turn the back on financial globalization. On the other hand, Rodrik and Subramanian (2009) strongly disagree and suggest that financial globalization has disappointed and has not generated the expected growth in developing economies. Whilst the controversies still remain about the consequences of globalization, often the so-called BRICS countries (Brazil, Russia, India, China, and South Africa) are used to demonstrate the positive consequences of globalization on economic growth. These countries are in particular focus of the present paper as they represent the countries characterized by high rates of economic growth and also increasing levels of globalization. In addition, they are very important globally in terms of population and the size of their markets representing the majority of the emerging economies. Figure 1 below shows the dynamics of globalization (as measured by the KOF globalization index<sup>1</sup>) in the group of BRICS economies. We also add the data for the world in order to provide a comparison. In the period from 1993 to 2016 BRICS countries have substantially increased their level of globalization. In comparison to the world average we can see that only one country (Russia) from the BRICS group was above the world level of globalization at the beginning of this period, whilst at the end of this period only one country was under the world average (Brazil). The data in Figure 1 suggest that in the era of hyperglobalization<sup>2</sup> the world has been strongly globalizing, but it seems that the globalization proceeded even faster in the group of BRICS economies, which, by some authors, has probably resulted in higher rates of economic growth.

*Figure following on the next page*

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<sup>1</sup> Measurement of globalization and the KOF index of globalization are discussed in Subsection 2.2.

<sup>2</sup> Hyperglobalization is discussed below in Subsection 2.2.

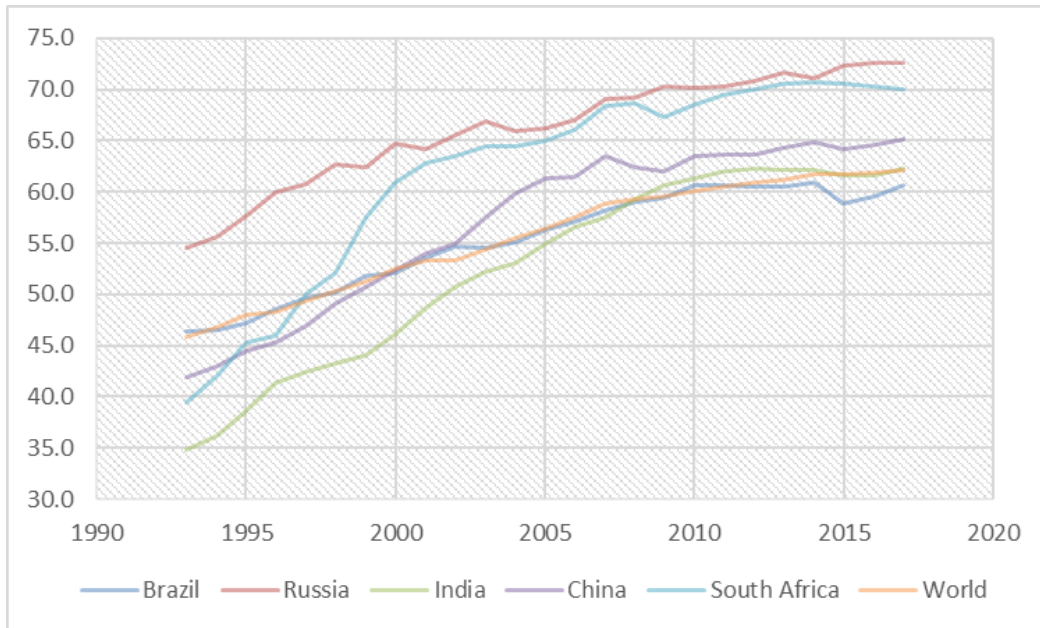


Figure 1: Globalization in BRICS countries (Source: KOF Globalization Index - <https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html>)

Figure 2 below suggests that the average rate of economic growth in BRICS countries has been high, but the individual countries were exerting quite different dynamics. The highest average rate of growth was in China (8.9 %), whilst South Africa had the lowest average rate of economic growth (1.24%). The average rate of economic growth in the BRICS group stand at 3.67 %. At the same time the world has been growing at the average rate of 1.61 %.

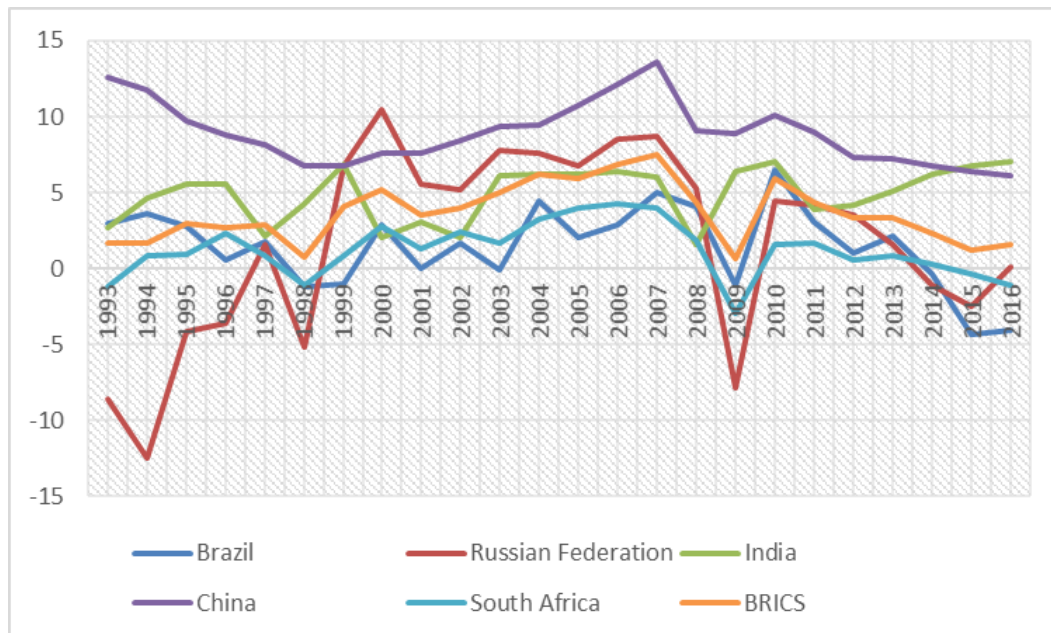


Figure 2: Economic growth in BRICS countries (Source: World Bank World Development Indicators)

In our empirical investigation in Section 3 we explore the relationship between globalization and economic growth in BRICS countries, but before that we first discuss as to how globalization is measured and what indicators of globalization might/should be used in empirical analysis.

## 2.2. Measurement of globalization

As suggested earlier globalization is a very complex and multifaceted phenomenon. The history of globalization is a very long one. It has come in waves with the newer waves achieving the level which is popularly called hyperglobalization<sup>3</sup>. This hyperglobalization (quite often presented with a negative intonation) has started in 1990s and is important in the present paper as the impact of globalization on economic growth in BRICS economies is investigated in that period which represents a new era of globalization with some new trends. These new trends are recognized by Subramanian and Kessler (2013) as the following seven characteristics: rapid increase in trade integration; dematerialization of globalization (the importance of services), democratic globalization (the widespread embrace of openness); criss-crossing globalization (the similarity of North-to-South trade and investment flows with flows in the other direction; the rise of mega-trader (China); the proliferation of regional trade agreements and the imminence of mega-regional ones; the decline of barriers in goods but the continued existence of high barriers to trade in services. These characteristics provide an example as to how complex globalization might be just from the perspective of economic globalization. However, the world has become even more complex through the mixture of different cultures, norms, sets of values and this adds to its complexity in terms of social and political globalization nowadays. To that end when it comes to measuring globalization it becomes very important that indicators of globalization account for these various aspects. It appears that the KOF index of globalization (Gygli et al., 2019) serves this purpose very well. Even before this revised version (Gygli et al., 2019) the KOF index of globalization has become the most widely used index of globalization to investigate the consequences of globalization (Potrafke, 2015). Gygli et al. (2019) have revised the KOF index of globalization which was introduced in 2002 and later updated by Dreher (2006) and Dreher et al. (2008). The earlier versions of the KOF index have been shown to exert a number of advantages in comparison to other indicators of globalization (e.g. the A.T. Kearney/Foreign Policy Globalization Index; the CSGR Globalization Index; the Maastricht Globalization Index) and provided the overall KOF index and also the subcomponents of it: the indices of economic, social and political globalization. In the present study we are primarily interested in the impact of economic globalization but also test the impact of the overall KOF index including all three dimensions. The last revision of the KOF index due to Gygli et al. (2019) even better serves the purpose of this paper. It provides a further distinction within the economic globalization as it distinguishes between trade and financial globalization. In this revision of the KOF index the total number of underlying variables has increased to 43 (from 23 in the earlier version). The structure of the revised KOF index is presented in Table 1 below.

*Table following on the next page*

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<sup>3</sup> The term *hypeglobalization* has been introduced among the first by Rodrik (2011).

Table 1: Structure of the KOF Globalization Index (source: Gygli et al., 2019, p. 545)

Globalisation Index, de facto	Weights	Globalisation Index, de jure	Weights
<b>Economic Globalisation, de facto</b>	<b>33.3</b>	<b>Economic Globalisation, de jure</b>	<b>33.3</b>
<i>Trade Globalisation, de facto</i>	<i>50.0</i>	<i>Trade Globalisation, de jure</i>	<i>50.0</i>
Trade in goods	38.5	Trade regulations	25.8
Trade in services	45.1	Trade taxes	25.3
Trade partner diversity	16.4	Tariffs	25.4
		Trade agreements	23.5
<i>Financial Globalisation, de facto</i>	<i>50.0</i>	<i>Financial Globalisation, de jure</i>	<i>50.0</i>
Foreign direct investment	27.3	Investment restrictions	32.2
Portfolio investment	16.9	Capital account openness	38.7
International debt	25.7	International Investment Agreements	29.1
International reserves	3.2		
International income payments	26.9		
<b>Social Globalisation, de facto</b>	<b>33.3</b>	<b>Social Globalisation, de jure</b>	<b>33.3</b>
<i>Interpersonal Globalisation, de facto</i>	<i>33.3</i>	<i>Interpersonal Globalisation, de jure</i>	<i>33.3</i>
International voice traffic	20.0	Telephone subscriptions	40.6
Transfers	21.8	Freedom to visit	32.4
International tourism	21.2	International airports	27.0
International students	20.4		
Migration	16.6		
<i>Informational Globalisation, de facto</i>	<i>33.3</i>	<i>Informational Globalisation, de jure</i>	<i>33.3</i>
Used internet bandwidth	43.2	Television access	35.7
International patents	23.6	Internet access	42.0
High technology exports	33.2	Press freedom	22.3
<i>Cultural Globalisation, de facto</i>	<i>33.3</i>	<i>Cultural Globalisation, de jure</i>	<i>33.3</i>
Trade in cultural goods	28.0	Gender parity	26.2
Trade in personal services	24.3	Human capital	41.2
International trademarks	11.1	Civil liberties	32.6
McDonald's restaurant	20.9		
IKEA stores	15.7		
<b>Political Globalisation, de facto</b>	<b>33.3</b>	<b>Political Globalisation, de jure</b>	<b>33.3</b>
Embassies	36.2	International organisations	36.0
UN peace keeping missions	26.1	International treaties	33.6
International NGOs	37.7	Treaty partner diversity	30.4

Notes: Weights in percent for the year 2017. Weights for the individual variables are time variant.  
 Overall indices for each aggregation level are calculated by the average of the respective de facto and de jure indices.

As shown in Table 1 the KOF index includes many different aspects of globalization, this particularly being the case with the economic aspects that we focus on in this study. In the next section we apply different versions of this index to investigate empirically the impact of globalization on growth in BRICS economies.

### 3. RESEARCH METHODOLOGY, DATA AND MAIN FINDINGS

#### 3.1. Modelling strategy and the data

In our attempt to investigate the impact of globalization on economic growth in the group of BRICS economies we use modern econometric techniques in form of panel data analysis.

In our econometric estimations we use a fixed effect panel data model which has the following form:

$$GDPGROWTH_{it} = \alpha_i \log GDPL_{it-1} + \beta_1 KOF_{it} + \beta_2 \log FR_{it} + \beta_3 \log LEX_{it} + \beta_4 INF_{it} + \beta_5 GOV_{it} + \beta_6 INV_{it} + \varepsilon_{it}$$

$$i = 1, \dots, 5, t = 1993, \dots, 2016$$

where  $i$  refers to a country and  $t$  to a time period. The dependent variable  $GDPGROWTH_{it}$  represents the growth rate of GDP per capita in country  $i$  and period  $t$ .  $KOF_{it}$  is the main independent variable and it measures the level of globalization (as well as its subcomponents economic, trade and financial globalisation). We also include additional independent variables as control variables to avoid misspecification and to have our growth model in line with the standard growth literature. Thus, we include: lagged logGDPpc, logarithm of fertility rate ( $\log FR$ ), logarithm of life expectancy ( $\log LEX$ ), inflation ( $INF$ ), government consumption ( $GOV$ ), and share of investment in GDP ( $INV$ ). The variables used, their description and the sources are reported in Table 2 below. All data are annual and cover the period from 1993 to 2016.

Table 2: Variables description and sources of data

Variable	Indicators used	Source
$GDPGROWTH$	GDP per capita growth rate (%)	World Bank WDI
$KOF$	KOF index of globalization	Gygli et al. (2019)
$KOFE$	KOF index of economic globalization	ETH -Swiss Federal
$KOFT$	KOF index of trade globalization	Institute of
$KOFF$	KOF index of financial globalization	Technology
$\log GDPL$	Logarithm of GDP per capita lagged	-
$\log FR$	Logarithm of fertility rate	World Bank WDI
$\log LEX$	Logarithm of life expectancy	World Bank WDI
$INF$	Annual rate of inflation (%)	World Bank WDI
$GOV$	Total public expenditures (% of GDP)	World Bank WDI
$INV$	Gross capital formation (% of GDP)	World Bank WDI

### 3.2. Main findings from empirical investigation

In this subsection we report the main findings from our empirical investigation. As explained earlier we conduct our empirical investigation by testing different aspects of the KOF globalization index. We start with the general (overall) index of globalization and then turn our attention to its subcomponent economic globalization and within this index particularly test the possible difference between the impact of trade and financial globalization on economic growth. In this order we present our main findings in the table below.

Table following on the next page

Table 3: Empirical investigation of the effects of globalization on economic growth in BRICS economies (Authors' calculations)

VARIABLES	(1) GDPGROWTH	(2) GDPGROWTH	(3) GDPGROWTH	(4) GDPGROWTH
KOF	0.239*** (0.066)			
KOFE		0.164*** (0.054)		
KOFT			0.087* (0.050)	
KOFF				0.161*** (0.046)
LogGDPL	-11.666*** (3.278)	-6.925** (2.670)	-4.964* (2.628)	-7.374*** (2.624)
logFR	7.485 (5.995)	4.067 (5.837)	1.559 (6.398)	0.541 (5.169)
logLEX	8.092 (17.860)	-0.129 (17.742)	-0.993 (18.747)	-8.204 (17.155)
INF	-0.002** (0.001)	-0.002* (0.001)	-0.003** (0.001)	-0.001 (0.001)
GOV	-1.929*** (0.241)	-1.773*** (0.249)	-1.880*** (0.252)	-1.689*** (0.249)
INV	-0.015 (0.085)	-0.023 (0.087)	-0.005 (0.090)	-0.006 (0.085)
Observations	120	120	120	120
R-squared	0.441	0.421	0.389	0.436

Standard errors in parentheses

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10% level

Table 3 presents four models (columns 1 to 4). In column 1 (Model 1) we investigate the impact of the overall KOF index of globalization on economic growth in BRICS economies. In addition to the the KOF index of globalization we include in our estimations lagged value of logarithm of GDP per capita, logarithm of fertility rate, logarithm of life expectancy, inflation, government consumption (as percent of GDP) and investment (as percent of GDP). These variables are also used in the models reported in columns 2 to 4 where we investigate the impact of economic globalization (column 2), trade globalization (column 3) and financial globalization (column 4). The estimated effects reported in Table 3 indicate that the impact of globalization (all four versions that were accounted for) on economic growth is positive and statistically significant. More specifically, this means that an increase in the index of globalization by 1 percentage point increases the GDP p.c. growth rate by 0.24 percentage point. An increase in the index of economic globalization results in an increase of the growth rate of 0.16 percentage points. The weaker impact of economic globalization as compared to the overall globalization can be explained by the fact that economic globalization is only one dimension of the overall globalization. Our results also reveal that trade and financial globalization exert a significant and positive effects on the growth rate, 0.09 and 0.16 percentage points respectively. As for the other variables included in the model, we can see that the logarithm of GDP p.c. lagged has a negative and statistically significant effect, as expected. The impact of inflation is negative and statistically significant at 10% level (in three out of four models), which is in accordance with theoretical expectations.

The impact of government consumption is strongly negative and statistically significant, as expected. The variables fertility rate and life expectancy are estimated to be statistically insignificant. Possibly the most surprising result is a statistically insignificant effect of investment on growth. However, as this variable is not of direct interest in this paper, we restrain from investigating this finding further. In passing, we can only report that a visual inspection suggested that there has been a high volatility in investment in the BRICS countries and this possibly masks the usual effect of investment on growth. Further investigation of this effect is out of scope of this paper and it could be done in some future study.

#### 4. CONCLUSION

This paper investigated the impact of globalization on economic growth in the group of BRICS countries. Whilst admittedly there still remains a lot of controversy about the consequences of globalization, further research and more empirical evidence is needed to clarify the effects of such an important phenomenon as globalization. As recognized in the paper globalization is a very complex and multifaceted process which touches on almost all aspects of our daily lives. Economic aspects of globalization are in a particular focus of this paper. Our paper makes a contribution to the empirical literature on the effects of globalization. This contribution is particularly recognized as we apply the revised KOF index of globalization in the group of economies which are typically held to have reaped the benefits of globalization quite well. The major advantage of applying this revised KOF index is that it provides additional aspects of economic globalization, those being trade and financial globalization. As shown in the paper, the literature on globalization is relatively clear on the benefits of trade globalization with a majority of studies suggesting positive effects of trade globalization on growth. However, significant controversy remains about the impact of financial globalization, where a significant part of the literature questions the expected theoretical benefits and warns that financial globalization brings many risks and might be harmful. In our econometric estimation we applied the panel data analysis to investigate empirically the effects of different aspects of globalization. Our findings seem to point towards that strand of the literature which finds the positive effects of globalization. In the group of BRICS economies we find a positive impact of the overall KOF index of globalization on economic growth, but in particular our findings further provide support to the positive effects also related to economic globalization, and within it both to trade and financial globalization.

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## KNOWLEDGE MANAGEMENT TECHNOLOGY AND HUMAN RESOURCES: AN OVERVIEW

**Vlatka Sekovanic**

*University of Zagreb,  
Faculty of organization and informatics, Croatia  
vlatka.sekovanic@foi.unizg.hr*

**Sandra Lovrencic**

*University of Zagreb,  
Faculty of organization and informatics, Croatia  
sandra.lovrencic@foi.unizg.hr*

### **ABSTRACT**

*Modern organizations exist in an ever-changing economic, technological, political and social environment. In such an environment that stands on the knowledge-based economy, knowledge is the primary driving force. Given that competitive advantage, or survival of an enterprise, is more than ever dependent on knowledge, it needs to be effectively processed through a knowledge management system. Knowledge management comprises people, activities, processes and associated technologies by which explicit and tacit knowledge is identified, created, acquired, stored, shared and applied. Knowledge management technologies are designed to support the business processes and goals of the company, but also to create an enabling work environment. People in this synergy make a necessary factor. This paper focuses on the role of human resources in knowledge management and their balance in work environment with knowledge management technologies. Therefore, the paper gives an overview of available knowledge management technologies and their role within the knowledge management processes, as well as the benefits of their application, especially regarding human resources. Ultimately, the challenges, problems and benefits of the (un)successful synergy of human resources and knowledge management technologies are considered.*

**Keywords:** *Knowledge Management, Knowledge Management Technology, Human Resources*

### **1. INTRODUCTION**

The well-known saying "Knowledge is power" more than ever confirms today's society – the knowledge society. Knowledge has become the primary driving force in all fields of life, and is particularly significant in a changing business environment. Organizations that effectively manage knowledge resources can, among other things, achieve benefits such as better customer service and decision making or lower infrastructure costs (Roldán, Real, and Ceballos, 2018). Generally, knowledge management (KM) includes processes of creation, storage, analysis, representation, sharing and usage of organizational knowledge and information (Girard and Girard, 2015) as the conjunction of four interacting components: technology, knowledge management processes, people and organization. The most important components of KM are people (as one of knowledge sources), and KM technologies (as strategic support for KM) while their synergy determines the difference between its successful and unsuccessful implementation. This paper is structured as follows. In Chapter 2 is given an overview of previous research of importance of human resources (HR) and knowledge management technologies (KMT). Chapter 3 describes the role of human resources in KM. Chapter 4 describes well known and used knowledge management technologies with accent on connection to human resources. The challenges, problems and benefits of the (un)successful synergy of human resources and knowledge management technologies are considered in Chapter 5. Chapter 6 concludes the paper.

## 2. BACKGROUND

Some of the challenges of modern business are global nature of competition, fast knowledge aging and product and process innovation dynamics (Omotayo, 2015). Fast changes reflect both the internal and external structure of the organization and require knowledge-based approaches to business. The change in organizational structure is characterized by flat, globally decentralized, virtual and networked structures, which leads to the development of interdependent business units, especially considering critical skills and knowledge (Govender, Perumal and Perumal, 2018). KM technology plays a special role here because it connects people (through formal and informal communication and collaboration) with KM management processes and makes them technically capable for knowledge creation, sharing and application, given that appropriate information technology (IT) is implemented (Roldán, Real, and Ceballos, 2018). In the knowledge-based economy, high priority is put on knowledge/KM - most jobs require highly skilled workers (human capital) for problem-solving activities, technological innovations of new products and processes (research community), use of information and communication technologies (big data management, effective work and exchange of knowledge, performance measurement,...), learning organization (acquiring and creating new knowledge through collaborative relationships), etc. Instant access to information and knowledge is the important strength of the organization (Mizintseva and Gerbina, 2018), or, in the other words - the aim of KM is "getting the right information to the right people at the right times" to improve sharing and team productivity (Davidova and Kokina, 2018). Organizational knowledge or intellectual capital can be found in three sources (Katoch, 2017):

- Human capital – employee knowledge and skills;
- Structural capital – systems for knowledge manipulation; and
- Customer capital – relationships with clients and partners.

According to Davidova and Kokina (2018) knowledge can only be managed indirectly through the people, the technology and the interaction (information flow) between them. Therefore, to ensure organisation's success, the focus should be to connect people, processes, and technology.

## 3. HUMAN RESOURCES

Knowledge management begins and ends with people as its central focus (Omotayo, 2015). KM literature recognizes people as the most important element of KMS and indicates that:

- Human resources are one of main factors of effective support to KM in organizations (Zouari and Dakhli, 2018);
- Human resources positively effect knowledge management implementation (Kunthi, Sensuse and Tobing, 2017);
- Organizational knowledge and knowledge management depend on human resources (Katoch, 2017);
- Enterprise competitiveness includes human and knowledge resources as key factors (Junyong, 2018);
- Employee knowledge, expertise and commitment are crucial elements of innovation (Findıklı, Yozgat and Rofcanin, 2015);
- The creators and the main source of tacit knowledge in the organization are individuals (Ghomi and Barzinpour, 2018);
- High-performance management can, among other, affect the organization's work with the help of people in the areas of productivity, quality, customer service, growth and profit (Kaur, 2017);
- Knowledge is based on the experience and expertise of individuals (Mabey and Zhao, 2017).

People are valuable source of knowledge because of their ability to solve problems, to think creatively and uniquely, to learn, to integrate experiences, talents, and tacit knowledge into new knowledge and innovations. And all this is crucial in the modern knowledge-based business. According to Lenzion (2015) people are intellectually engaged in processes connected with manipulation of knowledge, sharing knowledge of experts with others and the level of this engagement can be weakened or strengthened by the influence of the various factors. Without knowledgeable and skilled employees would not be easy to activate acquiring, creating, or integrating capabilities of the organization (Akram and Hilman, 2018). In other words, a knowledge-based organization needs "knowledge workers". The complexity of the job increasingly requires teamwork and teams are an important building block in modern organizations (Choi, Lee and Yoo, 2010) that often represent a key factor in leveraging knowledge resources. Teamwork implies constant flow of communications and ideas, collaborative work groups, learning and development of individual skills, sharing knowledge through face-to-face, creativity, and innovation, and so on. It is obvious that knowledge sharing has a positive impact on knowledge application, and then also on team performance (Choi, Lee and Yoo, 2010). Owing to the increasing importance of HR, scholars are studying at micro-level all the problems (e.g. not sharing tacit knowledge; influence of motivation) that lead to diminished results in productivity, efficiency, innovation, and financial performance. The goal of HRM is to find and select the best fitting employees, and to improve their performance. For example, various training programs will help employees to acquire new knowledge and develop new skills that are required for their work (Chen and Huang, 2009). Thus, HRM can influence KM in terms of motivating employees for sharing knowledge, teamwork and developing processes of organizational and individual learning. Of course, people cannot do their jobs effectively unless they have the support of KM technologies. They make their job easier in many ways: daily assignment or routine, decision support, learning, collaboration or codification of explicit and tacit knowledge. KM technologies also enable the establishment of an innovation platform that fosters employee proactiveness. In this way, employees become a source of knowledge, ideas and improvements for products, services, new business models, strategies, organizational or technology processes and applications.

#### **4. KNOWLEDGE MANAGEMENT TECHNOLOGY**

Information technology enables effective knowledge exchange and better job performance (Mizintseva and Gerbina, 2018). In other words, KM technologies provide quick access to information and knowledge, regardless of its source or employee (dis)location. Generally, KM technologies support one or more processes and associated mechanisms, through collaboration, dynamic learning, problem-solving, strategic planning, and decision support. This ultimately leads to improved productivity, innovation, efficiency, customer satisfaction and competitive advantage, and consequently to improved organizational performance (Gholami, Asli, Nazari-Shirkouhi and Noruzi, 2013). The information provided below about KM technologies for knowledge discovery, acquisition, sharing and application is retrieved from various sources (Becerra-Fernandez and Sabherwal, 2010; Jarle Gressgård, Amundsen, Merethe Aasen and Hansen, 2014; Leonardi and Treem, 2012; Lovrenčić and Sekovanić, 2019; Mizintseva and Gerbina, 2018; Tanriverdi, 2005; Zouari and Dakhli, 2018). The process of knowledge discovery involves the process of developing new tacit or explicit knowledge from data and information or synthesizing existing knowledge. This process is accomplished through mechanisms such as meetings, telephone conversations, collaborative document creation, conferences, etc. The related KM technologies that provide the necessary support are:

- Different types of databases such as NoSQL databases, graph databases, knowledge bases, good practice databases, lessons learned databases, data warehouses, or document repositories.

These databases are used for storage and retrieval of unstructured, half-structured and structured data, information, and knowledge. For example, a knowledge base can provide easy access to information for both employees (e.g. tutorials, company policy, procedures, and business rules) and customers (e.g. FAQs, product description, quick start guide, user manuals). Data warehouses are central repositories of data from a variety of sources, incorporating business intelligence tools.

- Conferencing tools for audio conference, video conference, Webcast or Webinar. All this technology allows people (business partners, customers, employees) to connect through online meetings (e.g. client meetings, product and service presentations, project meetings), regardless of their location (it reduces costs and time required for travel). It also enables the sharing of documents and applications, information and experience, speaking or teaching in real-time (and can be stored for future use).
- Online platforms for social connections such as chat (for fast communication and file sharing), social networks (online platforms where various social connections can be made and mostly used for marketing and knowledge sharing and exchange among individuals or groups), blogs (websites that give information about some topic in the form of diary and may be open for comments), forums (more structured, finding information is easier, encouraging internal and external communication and discussion), communities of practice (groups of people who share tacit knowledge, and practical experiences).
- Online collaboration applications for content creation such as Wikis (websites with multiple collaborators used specifically for providing various and detailed information about some topic), Content management systems (CMS) - support content creation and management (organizing, editing, publishing) as well as a collaboration of multiple users. They are especially important because they allow people to work together, regardless of their location.
- Data, text and web mining – enables discovery of new information and knowledge from various sources and formats of big data, as well as data analytics and visualisation.

The process of knowledge acquisition involves the process of finding and storing explicit or tacit knowledge found in individuals, artifacts (technology or warehouses) or organizational entities, as well as outside organizations. This is achieved through mechanisms related to learning - learning by doing or observing, on-the-job education, storytelling, good practice, lessons learned, etc. The related KM technologies that provide the necessary support are:

- Learning applications such as eLearning (LMS) or Lessons learned systems. In a business environment, the LMS system is commonly used to provide some type of training for employees, is used to store and share corporate knowledge on specific topics as well as assessment of employee education and training. Lessons learned systems capture and store previous business cases possibly relevant for future organizational activities.
- Document management systems (DMS) are used specifically for the management of documents (e.g. contracts, offers, consents, marketing, and sales materials) and ensure that employees always have the right version, full access from anywhere, online collaboration, task management, tracking, indexing, storage, retrieval, etc.
- AI-based knowledge acquisition, computer simulations, good practice databases, podcasts, webinars, etc. All these systems are also used as a source of valuable knowledge for organizational KMS.

The process of knowledge sharing involves the process of transmitting explicit or implicit knowledge. It is realized through mechanisms such as employee rotation by department, conferences, manuals, letters, presentations, etc.

The related KM technologies that provide the necessary support are:

- Technologies and tools mentioned above in the previous processes. They mainly also include a possibility to query and represent knowledge, thus transforming it into the form that can be shared within organization.
- Expertise localization systems are especially important because they aim to easily find experts for specific tasks in an organization.

The process of knowledge application involves the process for using the knowledge of others without acquiring or learning it. It is implemented through mechanisms such as support and assistance centers, organizational policies, work practices, standards, etc. The related KM technologies that provide the necessary support are:

- Artificial intelligence technologies, expert systems, business resource planning systems, management information systems, acquisition and transfer of expertise, troubleshooting, etc Expert systems have ability to solve complex and challenging issues in a specific domain (e.g. chemical analysis to predict molecular structure).
- Decision Support Systems (DSS) (case-based, rules-based, models or diagrams based reasoning systems) are very important in decision making process. They are information systems that support decision-making processes in organizations and therefore must include a knowledge base, a reasoning mechanism and a user interface; examples are knowledge based systems or case based systems.

There are also many new technologies that can be incorporated in KM, such as big data and analytics, semantic technology and natural language processing, machine learning, cognitive computing, augmented reality, Internet of Things and smart machines (Lovrenčić and Sekovanić, 2019). As can be seen, KM technologies are not only containers for the storage of expertise, but also can play a more important role such as encouraging innovation. But they can only be as effective as the people and organizations that are using them.

## **5. CHALLENGES, PROBLEMS AND BENEFITS**

According to Katoch (2017), knowledge communities in organizations should be versatile and spread over multiple disciplines and teams, and building of such a community poses four key challenges:

- Technical – developing human and information systems that help community members to think;
- Social – developing communities to share knowledge and encourage thinking;
- Management – developing an environment that appreciates knowledge sharing;
- Personal – developing an environment that is open to new ideas and knowledge.

In their study, Ghomi and Barzinpour (2018) name various factors that influence the technical challenge, namely the success of KM tools, such as employee motivation, communication and education, human resources management, information technology, leadership and management support, organizational processes and activities as well as organizational infrastructure, culture and strategy. Many scholars (Akhavan and Pezeshkan, 2014; Choi, Lee and Yoo, 2010; Fındıklı, Yozgat and Rofcanin, 2015; Frost, 2014; Gholami, Asli, Nazari-Shirkouhi and Noruzy, 2013; Ghomi and Barzinpour, 2018; Katoch, 2017; Kunthi, Sensuse and Tobing, 2017; Lapiņa, Maurāne, and Stariņeca, 2014; López-Nicolás & Meroño-Cerdán, 2011; Mizintseva and Gerbina, 2018; Sánchez, Marín and Morales, 2015; Zouari and Dakhli, 2018) confirm that the imbalance of any of these factors leads to problems in the application of KMS. However, because of its importance, the problem of utilization has been particularly highlighted through studies (Rhee and Choi, 2017), because individuals can generate learning benefits for the whole

organization when they are willing to participate in sharing and exchanging knowledge (Chen and Huang, 2009). Of course, one should not think that implementation of new technologies will by itself provoke sharing and creating new knowledge; the focus must actually be put on the employees, not on technology (Camelo-Ordaz, Garcia-Cruz, Sousa-Ginel and Valle-Cabrera, 2011). Another key issue in KM is the prevention of the loss of organizational/tacit knowledge of company experts (e.g. individuals leaving to the next job). For each problem, an attempt is made to find alternative approaches to motivate people (e.g. rewards) to share what they know and actively participate in the creation of knowledge, where job satisfaction is very important factor. So the focus must be on people, but also divided on KM technologies as well as on information and knowledge flow. Some of the main benefits of applying KMS in the overall business of an organization are related to (Akhavan and Pezeshkan, 2014; Akram and Hilman, 2018; Chen and Huang, 2009; Choi, Lee and Yoo, 2010; Ghomi and Barzinpour, 2018; Gholami, Asli, Nazari-Shirkouhi and Noruzy, 2013; Govender, Perumal and Perumal, 2018; Lapiņa, Maurāne and Stariņeca, 2014; Mao, Liu, Zhang and Deng, 2016; Minbaeva, Mäkelä and Rabbiosi, 2012; Sánchez, Marín and Morales, 2015):

- Knowledge is a direct and sustainable competitive advantage of an organization;
- New knowledge can lead to various improvements in organization and it exponentially increases when it is shared;
- With new knowledge employees generate new ideas and create innovative products;
- KM technology supports knowledge creation and acquisition and thus foster learning;
- IT improves knowledge sharing through various communication channels;
- IT integrates knowledge into organizational processes and routines, thus improving knowledge application;
- KM identifies the explicit and tacit knowledge of individuals, groups, and organizations and enables its use through effective flow of information and knowledge in organisation.

Employees play a vital role by executing their skills, capabilities and knowledge in attaining an organizational competitive advantage. Knowledge sharing enables employees to retrieve and reuse the data so they can improve their learning and problem-solving skills (Akram and Hilman, 2018) along with improving organization's decision making process.

## **6. CONCLUSION**

From data to information, from information to knowledge, from knowledge to insight, from insight to wisdom, or better - to expertise. This statement best describes today's need for knowledge in organizations. In a business sense knowledge is a crucial asset that enables organizations to act with ensuring a positive return (e.g. competitive advantage, innovation, improvements in productivity, financial and staff performance, customer satisfaction,..). In the context of an ever-changing environment, knowledge management system is a key element of organization, as enabler of data and information creation and acquisition, their storage, transformation into valuable knowledge and sharing. The knowledge flow through organization that it provides is a backbone of organizational decision making process and success. The most important components of knowledge management are, above all, people, followed by knowledge management technologies and processes, and in order to ensure a smooth flow of knowledge their synergy is very important. As discussed above, problem in just one of the knowledge management processes (e.g. unwillingness to share knowledge) is enough to get the knowledge management system and thus knowledge flow off balance. Therefore, it is important to understand all aspects of knowledge management systems so that its full potentials and benefits can be realized, and all challenges and problems overcome. With the continuous and fast emergence of new technologies, organizations should not forget that people make decisions and as such are crucial enabler of the use of the full potential of knowledge management

technologies. They make the difference between successfully or unsuccessfully implemented knowledge management systems, which is ultimately reflected in the competitive advantage of the organization.

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# INCREASING QUALITY AND PROFITABILITY OF RESTAURANT INDUSTRY THROUGH THE INTRODUCTION OF THE MICHELIN GUIDE IN THE REPUBLIC OF CROATIA

**Dominik Vukusic**

*University of Zagreb, Faculty of Economics and Business, Croatia  
dvukusic1@net.efzg.hr*

**Alica Grilec**

*University of Zagreb Faculty of Textile Technology, Croatia  
The College of Fashion & Design, Dubai  
alica.grilec@tff.hr*

**Josip Mikulic**

*University of Zagreb, Faculty of Economics and Business, Croatia  
josip.mikulic@efzg.hr*

## ABSTRACT

*The Michelin Guide, besides contributing to the popularization of the “fine dining” restaurants, has also set Croatia on the gastro map of Europe. Croatia received an objective assessment of top experts and we have been given the opportunity and clear standards for quality service, creativity and variety. The purpose and aim of the paper is to explore the impact of Michelin's quality standards on increasing the profitability of the restaurant industry and contribution to the competitiveness of Croatian gastronomic offer on a global scale. By setting clear quality criteria through measurements in the survey questionnaire, the restaurant owners and/or the main chefs; attitudes on the clarity of Michelin's quality standards have already been set. Determining the importance of some quality criteria on the reference sample of restaurants, included in The Michelin Guide and those with the highest ratings on TripAdvisor, we've come interesting conclusions. The conducted research has shown that in most of the restaurants involved in the survey, the introduction of the Michelin Guide influenced positively. The Michelin Guide has more influence on restaurants in larger towns (Zagreb) and on popular tourist destinations (Istria, Kvarner, Dalmatia). Quality service analysis found that Croatian gastronomy still has a lot of work and money to invest in order to progress. As the most important recommendation for the further development of the restaurant industry, the need for permanent investment in education and training is emphasized. This leads to improvement of service quality in restaurants, which will result in a unique gastronomic offer that will stimulate visitors to return to the same restaurant, thus contributing to branding Croatia as a gastro region and leading to sustainable development.*

**Keywords:** *eno-gastro tourism, restaurant industry, restaurant quality, restaurant competitiveness, The Michelin Guide*

## 1. INTRODUCTION

The Michelin Guide in Croatia gained recognition in 2017, when restaurant Monte sparkled and experienced the media exposure that many restaurants only dream of, after which it became a national pride and role model in the gastronomy world. In addition, it is important to emphasize the importance of the hospitality industry and especially the restaurant industry in the Republic of Croatia. The restaurant industry has four main areas: full-service restaurants, fast food restaurants, places to consume food and drinks, and retail chains offering ready-made foods (Volha, 2012). Full-service restaurants require no food preparation by the customer and rely entirely on serving staff.

Fine dining restaurants are a category of full-service restaurants, characterized by a more expensive menu, a large selection of drinks, educated staff, formal dressing, and the often sophisticated interior design (Trends in fine dining, 2011). We are witnessing that from year to year Croatia is registering an increasing number of tourists of higher paying power arrival, who can afford better and more expensive restaurants. The terms gastronomy is gaining importance in Croatia. According to the literature (Boniface, 2003), gastronomic tourism emphasizes the offer of restaurants as the primary attraction and motivation for traveling. There are several restaurant categories that Michelin can classify, and the highest and most prestigious category in the guide is to get three Michelin stars. The research will examine and accurately determine the opinion of top chefs and restaurant owners about the clarity of the Michelin standards. They include five key criteria that expert inspectors focus on:

1. Quality of Foods and Ingredients - The key factor is to use local, fresh and seasonal foods.
2. Mastery of cooking techniques and food flavors - It often involves monitoring new technology used in the culinary field to maximize the potential of each ingredient.
3. The personality and character of the chef in his kitchen - it is very important for the chef to show his style and show specificity and recognition in the creation of dishes.
4. Value for money - One of the criteria that is important for a restaurant to get a "target audience", that is, regular guests who fit into the concept of the restaurant with their payment power and taste.
5. Consistency between visits - the restaurant must prove the quality of each visit and must not offer different quality of food, e.g. on Saturdays if the attendance is higher than on weekdays.

The risk involved in such fine dining restaurants is extreme, so the fight for Michelin stars in the world of high gastronomy does not stop. One Michelin star can increase demand around 20%, two stars 40%, and three stars even 100%. In order to remain competitive, Michelin's guide must expand geographically, attract new customers and maintain positive revenue trends (Bouty, 2013).

## **2. MICHELIN GUIDE IN THE REPUBLIC OF CROATIA**

The first Michelin star for Croatian restaurant, Rovinj's Monte, as well as Michelin's recommendations for another 30 restaurants in 2017, represent the beginning of establishing the Republic of Croatia as a quality gastronomic destination. It was expected that in the next year the number of restaurants in the guide would expand expansively, thus, in 2018, two more stars were rewarded with stars, one for the "360" in Dubrovnik and for the famous "Pelegrini" in Šibenik. The third year of Michelin's arrival, he marked the first continental restaurant in Croatia to receive a star, Zagreb's Noel. The first restaurant in Kvarner to win a star is Draga di Lovrana, the ambitious restaurant of young chef Deni Srdoc. With this trend, we might expect stars in the Croatian islands or Slavonia in the following years. After careful inspection, in early 2019, Michelin Guide includes 5 Croatian restaurants in 1 star category, 8 in the Bib Gourmand category and 50 in the The Michelin Plate category. There is a significant difference between the Michelin guide and guides from other institutions such as Forbes, whose 800 criteria cover a large part of those who are not food-related but relate to accompanying services such as parking. Others, like Zagat, Yelp, TripAdvisor give ratings to restaurants, taking full or partial ratings from visitors. The problem with other institutions is that if we want to select a restaurant according to the food quality rating, we cannot take things that do not affect the quality of the food itself or just the subjective opinion of the guests who visit those restaurants. The reason for this lies in the fact that the vast majority of the population do not understand and do not know enough about the world of top gastronomy, and therefore can not make objective and professional decisions about which restaurant deserves the best reviews.

However, although factors such as landscaping, parking, location, and more do not affect Michelin ratings, they have a strong influence on the formation of the meals price (Yim, 2014). The restaurants that Michelin considers the best, match only to a small extent to the ones TripAdvisor considers to be the best. It follows from this that it is crucial to define standards that allow appraisers, such as Michelin inspectors, to provide more accurate appraisal for individual categories in the guide. As the Ministry of Tourism emphasized in its goals for the 2019 season (Strategic Plan of the Ministry of Tourism, 2019), among other things, it wants to emphasize the importance of increasing the offer on destinations. Moreover, it wants to work on the long-term sustainability of Croatia's development as a destination known for its quality of supply, and not just by sun and sea. From the above documents it is evident that Croatia is working to encourage the opening of more luxurious accommodation and restaurant establishments and thus to bring tourists willing to spend more. Also, the importance of these measures is evident from the aforementioned factor important for the development of restaurant quality, which is to bring guests who know how to recognize the quality and are willing to pay for it.

### 3. RESEARCH ON QUALITY AND PROFITABILITY OF RESTAURANTS IN THE MICHELIN GUIDE IN CROATIA

#### 3.1. Sample and data collection

In preparing research of the quality and profitability of restaurants based on a survey questionnaire, data, information, attitudes and opinions on the subject of the research were collected. The survey was sent to all restaurants within the Michelin Guide (73 restaurants). Additionally, the survey also included the restaurants that scored the highest ratings on Trip Advisor (10 restaurants) and therefore have the potential to enter the Michelin Guide. Significant number of restaurants (37) responded to the survey, representing 44.6% of the total restaurants in the guide. Restaurants are categorized into four groups and their response by category is shown in Figure 1.

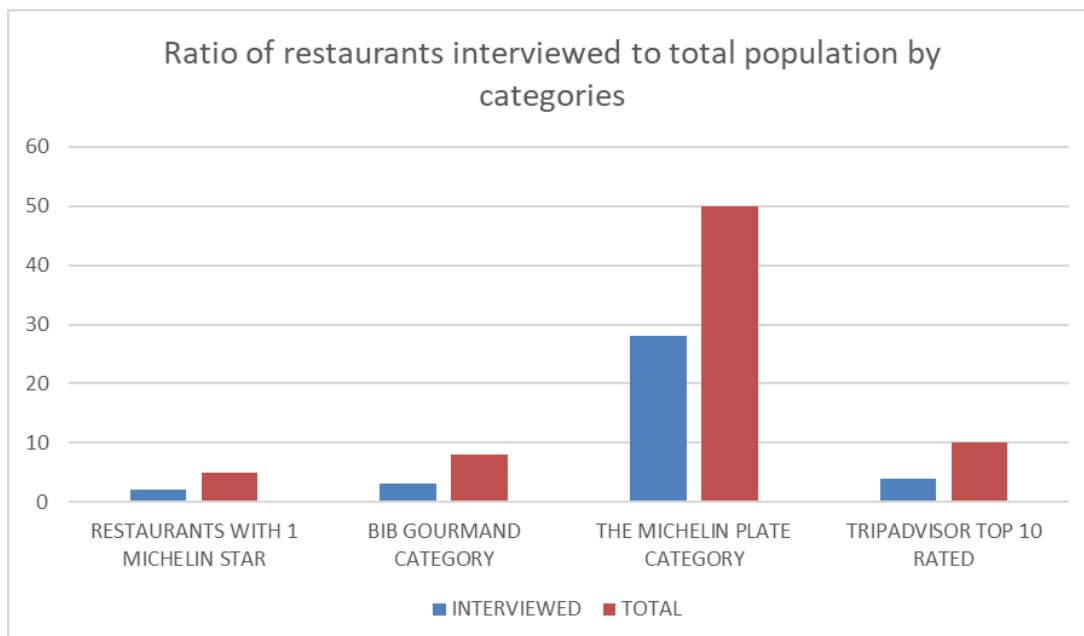


Figure 1: Ratio of restaurants interviewed to total population by categories

The research included restaurants, which are not obliged to publish financial statements on FINA web pages, and for this reason it is very difficult to make a financial analysis, since there is a lack of adequate information on restaurant profitability.

In order to obtain this information, it was necessary to cover as many of the guide restaurant population as possible from each category. Particularly prominent are those restaurants that have been in the guide since the first year of introduction, and in such restaurants the influence of the position in the guide is mostly seen due to the time factor. It is not to be expected that restaurants that entered the guide less than a month ago will be able to provide adequate information, so some questions did not even relate to them, so we can assume that this is the reason why they did not participate in the survey. The survey was conducted from March 20 to April 1, 2019 and the data of the target groups were collected by the survey method. The survey included all Michelin-starred restaurants as well as selected restaurants with the best TripAdvisor reviews.

### 3.2. Results on research on quality and profitability of restaurants in the Michelin guide in Croatia

At the beginning of the research, the attitude and familiarity of the respondents with the quality standards required by the Michelin guide from the restaurant were shown in the Figure 2.

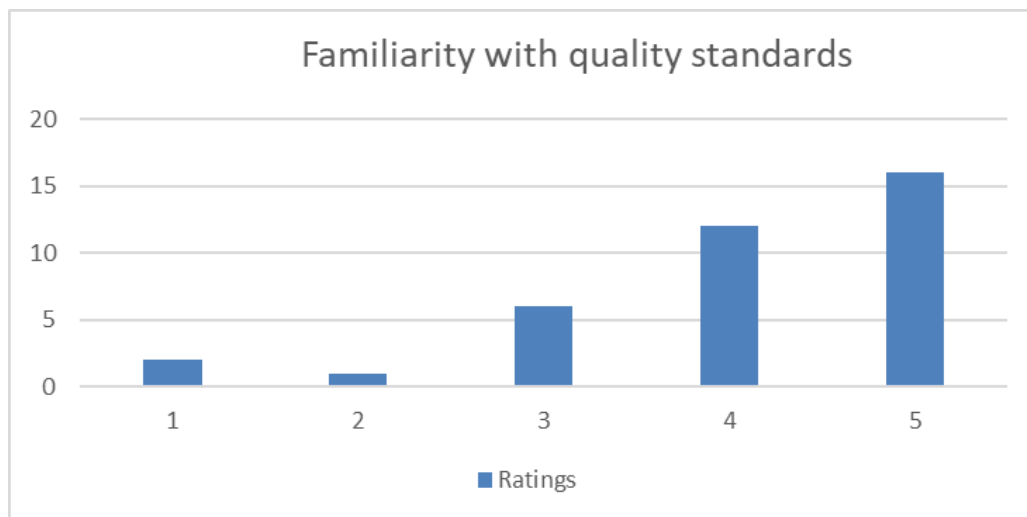


Figure 2: The attitude of the restaurants on Michelin Guide quality standards

Where:

*Rating 1 = The standards are unclear and I do not agree with the selection of restaurants in the guide in Croatia*

*Rating 2 = The standards are mostly unclear and I generally disagree with the choice of restaurant in the guide*

*Rating 3 = The standards are clear enough, but I cannot evaluate the selection of restaurants in the guide*

*Rating 4 = The standards are mostly clear and I generally agree with the choice of restaurant in the guide*

*Rating 5 = The standards are clear and I fully agree with the restaurant selection in the guide*

To guarantee the credibility of the later research, standards set by Michelin for inclusion in the guide were verified. The survey found that the largest number of responses was in the rating category four and five, respectively, meaning they were fully aware of the standards that Michelin expects. The arithmetic mean of familiarity with the Michelin standards, is shown in Figure 3, with restaurants shown by categorization in the guide. The results show that the highest number of respondents answered precisely with a rating of 4, and deviations from this rating exist only in the Bib Gourmand category (where the average is 3.6) and the one Michelin star restaurant category (where the rating is 5.0).

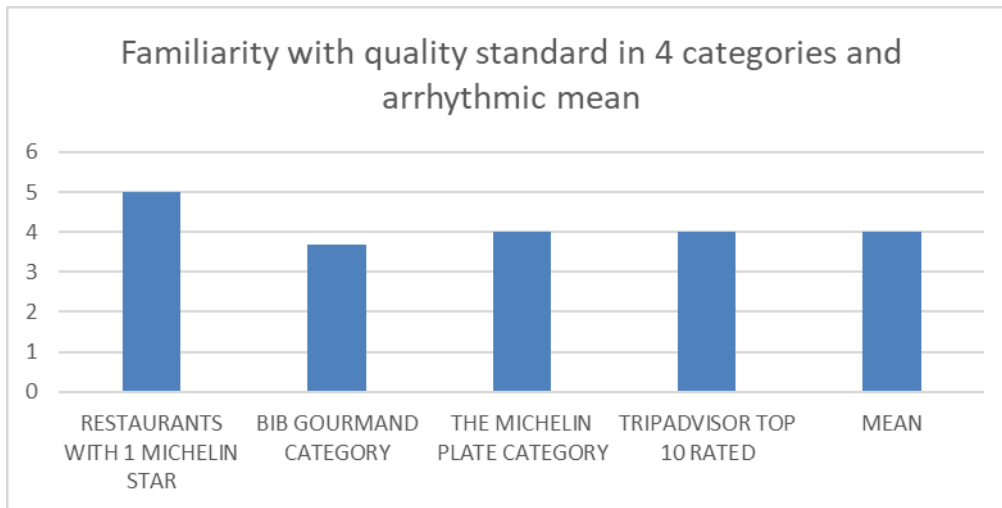


Figure 3: Familiarity with quality standard in 4 categories and arrhythmic mean

The average familiarity with Michelin standards is seen to be 4.02777. The data was calculated as follows:

$$\frac{(\sum \text{Familiarity with Michelin standards})}{(\text{Total number of responses})} = \frac{(1 \times 2 + 2 \times 1 + 3 \times 6 + 4 \times 12 + 5 \times 15)}{36} = \frac{145}{36} = 4.02777$$

Since, the overall aim of this research was to investigate the impact of quality on increasing the profitability of the restaurant industry, the most important was to determine measures which can quantitatively evaluate target group of Croatian restaurants.

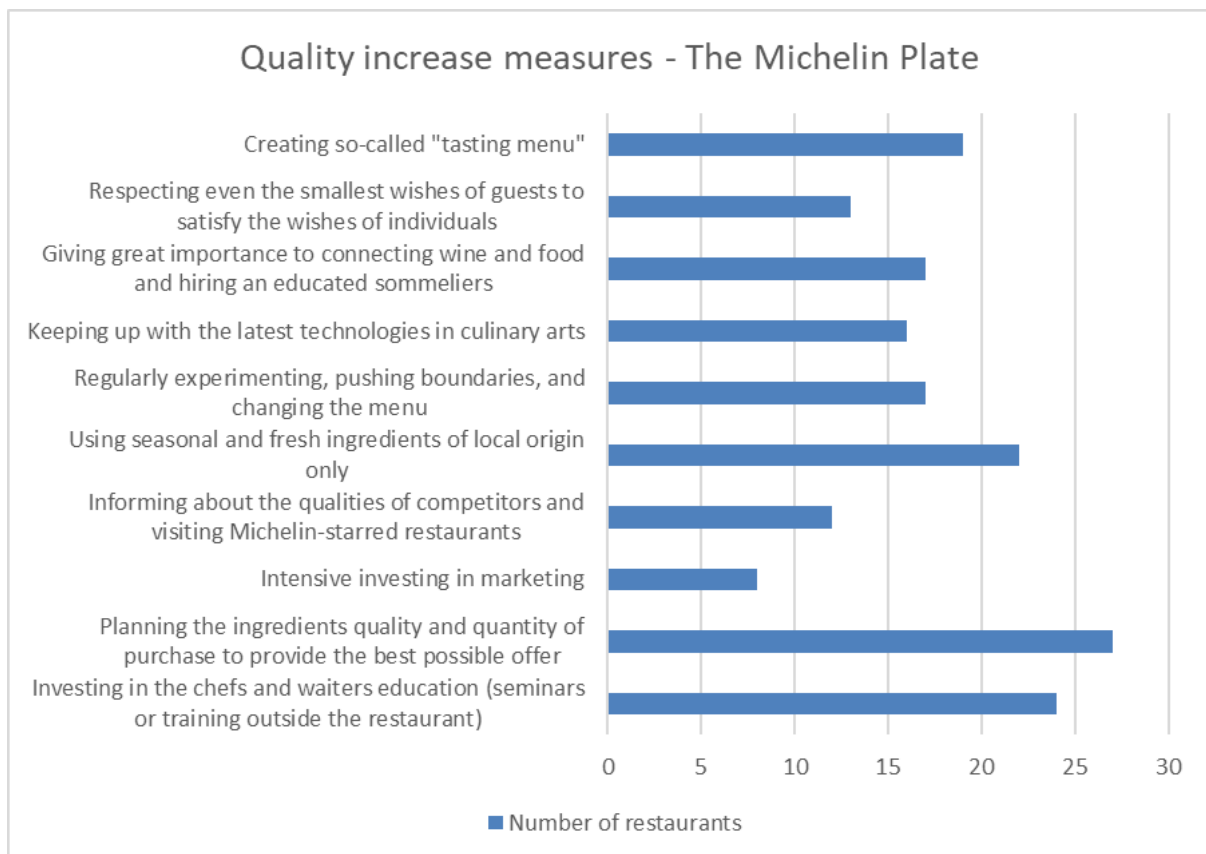


Figure 4: Measures used in the survey to increase restaurant quality

Figure 4 shows that in The Michelin Plate category, which has the largest number of restaurants tested, the most significant measure is the planning of supply and quality of food. In addition, a great deal is invested in educating staff and creating attractive menus. Investing in marketing is a less used measure because it is an established restaurant. The results revealed that an extremely high percentage (50%) of all the restaurants surveyed thought they deserved one or even two stars. To justify such an opinion, the use of all methods should be far more prevalent. Given that this is not the case, the category seems justified through this indicator, and restaurants should work to improve quality in all the above segments in order to progress. The Michelin starred restaurants are characterized by a high level of service, creativity and paying attention to the smallest details. We see that all categories are represented, except for the aforementioned marketing investment, which can serve as a measure to raise quality by enabling the restaurant to bring in quality-ready guests and pay for it. Furthermore, 50% of restaurants owners and chefs are visiting restaurants of the same or higher category and apply new technologies in food preparation. Low usage of these methods does not necessarily mean lower quality of the restaurant, as there are other methods of trend monitoring such as various trainings and seminars. Furthermore, old and traditional styles of food preparation can give the restaurant character and distinctiveness. As we have seen through quality-enhancing measures, each step further in the guide entails the additional financial resources needed to introduce and implement them. If by increasing the prices of food and service, bringing in more guests (who are willing to pay for that quality), and ultimately the potential prolongation of the restaurant season in major tourist areas (e.g. Dalmatia, Istria), offset the high cost increase caused by higher expectations from the restaurant offer, we can say that there has been an increase in profitability. The quality of the restaurant is mostly influenced by the chef's skill and creativity, which directly depends on the number of stars (Svejenova, 2010). For this reason, the Michelin category can positively or negatively affect the reputation and profitability of a restaurant (Woodward, 2014). The pressure on chefs is particularly present in fine-dining restaurants, where chefs are the culinary innovators that attract visitors (Stierand, 2008). The paper (Prezenza, 2017) examines the importance of creativity but also of protecting the intellectual property of the main chefs in Michelin-starred restaurants (Vargas-Sancheza, 2018). Nowadays, more and more chefs are collaborating with scientists and even have their own gastronomic labs (Perez-Lawrence, 2019). An example of such restaurant is Aponiente, a three-star Michelin-starred restaurant owned by Chef León, known as "The Chef of the Sea." Collaboration with Cádiz University has resulted in the development of innovative kitchen appliances (eg clarimax ©), techniques (eg bioluminescence to soften crab shells) or new ingredients (eg plankton).

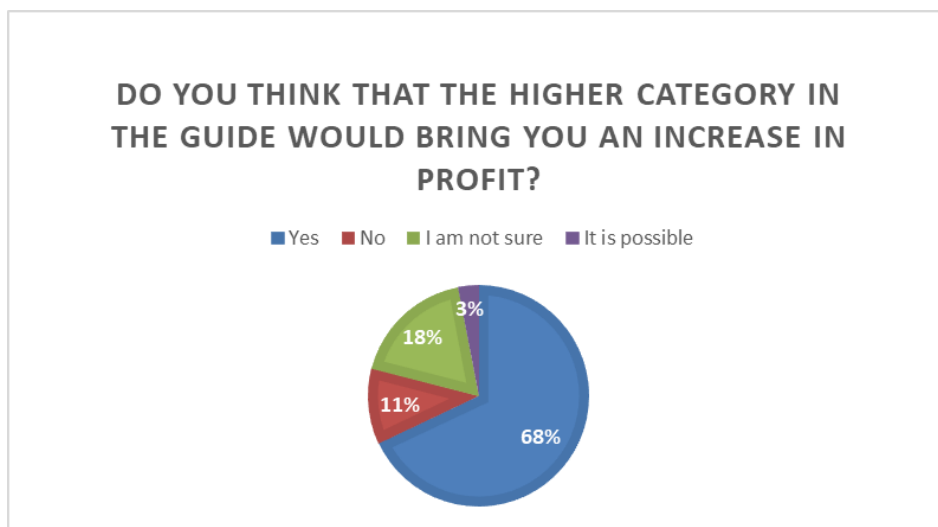


Figure 5: Dependency of Michelin Guide category on profitability

Figure 5 shows us the dependency of the category in Michelin guide and profitability. Given that most restaurants (68%) believe that this compensation would indeed happen, while a smaller number, 11% believe that for some reasons it is not the case. Such a difference of opinion may be due to a number of factors: the geographical climate, regional development, competition or lack of educated workforce. Also, we can assume that with each category and star, there is a different average increase in profitability. It requires a longer period of time and a larger number of restaurants in all categories in the guide to measure the profitability. Such a measurement would make sense, only at the regional level with more countries involved. In the area of restaurant profitability management, there are a lot of questions that require answers and continued research. The paper (Thompson, 2010) highlighted role of many factors that affect long term profitability increase. Some of them are: careful inventory and raw material planning, service expertise (can be enhanced by investing in employee education), investing in marketing and promotion, using equipment of high quality and new technologies.

#### 4. CONCLUSION

Over the last two years, news on the Michelin Guide have been published on most Croatian portals and media. The public has shown great interest in introducing guides to Croatia and is "under the magnifying glass" to monitor and await every new restaurant appearance in this prestigious guide. For that reason, this paper sought to investigate in detail and systematically explain the impact of The Guide on the profitability and quality of the restaurant industry in the Republic of Croatia. The effectiveness of the guide and its contribution to the development of the Croatian tourism offer have been investigated with the aim that Republic of Croatia become one of the world's best gastronomic destinations. In addition to contributing to the popularity of fine dining, Michelin's Guide also placed Croatia on the gastronomic map of Europe. The Guide provided objective evaluations of top experts, and as a region, we were given the opportunity and clear standards to enhance the quality of service, creativity and diversity of offer. Since most restaurants are not required to make financial statements public, the impact of Michelin's appearance in Croatia on the profitability was examined using survey questionnaire methodology. The aim of the paper was to find a link between the emergence of the Michelin Guide and its impact on the business, quality, profitability of the restaurant business itself as well as its impact on promotion. The inclusion of Croatian restaurants in the Michelin Guide in 2017 also included Croatia in the gastronomic map of Europe. The first Michelin star went to restaurant Monte from Rovinj, which was unknown to the general public at the time. Foreign tourists view Michelin's ratings as a recognized standard of quality, believing that if they go for lunch or dinner to a Michelin-starred restaurant, their expectations will be met. The conducted research showed that the majority of restaurants included in the survey had a positive impact on the introduction of the Michelin Guide, except for restaurants in Slavonia which are a slightly different market. In other parts of Croatia, restaurants are generally pleased that the inclusion of restaurants in the Michelin Guide has influenced them and they are ready to invest further in the development of their restaurant, improve their business and climb the step more in the guide. A restaurant in Slavonia (because of the anonymity of the survey it is not possible to determine exactly which restaurant is in question) gave a rather exhaustive answer that Slavonia is a somewhat more complicated market because the population believes that by listing restaurants in the Michelin guide, prices in the restaurant automatically increase. Quality is not the major concern they have, more important parameter in the choice of restaurant is the price. From the results of the research we can conclude that Michelin has a greater impact on restaurants in larger areas (Zagreb) and on popular tourist destinations (Istria, Kvarner, Dalmatia). The analysis of the quality of service shows that Croatian gastronomy can make a lot of progress. The most important recommendation for the further development of the restaurant industry is the following: continuous investment in



education and training of staff is necessary. Only this leads to improvement of the quality of service in restaurants, which will result with the provision of a unique gastronomic offer and stimulate visitors to return to the same restaurant and thus contribute to the branding of Croatia as a gastro region as well as sustainable development. We can say that bringing the Michelin Guide to the Republic of Croatia is one of the measures for sustainable development, but the question is whether the introduction of a guide came before the establishment of the Republic of Croatia as a destination that offers more than just a natural beauty. The problem of time mismatch could arise if the society in some regions is not ready for restaurants that compete with quality rather than quantity, and one of the possible outcomes is reduction of the restaurant profitability. It is difficult to predict outcomes, both because of the lack of research in this area and because of the different societal and economic factors that may have an impact on the restaurant industry.

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## **REVITALIZATION OF NIGERIA'S SCIENCE AND TECHNICAL EDUCATION IN THE PROMOTION AND MANAGEMENT OF ECONOMIC GROWTH AND DEVELOPMENT**

**Ayuba A. Aminu**

*Department of Business Administration,  
University of Maiduguri, Nigeria  
ayubaaminu6@gmail.com*

**Aliyu Shugaba**

*Vice Chancellor, University of Maiduguri, Nigeria*

**Yahaya Yunusa Malgwi**

*Bursar, University of Maiduguri, Nigeria*

### **ABSTRACT**

*The paper examined the how to revitalize Nigerian science and education for economic growth and development. Science and technical education is the bedrock for economic growth and a good strategy to accelerate the development of science and technical education for the purpose of rapid technological breakthrough. The paper dwells on the objectives of basic science and technical education curriculum and also identifies what a child need to know and skills to be acquired through science and technical education curriculum. The paper revealed that the science and technical education curriculum offered in the classroom is too ambitious and does not sufficiently equip the students with the desired practical know-how to meet the challenges of accelerated development expected from the study of science and technical education for societal expectation. Finally, the paper recommended the need to understand the importance of science and technical education and effort should be made to tailor the curriculum towards the promotion of economic growth and development of Nigeria.*

**Keywords:** *Development, Economic growth, Education, Management, Nigeria, Revitalization*

### **1. INTRODUCTION**

The issue of science and technical education is paramount for any national development because it is the backbone for economic growth and development. No nation can prosper to achieve any meaningful economic development without the application of science and technical education (STE) in their educational curriculum. It is important to note that science and technical education has been recognized as a vital segment of Nigerian Educational system which made the Federal Government to create the Ministry of Science and Technology. This initiative to develop human capacity building network through the various agencies of the Federal Ministry of Science and Technology is a welcome idea and a good strategy to accelerate the development of science and technical education for the purpose of rapid technological breakthrough rather than relaying on the rule of thumb or the traditional method of production of goods and services. In order to achieve the objectives of National Policy on Science and Technology, Nigeria needs the skilled manpower in the area of science and technical education and this is possible only through our science and technical schools, polytechnics, universities of science and technology. It is however, regrettable to state categorically that, with the establishment of polytechnics and universities of science and technology in the 1980's. Nigeria position in terms of development of science and technical education is still at a slow pace. There is no any technological breakthrough in science and technology but the desire of Nigeria government is to improve the socio-economic life of the people and the society through technical, vocational and science education.

The need for the revitalization of science and technical education in Nigeria is a must. We cannot continue to deceive ourselves with entrepreneurial education or vocational education where trades (vocational schools or institutes) that teaches skills such as metal machining, electrical / automobiles, hair dressing, carpentry, computer repairs, woodwork, needle work, catering etc. Government need to re- address the issue of science and technical education by showing practical commitment rather than paper commitment by putting emphasis on training and retraining of skilled manpower to meet the demand of our educational system to meet up the Global best practices in the field of science and technical education.

## **2. STATEMENT OF THE PROBLEM**

Science and technical education has been playing a crucial role in the development of a nation and it is expected that those who acquire the skills and knowledge in the field of science and technical education to be gainfully employed. Apart from that, the youth, the poor and the vulnerable in the society can also benefit from science and technical education (STE) to improve their living standard. However, in Nigeria in spite of the existence and contribution of STE, not much has been done to address the problems and challenges faced by STE in order to be beneficial to the formal and informal sector of the economy. It is against this background that this paper seeks for the revitalization of Nigeria's science and technical education.

## **3. OBJECTIVE OF THE PAPER**

The main objective of this paper is to examine how to revitalize Nigeria's science and technical education as a panacea for economic growth and development. Other specific objectives are to;

1. examine the objectives of basic science and technology curriculum
2. identify the problems of science and technical education
3. examine the need for economic growth through science and technical education
4. identify the factors that causes economic growth through science and technical education

## **4. CONCEPTUAL ISSUES**

The conceptual issue today in Science and technical education is, why governments are investing in it. The answer is, there are five essential justifications by governments worldwide as to why invest in science and technical education. These are to:

1. increase relevance of schooling by imparting individuals with skills and knowledge necessary for making the individual a productive member of the society.
2. reduce unemployment as a result of provision of employable skills especially to the youth and those who cannot succeed academically.
3. increase economic development due to the fact that it improves the quality and skill level of the working population.
4. reduce poverty by giving the individuals who participate access to higher income occupations.
5. transform the attitude of people to favour occupations where there are occupational prospects of future.

Various approaches have been adopted around the world to provide science and technical education. These are;

1. The first approach is where the whole school curriculum is re-oriented towards providing science education.
2. The second approach is where science, vocational and technical institutions exist alongside a general school system with a conventional academic orientation.
3. The third approach is called the core curriculum option approach. This approach provides vocational and technical programmes only.

4. The fourth, is the non-formal system approach which provides opportunities for out of school youth to acquire vocational and technical skills, which may be used either to obtain employment in the formal sector or for promotion of self-employment and the development in the informal sector.

However these approaches are used from one country to another either individually or collectively, depending on what the policy makers of the country thinks is suitable for their economic development or responsible to the needs of technological advancement and globalization trends of the world.

## **5. HISTORICAL ANTECEDENT OF SCIENCE AND TECHNICAL EDUCATION IN NIGERIA**

Scientists believed that the gateway to the survival of a nation is scientific literacy which can only be achieved through science education. Ochu (2011) insightfully posited that science and technical education remain veritable tools for national development. Similarly, Akpan (2015) points out that, the fast changing applications of science and technology and the global reliance on its processes and products in all areas of human endeavour have made it invaluable that any society without them risks being alienated from the global village. It was to this end that the National Policy on Education (FRN 2014) stressed that the importance of science and technical education as a tool for economic development and nation building is enhanced through technological breakthrough and to achieve this, educational system shall revitalize science at all levels. It is no longer debatable that, there can be no appreciable technological breakthrough without a good base of scientific education that builds the needed foundation for science and technology. Such scientific education will be organized in a basic form that the citizenry will easily understand and utilize. Revitalizing science and technical education from the primary through secondary to higher institution is a panacea to technological advancement and economic development of Nigeria if properly designed, implemented and applied for the purposes. In the case of Nigeria, the 6-3-3-4 system of education was introduced in Nigeria in 1982 which gave birth to the introduction of integrated science at the Junior Secondary School (JSS) and Basic Science was introduced in 2007 following the decision of the Federal Government to introduce the 9-year Basic Education Programme and the need to attain the Millennium Development Goals (MDGs) by 2015. The critical targets of the National Economic Empowerment and Development Strategy (NEEDS), which can be summarized as value reorientation, poverty reduction, job creation, wealth generation and using education to economically empower the people are also crucial to this basic science programme. It became imperative that the existing curricula for primary and JSS should be evaluated, reviewed, restructured and re-aligned to fit into a 9-year basic education programme. It was in pursuant of this objective that the Nigerian Educational Research and Development Council (NERDC) was entrusted with this responsibility and its effort gave birth to the 9-year basic science and technology curriculum which is a re-alignment and restructuring of the revised curricula for primary science and the JSS integrated science that was hoped to enhance economic empowerment and development.

## **6. THE OBJECTIVES OF BASIC SCIENCE AND TECHNOLOGY CURRICULUM**

The overall objectives of Basic Science and Technical education curriculum include:

1. To develop interest in science and technical education
2. To acquire basic knowledge and skills in science and technical education
3. To apply their scientific and technical knowledge and skills to meet societal needs
4. To take advantage of the numerous career opportunities offered by science and technical education

5. To become prepared for further studies in science and technology.
6. To avoid drug abuse and related vices
7. To become more security and safety conscious through science and technological advancement

The curriculum is expected that, a child will:

1. gains the concept of the fundamental unity of science
2. gains the commonality of approach to problem of a scientific nature
3. gain an understanding of the role and function of science in everyday life and the world in which he/she lives.

In the area of the skills expected to be acquired by a child exposed to basic science, the following are included:

1. observing carefully and thoroughly
2. reporting completely and accurately what is observed
3. organizing information acquired
4. generalizing on the basis of acquired information
5. predicting as a result of the generalizations
6. designing experiments (including controls where necessary) to check predictions
7. using models to explain phenomena necessary
8. continuing the process of inquiring when new data do not conform to the prediction.

Going by the Nigerian curriculum of science and technical education, it look good but Gyuse & Samba (2011) shows that the curriculum of these science subjects offered in the classroom is too ambitious and does not sufficiently equip the students with the desired practical know-how to meet the developmental expectation that the society is yearning for. Therefore, as laudable as the philosophy and objectives of the curriculum of basic science are, there is need revitalize science and technical education literacy to achieve economic growth and development of Nigeria in no distance time as we are lack behind in terms of technological breakthrough, innovation and research in science and technology. To solve such an urgent need is to develop, train and retrain teachers as teachers could be described as agents of scientific change because of their central position in implementing the curriculum and attaining science and technical education literacy. Revitalization of science and technical education and making it relevant to economic growth and development requires qualified and experienced teachers with scientific background in knowledge, skills, attitudes and teaching strategies in STE. To actualize this, overhauling the system and periodic evaluation of the teachers' role in this policy of science and technical education literacy and economic development is inevitable. Remember also that, the quality of science education does not only depend on curriculum and teacher - related variables, but also on environment (rural or urban) where the school is situated for effective teaching and learning activities, students attitude and interest, academic facilities and instructional materials all contribute to effectiveness of teaching science and technical education.

## **7. PROBLEMS OF SCIENCE AND TECHNICAL EDUCATION IN NIGERIA**

### **7.1. Poor perception of STE**

Students and even parents consider the science education to be a difficult subject that fits only the academically bright once and therefore discourage average students to pursue science base courses. In the case of technical and vocational courses in Nigeria, students find it difficult, if not impossible, to proceed to universities for further their education.

## **7.2. Instructor training**

The delivery of quality STE is dependent on the competence of the teacher; competence measured in terms of theoretical knowledge, technical and pedagogical skills as well as being abreast with new technologies in the workplace which is sometime completely absent. Even where its available is being abused by the school management based on selection of who to be trained among teachers. And is couple with mediocrity, favouritism, discrimination and corruption.

## **7.3. Linkage between technical, vocational and general education**

In Nigeria, technical and vocational education training forms a separate parallel system within the education system with its own institutions, programmes, and teachers. This situation tends to reinforce the perception of inferiority of the technical and vocational track. It is therefore important to create articulation pathways between technical and vocational education and general education.

## **7.4. Linkage between formal and non-formal STE**

It should be possible for students who drop out of the school system to learn a trade to re-enter the formal technical and vocational school system to upgrade their skills, either on part-time or full-time basis. Similarly, regular technical and vocational school students should be able to acquire relevant practical skills in the non-formal sector.

## **7.5. Linkage of STE to the labour market**

Since the ultimate aim of science and technical education training is employment and therefore, STE programmes have to be linked to the job market in such a way that the socio-economic relevance of STE can be enhanced.

## **7.6. Inadequate technical expertise to drive STE system**

There is a general lack of professional STE managers and policy makers with adequate expertise and insight in the formulation and implementation of science and technical education training programmes. The STE staff in Nigeria lack the technical capacity, motivation and I don't care attitude to work which made it difficulty to achieve the STE goals. Such attitude needs to be corrected through the revitalization of STE programmes to have all the necessary expertise for economic growth and development.

## **7.7. Special case of post-insurgency areas**

The difficult political and socio-economic conditions in the North East Zone of Nigeria affected by insurgency leading to burning of schools, dilapidated educational infrastructure and shortage of teachers as result of killing of teachers by the insurgents, calls for the design of special STE programmes for the zone and this requires an urgent attention of the federal government.

## **7.8. The need for economic growth through science and technical education**

The economic growth of a country is the increase in the market value of the goods and services produced by an economy over time. And goods and services are produced using science and technological innovation to increase production in order to enhance economic growth by boosting the gross domestic product (GDP) of a country. While economic development alleviates people from low standards of living into proper employment with suitable shelter. Economic Growth does not take into account the depletion of natural resources which might lead to pollution, congestion and disease. Development is concerned with sustainability which means meeting the needs of the present without compromising future needs. We define economic growth in an economy by an outward shift in its Productivity Possibility Curve

(PPC). Economic growth is measured by the increase in a country's total output or real Gross Domestic Product (GDP) or Gross National Product (GNP). The Gross Domestic Product (GDP) of a country is the total value of all final goods and services produced within a country over a period of time. Therefore an increase in GDP is the increase in a country's production. Growth doesn't occur in isolation. Events in one country and region can have a significant effect on growth prospects in another. For example, if there's a ban on outsourcing work in the United States, this could have a massive impact on India's GDP which has a robust IT sector dependent on outsourcing. So what will be impact on ban on the importation of Nigeria oil and gas by United States? We have no alternative, the alternative could be if we have a robust science and technical education for innovation and development. Most developed economies experience slower economic growth as compared to developing countries because of lack of robust science and technical education programme for development. Science and technical education is the bedrock for economic growth and development of any nation. Therefore, economic growth is one of the most important indicators of a healthy economy. One of the biggest impacts of long-term growth of a country is that it has a positive impact on national income and the level of employment which increases the standard of living. As the country's GDP is increasing, it is more productive which leads to more people being employed. This increases the wealth of the country and its population. Higher economic growth also leads to extra tax income for government spending, which the government can use to develop the economy. This expansion can also be used to reduce the budget deficit. Additionally, as the population of a country grows, it requires the growth to keep up its standard of living and wealth. Economic growth also helps improve the standards of living and reduce poverty, but these improvements cannot occur without economic development. Economic growth alone cannot eliminate poverty on its own unless there is science and technical education for development for the country.

## 8. FACTORS THAT CAUSES ECONOMIC GROWTH

There are six factors that cause economic growth in an economy. These are:

- **Natural Resources**

The discovery of more natural resources like oil, or mineral deposits may boost economic growth as this shift or increases the country's Production Possibility Curve (PPC). Other resources include land, water, forests and natural gas. Realistically, it is difficult, if not impossible, to increase the number of natural resources in a country. Countries must take care to balance the supply and demand of scarce natural resources to avoid depleting them. Improved land management may improve the quality of land and contribute to economic growth. For example, Nigeria's economy depends on oil and gas.

- **Physical Capital or Infrastructure**

Increased investment in physical capital such as factories, machinery, and roads will lower the cost of economic activity. Better factories and machinery are more productive than physical labor. This higher productivity can increase output. For example, having a robust highway system can reduce inefficiencies in moving raw materials or goods across the country which can increase its GDP.

- **Population**

Population is one of the determinants of economic growth because a growing population means there is an increase in the availability of workers which means a higher workforce but its disadvantage is having a large population could lead to higher level of unemployment. But with the knowledge of science and technical education could open up other alternative sources of employment through new discovery or innovation in the existing means of production to boost economic growth.

- **Human Capital**

An increase in investment in human capital can improve the quality of the labor force. This would result in an improvement of skills, abilities, and training. A skilled labor force has a significant effect on growth since skilled workers are more productive. For example, investing in STE students or subsidizing science education would increase the availability of workers for higher-skilled jobs that pay more than investing in blue collar jobs.

- **Technology**

Another influential factor is the improvement of technology. Technology could increase productivity with the same levels of labor, thus accelerating growth and development. This means factories can be more productive at lower costs. Technology is most likely to lead to sustained long-run growth if a good enabling environment is provided through the promotion of science and technical education.

- **Law**

The rule of law should be allowed to work in any nation. Where the rule of law is relegated than technological development will be neglected. In the process of promoting science and technical education, the rule of law allows for any discovery, invention need to be patent, licensed and registered to allow its consumption in the market. This allows for economic growth and development where scientific inventions are fully commercialized its promote economic growth by boosting the GDP of the country.

As a country, we must strive to encourage and initiate a good environment for technological innovation through the promulgation of laws that allows either tax holiday or good incentives to promote the development of science and technical education for industrial growth and economic development. Therefore, there must be an institutional framework which regulates economic activity such as rules and laws must function.

## **9. THE WAY FORWARD FOR SCIENCE AND TECHNICAL EDUCATION IN NIGERIA**

1. There is need to revitalize, modernize and harmonize STE in Nigeria in order to transform it into a mainstream activity as a means of empowering Nigerian youth and human capacity building for the society
2. There is urgent need to re-position STE programmes right from primary to tertiary education level in Nigeria to serve as vehicles for socioeconomic development as it relates to improvements in infrastructure, technological progress, energy, trade, tourism, agriculture and good governance.
3. To mobilize all stakeholders in a concerted effort to create synergies and share responsibilities for the renewal and harmonization of STE policies, programmes and strategies in Nigeria.

## **10. CONCLUSION**

In Conclusion, there is need to understand the importance of science and technical education and effort should be made to tailor the curriculum towards the promotion of economic growth and development of Nigeria. There exist a debate that the promotion of science and technical education relies on the teachers but it is not clear whether it is the curriculum content, teachers' understanding of the objectives, qualification of teachers, teaching methods, students' interest, environmental, location factors or facility/instructional inadequacy or other factors that do contribute to failure of achieving good quality science and technical education in Nigeria. For instance, it is not surprising to find a science teacher teaching English Language or Religious Studies in secondary schools. This means poor utilisation and a mismatch of high level manpower with the appropriate job opportunities.



Enworm (1984), Osuji (1984) and Nwachukwu (1981) as cited in Aminu (1992) all discussed the labour immobility in Nigeria, the poor salary structure, and placement on jobs that are not satisfactory as part of an improper use of skilled manpower. They all found a positive correlation between the relevance of the field of study, employment and job satisfaction. However, non-governmental organizations (NGO's), community group and parents need to support our education system because the development in science and technology depends on funding and if proper funding is provided for the training of teachers and equipping the laboratories than science and technical education can be a panacea for economic growth and development.

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# THE IMPACT OF THE SOLID WASTE FEE SCHEME ON THE GENERATION AND SEGREGATION OF WASTE BY THE RESIDENTS OF GDYNIA

**Karolina Gwarda**

*Gdynia Maritime University,  
Faculty of Entrepreneurship and Quality Science, Poland  
k.gwarda@wpit.umg.edu.pl*

## **ABSTRACT**

*Cities are currently facing many environmental problems. One of them, inherently linked to human existence, is municipal waste. Unfortunately, the amount of municipal waste generated per capita in Poland is growing every year. To meet these challenges, cities are constantly updating their municipal waste management systems in accordance with the guidelines laid out in EU directives that allow selective and non-selective waste collection. An efficient waste management system should aim to reduce the mass of generated waste and to increase its segregation. To this end, four types of methods for determining the fee charged for municipal waste management are allowed, which should address its quantity and selective collection. The City of Gdynia opted for the method of determining this fee according to the area of the residential premises. The aim of the article is to analyze the impact of the solid waste fee scheme on the generation and segregation of municipal waste by the residents of Gdynia.*

**Keywords:** *municipal waste management, solid waste fee*

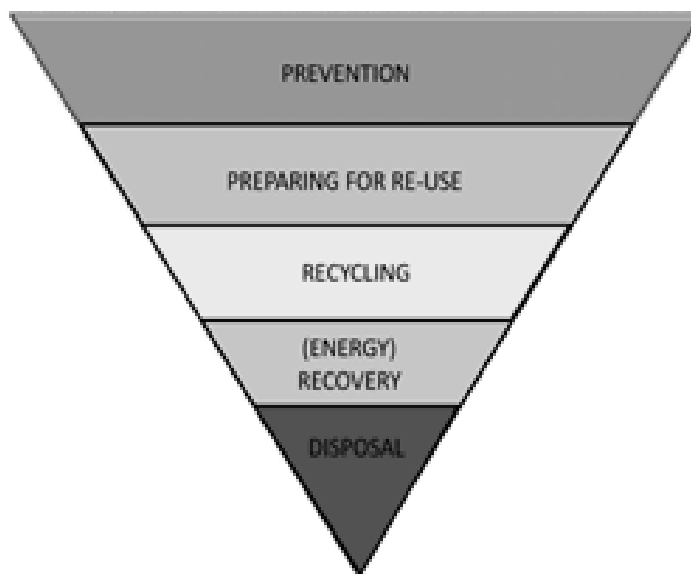
## **1. INTRODUCTION**

Municipal waste is a byproduct of daily societal activities, posing a serious threat to the global environment (Ogundipe, Jimoh, 2015, p. 1305). The very concept of municipal waste has changed over the years, with the most recent definition having been influenced by numerous EU regulations which Member States had to incorporate into their legislation (EU, 1999). The measures introduced by the European Union (EU) as part of a waste management strategy have led to a reduction in the total production of municipal waste. However, the rapid increase of the municipal waste mass may be worrying. In 2017, each EU citizen generated 486 kg of waste, an increase by 3.4% compared to 1995 (Eurostat, 2017). An efficient waste management system should take into account the relationships and links between different elements of managing waste (collection, removal, treatment, transportation and storage), including the costs and negative environmental impacts. In addition, it should allow the implementation of EU policy that imposes on Member States the need to reduce the amount of municipal waste and to organize a collection and management system of generated waste in accordance with the adopted hierarchy (Gwarda, 2017, p. 555 ). Therefore, solutions aiming to bring down the amount of municipal waste and increase its selective collection should be sought, as that will make its reuse easier and more effective. One such solution is to apply the economic instruments of environmental policy, namely waste management fees incurred by residents (Field, 1994, pp. 207-246). Polish legislation distinguishes four methods for determining the amount of this fee, and it is the role of the municipality to choose one that best meets its needs. In addition, rates for collecting sorted and unsorted waste must be different, so as to encourage selective drop-off among residents.

## **2. SOLID WASTE FEES AND HOW THEY ARE DETERMINED**

Waste management emerged on the EU agenda as early as the 1970s, in response to which first legal regulations addressing this problem were put forward. The initial solutions differed significantly from the ones we have today, although the consistently pursued policy has

reinforced the view that waste management is an integral part of several processes aimed at ensuring sustainable development. Therefore, the management of waste, including municipal waste, has become a priority in EU environmental policy, and efforts are constantly made to further improve its principles (Kosieradzka-Federczyk, 2013, pp. 47-48). The shape and degree of sustainability of a municipal waste management system is determined, among others, by: the extent to which waste-management policy objectives are implemented, the division of tasks between individual levels (central, local, residents) and their interaction, the instruments introduced and how effective they are, the relationships with other communal systems (e.g. other municipal services), the links between different stages of life and the related flow of information, or the management of waste inventory, including its export and import (Guerrero, Maas, Hogland, 2013, pp. 220-232). In recent years there have been many EU legal restrictions concerning waste at large, with one such act being Directive 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC. It imposes new obligations on Member States, and by extension on citizens, often having to do with additional fees (OJ, 2018, p.125). Applying the 'polluter pays' principle championed by the Organization for Economic Co-operation and Development, it is the producer of waste who is financially responsible for its generation (Barde, 1994, p. 5). The idea is to minimize man-made pollution by imposing an appropriate fee or financial penalty effectively discouraging environmental degradation. One such economic instrument of environmental policy is the municipal waste management fee to cover costs associated with the collection, removal, transportation, recovery and treatment of waste (Rogall, 2010, pp. 282-283), and whose amount should encourage the adoption of the generally accepted hierarchy of waste management (Figure 1).



*Figure 1: Waste hierarchy (OJ, 2008, p.10)*

The basic principle of this hierarchy is to create a "recycling society" whose members work towards eliminating waste generation and using it as a resource. In connection with its accession to the EU, Poland needed to update its waste management policy<sup>1</sup>. This included introducing a solid waste fee, which in 2013 – after the amendment to the Act on maintaining cleanliness and order - became the so-called 'garbage tax' (and whose rate is not correlated with the amount of waste generated).

<sup>1</sup> due to the scope of the research, subsequent considerations will concern households only.

Overall, there are four methods for determining the municipal waste management fee, which is calculated as municipal waste collection rate (set by the Community Council) multiplied by:

- number of residents living in a property, or
- amount of water consumed by a property, or
- area of a residential household

In what concerns residential properties (that is, households), a commune may also adopt a single flat rate for each resident, which is calculated as average amount of waste generated by a household (in containers) multiplied by municipal waste management fee. Each method of determining the municipal waste management fee has its advantages and disadvantages (Table 1.).

*Table 1: Pros and cons of different methods for determining the municipal waste management fee in Polish municipalities (own elaboration based on: Klatka, Kuźniak, 2012, pp. 109-114, Goleń, 2014, pp. 127-130)*

method	cons	pros
By number of residents living in a household	<ul style="list-style-type: none"> <li>• given that domicile registration is no longer compulsory, it may be difficult to determine the actual number of residents in a household,</li> <li>• risk of underestimating the number of residents,</li> <li>• possibility of reducing revenues for the communal budget,</li> <li>• need to re-submit a declaration whenever the number of residents changes,</li> <li>• high fees for large families,</li> <li>• increased workload needed to verify declarations</li> </ul>	<ul style="list-style-type: none"> <li>• highest acceptability rate among residents,</li> <li>• greater objectivity (the more people, the more waste produced).</li> </ul>
By amount of water consumed by a household	<ul style="list-style-type: none"> <li>• not always applicable (no meters, households not connected to the water supply system),</li> <li>• variable fee (due to variable water consumption).</li> </ul>	<ul style="list-style-type: none"> <li>• instills water-saving habits in residents,</li> <li>• easily determined water consumption (provided there is a meter),</li> <li>• easy to control.</li> </ul>
By household area	<ul style="list-style-type: none"> <li>• no relationship between amount of waste and household area,</li> <li>• unfair for those living alone in a larger residential property</li> </ul>	<ul style="list-style-type: none"> <li>• easy to calculate (invariability of property area),</li> <li>• easily controlled by residents (through data verification),</li> <li>• cost-effective for large families living in small properties,</li> <li>• rare data variability.</li> </ul>
Flat rate	<ul style="list-style-type: none"> <li>• unfair for single occupancy,</li> <li>• lack of proportionality in relation to the amount of generated waste,</li> <li>• opposed by residents</li> </ul>	<ul style="list-style-type: none"> <li>• easiest way to calculate the fee,</li> <li>• reduced number of statements.</li> </ul>

Based on the above, it can be concluded that the current methods of determining the municipal waste management fee in Poland do not correspond with the amount of waste generated. The optimal solution here would be to adopt a fee rate for each 1 kg of municipal waste generated

by a household. Having said that, the fee would then be difficult to determine and would change every month. At the end of the day, each of the methods discussed may prove advantageous to some residents and disadvantageous to others. Different solid waste fee schemes can be found in different European cities, where the pollutant often pays a fee relative to their negative input to cover the costs of managing only that specific amount and type of waste. An example of a fee scheme proportional to the amount of generated waste that can take one of two basic forms is:

- the bag system, in which prepaid containers/bags or labels/stickers are used and the amount of the fee depends on the volume of waste generated,
- the weight system, in which the amount of the fee depends on the weight of waste generated and where the waste collection company weighs the waste and assigns the corresponding fee (for multi-family households, the general fee is assigned to a cooperative or housing community and is divided into individual residents) (Ciechelska , 2012, pp. 27-28).

In Milan, residents must purchase a special municipal waste bag which is available at every store, after which they receive a sticker (containing a code to help identify the producer) by post. This method encourages residents to produce less waste, as more waste means more bags that need to be bought. In this case, the city can easily enforce penalties for incorrect waste sorting, since waste bags can be easily traced to their owners (Dickinson, 2018). In Switzerland, residents pay an annual base fee included in the tax (different for every canton), which covers the costs of separate waste collection. In addition to the base fee, a volumetric fee for the collection and management of other municipal waste is also charged. Mixed waste (outside of separate collection) must be collected in dedicated bags, which are transported to the incineration plant. Such bags can be purchased at stores or municipal offices. However, there are also cantons in which the weight fee scheme was adopted. Here, the resident buys a special container with a chip, which is weighed just before emptying, and the monthly invoice is issued by municipal authorities based on the aggregated data (Ghesla, Gomes, Caetano, Miranda, Dai-Prá, 2018, pp. 6-7). Adopting a similar method in Polish cities could significantly reduce the amount of waste generated. However, the efficiency of such waste management mechanism relies primarily on residents and their segregation discipline.

### 3. ANALYSIS OF THE IMPACT OF FINANCIAL INCENTIVES ON THE SEGREGATION OF MUNICIPAL WASTE BY THE RESIDENTS OF GDYNIA

Gdynia has a population of 226,350 (GUS, 2018) and is a city in which 100,095,066 tons of municipal waste were collected in 2018 (UM, 2018). Following the amendment to the Act in 2013, fees for municipal waste management began to be calculated against the surface area. Table 2 shows a summary of the amount of municipal waste management fees in 2014-2018 (2013 was not included in the analysis, as the changes were introduced in halfway through the year).

*Table 2: Fees for municipal waste management in Gdynia in 2014-2018 (own elaboration based on UM, 2014 -2018)*

year/area	sorted waste			unsorted waste		
	2014 – 2015 [PLN]	change	2016-2018 [PLN]	2014 – 2015 [PLN]	change	2016-2018 [PLN]
below 45m <sup>2</sup>	17	- 6%	16	28	+14%	32
45m <sup>2</sup> -60m <sup>2</sup>	28	- 7%	26	42	+24 %	52
60m <sup>2</sup> -80m <sup>2</sup>	32	- 6%	30	48	+25%	60
above 80 m <sup>2</sup>	39	- 5%	37	58	+38%	74

It should be noted that since the introduction of the new scheme there have been no significant changes in the calculation system and the amount of fees. Two years into the new scheme, the fees for sorted waste were slightly reduced (by 5-7%), and increased by 14-38 % for unsorted waste. Analyzing the impact of these changes on the amount of municipal waste generated by Gdynia residents, it can be observed that in 2016 (when the fees for unsorted waste increased), there was an over 7% increase in the average amount of selective waste per capita (Table 3).

*Table 3: Amount and collection method of municipal waste generated in Gdynia in 2014-2018 (own elaboration based on UM Gdynia 2014-2018)*

Specification	2014	2015	2016	2017	2018
average amount of unsorted municipal waste per capita (kg/person/year)	232.22	238.86	219.23	221.23	229.49
average amount of waste from selective collection per capita (kg/person/year)	39.01	38.99	46.25	50.20	53.78
average amount of municipal waste per capita + green, oversized, ash waste (kg/ person/year)	274 *	282 *	292	301	317
percentage share of sorted waste in the total amount of municipal waste (%)	14.24	13.82	21.1	16.67	16.97
households declaring the sorting of municipal waste (%)	63.3	92.7	93.6	94.1	94.2

*\* excluding green waste and ashes*

However, this positive trend did not last long, and in subsequent years the share remained at around 17%. The Pearson correlation coefficient between waste-sorting households and the average amount of waste from selective collection per capita is positive at 0.59. This means that a moderate correlation exists between these two items. Doubled fees for unsorted waste encourage users to segregate garbage, but they have not brought the desired results. Residents declare an intent to sort waste, but they either do it incorrectly or not at all, as this is difficult to verify in multi-family properties (Table 3). With 94% of households sorting waste, the amount of waste collected separately per capita should be much higher. It must not be overlooked that since 2016 there has been a noticeable increase in the amount of unsorted waste (as much as 230 kg per capita in 2018). The disparity between waste collection statements and the average amount of waste from selective collection clearly points to the inefficiency of the system and the lack of segregation discipline or sufficient environmental knowledge and awareness among residents. In 2018, a 58% rate was recorded for the recycling and preparing for reuse of paper, metal, plastic and glass fractions (against the 30% required by the Ministry of Environment for that year) (UM, 2018).

#### **4. CONCLUSION**

Human existence and activity generate waste, which is an integral byproduct of our life. In consumer societies, a steady increase is observed in the amount of municipal waste generated, whose composition has also changed along with technical advancement. Hence the importance of adopting measures that will both reduce the overall amount of waste and minimize its environmental footprint through extensive sorting. A waste management system cannot function properly without the awareness and social foundations of residents. These can be reinforced by environmental education, but also through the economic instruments of environmental policy such as taxes and fees. Based on the conducted research, it was found that the difference in a fee charged for sorted and unsorted waste has a positive yet insufficient impact on selective waste collection in Gdynia, as evidenced by the increased mass of sorted municipal waste since 2013, when the new Act became effective. Unfortunately, the current fee scheme in Gdynia does not encourage the minimization of municipal waste, but only its

segregation - by applying a lower fee. In both single-family and multi-family households, residents pay a fixed fee, regardless of the amount of municipal waste they generate. In addition, there is a marked lack of appropriate services to verify the degree of waste segregation. The presented considerations are just the first stage of research consisting in the analysis of data collected by the city hall, waste transport companies and regional waste disposal site. In the next stage, the research will run a survey among residents to find out their opinions on the current waste fee scheme and a possible introduction of the bag system in the future.

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## **BUSINESS ENVIRONMENT ASSESSMENT BASED ON PROFITS: A COMPARATIVE STUDY OF THE CZECHIA AND SLOVAKIA**

**Zuzana Rowland**

*School of Expertness and Valuation,  
Institute of Technology and Business in Ceske Budejovice  
Okruzni 517/10, 37001 Ceske Budejovice, Czech Republic  
rowland@mail.vstecb.cz*

### **ABSTRACT**

*Management theory and practice have devoted considerable attention to looking for certain factors that affect business environment in economy. A sign of a healthy business environment is the long-term economic prosperity of enterprises, which is determined by achieving a positive economic result. Positive earnings are fundamental risk reduction functions for enterprises and the prime options for business expansion. It is the amount of the profit that is a measure of the business environment quality provided, and is one of the regressors of the success or failure of the transformation process of the enterprises. Profit provides key resources not only for business development but also for the development of the whole national economy. It is in the interest of every modern country to create incentives for businesses to stimulate their existing activities and create positive impulses for their future activities. The aim of the paper is to assess the business environment quality in the Czechia and Slovakia on the base of the average earnings before taxes in the period 2010 to 2018. The quality of the business environment is evaluated through statistical tests of hypotheses. 859 Czech and 1347 Slovak enterprises enter to the comparative analysis. 189 outliers in Slovak group and 171 outliers is indicated by Grubbs test and missing values. Normality tests (Shapiro-Wilk test, Anderson-Darling test, Lilliefors test and Jarque-Bera test) do not reject that earnings before tax of Slovak and Czech enterprises follow a normal distribution. Fisher's F-test confirms the ratio between the variances is not different. T-test of independent samples is realized after running normality tests and test of variances. The business environment quality based on results of the paper determined of average profits is greater in Czechia than in Slovakia and less business risk is on the side of Czech enterprises.*

**Keywords:** *business environment, enterprises, profit, risk*

### **1. INTRODUCTION**

The principal function of the profit is the motivation; profit means initial impulse of the business activity (Durana & Vochozka, 2018). Achieving of the profit usually marks economic successful of the enterprises as well as a signal of quality business environment with appropriate range of the risk. Many studies have been published that assess business environment quality, risk, determinants, and influencing factors. Virglerova et al. (2017) create a model of the quality of business environment, define the key determinants of this model, and quantify the correlations among the individual determinants in the area of small and medium-sized enterprises. Korcsmaros & Simova (2018) provide a comprehensive assessment of how different factors influence enterprises of different economic sectors as well as verify the research question defined and formulate recommendations for future development of enterprises. Cepel et al. (2018) define and quantify significant factors that shape the quality of the business environment and create the business environment quality index. Kliestik et al. (2018) mention there should be a continuous focus on the issue of predictions to ensure business continuity and to further sustainable and ethically responsible economic development. Bolton et al. (2018) highlight the power of human-machine collaboration on the way of business environment to smart economy.

Dvorsky et al. (2017) evaluate access to financial resources for business. Koisova et al. (2017) determine SMEs financing as an important factor of business environment. Gnap et al. (2019) note that transport infrastructure is one of the most important factors for the regions' development, which enables the creation of new businesses. Kozubikova & Kotaskova (2019) define and quantify important technological factors that shape the quality of the business environment. Valaskova et al. (2015) discuss non-parametric bootstrap method to reduce risk; to this approach added Gavurova et al. (2017) predictive potential and risks of selected prediction models in the business environment. Valaskova et al. (2018) using regression analysis continue in risk issue. Authors form a regression model with significant factors that may help predict the financial health of the company, to decide if the company will be successful on the market or not, and thus adopt necessary measures to eliminate the risks. Fabus (2017) provides results of the analysis and subsequent comparison of business environments on the basis of data provided by organisations dealing with business environment surveys such as the World Bank, World Economic Forum and Heritage Foundation. Blahova et al. (2019) investigate recent trends and developments in the global business environment. The aim of this paper is to assess the business environment quality in the Czechia and Slovakia on the base of the average earnings before taxes in the period 2010 to 2018.

## 2. MATERIALS AND METHODOLOGY

The secondary sources of the paper are international scientific articles related to the area of business environment and risk, observations of earnings before taxes (EBT) of 859 Czech as well as 1 347 Slovak enterprises extracted from Amadeus database capturing years 2010-2019.

The enterprises have to meet set criteria:

- a) the value of total assets minimum 3 000 000 €;
- b) the value of total sales minimum 2 000 000 €;
- c) the value of net income at least 100 000 €.

Statistical methods used:

1. indication of missing values;
2. Grubbs test and Z-score to identify outliers involved in the samples;
3. Shapiro-Wilk test, Anderson-Darling test, Lilliefors test, Jarque-Bera test, P-P plot, Q-Q plot to mark followed distribution of variables;
4. Fisher's F-test to test ratio between two variances of independent samples of average EBT of Czech and Slovak enterprises;
5. Student's t-test for two independent samples with equal variances to determine business environment quality of Czechia and Slovakia;

The hypothesis formulated: *The business environment quality based on EBT is greater in Czechia than in Slovakia.*

## 3. RESULTS AND DISCUSSION

The original sample of data is created from EBT of 859 Czech enterprises and 1 347 Slovak enterprises during the period of the years 2010 to 2019.

### 3.1. Data preparation

First of all, it is necessary to detect the occurrence of missing data and outliers in Czech and Slovak sample of the enterprises. After identifying of incomplete data is assessed the existence of outliers in observations of Czech enterprises and subsequently Slovak enterprises by Grubbs test and Z-scores.

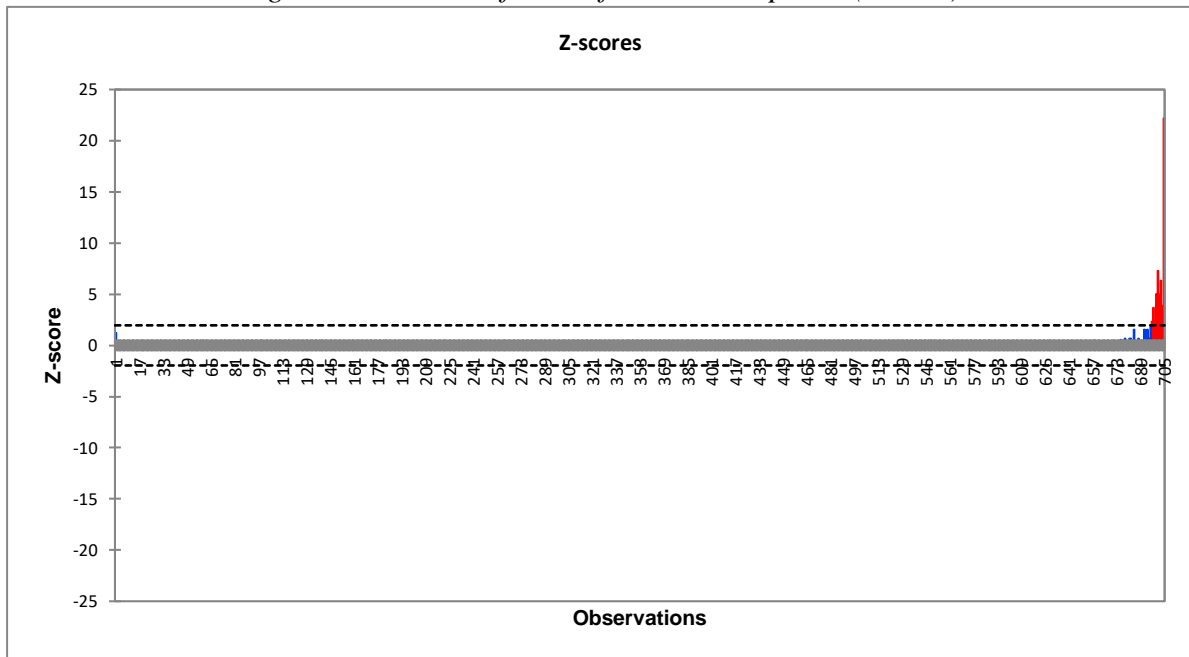
- $H_0$ : There is no outlier in the data of EBT of Czech enterprises.
- $H_1$ : There is at least one outlier in the data of EBT of Czech enterprises.

Table 1: Grubbs test for outliers of Czech EBT (author)

<b>G (Observed value)</b>	22.185
<b>G (Critical value)</b>	3.952
<b>p-value (Two-tailed)</b>	< 0.0001
<b>alpha</b>	0.05

As the computed p-value is lower than the significance level alpha, one should reject the null hypothesis  $H_0$ , and accept the alternative hypothesis  $H_1$ , based on table 1. There is at least one outlier in the observations of EBT of Czech enterprises. Values displayed in red are specified outliers by Z-scores (Figure 1), these observations were eliminated.

Figure 1: Z-scores of EBT of Czech enterprises (author)



- $H_0$ : There is no outlier in the data of EBT of Slovak enterprises.
- $H_1$ : There is at least one outlier in the data of Slovak of Czech enterprises.

As the computed p-value is lower than the significance level alpha, one should reject the null hypothesis  $H_0$ , and accept the alternative hypothesis  $H_1$ , based on table 2. There is at least one outlier in the observations of EBT of Slovak enterprises. Values displayed in **red** are specified outliers by Z-scores (Figure 2), these observations were eliminated.

Table 2: Grubbs test for outliers of Slovak EBT (author)

<b>G (Observed value)</b>	22.185
<b>G (Critical value)</b>	3.952
<b>p-value (Two-tailed)</b>	< 0.0001
<b>alpha</b>	0.05

Figure 2: Z-scores of EBT of Slovak enterprises (author)

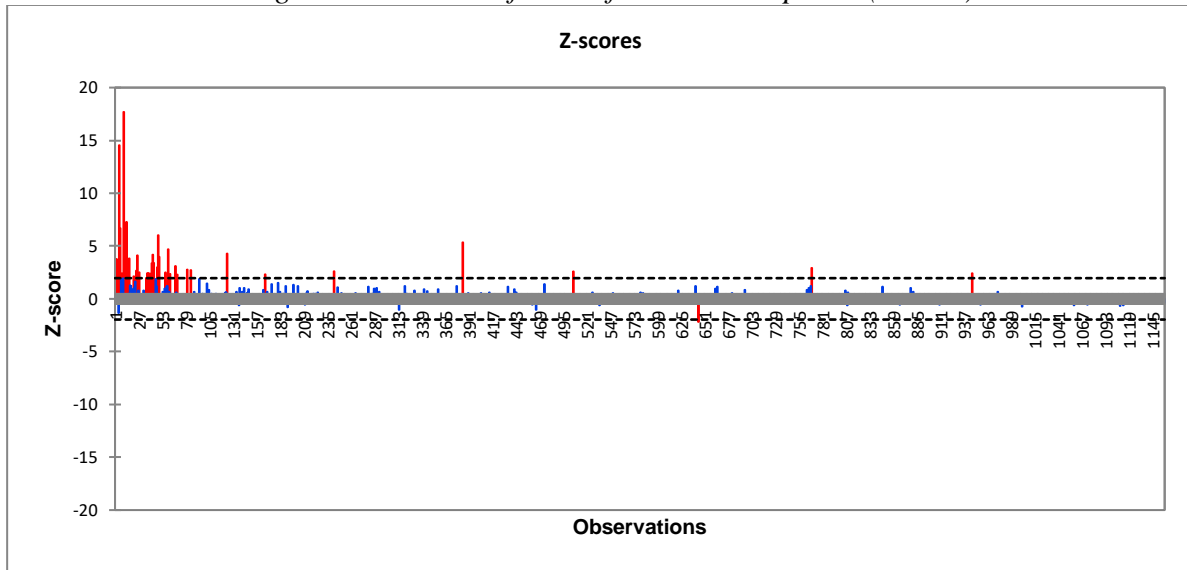


Table 3 contains the numbers of formed sample of the enterprises that met set criteria, number of inconsistent measurement and number of final samples of Czech and Slovak enterprises during the period of years 2010 to 2019.

Table 3: Numbers of observations in Slovak and Czech sample (author)

Sample	Czechia	Slovakia
Original sample	859 enterprises	1 347 enterprises
Sample of missing values and outliers	171 enterprises	189 enterprises
Sample after elimination missing values and outliers	688 enterprises	1 158 enterprises

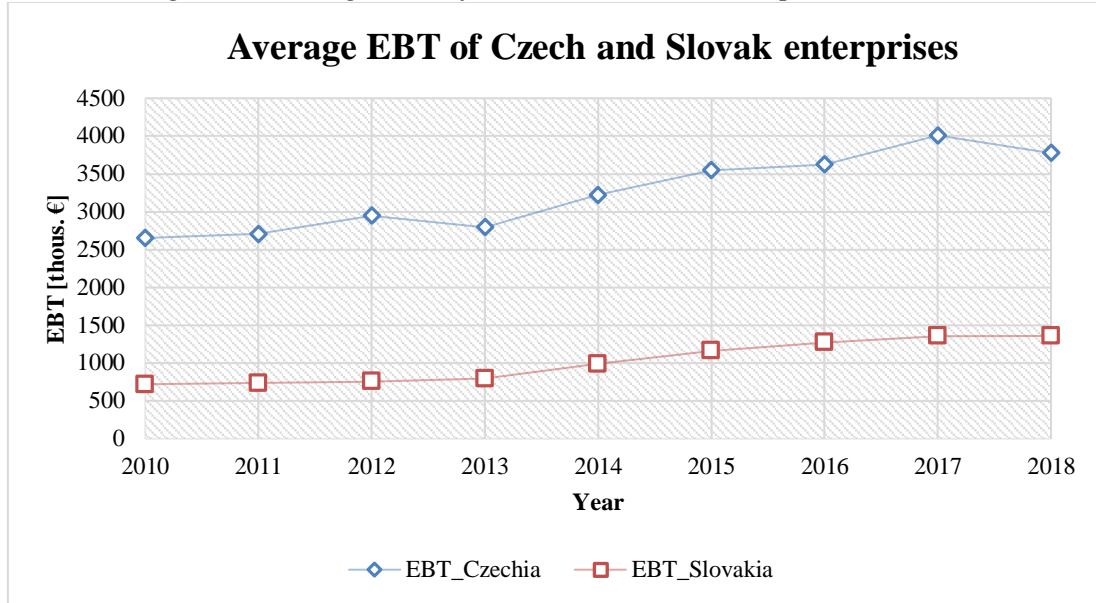
Based on annual results of earnings before taxes 688 Czech enterprises and 1 158 Slovak enterprises was created yearly average of Czech and Slovak enterprises during analysed period (Table 4), showed on Figure 3.

Table 4: Average EBT of Czech and Slovak enterprises (author)

Year	EBT Czechia [thous. €]	EBT Slovakia [thous. €]
2010	2652.898	719.986
2011	2705.044	734.694
2012	2947.086	754.210
2013	2797.371	795.363
2014	3221.166	988.215
2015	3550.742	1162.384
2016	3624.390	1271.611
2017	4008.280	1358.055
2018	3777.537	1358.432

Figure following on the next page

Figure 3: Average EBT of Czech and Slovak enterprises (author)



### 3.2. Distribution detection

After data preparation, it is required to know the distribution of average EBT of Czechia and Slovakia. A normal distribution of the samples is expected in both cases of data.

- $H_0$ : The variable from which Czech sample was extracted follows a Normal distribution.
- $H_1$ : The variable from which Czech sample was extracted does not follow a Normal distribution.

Table 5: Shapiro-Wilk test of Czech EBT (author)

<b>W</b>	0.918
<b>p-value (Two-tailed)</b>	0.379
<b>alpha</b>	0.05

Table 6: Anderson-Darling test of Czech EBT (author)

<b>A<sup>2</sup></b>	0.329
<b>p-value (Two-tailed)</b>	0.437
<b>alpha</b>	0.05

Table 7: Lilliefors test of Czech EBT (author)

<b>D</b>	0.173
<b>D (standardized)</b>	0.519
<b>p-value (Two-tailed)</b>	0.611
<b>alpha</b>	0.05

Table 8: Jarque-Bera test of Czech EBT (author)

<b>JB (Observed value)</b>	0.855
<b>JB (Critical value)</b>	5.991
<b>DF</b>	2
<b>p-value (Two-tailed)</b>	0.652
<b>Alpha</b>	0.05

As the computed p-value is greater than the significance level alpha, one cannot reject the null hypothesis  $H_0$ , based on tables 5-8. It was not rejected the hypothesis that average Czech earnings before taxes are normal distributed for all run tests. The layout of points around central line displayed on P-P plot (Figure 4) and Q-Q plot (Figure 5) supports normality as well.

Figure 4: P-P plot of Czech EBT (author)

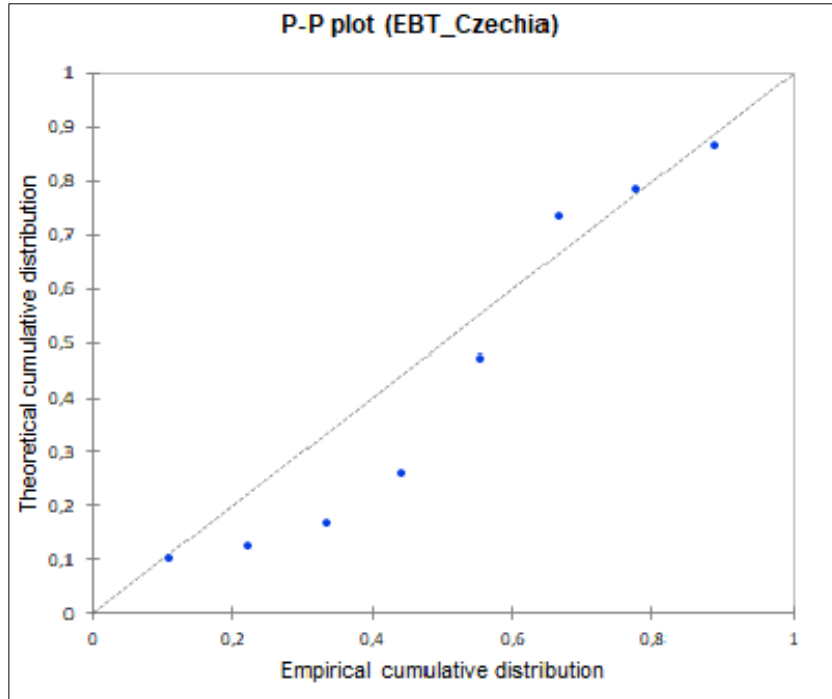
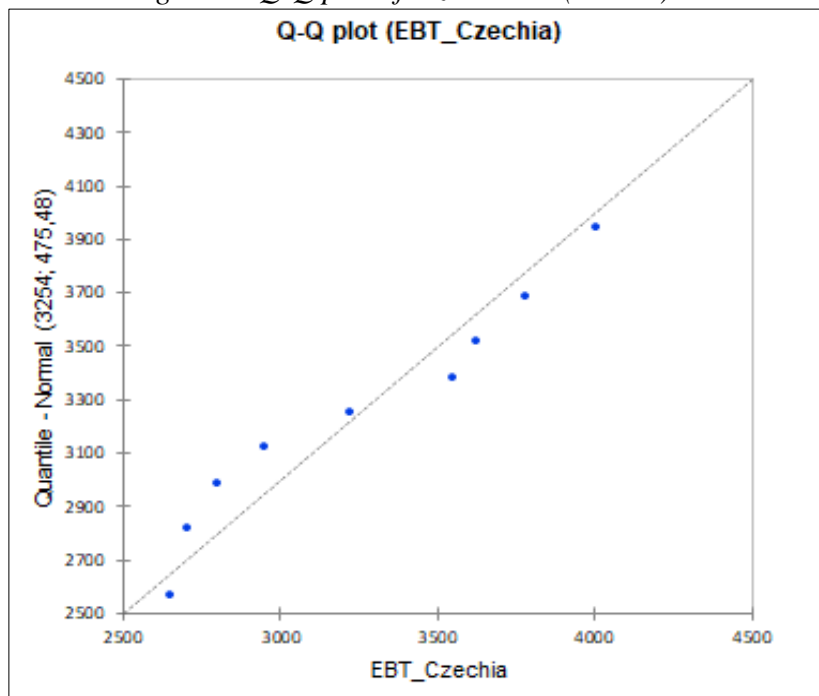


Figure 5: Q-Q plot of Czech EBT (author)



- $H_0$ : The variable from which Slovak sample was extracted follows a Normal distribution.
- $H_1$ : The variable from which Slovak sample was extracted does not follow a Normal distribution.

*Table 9: Shapiro-Wilk test of Slovak EBT (author)*

<b>W</b>	0.845
<b>p-value (Two-tailed)</b>	0.065
<b>alpha</b>	0.05

*Table 10: Anderson-Darling test of Slovak EBT (author)*

<b>A<sup>2</sup></b>	0.566
<b>p-value (Two-tailed)</b>	0.102
<b>alpha</b>	0.05

*Table 11: Lilliefors test of Slovak EBT (author)*

<b>D</b>	0.233
<b>D (standardized)</b>	0.699
<b>p-value (Two-tailed)</b>	0.171
<b>alpha</b>	0.05

*Table 12: Jarque-Bera test of Slovak EBT (author)*

<b>JB (Observed value)</b>	1.111
<b>JB (Critical value)</b>	5.991
<b>DF</b>	2
<b>p-value (Two-tailed)</b>	0.574
<b>alpha</b>	0.05

As the computed p-value is greater than the significance level alpha, one cannot reject the null hypothesis  $H_0$ , based on tables 9-12. It was not rejected the hypothesis that average Slovak earnings before taxes are normal distributed for all run tests. The layout of points around central line displayed on P-P plot (Figure 6) and Q-Q plot (Figure 7) supports normality as well.

*Figure 6: P-P plot of Slovak EBT (author)*

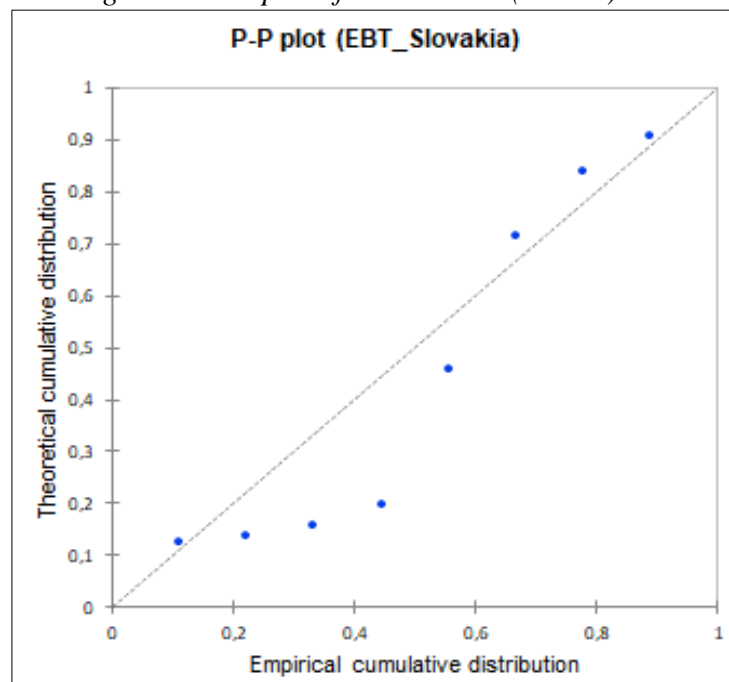
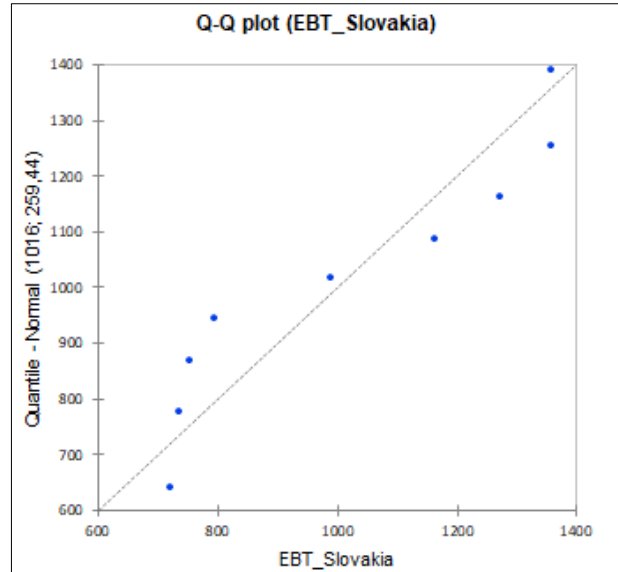


Figure 7: Q-Q plot of Slovak EBT (author)



### 3.3. Business environment assessment

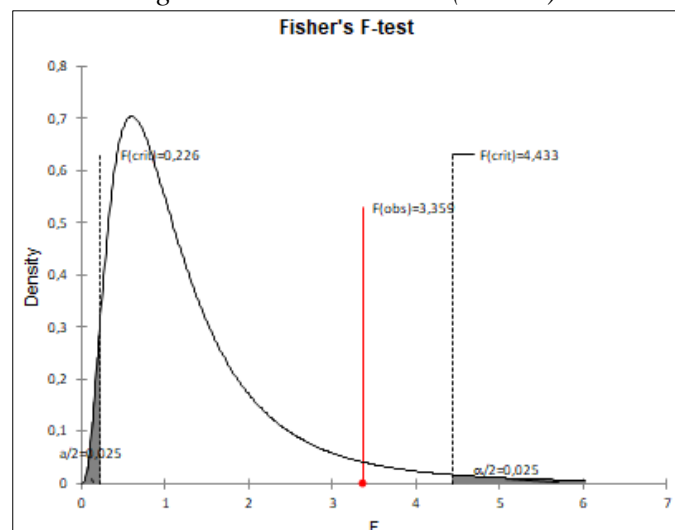
Before comparing of businesses environment assessment by t-test of independent samples is unavoidable to know the ratio between the variances of average Czech EBT and average Slovak EBT. For testing equality of variances two samples is used Fisher's F-test.

- $H_0$ : The ratio between the variances is equal to 1.
- $H_1$ : The ratio between the variances is different from 1.

Table 13: Fisher's F-test (author)

<b>F (Observed value)</b>	3.359
<b>F (Critical value)</b>	4.433
<b>DF1</b>	8
<b>DF2</b>	8
<b>p-value (Two-tailed)</b>	0.106
<b>alpha</b>	0.05

Figure 8: Fisher's F-test (author)





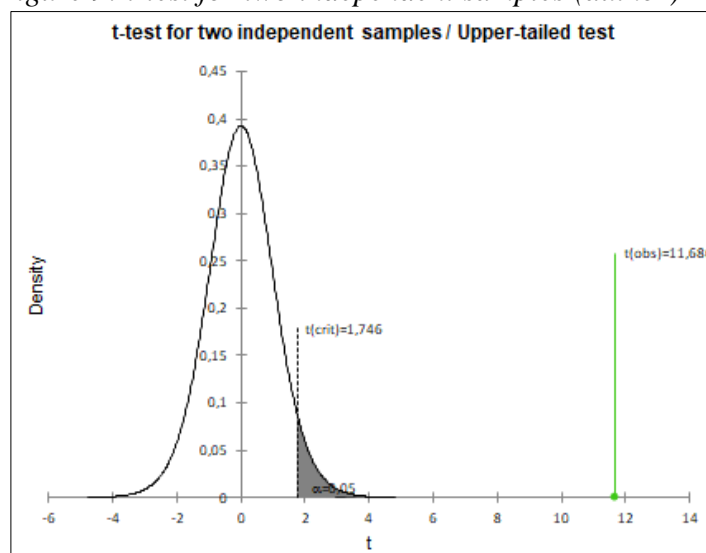
As the computed p-value is greater than the significance level, one cannot reject the null hypothesis  $H_0$ , based on table 13 and figure 8. The variances of average Czech EBT and average Slovak EBT are equal, to test crucial hypothesis of the paper has to be used Student's t-test for two independent samples with equal variances.

- $H_0$ : The difference between the means is equal to 0. The business environment quality based on EBT is equal in both countries.
- $H_1$ : The difference between the means is greater than 0. The business environment quality based on EBT is greater in Czechia than in Slovakia.

Table 14: t-test for two independent samples (author)

<b>Difference</b>	2237.952
<b>t (Observed value)</b>	11.686
<b>t (Critical value)</b>	1.746
<b>DF</b>	16
<b>p-value (One-tailed)</b>	< 0.0001
<b>alpha</b>	0.05

Figure 9: t-test for two independent samples (author)



As the computed p-value is lower than the significance level alpha, one should reject the null hypothesis  $H_0$ , and accept the alternative hypothesis  $H_1$ , based on table 14 and figure 9. The business environment quality based on EBT is greater in Czechia than in Slovakia. Possible co-determinants of lower risk for enterprises in Czechia could be these ones: more flexible Labour Code, lower tax rate, the higher level of GDP, the strategies of political establishments; and these grounds should be the potential issues of future research of business environment assessment and should improve the great limitation of the this research by being interested not only in EBT but in comprehensive causalities of factors to the business environment.

#### 4. CONCLUSION

Profit does not only indicate financial effect of a business in quantitative area but also in qualitative level. It characterizes the effective utilization of the opportunities of the enterprises offered by the business environment. Based on realized comparative study that assessed the average earnings before taxes, it has been shown that the quality of the business environment

as a risk reduction tool and the incentive or motivational element is higher on the Czech side than on the Slovak side. It is extremely important to focus on revealing the positive causalities of this result on the Czech side and negative on the Slovak side in the next research.

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## ENTREPRENEURSHIP DEVELOPMENT IN THE CONTEXT OF POSTMODERN: FUTURE OF ENTREPRENEURSHIP OR ADAPTATION TO DEVELOPMENT OF POSTMODERN SOCIETY

**Josko Lozic**

*Universty North, Važardin, Croatia  
jlozic@unin.hr*

**Marin Milkovic**

*University North, Varaždin, Croatia  
mmilkovic@unin.hr*

**Ines Lozic**

*Dignus savjetovanje d.o.o., Zagreb, Croatia  
Ineslozic1@gmail.com*

### **ABSTRACT**

*The aim of this paper is to point out the changes that are happening in the entrepreneurial practices, and are based on the changes that are taking place within the societies in which they exist. Trends in the development of post-modern society are significantly impacted by the basic tenets of entrepreneurship development. Roots entrepreneurship recognize such ideas and the power of individuals who have launched a variety of business processes, and indirectly they rolled wheel of history in an entirely new direction. The entrepreneurial process, since ancient times, has been linked with the individual who creates new value by developing existing resources at his disposal. The highlight of the practice we encounter in modern through the transition from the manual in industrial production. Postmodern will bring a whole new social paradigm, and will expand the enterprise, with individual access to entrepreneurial enterprise, the association of individuals who shared ideas and capabilities open the way for an entrepreneurial venture. Entrepreneurial practice in modern recognize as individuals and company's beginners, in post-modern sovietise will complement the new forms of entrepreneurial activity. Fundamental business practise will be fully adapted to new social trends of the post-modern society.*

**Keywords:** *entrepreneurship, industrial revolution, postmodern entrepreneurship, postmodern society, third industrial revolution*

### **1. INTRODUCTION**

We connect entrepreneurship development with all segments of social community development. The history of entrepreneurial practices is older than the New Age, and the horizon could extend into the very early history of humanity. However, the aim of the paper is not to research and analyse the development of entrepreneurship, as a business bust or a daily routine, but to interpenetrate the development of entrepreneurial activities and the development of the community. Particular emphasis has been placed on contemporary entrepreneurial practices and developments within social communities in the 20th and 21st centuries. Any attempt to pull the border that would mark the beginning of an entrepreneurial practice, for which there are relevant written and scientific sources, ends up being a failed attempt as new evidence is continually discovered as the beginning of entrepreneurship. Most authors emphasize the importance of the emergence of entrepreneurship in ancient Greece or the Roman Empire, as an initial frontier for the study of entrepreneurial projects by a methodology that can, with corrections, be applied to contemporary entrepreneurial activities. It is an indisputable fact that the roots of entrepreneurship have been sown in Mesopotamia, and the Hamurabi Code

is the first written evidence of regulating entrepreneurial activities by the governing establishment. Great entrepreneurial projects are the construction of pyramids of Egyptian Pharaohs or temples in ancient China and the Far East. We will intersect the time horizon in this paper at the end of feudalism and the beginnings of the development of capitalist relations in Europe. Marco Polo's travels have opened the door to changes in thinking and embracing entrepreneurial activities. The discovery of a land route to China in the 13th century laid the groundwork for the development of a new way of thinking in feudal Europe, though radical changes had to wait until the end of the 15th century when Columbo was able to sail into the New World. An entrepreneurial venture to conquer the new world, in the first onslaught of South America and then of the entire American continent, will launch Europe from a long-standing feudal dream and bring about changes that will shake the foundations of European societies. It will be a tectonic disturbance and the end of feudalism in Europe, the beginning of the birth of capitalism and the migration of capitalism to North America. After almost a hundred years, the wave will bounce off the walls of American capitalism, returning as a boomerang to Europe. This will be the beginning of a new era that will be recognized as a post-modern and post-industrial society. Will it be the beginning of a new era or just a return to some of the feudal goods that have been exported to the New Continent?!

## **2. DETERMINATION OF THE TERM ENTREPRENEURSHIP**

In the etymological context, the word or concept of entrepreneurship has a French root in the word *entreprendre*. Carlen (2016) states that the term "entrepreneurship" or entrepreneurship came into use only after the 1800s when Jean Baptist Say officially introduced the term. In the English-speaking area, the word *undertaker* has long been used, until it was only in the mid-19th century that the word entrepreneurship was imposed as the official name, with the root of the word coming from the French language. In trying to define the term, other terms were used, one of the most common being "adventurer" which could be interpreted as one that reveals something. Baumol (2010) states that an entrepreneur is a person or "an individual who is ready to embark on an adventure with the aim of making economic profits". The notion of adventure or adventure has been put in the context of an economic activity whereby an entrepreneur moves in order to realize economic benefits for himself and his family. Peter Drucker has made the greatest contribution to the development of a scientific and professional approach to entrepreneurship through his many years of work. Drucker (2015) agreed with the definition introduced by Say in the 1800s, which defined entrepreneurship as "an activity that moves resources from low productivity and earnings to higher productivity and earnings", but immediately, in one He also emphasized that the concept of entrepreneurship should be defined more precisely. Studying different entrepreneurial activities, Drucker concluded that not every activity is an act of creating a whole new value or moving capital into more productive activities. An example might be the opening of another store with the same goods in another location or the expansion of the fast food chain. Taking into account all of the above, Drucker defines entrepreneurship as "the process or the act of creating new resources that generate profit with new capacities." By redefining Say's definition of entrepreneurship, Drucker approaches Schumpeter and his conception of entrepreneurship, which is linked to innovation. Schumpeter, who is considered the founder of the so-called Austrian schools, though living in the US, viewed entrepreneurship as a process of "creative storm" creating new values. Schumpeter's "storm of creative destruction" aims to create and bring to market products of better quality and cost than existing ones, to replace existing ones for the benefit of consumers. Casson et al. (2006) emphasize that Schumpeter viewed the entrepreneurial process as a process of wealth creation, but also of entirely new industries. He finds evidence for his conclusions in Schumpeter's division of entrepreneurship into "high" and "low" levels. High level of entrepreneurship implies development of railway, chemical industry, oil industry, etc.

Low level of entrepreneurship is associated with small and medium-sized enterprises, ie start-ups. Putting into context different definitions of entrepreneurship, it is clear that Schumpeter expanded Say's views on entrepreneurship from the period after the First Industrial Revolution or after the Second Industrial Revolution. Drucker fully agreed with Schumpeter's focus on innovation and innovation. He has added to his contribution to the development of creative storm theory by taking on the need to take and controlling risks, and by developing project management and management skills. Drucker is the youngest of entrepreneurship theorists and practitioners mentioned, but he is going through the tumultuous period of entrepreneurial development and is making the transition from Fordism to the post-industrial era. In 1957, "The Landmark of Tomorrow" was the first to talk about the post-industrial age and the complete change in the paradigm of entrepreneurship and the production of goods as a whole. The Economic Lexicon (Sikavica, Bahtijarevic-Siber 2001: 408) defines entrepreneurship as a combination of factors of production to maximize effects in the form of profit or profit. Depending on the success of combining production factors, we are talking about successful and unsuccessful entrepreneurship. [...] The essence of entrepreneurship lies in restlessness, imagination, imagination, uncertainty, intuition, judgment, fighting skills, etc. Entrepreneurship is not a profession but a function that forms a combination of different knowledge and abilities of individuals.

### **3. STAGES IN DEVELOPMENT OF ENTREPRENEURSHIP IN CONTEXT OF SOCIETY DEVELOPMENT**

The development stages of entrepreneurship globally could be divided into five fundamental periods. Here, we should immediately frame and emphasize that the global level is related to European practice, since the development of entrepreneurship and the emergence of capitalism is primarily a European phenomenon. The stages in the development of entrepreneurship could be divided into five basic periods:

- a) feudalism and the fundamental directions of the development of feudalism until the end of the Renaissance;
- b) the period from 1770 to 1880 - that is, the First Industrial Revolution until the beginning of the civil revolutions;
- c) the period from the end of the 19th century to the collapse of the US stock market - or the Second Industrial Revolution to the end of World War II
- d) the period after the Second World War until the end of the 1970s - in Europe remembered as "30 glorious years"
- e) the period marked by the beginning of the Third Industrial Revolution - Internet and networking, the post-industrial era and links to the feudal characteristics of social relations

Each phase brought with it the development of social relationships that were upgraded to existing relationships. Analysing the development of entrepreneurial practices is no longer possible without a holistic approach to research.

#### **3.1. The development of entrepreneurship in Middle Ages and early modern**

We have already mentioned that there is no rich tradition of entrepreneurship in the Middle Ages. Social life in Europe was ruled by the Catholic Church, and no foundations were established for major entrepreneurial ventures beyond the reach of the Church. In 1450, Gutenberg constructs the first mechanical machine with moving letters and causes a tectonic earthquake in social relations that will trigger change with unprecedented consequences. We can view the invention of the printing press as a technical solution in the context of rapid innovation, but in a social context it is an entrepreneurial project that will completely turn the wheel of history.

The modern history of mankind, and thus also the history of entrepreneurship, would have been unthinkable without Gutenberg and the discovery of a mechanical table with moving letters. In economic science, the term entrepreneur introduced the Irish nobleman Cantillon, whose life is so little known that even the birth year is not reliable (Cingula et al. 2003: 14). In 1755 he published the work *General Discussion on the Nature of Trade*, in the French language, and first mentioned the term "entreprendere", from which later the noun "entrepreneur" came into existence. Europe is going through the terminal phase of feudalism, revolutions are born on the horizon, and the foundations of millennial social relations are shaking. Interestingly, the Cantillon scans social relations and divides the population of European countries. According to this division, only the government and landowners are independent, and everyone else is dependent on it as follows:

- a) paid people who enjoy safe pay and retirement, regardless of their duties - as courtiers or generals as domestic servants and;
- b) entrepreneurs - whether they open a business with their own capital and run a business, whether they are entrepreneurs without working capital and without capital, because they live in uncertainty.

In 1755, Cantillon opens the first debates on the tasks of an organization aimed at successfully managing the entrepreneurial process. His work will be continued by Adam Smith, who will be the first to point out the benefits of division of labour and specialization within manufacturing organizations. The period studied by Smith will be remembered as the era of entrepreneurship ruled by the invisible hand of the market, which continued until the monopolization of the market and the great economic crisis.

### **3.2. The first industrial revolution and „manchesterisation“**

The first industrial revolution began with the discovery of a steam engine that will completely change the way we produce and create surplus value. Not only will it change the mode of production, but it will permanently change existing social paradigms. The first draft and prototype of the steam engine was made in the early 18th century, but it was not until 1770 that James Watt improved the construction of the machine and began producing it for sale on the market. Between 1775 and 1848 a new technical, economic, social and political system, the first liberal and industrial capitalism, was established. The factory production system developed early in "Manchester England, but only in a few regions, especially in the textile industry (more specifically, in the cotton and spinning industries), and in the "siderurgy" and some mechanical industries (Dockes 2007: 103). provoked the advent of mass production, mass distribution and contemporary corporations, it began just under 200 years ago. In her retelling of American history of capitalism, Alfred Chandler recounts it in the book *Visible Hand* (Sundararajan 2016: 4).

### **3.3. The second industrial revolution and the emergence of the industry based on oil**

The effects of the rapid expansion of organized machine production were worn out in the great crisis that began around 1880. The power and scale of the crisis will result in various forms of social revolution around the world. In economic terms, the crisis has grown, on the one hand, on the basis of the exhaustion of the technical base of production, and on the other, due to the increasing influence and better organization of workers through labor unions. The synergy of these two factors was key to weakening the role of the entrepreneur, as an individual launching a large-scale entrepreneurial project. For the first time in the history of entrepreneurship development, the strength of an individual entrepreneur, the question has been raised when it comes to large, and in some cases, infrastructure projects. After a period of liberalism, the central government regains its place as a regulator of social movements.

Dockes (2007: 160) points out that in the context of the Great Depression, a set of important innovations of a technical, organizational and social nature merges and determines the double transformation:

- a) The first relates to the technical base and the drivers of the industry. It is the Second Industrial Revolution, fuelled by electricity, oil, the transformation of chemistry, machine tools, changing mechanical industries and internal combustion engines; and
- b) the second transformation concerns the emergence of three types of large enterprises, conglomerates, trusts and cartels (...); and the tendency to establish a monopoly by all means: it is a time of "baron thieves" and a strong return to the methods of "original accumulation".

The first industrial revolution will unleash the potentials of start-up entrepreneurs as entrepreneurs of individuals to their full potential. The market will open after a long period of central government and the influence of the Church in feudalism. The Second Industrial Revolution, on the wings of the AC and oil industries, will completely change existing social relations, resulting in new forms of market association. At the same time, large-scale market ventures will become unworkable for most individual entrepreneurs who will be directed to less demanding entrepreneurial ventures or to join different forms of organized ventures. The capitalist economy really is not and cannot be static. Nor does it only spread linearly and in a stable manner. The revolution from the inside is constantly under the influence of new entrepreneurship, that is, new goods, new methods of production or new methods of sale are constantly penetrating. The industrial structure changes every moment (Schumpeter 1981: 43). Already after the Second Industrial Revolution, the capitalist economy becomes unstable in a way that it does not expand linearly, or even as fast at equal intervals. Entrepreneurship is making changes in the way it is produced and these changes start to accelerate with each new successful entrepreneurial project.

### **3.4. The period after World war two**

The post-World War II period was marked by the rapid increase in the number of entrepreneurial ventures and the strong influence of the central government. The period after the end of the war until the 1970s, in Europe, will remain recorded under the name "30 glorious years". The dominance in the development of entrepreneurship will be fully taken over by the United States, which will develop into the dominant global economic power. This period will remain known as Fordism and will be marked by the growth of social wealth as well as the growth of the well-being of individuals. The period of Fordism in Europe and the USA does not have the characteristics of the periods that are characteristic of the periods mentioned above. The revolution did not take place in the field of technological advancement but in the field of organization of production and social relations. Dockes (2007: 111) emphasizes two fundamental aspects underlying the doctrine of Fordism:

- a) the mode of accumulation and the mode of regulation have become coherent on the territorial basis of the nation-state. There was no new "industrial revolution", only a deep, regular renovation of equipment and consumables; and
- b) metacapitalism has been retained nationally and restrained at the world level. The state controls the concentration of capital and sets rules or even directly takes over.

Fordism will remain marked as a period of rapid growth of wages and purchasing power of the individual. The development of industrial production will experience its stellar moments through vertical integration and standardization of production. The state will encourage and protect the entrepreneur as a novice individual, and his status will be much better compared to the period after the Great Depression and the Second Industrial Revolution.

As in the case of "Manchester", once again the blade of entrepreneurship will be directed towards the individual entrepreneur.

### **3.5. The third industrial revolution – Internet and network connectivity**

The period from the late 1970s was marked by the beginnings of a crisis that ended the era of Fordism. In modern practice, the end of Fordism is also called the end of Keynesianism, named after J.M. Keynes, a British economist who played a key role in post-World War II economic development. The Keynesian crisis is also known as the supply crisis. Increasing domestic market production, vertical integration, standardization and mass production have led to a saturation of national markets. Economic policy protected national production as well as entrepreneurial activity, but in the late 1970s, the golden age of state capitalism, based on "Tayloristic" models of production organization, was nearing its end. As early as the early 1990s, the foundations of Internet infrastructure and www approaches to business were laid. After a long period of state regulation, the market was liberated, after strong pressures for liberalization. The period from the late 1970s to the beginning of the new millennium was marked by a phase in the development of entrepreneurship dominated by financial capital. The disintegration of the classic mode of production and the globalization of the market have made it possible for capital owners to dominate the market and for the growth of the "fund industry". With the classic "small business", the time of entrepreneurial owners of "big" capital is back, as in the time of the Second Industrial Revolution. At the same time, this period was marked by the explosive growth of companies, which were later called "dot.com companies". The focus of entrepreneurial activities is focused on Internet activities and sales of goods on the "network". By the start of the new millennium, most of these companies will collapse and disappear, ending the period of "explosive" growth for online entrepreneurs, but will remain the foundation for future entrepreneurial projects.

### **4. END OF ENTREPRENEURSHIP IN THE "BRICK AND MORTAR" AND THE IMPACT OF POSTMODERN ON ENTREPRENEURSHIP**

The third industrial revolution will begin with the rapid growth but also the collapse of most dot.com companies, the digitalization of manufacturing processes and the globalization of business as the most significant factor that will mark the new millennium. It is precisely globalization, on the wings of digitalization and Internet business, that will create the preconditions for the development of a new form of entrepreneurship. Small business as well as remnants of traditional Fordism-based entrepreneurship, based on national markets, will be under intense pressure from global and international entrepreneurship. The dominant form of economic rise of modern corporations will be based on global market access. The end of Fordism, linked to the crisis of Keynesianism, all with the collapse of closed national economies, will also mark the end of modernity, which was inherited by the European cultural tradition from the Enlightenment. Modernity was exported to America as the fruit of the cultural development of the old continent, and returned from America as postmodern with all the good and bad influences. Globalization has shifted the firmly established boundaries of economic systems and the paradigms of governance and the coexistence of economies and the community at large. Basic changes to highlight are job insecurity, job search migration requirements, the disappearance of entire industries in economically developed countries, the "blurred boundaries" of organizations' business activities, the growing earnings gap between professions as and within the manufacturing process itself and the like. However, globalization had its dark side, and it did not even benefit entrepreneurs in all segments. Globalization is, above all, a doubt about its benefits: it results in indefinite mimeticism that spreads at lightning speed and transmits good and bad news. Although they benefit first hand from the benefits, the wave will overwhelm all countries, no difference.



And so we are overwhelmed with abstract demands: to modernize, to liberalize, to get rid of habits, to routine in order to take a better position in a possible race (Bruckner 2008: 21). The erosion of the canonical wage-labour status that has defined employment for nearly a quarter of the working-age population raises systemic insecurity. At the same time, another quarter of employees who enjoy a mitigated or weakened form of hiring regime (in public services with almost lifetime guaranteed employment) also notice a degradation of their status (Boutang 2007: 201). On the one hand, job insecurity puts the wind in the back of entrepreneurial ambitions, while on the other, it causes reduced market consumption due to uncertainties associated with fixed incomes, which directly reflects the demand for products of entrepreneurial activities. Analysing postmodernity in the context of entrepreneurship as an economic activity, it is necessary to emphasize that it did not adopt a simple and easily explainable form of dominant form of entrepreneurship. In this connection, the development of post-industrial societies and post-modernity as a whole is not a homogeneous process. The spread of postmodernist influences began from the US and spread to Europe and further east. However, in Europe this influence has not been evenly distributed.

## **5. SOCIAL CHARACTERISES OF THE DEVELOPMENT OF MODERN AND POSTMODERN SOCIETY**

The transition from the pre-modern to the modern comes at a time when philosophy, from a scholastic focus, is turning towards a rationalist approach. The philosophers of modernity have turned to the perception of the world around them, the use of reason and the exploration of the nature of existence, unlike the pre-modern philosophers who have relied on tradition, religion and mysticism. Modernists emphasize the human ability to think, to create one's personality and to form a character, as opposed to pre-modernists based on the will of God and Eastern sin. Philosophers put modern emphasis on the individual, holding that the mind of the individual is sovereign, and the individual as an individual is the sole measure of value - unlike the pre-modern thinking system in which the individual, through the feudal system of government, is subordinate to higher social, political and religious systems (Hicks 2004: 8). Modernity brought with it optimism. This was a fundamental change that was affirmed in the beginnings of the development of modernity. Arts, science, philosophy and other sciences, rejected the weights that dragged them toward the past. Turning to the future fuelled the fire of optimism. The future carried what was new. One Roman poet said that people are *rerum novarum cupidus* (always looking for something new) (Drucker 1994: 143). So, the cult of the new! But, everything new. Everything new, just keep it new and fresh. It is not content that matters, it is the main openness to the not-yet-existing, unseen, unheard and advanced (Bezić 1989: 4). The emergence of postmodernism, as well as its interpretation, still provokes controversy today among scholars of all disciplines. Some view postmodernity as a continuation of modernity and its logical sequence, while others take a completely contrary view, expressing their dissatisfaction with the new term and emphasizing that it is actually the antipode to modernity, which could also be called anti-modern. Habermas wonders if modern is, in fact, just an unfinished project. Controversial critics of the approach of modern culture reject the whole project of modernity, advocating either a return to pre-modernism or a step into postmodern or counter-modernity (Habermas 2009: 96). The term postmodern has emerged as a compound of the word modern and the prefix post. In *A Study of History*, Arnold Toynbee calls the modern age modern. Consequently, the continuation of modernity is called the postmodern age. Toynbee certainly did not develop a systematic theory of postmodernity and its unique philosophy as emphasizing historical cycles that are born and disappearing, its philosophical idealism, and religious overtones in the analysis of social events that might be completely foreign to someone who takes the concept of postmodernity in modern society (Best, Kelner 1991: 6).

*Table 1: Definition of pre-modern, modern and postmodern*

	<b>Pre-modern</b>	<b>Modern</b>	<b>Postmodern</b>
<b>Metaphysics epistemology</b>	Realism: Supernaturalism	Realism: Naturalism	Anti-realism
	Mysticism and / or faith	Objectivism: Experience and Reason	Social subjectivism
<b>Human nature</b>	Eastern Sin: Turning to the Will of God	Tabula races and autonomy	Social connection
<b>Ethics</b>	Collectivism: Altruism	Individualism	Collectivism: Egalitarianism
<b>Politics and Economics</b>	Feudalism	Liberalism	Socialism
<b>When and where</b>	Middle Ages	Enlightenment, twentieth-century science, business, technical fields	Humanism of the late twentieth century related profession

*Source: Hicks, 2004, 15*

Table 1 shows the fundamental differences of the three analysed periods. According to the timeline, pre-modern is the longest period of time, but recorded the least changes. By contrast, postmodernity is the shortest period, but at the same time it records the most significant changes in social relations. A key period in the context of entrepreneurship development, each is modern and modernism. In the context of the scientific approach, and the change in the philosophical paradigm, modernity begins long before the First Industrial Revolution, but it is only the development of the means of production that makes it possible to submerge the social paradigm. The pre-modern will mark the period until the end of the Middle Ages. It is linked to a firm foothold in feudalism, the mysticism and rule of the Church are dominant, and the fundamental characteristic is recognized through the almost complete illiteracy of the population. Modern breaks the monopoly of the church and landowners, the Enlightenment creates the foundations for the development of literacy and culture, and after the First Industrial Revolution cities grew rapidly and urbanization emerged around the first industrial plants. Postmodernism abandons the fundamental strongholds of modernity, and this is especially reflected in the abolition of realism and the blind belief in science. Talking about the emergence and development of postmodernity, Michael Foucault defined the key factors, emphasizing that all his analyses and efforts are aimed at rejecting universal truths and universal solutions and that these and such solutions should be dismissed as a burden of the past. He emphasizes that it is pointless to speak in favour, or against, of Reason, Truth, and Knowledge. Rotry added that postmodernism does not give definitive judgments, definitive truths, or offer specific and definitive knowledge (Hicks 2004: 2).

## 6. DISCUSSION

Previous research into the development of entrepreneurial practice throughout history has been more focused on exploring entrepreneurship in the context of engaging resources and generating profit from activities than dealing with changing entrepreneurial methods and developing social relationships. Table 2 shows the fundamental changes in the development of entrepreneurial approaches throughout history. The recapitulation of the factors in Table 2 should be brought into context with the recapitulation of the factors in Table 1.

*Table following on the next page*

*Table 2: The development of entrepreneurship throughout history*

Middle age	The owner of the capital is also the holder of the risk
17. century	The owner of the capital bears the risk above the agreed price with the client
1725.	Richard Cantillon - The person who takes the risk is different from the owner of the capital
1803.	Jean Baptist Say - separates profits from an entrepreneurial project from profits from capital
1876.	Francis Walker - separates two types of entrepreneurs, those who invest for interest income and those who earn management
1934.	Joseph Schumpeter - Entrepreneur is an innovator and develops new technologies
1961.	David McClelland - Entrepreneur is a startup, contemporary risk taker
1964.	Peter Drucker - Entrepreneur maximizes opportunities
1975.	Albert Shapero - Entrepreneur takes the initiative, engages human and material resources and accepts the risk of error
1980.	Karl Vesper - An entrepreneur takes a different view from economists, psychologists, business people and politicians
1983.	Gifford Pinochet - Within a large company, an entrepreneur operates on an already set up organization
1985.	Robert Hisrich - Entrepreneurship is the process of creating something new, with new value, investing the necessary time and effort; using financial infrastructure, psychology, social risk and return is reflected as a cash return and personal satisfaction

*Source: Hisrich, Peters, 2002, 7. (adapted to work needs)*

Entrepreneurial activity in the Middle Ages, was limited to a narrow number of individuals who owned capital and held risk. In the context of social relations, it was a feudal period in which capital owners were landowners and a tight circle around state power. The market for entrepreneurial products was relatively small and limited to a narrow geographical area. The exchange of goods, in relation to the village city, was almost negligible, and the village played a significant role in the overall demand for goods and services. These were the underlying factors that determined the pre-modern era in the context of entrepreneurial practice. The situation is changing in the early modern times, but entrepreneurship was based more on interest income and trade than on the shift in production of goods and services. It is not until the First Industrial Revolution, with industrialization and urbanization, that the era of entrepreneurship associated with the production of goods and services begins, for which the division of labour and specialization within the production process is most deserving. The period between the two world wars will be marked by the monopolization of the market and the association of individual entrepreneurs to facilitate the launching of large business ventures. Late modern, it will prevail over state capitalism and production planning. Fordism and Taylorism will bring the factory production system to the pinnacle of efficiency, and will add to the entrepreneurial paradigm a model of internal entrepreneurship within existing manufacturing organizations. The modern period covers the time from the advent of the Enlightenment to the 1980s. Modernism abolishes feudalism, the dominance of the clergy and the narrow circle of rulers protected by private armies, and turns to science and education. In Britain, empiricism is developing, which will become the basis of calls, all of which will grow into the discourse of the Anglo-Saxon paradigm. On the European continent, rationalism will develop, but both philosophical approaches will have the same root and aim for the same or similar goals. Empiricism will further encourage liberalism and individualism, which will later spill over into continental Europe. Both philosophical directions will abandon dogma and turn to science, research and development, and the development of technical achievements and business. The period from the end of the 20th century will remain marked as the end of the modern and completely changing entrepreneurial paradigms.

Closed national markets are collapsing, and corporate entrepreneurship is emerging that implies globalization. The Third Industrial Revolution eliminates mass production and mass markets, globalizes production according to cost principles, and introduces computerization and digitization of business. Entrepreneurship is becoming a global category in a way that is no longer linked to the geographical location of the business. The Third Industrial Revolution and Digitization creates the foundations for the development of entirely new industries, with the media industry undergoing the biggest change. The social paradigm abandons the modernist approach and questions the strict canons of realism and naturalism. Post-industrial society and post-modernism do not accept strict restrictions, and the media industry creates a society of spectacles that Baudrillard calls hyperreality. Harding (2005) refers to Manning and cites three basic social factors that characterized the postmodern state:

- a) The idea of fluidity - postmodern societies are undergoing extremely rapid changes in their temporal and spatial dimensions,
- b) The idea of reflection - image, language and action are interrelated and the action of individuals reflects on the action of the whole community
- c) The idea of *hyper-reality* - that which is on the border of reality, which "dances" with reality and produces signifiers, but lacks a precise definition, cannot be easily identified, and does not have a referential function that serves to fulfil and define a sign.

The continuity of the idea of the fluidity of societies is continued by Bauman (1984), who speaks of "liquid societies" in which there are no longer firm reference points on the basis of which societies could be determined. Classical segmentation of society is no longer effective to the extent that it was in Fordism or in the era of mass production and mass advertising. Fiske (1991) points out that only the idea of what are most common "jeans" or "denim clothing and culture" is not the same in different social segments as in different geographical areas within national borders. All these social changes have inevitably left a deep mark on changing entrepreneurial practices and the fundamental paradigm of entrepreneurship. Entrepreneurship is strictly related to the development of capitalism and closely links its growth and development to the stages in the development of capitalism. We will define the stages in the development of capitalism on three levels (Dockes 2007: 99):

- The first level or infra-capitalism, which develops in the field of exchange, more precisely in the field of unequal or asymmetric exchange (taking into account various asymmetries: asymmetric market structures, asymmetries in information, asymmetries in power in its various forms).
- The second level is productive capitalism, as Marx understands it.
- The third level is metacapitalism. It could be said that he is essentially world-wide, and derives his power from his mobility, that is, the various means at his disposal to profit. Although it is mostly about financial capital, it cannot be identified with finance.

It should be emphasized immediately that the stages listed by Dockes are not firmly linked to the developmental stages by time. The age of feudalism encompasses the stage of infra-capitalism, that is, asymmetric exchange, and lasts until "manschesterisation". However, the era after industrialization and urbanization, and especially the era of monopolization before World War I, is already a stage of metacapitalism. The post-World War II era represents the productive capitalism of the beginning of "Manchester", that is, as interpreted and understood by Marx. The Third Industrial Revolution and the post-industrial society abolished the dominance of productive capitalism in the countries of the Anglo-Saxon and rationalist traditions. Industrial production is moving east, and the IT revolution is leading to the development of "platform capitalism" and an entirely new entrepreneurial practice. Capitalism, in which the dominance of the production of goods and services moves to the production of

knowledge and intangible values, will be called cognitive capitalism. Boutang (2011) points out that slavery-based industrial capitalism is broken by trading capital by cognitive capitalism. At the same time, cognitive capitalism is beginning to emerge globally and is "advancing on the ladder" at a rate at which no form of capitalism has so far grown, but it will not completely destroy industrial capitalism. Cognitive capitalism will open the door to platform capitalism and a whole new form of entrepreneurship. The convergence and digitization of production systems, content production and protection of property rights, and the complete change of distribution, advertising and sales channels will be a fundamental feature of the new economy and "platform capitalism". Entrepreneurship is being joined by a whole new form whereby more individuals come together with ideas that develop digitized products, all funded by a combination of classic and alternative sources of financing. Banks continue to hold a monopoly on financial resources, but are increasingly strengthening crowdfunding and alternative sources. Capitalism created its offspring. We call it the sharing economy on a collaborative basis. This is the first economic system to emerge on the world stage since capitalism and socialism in the early nineteenth century left a notable historical trace (Rifkin 2015; 1). One of the fundamental factors that will characterize the postmodern, Table 1, cites social cohesion. In entrepreneurship it will be reflected through the association of entrepreneurs and joint financing. The contents, which are the product of "platform capitalism", are global in nature and are intended for the global market in the context of distribution. Content produced for the global market has relatively low cost of duplication and distribution, allowing it to abandon the Fordist paradigm and vertical integration. However, what separates it from the existing economy of exchange is its local character. This is where we actually go back to the beginning of research on entrepreneurship development. Platform capitalism eliminates the need for Fordism and vertical integration, which separates it from Marx's productive capitalism. At the same time, the content it distributes is global in nature and revenues are generated in the global marketplace, which directly places it in the metacapitalist paradigm. Digital platforms enable the development of entrepreneurship at the family level as well as at the level of individuals in the local market, which would, according to the stages of development, classify it as infra-capitalism. On the one hand, the management of digital platforms and the revenue generated by the entrepreneur are global in nature and imply metacapitalism; criterion for the stage of infra-capitalism. Entrepreneurship based on managing global platforms achieves complete dominance over local markets, and entrepreneurship in local markets assumes complete risk to the overall business. In addition, entrepreneurs in local markets, for the most part, use their private property to meet the criteria set by global platforms.

## 7. CONCLUSION

Analysing 21st Century Entrepreneurial Practice and Platform Capitalism, it inevitably raises the question of whether, in part, we have closed the circle of entrepreneurship development and in what direction entrepreneurship will continue to develop. Postmodern in the context of entrepreneurship has confirmed all the characteristics that have characterized it in the fields of culture and social activity. Not only did styles mix in architecture, painting and literature, but the precise boundary by which an entrepreneurial profile can be determined has also disappeared. Post-industrial society means the profile of an entrepreneur quite different from the profile of a factory entrepreneur as Marx envisioned. The "blurred boundaries of corporations" directly influenced the mix of managed styles as well as the need for different entrepreneurial styles. The expansion of capitalism to the east has inevitably caused the emergence of different forms and stages of the development of capitalism within corporations in different geographic markets. In particular, this was reflected in corporations that were also governed by financial capitalism. While in the west they are in the stage of metacapitalism, in the east they are developing factory capitalism.

The fluidity of financial capitalism and, as a consequence, the development of platform capitalism, has added another style of enterprise to the mix of styles. We recognize it as a model that embraces form of entrepreneurship that have been abandoned since the First Industrial Revolution. Entrepreneurs involved in the business process in the local market use their private property to generate additional revenue. Renting rooms in apartments or holiday homes, delivering packages or transporting passengers with their own cars and the like becomes a local business managed through global platforms. Global earnings belong to the owner of the platform, the stage of metacapitalism, while the risk, the local character of the business and the asymmetric earnings, belongs to the owner of the assets, which we would recognize as infra-capitalism. For some other research, the question remains, have we partly turned the wheel of entrepreneurial history back into some form of feudal relations? Kipins (2007: 147) points out with a very interesting assertion that the "New Economy" or the "post-fordism" of our age - the escape of capital, the increasing fragmentation and specialization of labour, the growth of the service and information sectors - none of this has really made the business more interesting. The fundamental tenets of the Fordist model today are so deeply embedded in the fabric of social life, so far as job description, satisfaction as a substitute - that it is practically impossible to distinguish them.

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## THE IMPORTANCE OF THE EUROPEAN UNION SOLIDARITY FUND IN BUILDING RESILIENT REGIONS

**Lela Tijanic**

*Juraj Dobrila University of Pula,  
Faculty of Economics and Tourism "Dr. Mijo Mirković", Croatia  
letijan@unipu.hr*

**Petra Korent**

*Student at the Juraj Dobrila University of Pula,  
Faculty of Economics and Tourism "Dr. Mijo Mirković", Croatia  
pkorent@unipu.hr*

### ABSTRACT

*The world is faced with numerous disasters related to climate that cause serious human, economic and environmental losses, influence stability, development opportunities and quality of life. More frequent disasters are seen in Europe, where countries and its regions differ with respect to their risks and abilities to deal with the unfavourable consequences. Cohesion policy has recognized that it is inevitable to invest in climate change adaptation, risk prevention and also to give quick support in case of catastrophes. The European Union Solidarity Fund was established as one of the instruments that can be used to respond to different natural disasters. The aim of this paper is to present the role of the European Union Solidarity Fund in helping European regions to cope with the consequences of disasters and to become resilient. The notion of regional resilience refers to the (long-term) ability of regions to prepare in advance, withstand and recover from different types of shocks, including natural disasters, but there are discussions about the concept and its implementation. After describing different studies, confronting views and facts about the impacts of natural disasters on economies, with emphasis on regional level and regional resilience, funding opportunities for preventing and managing disaster risks and its consequences within cohesion policy of the European Union are presented. More detailed analysis of the European Solidarity Fund interventions is performed to examine the importance of the fund in helping regions become resilient after disaster. The results have confirmed the increasing need and the benefits of the European Union Solidarity Fund but also the necessity to combine other instruments in building resilient regions.*

**Keywords:** *European Union Solidarity Fund, Cohesion policy, Natural disasters*

### 1. INTRODUCTION

One of the important consequences of climate change is the increase in the frequency and magnitude of extreme events, where climate change can trigger different hazards (European Environment Agency, 2010). It is estimated that "over the last decade, natural disasters have affected more than 220 million people and caused USD 100 billion per year in economic damage" (European Commission, 2019f). Although a safe place in global terms, the European Union (EU) faces different types of risks (European Commission, 2016). "7% of the population of the EU lives in flood-prone areas, while around 9% lives in areas where there are over 120 days a year without rain" (European Commission, 2019a). Heat waves, forest fires and droughts are characteristic for southern and central Europe, while northern and north-eastern Europe face heavier rain fall and flooding. EU has nine outermost regions which have high exposure to climate change and have problems in facing with droughts, floods, hurricanes, pandemics etc. (European Commission, 2019e). There are also risks of pandemics and man-made disaster risks with consequences such as cost of damages, injuries, loss of lives. Various impacts of climate change and disasters influence the stability, socio-economic development and quality of life.



Specific sectors, such as tourism or agriculture are particularly vulnerable to climate change influences, as well as less developed areas or specific regions (European Commission, 2019a, 2019j). These events very often go beyond national borders. It is important to analyse the capabilities of countries and regions to prepare in advance or to recover from natural disasters and to see if there are some instruments which can help in achieving regional resilience. This motivates numerous studies in regional economics and economics of natural disasters that connect theory and measuring the impacts of natural disasters, investigations on regional resilience and (regional) policy instruments important in strengthening regional capacities to reduce disaster risks, strategies for disaster risk management etc. EU cohesion policy recognizes the need to invest in climate change adaptation and risk prevention and to enable support in case of disasters. The EU Solidarity Fund was established to help in the case of natural disasters. The aim of this paper is to analyse and present its role in helping European regions to face with the consequences of disasters and in building regional resilience. The possible impacts of natural disasters on economies and the importance of resilience are presented in the next section. Funding opportunities for preventing and managing disaster risks within EU cohesion policy and more detailed analysis of the EU Solidarity Fund interventions follow. Final sections present concluding remarks on the importance of the EU Solidarity Fund.

## **2. THE IMPACTS OF NATURAL DISASTERS AND THE IMPORTANCE OF RESILIENCE**

There are numerous investigations about the impacts of natural disasters, with different approaches, similar but also confronting views or facts. Researchers need to analyse the potential effects of natural disasters in short-run, medium to long and very long-run. Besides direct losses and its influence on quality of life, natural disasters undo many years of physical and human capital accumulation and can lead to divergence trends (Shabnam, 2014). Benson and Clay (2004) describe the short and long term economic and financial impacts of natural disasters and recognize that there is less recognition of their broader macroeconomic significance. Recently, the connection between natural disasters with macroeconomic sphere becomes visible and opens interesting and actual field of research (Shabnam, 2014). The economic impacts of natural disasters are mixed and some of the studies show that natural disaster may even promote growth, e.g. as the results of higher productivity of the economy's corporate sector (through creative destruction, firm selection...) (Ono, 2015). Panwar and Sen (2019) examine the ambiguity in the relationship between natural disasters and economic growth, observing also whether the disaster impacts are dependent on a level of development. The authors show that natural disasters (floods, droughts, storms, earthquakes) have diverse economic impacts across economic sectors depending on disaster types and their intensity as well as that the impacts are stronger in developing countries (in comparison with developed countries). Detailed review of main theoretical, empirical studies and models which observe direct and indirect impacts of natural disasters can be found in Wouten Botzen, Deschenes and Sanders (2019). The authors also highlight that disasters have localized impacts so it is important to consider regional models and to build future theoretical models including advances in regional economics. Koks and Thissen (2016) deal with complex disaster impact modelling. They confirm regionally differentiated welfare effects of natural disasters (floods) in Europe and the importance of measuring the "cascading effects" of natural hazards ("natural hazards and their economic consequences do not stop at administrative boundaries"). An overview of most frequently identified natural (flooding, extreme weather, wildfire/forest fire, seismic and volcanic activity, pandemics, epizootics/animal) and man-made disaster risks (industrial accidents, radiological incidents, infrastructure disruption, cyber security and terrorism) in the EU can be seen in European Commission (2017). The vulnerability of European regions to climate change impacts and natural hazards is confirmed also in ESPON (2013), where the

authors explain that not all regions and cities are and will be affected in the same way. The investigations of the diversity of impacts are important in order to define adequate solutions. Regions should observe and reduce potential risks, prepare and respond if necessary according to their needs and to build capacities to enhance the resilience. The concept of resilience is used in different disciplines and there are still variations in using this term as well as in its analysis (measuring, determinants, relationship with long-term growth etc.). The fuzziness of the regional resilience is discussed in more detail in Fröhlich, and Hassink (2018), by presenting valuable overview and bibliometric analysis of groups of regional resilience literature. Hassink (2010) discusses whether regional resilience contributes to understanding of regional economic adaptability. He also notes that studies on responses to disasters and socio-ecological resilience raised interest to use this concept from regional perspective. Resilience has become a part of regional economic studies especially at the time of crisis and strengthening the importance of regions as an economic subject and subject of decision-making processes in public policies (Stanickova and Melecký, 2018, 232). Stanickova and Melecký (2018, pp. 232, 233) describe resilience as *“how an entity or a system responds to shocks and disturbances... It includes the ability to deal with external factors and reduce vulnerability, and one of its main tasks is to minimize losses and as a result to ensure the economic recovery in the shortest term”*. The same authors give an overview on some of the underlying aspects of regional resilience, highlight the need of ensuring that local economies increase their resilience due to external shocks, globalisation, rapid technological change, recessions, man-made disasters etc. In comparison with adaptation (that refers to handling a particular shock), they explain that resilience can be observed as underlying capacity. Boschma (2015) observes the resilience as the long-term ability of regions to develop new growth paths, to reconfigure their socio-economic structure. Global institutions, such as Organisation for Economic Co-operation and Development (OECD), World Bank, United Nations (UN) or International Monetary Fund (IMF) recognize the need (and contribute) to build resilient societies. OECD (2019) develops approaches and different measures to operationalise resilience, to strengthen and improve overall well-being, to manage risks and shocks. It helps governments in creating strategies to recover from the effects of the natural disasters (e.g. OECD has assisted the government of Italy in facing with the consequences after the earthquakes in the Abruzzo region), but also gives recommendations to increase resilience to future shocks, options for rebuilding more resilient and more prosperous regions over the long term (OECD, 2013). World Bank (2019) highlights investing in resilience is a key to sustainable development and poverty reductions. It develops expertise, tools and instruments important for countries to achieve climate and disaster resilient development. Also, World Bank Group's City Resilience Program helps cities in investments which deal with climate and disasters risks (World Bank, 2013, 2019). UN Office for Disaster Risk Reduction is established to support countries and societies in preventing new and reducing existing disaster risks, strengthening the resilience of people, implementing adequate systems and approaches and in monitoring the progress towards sustainable future (UN Office for Disaster Risk Reduction, 2019). One of the goals of the UN-Habitat, UN Human Settlements Programme, is to increase the resilience of cities sensitive to the impacts of natural and human made crisis, where working with local governments and their partners is essential (UN-Habitat, 2019). Another example can be seen in IMF (2019) which analyses building resilience to large natural disasters and risk prevention in vulnerable developing countries and highlights that disaster risk management for these countries is a macro-critical challenge. EU has also made a progress towards disaster prevention and in dealing with disasters. European Commission's Joint Research Centre, together with different representatives of Commission Services, creates a framework for the definition and measurement of resilience important in policymaking. Building a more resilient society must be based on strengthening the mechanisms of shock absorption, enhancing the capacity and developing a more sustainable growth and societal

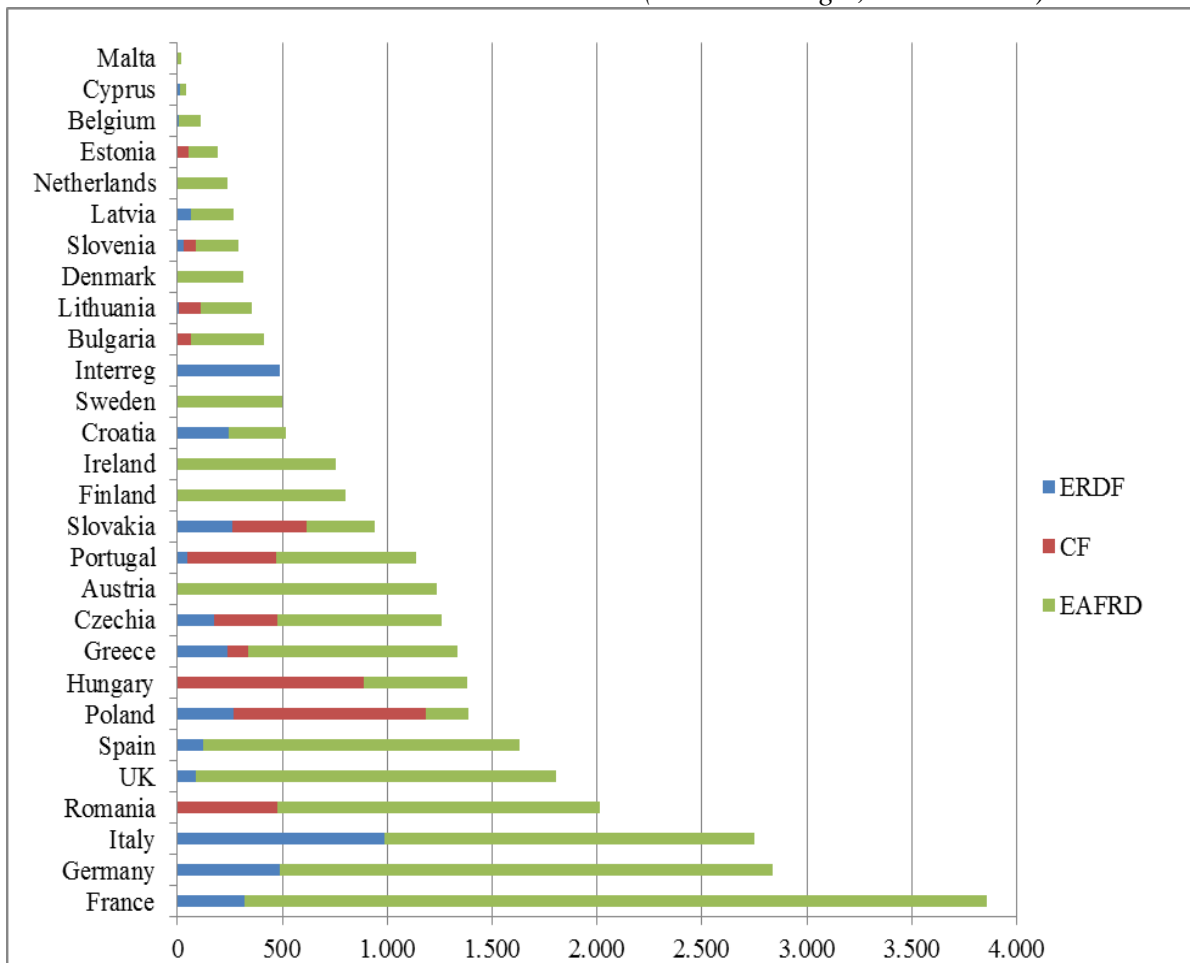
development (European Commission – EU Science HUB, 2019). It can be highlighted that it is important to analyse regional characteristics and possible instruments which can help to recover from shocks, global changes and different types of disasters. Ionciã and Petrescu (2016) present various sources of financing to respond to the challenges and consequences of natural disasters, where more detailed analysis is performed on the role of the EU Solidarity Fund. It is confirmed that EU Solidarity Fund is vital element in the recovery. Continuous monitoring is necessary in observing the effects of different instruments and creating policy actions which can help to reduce risks, cope with unfavourable effects or change development path towards resilience. More detailed analysis of these opportunities, especially with risks of natural disasters, can be seen in next section.

### **3. FUNDING OPPORTUNITIES FOR PREVENTING AND MANAGING DISASTER RISKS WITHIN EU COHESION POLICY**

The EU cohesion policy has recognized the importance to invest in climate change adaptation, risk prevention and to enable support in case of catastrophes. This is clearly seen through its priority areas, which include one on climate change adaptation, risk prevention and management. Here should be added goals such as low carbon economy and environment and resource efficiency that contribute to prevent climate changes, while risk prevention, disaster resilience and climate change adaptation are also integrated into other funding priorities (European Commission, 2019k, 2019j). Investing in risk prevention is vital in preserving development capacities and reduces the costs. It is estimated that for every 1 EUR spent on prevention, 4 EUR or more will be saved on response (European Commission, 2019j). Cohesion policy can contribute to climate change adaptation and risk prevention e.g. by ecosystem-based approaches, constructing new infrastructures and modifying, adapting the existing ones. Funding opportunities for disaster risk management can be seen also in measures to address the “knowledge gap” (e.g. necessary academic research, studies and reports, strategy development, ICT support, awareness and education measures etc.) (European Commission, 2019a, 2019j). Cohesion policy support for 2014-2020 for climate change adaptation and risk prevention and management is one of the most important sources. Available funds from European Regional Development Funds (ERDF) and Cohesion Fund (CF) in 2014-2020 amount nearly 8 billion EUR, with national co-financing close to 10 billion EUR (European Commission, 2019e). Here should be added investments from European Agricultural Fund for Rural Development (EAFRD), as one of the five European Structural and Investment Funds, which is the largest contributor to the observed goal (European Commission, 2019d). Figure 1 presents allocations to the objective “Climate change adaptation and risk prevention”, by EU member states in the 2014-2020 (the data refers to total EU budget). The presented allocation confirms the role of the European Structural and Investments Funds within EU cohesion policy in climate change adaptation and risk prevention.

*Figure following on the next page*

Figure 1: Allocations to the objective "Climate change adaptation and risk prevention", by EU member states in the 2014-2020 (total EU budget, million EUR)



Source: European Commission, 2019d

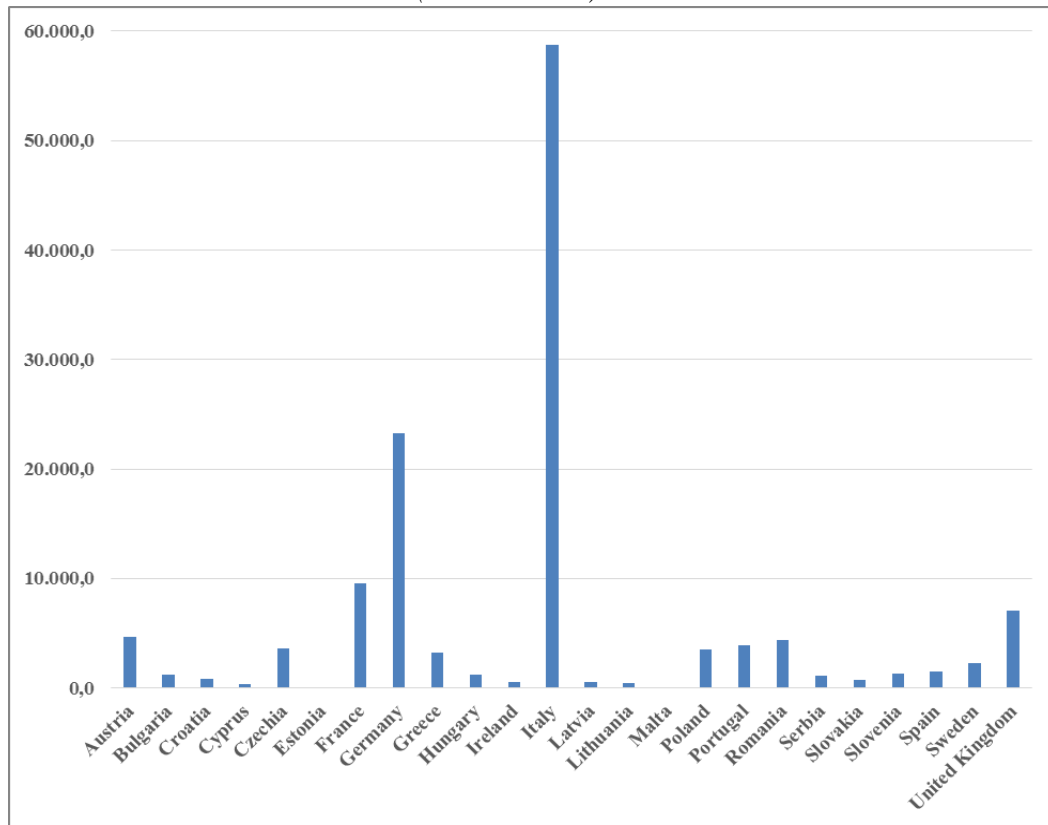
The planned EU financing under the observed objective is the highest in France and Germany (due to high EAFRD contribution). According to the data on ERDF and CF, the allocation is the highest in Poland, Italy and Hungary. The graph presents also allocation for Interreg (European Territorial Cooperation programme). The data on permanent implementation progress and indicators of achievement (useful in tracking the results), with projects examples, can be found in European Commission (2019d, 2019e). Other instruments, such as the Civil Protection Mechanism, the EU Solidarity Fund, Horizon 2020, LIFE programme, also have important role in managing disaster risks in the EU. The described funding opportunities should be in line with strategic-long term approach, including cross-border and transnational cooperation programmes, macro-regional strategies and urban development projects, together with observing complementarities between European Structural and Investments Funds (more in European Commission (2019j)). In the proposals for the 2021-2027 programming period, „promoting climate change adaptation, risk prevention and disaster resilience“ is included as a specific objective within objective which focuses on a greener and low-carbon Europe (one of the thematic concentration requirements). European Commissions empowers EU member states to invest in disaster risk prevention and management through different instruments. It gives specific recommendations and defines conditions which must be fulfilled (besides the opportunities to use funding opportunities) (European Commission, 2019d). EU Solidarity Fund, as one of the important instruments to deal with the consequences of natural disasters, is presented in the next section.

#### **4. ANALYSIS OF THE EU SOLIDARITY FUND INTERVENTIONS**

The EU Solidarity Fund represents solidarity instrument which was established to respond to major natural disasters in Europe. It was set up as a reaction to the floods in Central Europe in 2002, with direct damage (over EUR 15 billion) in Austria, Czechia and Germany, few weeks later in France (European Commission, 2019b, 2019f). The fund provides financial assistance for emergency situations and recovery operations aftermath of a disaster, for restoring different types of infrastructure (e.g. in the field of energy, water and waste water, telecommunications, transport, health and education), in providing shelters if necessary, contributes to rescue operations, securing preventive infrastructure and protection, cleaning up damaged areas etc. (European Commission, 2019i). In 2014 framework of the fund was revised. Its operations are regulated by Council Regulation (EC) 2002/2012 as amended by Regulation (EU) 661/2014. In order to be more effective in implementation, the reforms introduce changes that refer to the clarification of admissibility criteria for applications for regional disasters, the extension of the regulatory deadline for applications, the extension for the implementation period, the introduction of advance payments etc. (European Commission, 2019i). Fund has annual budgetary ceiling (from 2014) of EUR 500 million, with possibility to carry forward in the following year the resources not used in the current year (European Commission, 2019b). Countries apply for the funds and must confirm that the disaster event has a dimension justifying intervention. The European Commission proposes the Fund's mobilisation and the amount of aid to the European Parliament and the Council, which decide on activation (European Commission, 2019b). There are different categories of disasters: major disasters (damage exceeds 0.6% of a country's gross national income or EUR 3 billion, whichever is the lowest), regional disasters (damage exceeds 1.5% of regional gross domestic product, or 1% for an outermost regions), neighbouring country (in the event that an eligible country is affected by the same major disaster as an neighbouring country) (European Commission, 2019g). The concept of resilience is recognized in intervention logic, where it can be seen that the EU Solidarity Fund's investments (together with other national systems for disaster risk management and EU policy tools) help countries to return to normal living conditions, prevent and mitigate disasters, reduce the pressures on the budgets and stimulate follow up actions as well as measures for disaster risk management (European Commission, 2019b). Figure 2 and 3 present the results of the analysis of the EU Solidarity Fund interventions by EU member states (total damage and aid from the Fund 2002). According to data on applications approved it can be seen that EU Solidarity Fund was used for 87 disasters since 2002 (to 2019) (mostly for floods, storms, earthquakes, forest fires, droughts...). The Fund mobilised over 5.5 billion EUR and supported 24 European countries (23 EU member states and 1 accession country), where Italy had the highest damages and represents the largest beneficiary of the Fund's support. Germany and France follow. From the same database it can be seen that the largest number of applications refers to major disasters and that highest share of resources was allocated to assistance with earthquakes (in Italy in 2016/2017, 2012, 2009) and with floods (in Germany).

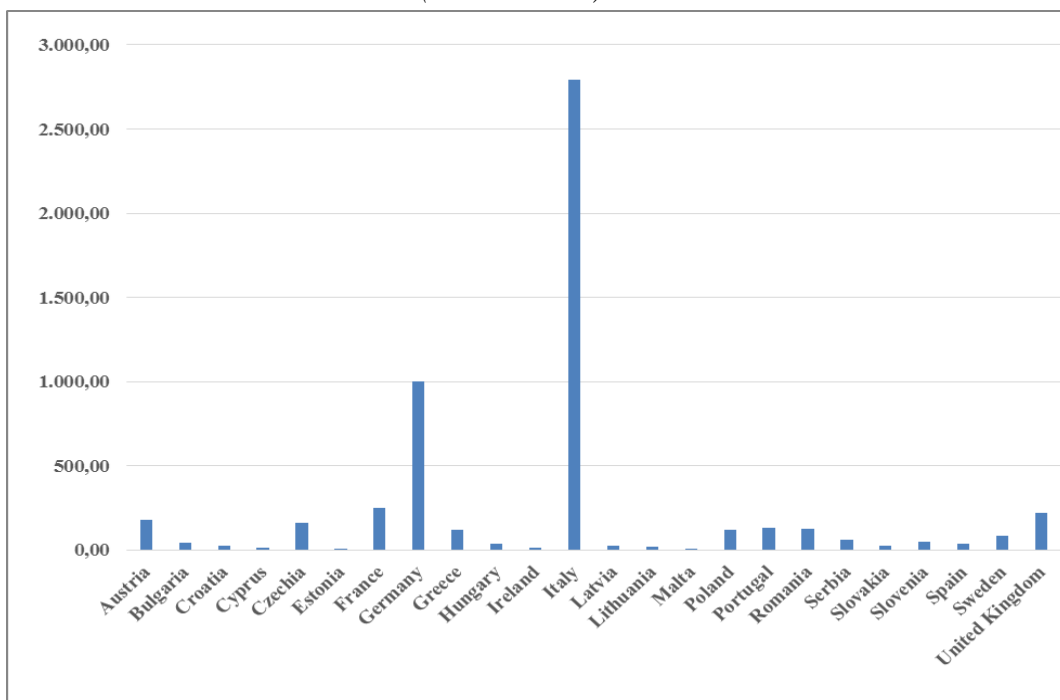
*Figure following on the next page*

Figure 2: EU Solidarity Fund interventions since 2002, by EU member states, total damage (million EUR)



Note: applications with the budget procedure ongoing are also included  
 Source: authors based on European Commission (2019h)

Figure 3: EU Solidarity Fund interventions since 2002, by EU member states, total aid (million EUR)



Note: applications with the budget procedure ongoing are also included  
 Source: authors based on European Commission (2019h)

Based on the following evaluation criteria: effectiveness, efficiency, coherence, relevance, EU added value, solidarity, last evaluation of the EU Solidarity Fund 2002-2017 (European Commission, 2019b, 2019i) analyses the effectiveness, time efficiency of the approval, implementation and closure of the Fund's interventions, the effects of the 2014 reform, the synergies between the EU Solidarity Fund and other EU policy instrument for disaster risk management. It includes also the results of the stakeholders' perceptions of the Fund's EU added value, as well as its role in inspiring further policy developments in national systems for preparedness, prevention and management of disaster risks. The evaluation confirms that EU Solidarity Fund is effective in responding to major disasters at national level and that the Fund's capacity to intervene also has improved in responses to requests as regards disasters at regional level. The Fund has the capacity to adapt to catastrophic circumstances (which was confirmed in record support to Italy because of earthquakes). The support from the Fund is useful especially in countries with budget constraints, while the implementation can benefit policy learning and in developing disaster risk management. Time needed to mobilise the fund has been reduced. The evaluation confirms synergies between the EU Solidarity Fund and the ERDF and CF. It is highlighted that investments from EU cohesion policy have a more long-term perspective of strategic planning and investments for civil protection, prevention and management of disaster risks, while EU Solidarity Fund intervenes in short and medium term. It is important to observe these complementarities in order to achieve resilience. Interventions from the EU Solidarity Fund are also complementary to the Union Civil Protection Mechanism. Added value is confirmed especially for local authorities and small municipalities (but with the need to strengthen links between the activities and changes in policies for disaster management). Regarding effective and perceived solidarity of the Fund, the results of the evaluation have shown that the Fund fulfils the mission to ensure EU solidarity when needed, but the contribution depends upon the country's preparedness to mobilise quickly and effectively in response to the disasters, while evaluation of the perceived solidarity addresses that most of the population are aware that EU Solidarity Fund responds to disaster situations, but there is limited specific knowledge on the activity of the Fund. The evaluation also recommended further developing the implementation of the principle of "build back better" for disaster risk management, important in building resilient interventions, to increase the visibility of the EU solidarity etc. (European Commission, 2019b, 2019c). The main concluding remarks follow in the next section.

## **5. CONCLUSIONS**

Regarding the frequency and the strength of natural disasters, as well as other global risks, it is necessary to prevent the risks, strengthen the capacities of countries and regions to adapt and recover from the consequences if necessary and to follow the path of the long-term sustainable growth and development. The paper confirms that the EU Solidarity Fund is important instrument which can be used for interventions in various disaster situations and that it is valuable especially for regions vulnerable to natural disasters, or countries and regions coping with extreme events or several disasters of large magnitude in the same year. It can be concluded that synergy between the instruments is important for resilience, so EU Solidarity Fund should be combined with different EU policy instruments such as EU Structural and Investment Funds and different protection mechanisms. Cohesion policy has recognized the priority to invest in climate change adaptation, disaster risk prevention and management, while the effects of the EU Solidarity Fund's interventions depend also on country's and region's capacities which can be enhanced through investments from the EU Structural and Investments Funds. In next researches there are different important questions to discuss: the causality between EU Solidarity Fund interventions and resilience, the role of institutions and good governance in EU Solidarity Fund interventions and strengthening resilience, with more detailed analysis of the

constraints in the implementation of the EU Solidarity Fund. There are also discussions on the needs-based solidarity of the EU Solidarity Fund and proposals to extend the scope of the EU Solidarity Fund including the Brexit which is interesting to investigate in more detail in next studies.

**ACKNOWLEDGEMENT:** *This article is the result of the cooperation during the preparation of the final thesis "European Union Solidarity Fund".*

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## EXPORT ACTIVITIES ANALYSIS OF THE NOVOSIBIRSK REGION COMPANIES

**Ilya Maximov**

*Novosibirsk State University of Economics and Management, Russia  
ilya\_maksimow@mail.ru*

**Olga Kovtun**

*Novosibirsk State University of Economics and Management, Russia  
kovtuolga@yandex.ru*

**Marina Ivanenko**

*Novosibirsk State University of Economics and Management, Russia  
ivamarin@mail.ru*

**Vera Ryaboshlyk**

*Novosibirsk State University of Economics and Management, Russia  
vera\_fdrvn@mail.ru*

### ABSTRACT

*Nowadays economic activity in Russia is in a structural crisis. This crisis extends to the sphere of material and intangible production, social interaction, institutional structure and gives rise to a significant number of contradictions and imbalances. There is also a significant and systematic inconsistency in the information chain of "federal-regional-local" authorities, which significantly worsens the existing economic situation and is expressed in the asynchronous economic development across the country, the fragmentation of the market space and the formation of extractive institutions. In this article the authors considered the issue of foreign trade activities of regional companies only on the example of the export component, in the conditions of sanctions, this area of research is the most promising, supported by various institutions at the regional level and corresponds to the scientific interests of the authors. As a result of the research, the main trends in the firms foreign economic activity of in the Novosibirsk Region were analyzed, qualitative and quantitative assessments of the institutional environment of economic agents were given, constraints hindering development were noted, and proposals were made for the formation of a long-term strategy for the Novosibirsk Region in the direction of foreign economic interaction as an element of a sustainable development.*

**Keywords:** *Novosibirsk region, foreign economic activity, sustainable development, institutional environment, problems of exporters and importers, specialization*

### 1. INTRODUCTION

The study of regional socio-economic processes is an urgent and widely developed topic in federal states from the standpoint of institutional economic theory. Interest in the topic is explained from two perspectives. On the one hand, growing contradictions in the distribution of goods, powers, responsibilities between the regions of one state and the federal center are obvious, i.e. the acquisition by some regions of sub-sovereign properties in a competitive market economy. On the other hand, the meso-level of the economy is an insufficiently studied area of economic science, both from a theoretical and applied point of view. Despite quite a lot of experience in studying the nature and architecture of economic relations between actors at the micro and macro levels of management, which is characteristic of neoclassical methodology, the meso-level remains not sufficiently studied, which does not allow us to talk about the integrity of modern economic knowledge.

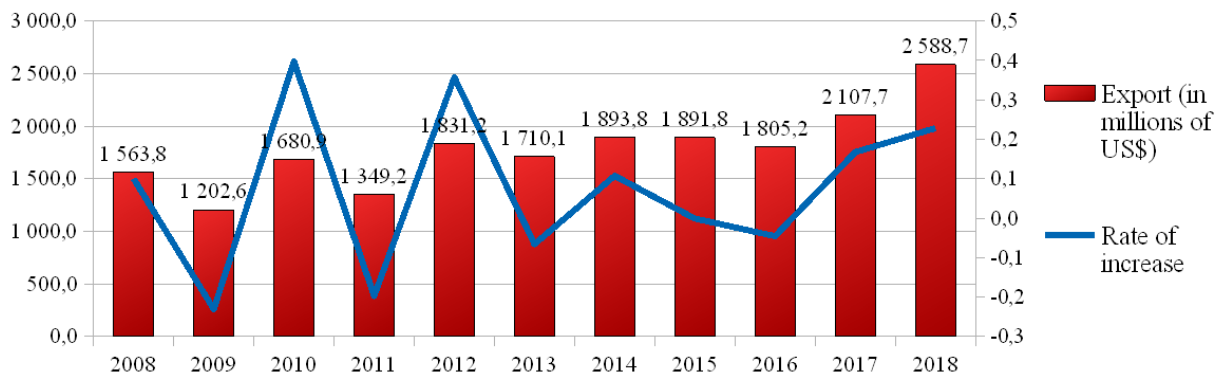
Regional differences in Russia, including a different production basis, the goals of society, the nature of the social contract, the role of large corporations, small and medium-sized businesses, etc., create the necessary prerequisites for analyzing the meso-level of the national economy. Having overcome the averaged approach of macroeconomics, it is possible to take into account the effectiveness of industrial, financial and human capital, economic policy and practice, geographical position, socio-cultural conditions. The international activity of national firms and various forms of foreign companies in the national corporate environment are important and integral criteria for the market economy openness and the foundation for future sustainable economic development. In a broad sense, foreign economic activity is a complex of relations and mutual influences of economic agents and institutions, the object of which is the continuous transaction of property rights between actors of more than two countries on a contract basis. As institutions are not only norms and rules but also forms of organization and stable social relations. The institutions make the institutional environment, forming a system of incentives and restrictions in the behavior of individuals and collectives, as well as firms [9]. The authors consider the export activities of companies in the Novosibirsk Region, as well as trace the formation of foreign economic cooperation direction and export specialization, summarize the results of interviewing foreign trade participants and determine the directions of potential development of the economy of the Novosibirsk Region for the medium and long term.

## **2. THE DIRECTIONS AND PRODUCT CATEGORIES OF EXPORT ACTIVITIES IN THE NOVOSIBIRSK REGION.**

The main directions of foreign economic activity are to build economic potential and competitive advantages in world markets. These directions are formed at three independent, but interconnected levels: [7, p. 108] the competitive advantages of the Russian economy (macro level), individual regions and industries (meso-level); enterprises and categories of goods and services (micro level). In this article, we will make economic analysis at the meso-level. Prospects for the region development, its economic modernization are determined not only by the efficiency level of intra-regional resources using, but also by the regional structures interaction with the international environment at all levels. [8, p. 209] It is worth noting that economic openness and intensification of the region's participation in foreign economic relations can serve both as a source of competitive advantages and as a risk factor in the context of economic or financial, as well as political crises [17, p. 131-139]. Among the factors positively influencing the formation of the region's export potential, foreign researchers highlight the inflows of foreign direct investment [2], the companies' ability to innovate effectively in economic processes effectively [5]; among the factors that negatively affect the participation of regions in world trade are credit restrictions [11]. Nowadays the export potential of campaigns in the Novosibirsk Region is actively developing: foreign firms and holdings are becoming permanent partners of Novosibirsk exporters, the foreign trade infrastructure activities is being improved, a financial inter-regional market has been created, exhibition and fair activities are expanding and improving [15]. However, such cooperation is associated with many difficulties regarding the traditions of trade and the operation of other informal institutions, but also with the conditions of commodity sanctions restrictions. In such conditions, tariff regulation gives way to administrative measures. [1, p. 6] This system, on the one hand, allows controlling the quality of imported goods and preventing the ones that can hurt the national economy. On the other hand, Russian enterprises are interested in finding new opportunities to expand the market for their products, not only in the Russian market but also in the international one.

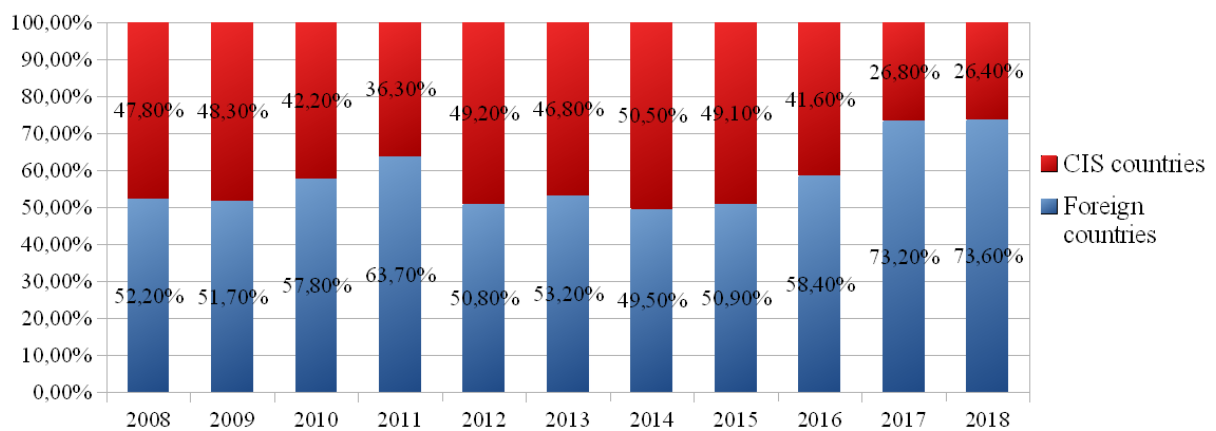
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Figure 1: Export of goods from the Novosibirsk region since 2008 to 2018 [13, 14]



Exports of Novosibirsk region for the analyzed period since 2008 till 2018 years increased for 1024.9 million US \$ ( 65.5 %) from 1563.8 to 2588.7 million US \$, respectively. However, the growth rate is extremely heterogeneous and multidirectional: overcoming the crisis period and the recovery growth of 2008-2010, from 2011 to 2012, the region's exports increased by 35.7%, then decreased by 6.6% in 2013 and again showed growth in 2014 by 8.7%, then over two periods, exports showed a slight decrease of 4.6%, in 2017 you can see an increase of 16.7 %, which expanded in 2018 up to 22.8 % . High variation in export performance of the Novosibirsk region is largely due to the low base of growth, as well as considerably influenced by the post-crisis recovery and foreign policy instability factors in the international relations.

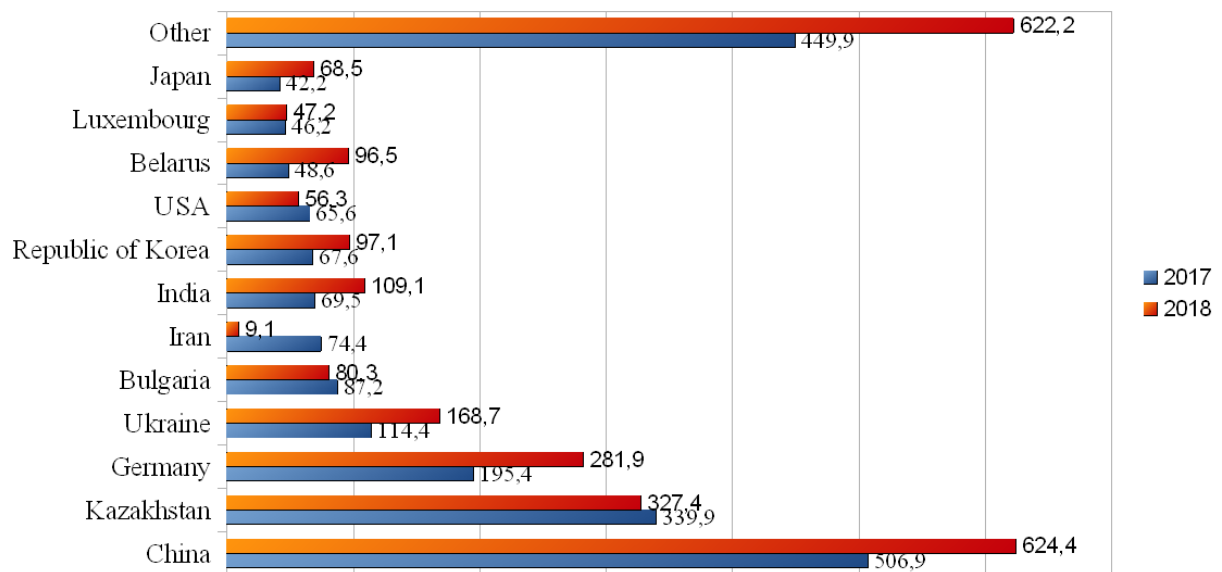
Figure 2: The export directions from the Novosibirsk region since 2008 till 2018 [12]



Let us analyze 2 basic directions of Novosibirsk goods exporting - the CIS countries and far abroad. In absolute value, the export of goods from the Novosibirsk region to the CIS countries for the researched period since 2008 till 2018 decreased from 747.5 million US \$ to 683.4 million US \$, at the same time decreasing in relative value from 47.8 % to 26.4 % of the total number. Export of goods to foreign countries in the analyzed period increased from 816.3 million US \$ to 1905.3 million US \$, and in relative value from 52.2 % to 73.6 % in the total number. It is important to note, that this situation is due to the outpacing growth in export of goods from the Novosibirsk region to foreign countries on export markets of the CIS space. The export markets of non-CIS countries are more diversified, and despite the relative proximity of the CIS countries, they are less attractive to Novosibirsk producers due to the low level of socio-economic development and consumer demand. In addition, the decrease in absolute and relative value of the role of the CIS countries in the export of the Novosibirsk Region reflects the consequences of import substitution programs carried out by the

governments of countries with economies in transition. A key area of export of goods from the Novosibirsk region is non-CIS countries. We can distinguish two dominant periods since 2011 till 2014 and since 2014 till 2018 years. The first period is characterized by a trend towards a relative reduction in export deliveries to non-CIS countries from 63.7% in 2011 to 49.5% in 2014 and the growth of export markets in the CIS from 36.3 % at the beginning of the period to 50.5% at the end period. In 2014 it was the first time the export direction of the CIS countries and non-CIS countries reached parity and the first one came for the first place. The second period is characterized by a stable trend in the increasing importance of the foreign countries markets in the export structure of the Novosibirsk region from 49.5% in 2014 to 73.6 % in 2018 year, and at the same time a relative decreasing in the interests of economic agents in the CIS with 50.5% at the beginning of the period to 26.4 % at the end of the period. These facts can be explained by the expansion of relations of the geographical center of Russia with the countries of the Asia-Pacific region, and primarily with China.

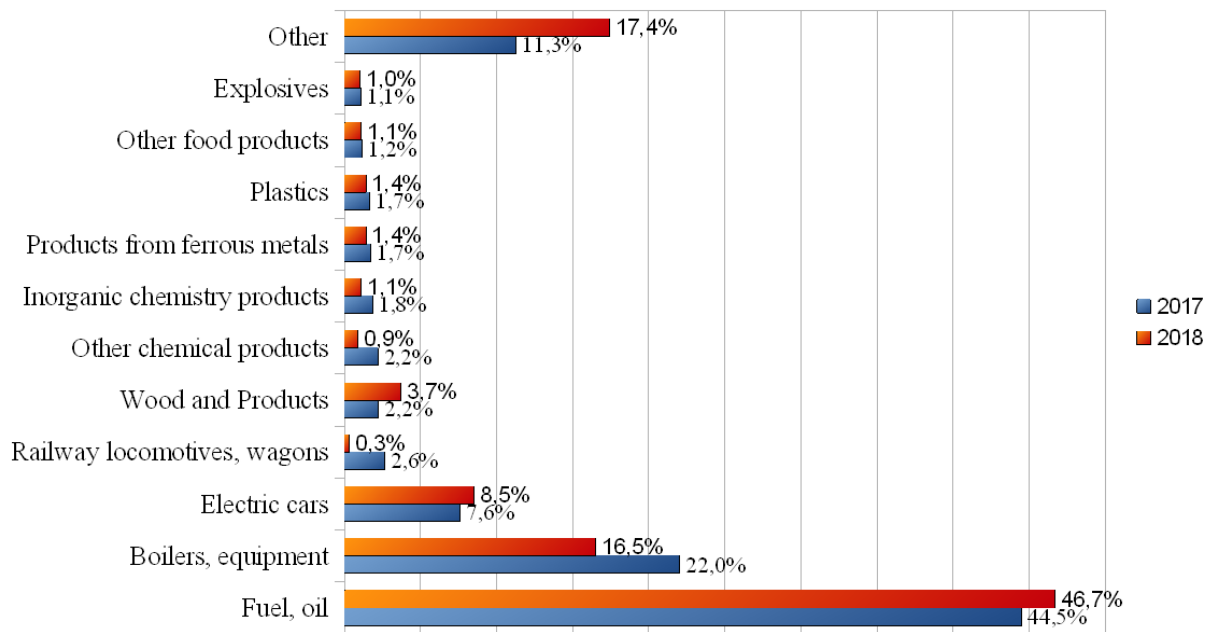
Figure 3: Export of goods from the Novosibirsk region by partner countries in 2017-2018 [4]



The largest areas of Novosibirsk exports in 2018 are countries such as China, Kazakhstan, and Germany, accounting for 24.1%, 12.6 %, and 10.9% of the total amount of goods exported from the region, respectively. Then in descending order other countries: Ukraine ( 6.5 %), Bulgaria ( 3.1 %), India ( 4.2% ), Korea ( 3.7 %), USA ( 2.2 %), Belarus ( 3.7 %), Luxembourg ( 1.8 %), Japan ( 2.6 %). Thus , 11 of the largest export destinations account for 75.4 % of total exports, and the remaining 103 countries account for 24.6 %.

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Figure 4: Major product categories in exporting goods from the Novosibirsk region 2017-2018 [3]



The main export commodity categories in the Novosibirsk Region are mineral fuel, oil and distillation products, as well as boilers, equipment, mechanical devices and their parts, which make up about 47 % and 17 % of the total volume of exported goods, respectively. In third place in importance with a share of 9 % positioning the electrical machinery and equipment. About 4 % of the total exports are wood and wood products. Inorganic chemistry products, ferrous metal and plastic products, as well as various food products and explosives account for just over 1%. In total, 11 major groups of exported goods account for 83 % of total exports, including 3 main groups: 73 %, and the remaining 81 product groups account for 17 % of total exports. Thus, the export potential of the Novosibirsk region is determined by the products of processing industries; export structure is rather poorly diversified.

### 3. MODERN PROBLEMS ANALYSIS OF PARTICIPANTS OF FOREIGN TRADE ACTIVITIES IN THE NOVOSIBIRSK REGION.

We have chosen the method of interviewing as a tool for analyzing the current problems of foreign trade participants in the Novosibirsk Region. The questionnaire for organizations, agents of foreign trade activity consists of 17 questions, divided into the following blocks:

1. current business problems,
2. business expansion issues,
3. problems of interaction with state institutions,
4. competitiveness issues.

Information on foreign trade participants was collected from specialized resources such as the Novosibirsk City Chamber of Commerce and Industry [12], Export support center of the Novosibirsk region[4], Coordination center for export-oriented support of small and medium-sized enterprises in the Novosibirsk region [3], the portal of foreign economic information of Economic Development Ministry of Russia [6]. The final sample included 88 organizations. The industry affiliation of these companies has a pronounced regional specificity, the dominance of production and trading enterprises. An important problem of collecting and processing information on foreign trade participants in the Novosibirsk Region is the lack of a

single register or directory in which foreign trade agents would be entered [16, p. 90], which greatly complicates the task of finding information for research. The following problems, we can notice as the most significant one while interviewing the agents: extreme reluctance of market participants to answer questions about development problems; low confidence in researchers; low interest in the interview due to the lack of independent expertise that would contribute to the harmonious balance between the private sector requirements and the realization of state interests. It should be noted that all the companies surveyed had more than 5 years of experience in foreign trade markets. This fact is important for the study and means that the companies surveyed are competent in issues of foreign economic activity, market analysis, competitive advantages and have significant experience in interacting with relevant government departments and agencies. When answering a question about the problems that firms face carrying out foreign economic activity, respondents usually focused on industry problems and specific issues that come from the areas of trade. Summarizing the answers of the respondents, they can be divided into three groups: problems of transportation and paperwork, problems of inconsistency of formal norms and commercial practice, problems of the domestic economic situation in Russia. 57% of the companies surveyed rated transportation problems as the most significant. This group includes problems of high transportation costs, inconsistencies in packaging and labeling standards of products in different countries, incorrect indication of destination stations by suppliers and customers, as well as errors in transport documents. 29% of the companies surveyed indicated problems with formal norms and their inconsistency with commercial practice. This contradiction proceeds from the nature of institutions and their high degree of inertia, i.e. the commercial relations intensity and the frequency of foreign trade relations require tax, customs and other government departments to adapt to modern conditions and the current realities of economic activity, which is difficult due to the fact that such institutions are always retrospective and their change is a long bureaucratic process. This discrepancy between formal institutions and commercial practice requires companies to fulfill formal requirements and the additional costs of compliance. 29% of respondent companies also drew attention to the problems of the economic situation in Russia. The last group includes the problems of the external economic situation (devaluation of the national currency) and the lack of financial resources (working capital and investment). About 85% of the companies surveyed indicated China as the actual market for their products, 43% - countries of the European Union, and 14% - Ukraine, the United States of America and Japan. The results obtained in many respects confirm the Eurasian orientation of economic agents in the Novosibirsk region, proceeding from the geographical location and passing transport routes (road, rail, air). About 30% of the companies surveyed could not formulate an answer to the developing topic of market positioning about potential markets for products / services. Among the companies that answered the question, the most popular potential sales market is China - 60%, followed by the combined market of the CIS countries - 40%, and about 20% of the companies named the markets of Russia, European Union countries, the United States of America and Switzerland. The main problems of developing new markets can be divided into institutional (problems of compliance with foreign consumer preferences and high marketing costs, lack of market information, including specific cultural and mental features, lack of experience of cooperation) and geographical (climatic differences affecting the consumption structure of the local population, and transport costs as proxies of the formed costs of selling products on foreign markets). The problem of lack of financial resources for the development of new markets can be considered secondary and exciting a critically low share of companies. About 14% of the interviewed could not formulate an answer to this question. The responses of the interviewed firms about the problems of export expansion were as follows: 43% indicated high transport costs, 29% indicated a lack of information on foreign markets, customs control, a lack of qualified specialists for organizing exports, 14% indicated high taxes, customs control, high



level of competition and lack of financial resources for organizing participation in exhibitions, advertising of goods, etc. The opinion of the participants regarding the interaction of customs authorities with representatives of the private sector in the formation of various decisions in the field of customs legislation was divided approximately equally. About 50% of the firms interviewed believe that the efforts made by the customs authorities are not enough, about the same as that the state authorities are doing enough. At the same time, when answering the question about the effectiveness of the customs authorities, about 70% of the responding firms highly appreciated the activities of the customs authorities, the remaining 30% were not satisfied with the work of the customs authorities, and pay attention to equipment and technology lagging behind modern technological progress, but they also demonstrate the demonstrated desire customs organizations to improve. Summarizing the recommendations received, it can be said that the prevailing bureaucracy, a large number of requested duplicate documents, a customs value control system, and low qualification of department employees are not satisfied with firms in the Novosibirsk Region. When answering a question that develops the topic of interaction between participants in foreign economic activity with government departments and institutions, about 50% of respondents noted that there is a problem of information support for foreign economic activity, but questions rarely arise, while the other half of the responding companies noted that this problem does not arise and information is easy to find. The directions of the most intensive contacts with government departments and institutions of all 100% of the companies surveyed were first noted by customs authorities, then in descending order: tax authorities - 50%, research institutions of various kinds (about 30%) and banks with state participation in equity (about 30%). The results obtained require special attention of the customs and tax authorities to their order of interaction with foreign trade participants. Future reform of the functioning of these bodies should go from the structures of the "power departments" in favor of the "service institutions". On the intensity of participation of firms in public events, exhibitions, fairs, etc. 2/3 of the companies answered that they participate in these events more often than once a year, another 1/3, as a rule, participates once a year. Public events are an important tool for positioning firms in the external environment, searching for contractors and partners. And this communication channel between firms and the market environment is actively used by Novosibirsk companies. As a rule, companies highly appreciate the competitiveness of their goods or services in the Russian market, this answer is 90% in the aggregate, and other 10% of the interviewed companies assess the competitiveness in the Russian market as average, as they have certain problems with sales and pricing. At the same time, in response to the question about the competitiveness of goods / services in foreign markets, only 1/3 of the companies surveyed stated that their goods or services rendered in foreign markets were highly competitive; another 1/3 rated average competitiveness due to the specific operating conditions in foreign markets and their specific features.

#### **4. CONCLUSION**

Foreign trade actors in the Novosibirsk Region are in conditions of high market uncertainty. Primary concern is the issues of economic growth and overcoming the factors restraining economic development. Based on the interviews, we can conclude that there is an urgent need for specialized consultative bodies that would include participants in foreign economic activity, industry associations, representatives of customs and tax departments and the Ministry of Economic Development of the Novosibirsk Region. Communication between these actors on a permanent basis, we believe, is able to harmonize development goals, reduce uncertainty in the market environment and minimize the negative effects of the regulatory impact, which is likely to affect the overall level of risk and will expand the planning horizon. The region's administration should take a more active stance on the regional companies entering the international market and in the optimal export strategy formation [10, p. 330].

In general, we can note the satisfactory work of state institutions in interacting with agents of foreign economic activity, low coordination of state institutions current activities with professional participants in the market environment in the direction of lawmaking, but high transparency, information activity and high information security of economic agents. The dependence of the export of Novosibirsk goods to non-CIS countries and China is increasing every year. On the one hand, the market space of this group of countries is attractive due to the growth of living standards, high rates of economic development, and the macroeconomic factors affect of in the of Russian goods competitiveness growth due to the devaluation of the ruble, as well as the decreasing number of barriers to goods traffic in the medium term. On the other hand, the increase in the frequency of interaction of Novosibirsk companies with foreign countries requires the growth of the institutional interaction mechanisms, in which market agents would be able to agree on rules and instruments regulation that will require regional authorities to form long-term relationships Novosibirsk companies long-term relationships with foreign markets, creating a stable system of international relations, trade missions, business missions, advisory bodies, etc.

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