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Abdylmenaf Bexheti · Hyrije Abazi-Alili ·
Léo-Paul Dana · Veland Ramadani ·
Andrea Caputo *Editors*

Economic Recovery, Consolidation, and Sustainable Growth

Proceedings of the 6th International
Scientific Conference on Business and
Economics (ISCBE), North Macedonia,
May 2023

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About the Editors

Abdylmenaf Bexheti is an academician and a full professor of Public Finance and Macroeconomics at the Faculty of Business and Economics, South East European University, Republic of North Macedonia. He has published six books as a sole author and several books as the co-author, more than 65 research papers, 55 projects, and more than 250 analysis and columns in different newspapers. During the period 1996–1998, he has been, firstly a minister for Development and then a minister for Transport and Communication in the Government of Republic of Macedonia. He is also a full member of Macedonian Academy of Science since 2012 and a correspondent member of Academy of Arts and Science of Republic of Kosovo from 2021. His recent books are *Public Finance* (2nd edition), *Economic Development* (special chapter), and *Economic Thinking*. From 2018, he is the rector of the South East European University, Republic of North Macedonia. From 2023, he is a president of Interuniversity Conference in republic of North Macedonia.

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Léo-Paul Dana is a graduate of McGill University and HEC-Montreal. He began lecturing at Concordia University in 1984, taught at McGill from 1992 to 1997 and subsequently at INSEAD. Formerly tenured at the University of Canterbury, he became a full professor of entrepreneurship at Montpellier Business School. He is

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Veland Ramadani is a professor of Entrepreneurship and Family Business at Faculty of Business and Economics, South East European University, North Macedonia. His research interests include entrepreneurship, small business management, and family businesses. He authored or co-authored around 200 research articles and chapters, 12 textbooks, and 25 edited books. He has published in *Journal of Business Research*, *International Entrepreneurship and Management Journal*, *International Journal of Entrepreneurial Behavior and Research*, and *Technological Forecasting and Social Change*, among others. He has recently published the co-authored book *Entrepreneurial Family Business* (Springer). He is the co-editor-in-chief of *Journal of Enterprising Communities* (JEC). He has received the Award for Excellence 2016—Outstanding Paper by Emerald Group Publishing. In addition, he was invited as a keynote speaker in several international conferences and as a guest lecturer by President University, Indonesia, and Telkom University, Indonesia. During the 2017–2021, he served as a member of Supervisory Board of Development Bank of North Macedonia, where for 10 months acted as the chief operating officer (COO), as well. In 2022, three times in a row, based on the Stanford University's study, he was ranked among the top 2% of the most influential scientists in the world.

Andrea Caputo is an associate professor in Management at the University of Trento, Italy, and at the University of Lincoln, UK, where in 2018 he co-founded with other academics the UNESCO Chair in Responsible Foresight for Sustainable Development. He received his Ph.D. from the University of Rome Tor Vergata, Italy. His main research interests include entrepreneurial decision-making, negotiation, digitalization and sustainability, internationalization, and strategic management of SMEs. He is the editor of the book series “Entrepreneurial Behaviour” (Emerald) and an associate editor of the *Journal of Management and Organization*, *Management Decision* and *BRQ Business Research Quarterly*. His award-winning research was published in over 100 contributions, including articles in highly ranked journals, e.g., *HRM Journal*, *Journal of Business Research*, *Journal of Small Business Management*, *Small Business Economics*, *International Small Business Journal*, *International Journal of Conflict Management*, *Studies in Higher Education*, *Business Strategy and the Environment*, and *IEEE TEM*, among others. In 2021 and 2022, he was ranked among world's top 2% scientists list of outstanding researchers prepared by Elsevier BV, Stanford University, USA.

Preface

This volume contains the papers presented at the 6th International Scientific Conference on Business and Economics ISCBE 2023, held on May 12, 2023, in Tetovo. The theme of the conference was “Economic Recovery, Consolidation and Sustainable Growth: Crisis-2-Crisis Evidence, Debate and Prospects”. This theme has been chosen after careful deliberation, to reflect the fact that there have been fundamental changes to both the character and the dynamics of the non-EU transition economic development countries from the pandemic through the Ukraine war and energy crisis until inflation.

The ISCBE conference has grown and continues to evolve. Building on the success of the past five conferences, this year’s conference attracted a large number of papers. There were 103 papers presented at the conference. Each paper was reviewed by at least two and on average one scientific committee member. There were 182 authors from 25 countries presenting in presence and online.

The call for papers was announced in February 2023. During the period of application, there was continuous communication with the authors.

The program of the conference consisted of three keynote speakers, internationally renowned professors:

- Dr. Léo-Paul Dana, from ICD Business School of Paris, France;
- Dr. Leon Eisen, venture partner at GSD Venture Studios, Tel Aviv, Israel;
- Dr. Andrea Caputo from the University of Trento, Italy.

The conference was opened by the rector of the South East European University, Acad. Prof. Dr. Abdylmenaf Bexheti, the dean of the Faculty of Business and Economics Prof. Dr. Hyrije Abazi-Alili as the chairperson, and Prof. Dr. Veland Ramadani as the conference secretary deliberated their speeches.

Many thanks go to the rector, Acad. Prof. Dr. Abdylmenaf Bexheti for the excellent hospitality, unconditional support, and valuable insight for this conference. We also thank international experts for accepting the invitation to share their knowledge and experience with the audience. We particularly thank the organizing committee, for their commitment and for the encouragement provided for this conference. Finally, we would like to express appreciation for the invaluable support provided by the

dean's office for the preparations of the conference. We are grateful to the Public Relations Office of SEEU for their contribution and to all SEEU staff members for enabling the host of this event at our splendid facilities.

To Springer's editors, Prashanth Mahagaonkar and Naveen Kumar Madhan Mohan and their splendid team, we are grateful for their thoughtful suggestions, support, and encouragement that were offered and well received.

We are also indebted to all the speakers, panelists, and other participants, who have spent a great deal of time preparing for this conference, and we eagerly await their contributions to the 7th ISCBE, which will be held next year. Looking forward to working with all of you again.

Tetovo, North Macedonia

Hyrije Abazi-Alili
Chairperson

Keynote Speakers Insights

Steering Beyond Current Crisis: Evolving Paradigms

In former times, small businesses tended to be local or regional in scope (Dana et al., 2000); these firms were usually owned by entrepreneurs and when studied, the unit of analysis was the individual (Dana, 2017)—usually a man. International business was the domain of larger corporate entities (Wright & Dana, 2003) and when studied, the unit of analysis was the firm (Dana, 2017); international business and small enterprises were almost mutually exclusive. Firms often became bigger by means of capital-intensive acquisitions; growth was thus costly but often facilitated internationalization (Wright & Dana, 2003).

Technological advancements of the late twentieth century, coupled with the relaxation of government regulations, permitted an individual or a small firm to do business globally, ushering in the era of global start-ups (Dana et al., 1999); it was no longer necessary to be large in order to be global. When size was a prerequisite to global operations, it made sense to spend much on acquisitions, but the context today has changed. Certainly, mergers and acquisitions are still important, but one can grow sales today without large capital investments. One strategy is symbiosis (Etemad et al., 2001), whereby a firm networks with others, in order to benefit from a multi-polar distribution of power and control (Dana et al., 2008), as do airlines cooperating with competitors for mutual gain (Czakon & Dana, 2013). Membership in a horizontal or vertical or trans-industry network can provide several advantages (Wright and Dana, 2003); for example, it allows a small firm to internationalize in a cooperative fashion, without the need for large expenditures (Dana, 2017). Several examples are explained by Dana (2006) and Granata et al. (2018) focus on cooperation in the wine sector.

The success of alliances in various sectors suggests that when crisis hits and cash is scarce and/or costly, a means to success is to cooperate with competitors. Cooperation, networks, and alliances allow for growth and even internationalization, avoiding huge capital expenses. Such a strategy may be critical to exit the post-COVID-19 crisis.

To be relevant as we move away from the post-COVID-19 crisis, research might increasingly focus on ecosystems (Theodoraki et al., 2022) and competition between ecosystems rather than between firms, whereas the concept of financial capital kept the focus on WHAT we OWN, Becker (1963) introduced the concept of human capital—competence from investment in formal education and on-the-job training—and for this he earned the Nobel Prize in economics. This opened the door to emphasizing WHAT we KNOW. With Bourdieu (1986), sociology shifted focus to WHO we know (social capital) and networks. It is perhaps time to learn more about HOW we thrive from who we know.

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Quantum Business Thinking: Navigating Uncertainties Through Backward Mapping

The term “quantum” is often immediately associated with complex mathematical equations and quantum mechanics. However, quantum thinking extends beyond physics and represents a mindset that embraces uncertainty, interconnectedness, and innovation. Quantum business thinking (QBT) is an approach that draws inspiration from the principles of quantum mechanics, challenging traditional linear and deterministic thinking. It provides a critical framework for utilizing modern methodologies, such as backward mapping, to navigate today’s fast-paced and unpredictable business landscape.

Quantum business thinking offers a shift in perspective that recognizes the inherent uncertainty and interconnectedness of the universe. It suggests that reality is not fixed and objective but rather subjective and dependent on the observer, known as the conscious agent. Through interactions with other agents, the conscious agent plays a central role in managing our world and shaping our business endeavors. By adopting a quantum mindset, business professionals can gain a deeper understanding of the dynamic nature of reality and harness its potential.

One of the powerful tools of QBT is the methodology of backward mapping, which provides a practical approach to innovation and adaptation. Traditional, agile-based problem-solving methods may fall short in today’s ever-changing business environment. Backward mapping involves the detailed designing of a future goal and working backward to the present, identifying the necessary steps and resources to achieve that goal. This process creates a roadmap that helps navigate complexity, anticipate challenges, and uncover new opportunities for growth.

At the heart of the backward mapping methodology lies the transformative CODER technique, serving as the bedrock for successful business design within the QBT framework. CODER, an acronym representing conscious agent, opportunity, deals, effect, and relationships, unifies these essential pillars within a powerful instrument that enables businesses to bridge the gap between their envisioned future and their present reality. Firstly, the CODER helps to align entrepreneurial minds with the desired future reality, enabling businesses to make well-informed and strategic decisions that foster a collective vision and purpose. Secondly, the conscious application of CODER equips leaders with the ability to navigate business decisions, deeply

understanding the interconnections among various variables such as the target market, problem statement, and core values. This comprehensive understanding facilitates effective decision-making and enables businesses to adapt swiftly to changing market dynamics. Thirdly, CODER is vital in mitigating business risks by proactively anticipating potential challenges and utilizing appropriate resources. Thus, organizations gain the foresight to navigate potential obstacles and seize emerging opportunities. Finally, by unlocking the potential of quantum thinking and leveraging the CODER methodology, businesses can optimize their operational performance and elevate productivity levels to achieve a dominant position in their industries.

Quantum business thinking empowers individuals and organizations to move beyond simply seeking to gain the world and instead embrace the power to create it, harness the untapped potential of the future world, and pave the way for extraordinary growth. It is a paradigm shift that propels businesses into a future of boundless opportunities and unprecedented success.

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What Impact for Entrepreneurship?

A Conversation on the State of the Art and Open Questions for Sustainability

In the rapidly evolving world we inhabit, the pursuit of economic growth and prosperity is increasingly intertwined with the urgent need to address sustainability. In my address as a keynote speaker to the 6th International Scientific Conference on Business and Economics (ISCBE) held at the South Eastern European University in Tetovo (North Macedonia), I underscored the importance of sustainability in the economy, a principle that has been recognized by the international community and is now an expectation for businesses worldwide and a key thematic interest for management scholars (Pizzi et al., 2020). The term “sustainability” is often understood as the ability to maintain something at a certain level. However, the United Nations offers a more nuanced definition, describing it as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987). This definition underscores the importance of preserving resources for future generations, a concept that is central to our discussions on sustainability.

In our journey toward sustainability, it is crucial to acknowledge the role of various stakeholders in the economy. Firms, organizations, and national governments all have a key role to play in promoting sustainability and driving the sustainable transition. Businesses, in particular, must commit to sustainability-related activities to help target the international community’s increasing attention toward rethinking the global economy (Allen & Craig, 2016).

To achieve sustainability, businesses must adopt a comprehensive approach that takes into account environmental, social, and economic factors. This involves reducing their carbon footprint, promoting energy efficiency, using sustainable resources, investing in renewable energy, and engaging in responsible waste management. Moreover, businesses must also prioritize social sustainability by promoting ethical labor practices, supporting diversity and inclusion, and ensuring fair wages and safe working conditions for their employees (Jamali, 2008; Ramadani et al., 2023).

The commitment of businesses to engage in sustainability-related activities has become imperative in today’s world. We must strive to create a sustainable future for ourselves and for generations to come. A question arises: What is the role of entrepreneurship in all of this?

The impact of entrepreneurship has been a central focus of scholarly attention since its emergence as a research field (Vedula et al., 2022). However, little is known about the impact of entrepreneurship on society and the environment. While the global transition to a more sustainable economy in recent decades has fostered the emergence and consolidation of new subfields in the entrepreneurship literature, such as sustainable entrepreneurship, social entrepreneurship, and environmental entrepreneurship, the societal and environmental impact of entrepreneurship is still treated as peripheral (Vedula et al., 2022).

To investigate the impact of entrepreneurship, a group of international colleagues and myself conducted a bibliometric analysis combined with a systematic literature review (Scartozzi et al., 2022). Our analysis revealed four key thematic areas: social entrepreneurship for societal impact, entrepreneurship for sustainable development, female entrepreneurship for institutional change, and entrepreneurship for inclusive regional development.

The first thematic area, social entrepreneurship for societal impact, examines the role of social entrepreneurship in driving societal change and its impact on individuals, communities, and society. The second thematic area, entrepreneurship for sustainable development, focuses on the impact of entrepreneurship on the development of solutions to societal grand challenges. The third thematic area, female entrepreneurship for institutional change, focuses on female entrepreneurship as a means to achieve satisfaction, well-being, empowerment, and emancipation. The fourth thematic area, entrepreneurship for inclusive regional development, focuses on the role of entrepreneurship in regional and local development.

Based on our observations, there is significant room for studies examining the impact of entrepreneurship. I believe more studies are needed to explore the negative impact of entrepreneurship on individuals and society, as well as on the creation of meaningful frames of evaluation and measurement of impact. We also need to emphasize that the impact of entrepreneurship on the environment should be examined both in developed and developing economies.

To better understand the impact of entrepreneurship on social, economic, and environmental domains, future research needs to focus on two key areas: first, expanding the investigation of the environmental impact of entrepreneurship beyond CO₂ emissions and considering other environmental indicators such as natural areas and ecosystems; second, achieving the harmonization of terms used to capture social and environmental impact and creating a common understanding of the terms used to describe these impacts. This will facilitate the comparison of results across studies and contribute to the development of a more comprehensive understanding of the impact of entrepreneurship.

In conclusion, sustainability is a critical aspect of today's economy, and businesses are crucial in promoting it. They must adopt a comprehensive approach considering environmental, social, and economic factors. At the same time, stakeholders, including firms, organizations, and national governments, have a significant role in promoting sustainability and driving the sustainable transition. The impact of entrepreneurship on society and the environment is a growing area of

research. Future studies should focus on expanding the investigation of the environmental impact of entrepreneurship and achieving a harmonization of terms used to capture social and environmental impact. These insights may provide a foundation for further exploration and understanding of the complex interplay between sustainability, entrepreneurship, and their impacts on our society and environment.

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Sustainability

Perceived Deviant Behaviour of Employees During New Normal: A Challenge for Private Educational Institutes



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Abstract COVID-19 altered the commercial aspects of numerous industries. Educational institutions are among the most severely impacted industries. This abrupt change in the work environment caused aberrant behaviour among education sector employees. The nature of deviant behaviour is not always destructive. It also has some favourable attributes. According to this study, the work-from-home approach induces deviant behaviour in employees at private educational institutions. Using theoretical background information, a conceptual model is created and validated using SEM. Additionally, the model investigated the moderating and mediating impacts of increased supervision and employee involvement on deviant behaviour. Online work altered educational institutions. Organizational change and workplace misconduct are interconnected. Employee involvement mediates organizational change and constructive and destructive deviances, while enhanced supervision moderates. Uniqueness resides in the evaluation of deviant employee conduct in the new normal working environment of private educational institutions.

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Keywords Deviant behaviour · Employee engagement · New normal · Work from home · COVID-19

1 Introduction

Academics and practitioners examine workplace deviance because it costs organizations and employees money (Carpenter & Berry, 2017). The research on deviant behaviour identifies workplace misconduct, counterproductive behaviour, antisocial behaviour, and toxic personalities (Malik & Lenka, 2019a). Bennett and Robinson (2003) defined workplace deviance as purposeful conduct that contradicts organizational principles and is detrimental to the organization, its employees, or both. Stealing, boss aggression, and subordinate coercion all cause financial and psychological harm to businesses (Robbison & Greenberg, 1998). Anger, injustice, and intimidation have contributed to employee deviation (Bennett & Robinson, 2003), but the best predictor of employee deviance was behavioural maltreatment (Robinson & Greenberg, 1998). Bies (1999) discovered that employees attribute emotional violence to their superiors. Several variables can promote behavioural deviation. Internal versus external Literature has emphasized workers' deviant actions and their causes (Robbison & Greenberg, 1998), with an emphasis on workers' attitudes and the organizational environment (Peterson, 2002; Robbison & Greenberg, 1998). During the COVID-19 pandemic, organizational changes influenced company operations. Academic institutions experienced a similar impact as other organizations. Over three-quarters of a million individuals have died as a result of the COVID-19 outbreak, which has also caused a global educational disaster affecting millions of children and adolescents (Chapman & Bell, 2020). It damaged the health and well-being of young students and posed a challenge to educational institutions as the system altered rapidly. Employee participation in organizational change is crucial to corporate transformation management (Gilley et al., 2009). Due to the ambiguity and unpredictability of organizational transitions, anxious and cynical individuals cannot participate in them (Brown & Cregan, 2008). At this phase, supportive behaviour is always appreciated, but most employees dislike change, especially sudden change (Islam et al., 2020a).

Educational institutes cannot run without frontline professionals like teachers. Due to the new online work mode, training for these workers changed during the COVID-19 pandemic. In India, teaching on a digital platform was not popular, thus employees were unprepared to educate and execute other job-related responsibilities on a digital platform in the new normal (Joshi et al., 2020). This shift to the new normal has resulted in erroneous observations of instructors at times, as observed by the researcher (Hargreaves & Fullan, 2020). On the other side, researchers discovered that there is a lot of distraction, inadequate infrastructure, and a lack of communication, which makes it difficult for the teaching staff to carry out their duties easily and successfully (Wong et al., 2021). This led to bad work implementation, which hurt society because the education sector's work process shares information and ethical

ideals to build a healthy society. In the new normal of society, ineffective job implementation is caused by home distractions, poor communication and management, low work efficiency and quality, bad infrastructure, a lack of learning opportunities, and a lack of task variety (Wong et al., 2021). The institutes are victims of the COVID-19 pandemic and are coping with workplace deviance in the typology of production, political, and personal aggression. The researcher's four typologies of deviant workplace behaviour (Robinson & Bennett, 1995)—property deviance, production deviance, political deviance, and personal aggressiveness—inform these typologies. Educational institutions care about promoting a healthy society in the face of workplace deviance, unlike other industries. The education business struggles with educational institutions' social responsibility. Lack of training and familiarity with the new normal caused employment instability, which stressed teaching personnel, reducing morale, and loyalty to the organization. This whole shift of educational institutions' work processes to the new normal in COVID-19 drew attention to the difficulties it was facing and the effects it was having on educational institutions and society.

2 Literature Review

2.1 *Organizational Change Due to COVID-19 and Constructive and Destructive Deviance*

The most important objective of this article is to judge the organizational deviance from the context of organizational change. This article would like to develop the hypotheses which are going to link the deviant behaviour during organizational change that occurred during COVID-19 period. Any research relies on a micro viewpoint and analyses the social implications of corporate transformation, with an emphasis on whether organizational change is usually about changing recipients (Jacobs et al., 2013). Some of the important dimensions that affect the workforce are change in attitude towards organizations (Vakola & Nikolaou, 2005), change of perception (Weber & Weber, 2001) and strategies that deal with uncertainty related to job. The view deals with questions related to the organization's changing environment as well as the effects of transformation on internal structures and the effects of institutionalization processes (Jacobs et al., 2013). A third line of research explores the macroeconomic changes in organization, the impact of (early) imprinting, organizational transition, on the health and competition of organizations, and eventually on the risk of mortality of organizations (Jacobs et al., 2013). Here, the primary objective of the study is to focus on the impact of the organizational change on employee behaviours. Although the functionalist viewpoint is characterized as a very crude way to explore deviance (Badham et al., 2003), it offers a strong basis for developing various approaches to the exploration of deviance—including interactionism (Bryant & Higgins, 2010). These studies offer a new dimension for further

investigating the conditions in which corporate standards that are changing and what factors are described as “deviants” (Bryant & Higgins, 2010). As this research field is well developed, researchers may now examine the contexts under which, a lack of consensus or misunderstanding can be seen regarding organizational standards and how these actions may be divergent. In addition, functionalist perspectives examine deviant behaviour as a subject of discussion regarding the categorization of workers as deviant, especially when there are shifts in expectations or definitions of norms within an organisational context. In situations such as organizational transition, this is especially relevant, because change “disrupts usual organizational norms and calls for new models” (Ford et al., 2008).

Several colleges and universities around the world switched to online training and cancelled or put off all events on campus (Sahu, 2020). After a long period of school closures, policymakers around the world have turned to e-learning to keep education going without stopping. E-learning lets students’ study anytime (Baytiyeh, 2018). During the COVID-19 pandemic, many countries have turned to e-learning. The government started preparing for a smooth transition from traditional classroom instruction to online learning because China was the first country to experience COVID-19 (Zhang et al., 2020). E-learning has become the preferred method of education in many countries due to social distancing. All Australian universities went online by March 2020. (Kwan, 2020). The International Association of Universities (IAU) found that when colleges and universities switched quickly to online classes, they had a lot of problems with online education, digital infrastructure, skills, and teaching methods. Some schools in “low and middle income” countries report that most students lack internet access due to cost. High-income countries were unprepared for new learning management systems (LMS) due to financial implications. Regarding skill and educational difficulties, many schools have shown the need for distance learning to preserve the consistency of face-to-face learning in a single pedagogical solution, but the abrupt transformation has not allowed them to train teachers for this new approach. Ribeiro (2020) noted that rapid “digital convergence” of educational practices caused “logistic problems” and “attitudinal changes” for major stakeholders. After four months of online experimentation in India, a paradigm shift has occurred in online education, even after the COVID-19 pandemic, resulting in a refrigeration of online education (Mishra et al., 2020). The Indian Government began considering this as ICT and online training became more important in tertiary education. The draught new educational policy for 2019 was prepared during this pandemic as a reactionary and highly technological step (Kumar & Pande, 2021; Mishra et al., 2020). With the growth of online teaching and learning, educational institutions are adopting working from home (WFH) as a new concept (Kumar & Pande, 2021).

The literature on deviant behaviours highlighted these attitudinal changes. In most of the literatures deviant behaviours are classified as organizational deviance and interpersonal deviance. Factors like working slowly, reporting to work lately, intentionally damaging the organization’s property are coming under organizational deviance. While the violation of norms is typically claimed to result in negative organizational repercussions, there is a growing corpus of research that focuses on the

positive or constructive results of deviance (Morisson, 2006). Morrison's latest work (2006) indicates that the breach of standards is not often committed by disappointed workers who do abusive activities that damage the business. Indeed, deviation from the standards may include the breaching of a pro-social rule where personnel breach official organizational regulations or standards to contribute to an organization's well-being. Based on these two broad outcomes, the organizational deviance can be divided into four quadrants, viz. production, property, political and personal aggression (Robinson & Bennett, 1995). Organizational deviance comprised the deviance in production and ownership in the preceding definition, whereas interpersonal deviance included political deviance and personal violence (Malik & Lenka, 2019a). It is evident that organizational deviance can be both positive as well as negative and it is certainly depending on the changes that are taking place in the organization. In the light of recent pandemic situation and sudden changed organizational environment (work-from-home condition), it is expected that both constructive and destructive deviance will increase subsequently. Hence, the proposed hypotheses are:

H1: Organizational Change has a positive relationship with destructive deviance.

H2: Organizational Change has a positive relationship with constructive deviance.

2.2 Organizational Change and Employee Engagement

Employee engagement has been a major focus of research in the field of organizational change management (Faupeil & Süß, 2019; Islam et al., 2020a). Employee engagement in the context of organizational change can be defined as the employee's active and enthusiastic physical, psychological, and emotional participation in the organizational transformation process. Dynamics of employees' conduct are one of the key topics in the management of organizational transformation (Gilley et al., 2009). Employees express uncommunicativeness and cynic because of the complexity, difficulties and fears involved with change processes in the organizational transformation process (Brown & Cregan, 2008). Therefore, it is necessary for the organization to guarantee that employees modify their supporting behaviour during a change environment (Islam et al., 2020a). Work involvement is described as a vital notion reflecting employee participation in work (Nazir & Islam, 2017). Work engagement is characterized as an excitement for the workplace, strength, encouragement, devotion, strong concentration, and positive thinking (Schaufeli & Bakker, 2010). The notion of commitment to work involves vigour, devotion and absorption. Vigour is regarded as working with excitation and a greater degree of energy, whereas devotion is about performance, motivation, and challenge (Islam et al., 2020a). Numerous research studies have underlined the importance of employee engagement during organizational transition (Englert & Helmig, 2018; Islam et al., 2020a). Given the situation, when workers are aware of external developments that drive internal change and realize they and the business eventually benefit, they accept change. On the other hand, when they do not realize or recognize the benefits of the external factors, they will fight change since it disturbs the organizational identity

(Jones et al., 2008). If this change environment can create a positive mind-set among the employees, then it will improve the work environment (Schaufeli & Bakker, 2010). Otherwise, it will create a disengagement among the same group of employees (Kahn, 1990). During organizational transformation, engaged employees do more than just perform their assigned tasks; they actively participate in the organizational change process. Employee engagement is a critical success factor for effective organizational change management (Islam et al., 2021). Various studies have identified a variety of factors that have a positive impact on employee work engagement (Amor et al., 2020; Breevaart & Bakker, 2018; Hawkes et al., 2017; Islam et al., 2020b). Similarly, employee work engagement has been shown to be a predictor of both proactive and supportive behaviour by employees during times of organizational change (Schmitt et al., 2016). (Islam et al., 2020b). Hence, the proposed hypothesis is:

H3: Organizational change directly related to employee engagement.

2.3 Employee Engagement Mediates Organizational Change and Constructive and Destructive Deviance

Schaufeli and Bakker (2010), define employee commitment as “a positive, fulfilling, work-related mind-set that is characterized by force, commitment, and absorption”. Vigor indicates workplace energy, mental resilience, and a willingness to invest and persist. Through involvement, dedication fosters pride, meaning, and passion. Absorption, or being “mentally present” at work, makes time fly and makes it hard to leave. Commitment was distinguished from other attitude factors like inherent motivation, participation, and commitment (Schaufeli & Bakker, 2010). Thus, job design affects performance, organizational citizenship, and deviance through engagement (Khan et al., 2015; Shantz et al., 2013). Social exchange theory explains involvement’s mediating role (Blau, 1964). According to Blau’s (1964) social exchange theory, employees repeat past rewards and avoid past punishments to build relationships. Good behaviour rewards organizations that invest in employee development and well-being. According to social exchange theory, people form relationships through subjective cost–benefit analysis. Its main premise is that employees repeat rewarded behaviours and avoid penalized ones. Based on social norms of reciprocity, employees feel obligated to show constructive deviance and avoid destructive deviance when their business helps them financially or emotionally (Malik & Lenka, 2019b). This idea says that if employers and employees follow the rules, they will be more reliable and loyal. Because “social exchange includes measures that rely on the rewards of others, provide for reciprocal transactions and connections, and are rewarding over time” (Cropanzano & Mitchell, 2005). If returns are good, loyal, engaged employees stay committed. If treatments are unfavourable or the organizational environment is changing, employee engagement may suffer. Thus, work withdrawal may occur. Unsatisfied workers may retaliate with confinement,

late work, longer breaks, and other abusive practices in accordance with reciprocity standards (Kura et al., 2016; Shantz et al., 2013). According to these theoretical models, disengaged workers may harm their employers. If the employer sends positive signals, this new environment may increase employee engagement. This signal should indicate job security and reward employees who work hard during tough times (Cropanzano & Mitchell, 2005). Therefore, employee engagement may mediate organizational change and constructive and destructive deviance.

H4: The relationship between organizational change and destructive deviance is mediated by employee engagement.

H5: The relationship between organizational change and constructive deviance is mediated by employee engagement.

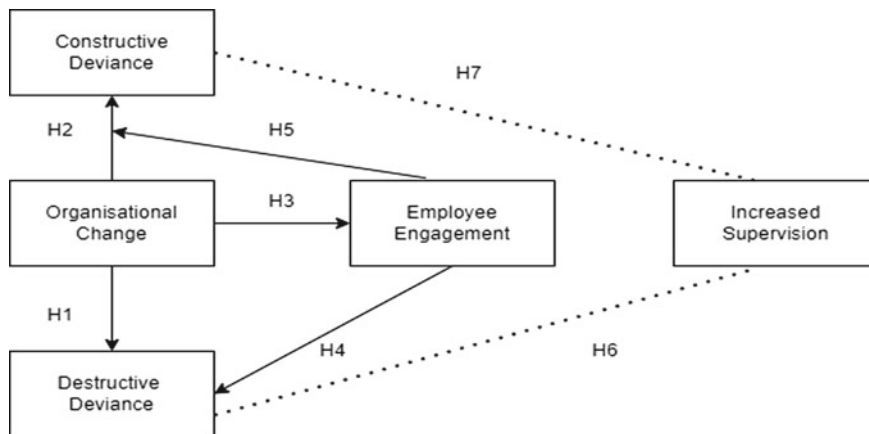
2.4 Increased Supervision has Moderating Effect on Destructive Deviance and Constructive Deviance

When implementing a new workplace, supervisors' role is crucial. Employees of educational institutes faced a challenge due to the pandemic's impact on the workplace. Thus, forced work from home requires more supervision than usual. During their employment, organizational bodies treat employees interpersonally (Lind & Boss, 2002), and the results vary by employee (Lind & Bos, 2002). Fair and respectful interpersonal care makes people happier and more confident. According to the notion of social exchange, people obtain advantages at work (Blau, 1964). However, the idea of social exchanges also shows that those who feel hurt are more inclined to react negatively (Wang et al., 2012). Supervisory mistreatment may lead to this kind of situation. The new environment is expected to create a dilemma in the mind of the employees as not all of them are committed to work. Due to absence of supervision, some of them may engage in destructive deviance behaviour during work-from-home tenure (e.g. reporting late in work without intimating the supervisor). On the other hand, committed employees who want to grow with the organization may perceive this as challenge to remain competitive in a changed environment and work extra hours to complete the assigned task. Thus, the authors proposed that:

H6: Increased supervision has a moderating role on destructive deviance behaviour of the employees.

H7: Increased supervision has a moderating role on constructive deviance behaviour of the employees.

Thus, the proposed conceptual model is as follows:



Source developed by authors

3 Methodology

3.1 Selection of Study Organization and Sample Respondents

The study is restricted to some selected private sector educational institutes (both colleges as well as universities) operating in West Bengal, India. The deviant behaviour of the employees mostly judged from the context of manufacturing organizations and very few research is conducted considering the service sector organizations. Islam et al., (2020a, 2020b) tried to see this behaviour from the perspective of banking sectors operating in Bangladesh. Martin et al. (2009) did work on the educational sector, but their work was restricted to plagiarism practices among teaching fraternities, and they term this as a kind of deviant behaviour. During COVID-19 period, like any other organizations, educational institutes also went for drastic changes and these changes brought some behavioural alteration among the employees as well. One of the primary reasons for taking private sector educational institutes was that they responded to these amendments.

As the main purpose of the study is to understand the deviant behaviour (both constructive as well as destructive), the authors contacted the academic heads of private institutions (such as Vice-Chancellors, Principals, Deans, Head of the Departments, Professors, Associate Professors) from their known reference, for smooth implementation of the questionnaire. As getting information about deviant behaviour is difficult unless there is an adequate reference, the authors decided to use convenience sampling technique to collect the relevant information from the target respondents. The draft questionnaire was sent to them to understand kind of deviant behaviours they witnessed during work-from-home schedule that lasted for almost a

year (March 2020 to February 2021) and continuing. The final list of variables was updated after receiving relevant feedbacks from the academic heads. A final questionnaire was developed and distributed among 550 target respondents, out of which 389 received in proper form. These, 389 questionnaires were finally incorporated in the study.

3.2 Measures

The scales for this study are developed from the previous literatures and other established scales. Organizational change scale is developed with the help of four components, viz. Procedural Change (Daly & Geyer, 1994), having four items, Interactional Change (Bernerth et al., 2007) having four items, Cynicism (Atwater et al., 2000) having six items and Change Commitment (Herscovitch & Meyer, 2002) having five items. Employee engagement scale is also having three components, viz. Vigor (Seppala et al., 2009), Dedication (Seppala et al., 2009) and Absorption (Seppala et al., 2009). Out of these three components, Vigor was developed with the help of six items, dedication was developed with the help of five items and absorption was developed with the help of six items. Like this, constructive and destructive deviance measures are also developed with the help of past established research work. Since every deviance behaviour has two components, viz. organizational deviance and interpersonal deviance, both the measures are taken for both constructive and destructive deviance. In this study, constructive organizational deviance scale is developed with the help of five items (Galperin, 2012) and destructive interpersonal deviance is developed with the help of four items (Galperin, 2012). Similarly, destructive organizational deviance is developed using five items as developed by Bennett and Robinson (2000). Like this, destructive interpersonal deviance scale items are also developed from the work of Bennett and Robinson (2000). Based on the requirement of the present research, only selected items are considered from Bennett and Robinson's (2000) article. Lastly, increased supervision items are developed by the authors with the help of preliminary study and other relevant literatures. The summary of the constructs is listed in Table 1.

4 Analysis

The descriptive statistics of the study are shown in Table 2.

The initial result shows that out of the 389 data, 65% are male employees and 35% are female employees. Among the respondents, 67% are working in private universities and rest of them are working in private colleges operating in and around of West Bengal, India. Out of total 389 respondents, around 70% having Ph.D. or higher degrees while rest of them having P.G. degrees. So, most of the respondents have highest qualification. If we look at age wise distribution of the respondents, we

Table 1 Constructs

Second-order construct	First-order construct	Items
Organizational change due to COVID-19	Procedural change (Daly & Geyer, 1994)	The organization was forced to implement the new system which is not fair
		The organization was fair to me in relocating to new work environment (R)
		The organization did not maintain transparency while moving on to new process
		The relocation process was fair to me (R)
	Interactional change (Bernerth et al., 2007)	Management explained me the reasons for implementing changes
		Supervisors treated employees with respect and dignity during the change
		My superior interacted with me fairly during organizational change
		I am happy with the way the change process was handled
	Cynicism (Atwater et al., 2000)	Because of bad behaviour, it is difficult to hope for the future of this organization
		People should not get credit for the work which they don't do
		Improvement efforts should be recognized (R)
		Changes in the way things are done are not acceptable
		I am very much abandoned to try and make improvements
		Personal initiatives are not very important
	Change commitment (Herscovitch & Meyer, 2002)	I trust this change's worth
		The change is a good organizational approach
		The change is a key objective
		Without the change, things would be better (R)
		This change is not necessary (R)

(continued)

Table 1 (continued)

Second-order construct	First-order construct	Items
Employee engagement	Vigor (Seppala et al., 2009)	I have a lot of energy in my job
		I feel strong and energetic at my job
		For any extended period, I can continue working at once
		I'm happy to work every day
		I am quite mentally resistant at my job
		I always preserve while my employment, even if things are not good
	Dedication (Seppala et al., 2009)	I find the work I undertake meaningfully and purposefully
		My job encourages me
		I'm very keen about my job
		I'm glad about the work I do
		My job is challenging for me
	Absorption (Seppala et al., 2009)	When I work, time flows
		I forget all the other things around me when I work
		I'm glad I do a lot of work
		I'm plunged into my task
		When I work, I get carried away
		It's hard to get rid of my work
Constructive deviance	Organizational deviance (Galperin, 2012)	Tried to comply or violate the regulations to execute the task assigned
		Procedures of the violated organization to solve a problem
		Using organizational processes to tackle the problem of the stakeholder
		Disposed a regulation in order to appease a party
		Dismissed organizational policies or processes to solve the problem
	Interpersonal deviance (Galperin, 2012)	Reported a mistake to bring about beneficial changes to organization

(continued)

Table 1 (continued)

Second-order construct	First-order construct	Items
Destructive deviance		Did not follow the instructions of the superior to improve the job procedure
		Disagreed with others in the group to improve existing working methods
		Disobeyed better instructions for more efficient performance
	Organizational deviance (Bennett & Robinson, 2000)	He/she spent too much time working instead of in the home
		Take a further or longer leave at work than is acceptable
		Joined without authorization in late work
		Work deliberately slower than I could have done
		Treat my job with little effort
	Interpersonal deviance (Bennett & Robinson, 2000)	Made fun of a worker
		Somebody at work said something terrible
		Cursed at someone at work
		Have been disrespectful to someone at work
		Someone at work publicly embarrassed

can see that around 56% of the employees are in less than 40% age group, around 21% employees are in the range 40 to 50 years of age bracket while rest of the employees are in more than 50 years of age bracket. This suggests that a significant proportion of employees in private sector educational institutions are predominantly young individuals who are anticipated to exhibit high levels of diligence and a strong focus on advancing their careers within their respective organisations.

In order to measure aforementioned items, five-point ordinal (Likert) scale from 1 = “strongly disagree” to 5 = “strongly agree” were used in the study. For the assessment of dimensionality of the data, a total of 55 items in the model were subjected to principal axis factoring. Exploratory factor analysis (EFA) was conducted using varimax rotation, to reduce large number of variables into a smaller set of interpretable underlying factors using SPSS version 21. The constructs for forming the scale were identified through the literature review. A total of 11 factors were identified which accounted 76.198% of the total variance (see Table 3).

Table 2 Descriptive statistics

Descriptive variables	Percentage
<i>Gender</i>	
(a) Male	65%
(b) Female	35%
<i>Place of work</i>	
(a) Private universities	67%
(b) Private colleges	33%
<i>Educational qualification</i>	
(a) Ph.D	70%
(b) PG	30%
<i>Age group of the respondents</i>	
(a) <40 years	56%
(b) 40–50 years	21%
(c) >50 years	23%

Source Authors' Calculation

Further, CFA and SEM are respectively applied to examine the psychometric properties of the scales and test the hypotheses of the research model using statistical software AMOS version 21. Various statistical test criteria such as Cronbach alpha, composite reliability, and convergent, and discriminatory validity have been conducted. The study encompassed an extensive analysis of assumptions related to multivariate technologies, as well as an initial investigation of the data. This investigation involved the application of 'multiple imputation' techniques to address missing data, as well as the assessment of normality and outlier studies.

4.1 Confirmatory Factor Analysis (CFA)

CFA is often used to compare indicators of a construct (or factor) with what the researcher knows about the construct. CFA first-order analysis validates each indicator variable against its representative factor using previous literature. Pooling exogenous and endogenous variables in CFA simplifies and improves the measurement model, saving time (Chong et al., 2014).

This study used first- and second-order CFA to test construct validity, reliability, and item indicator strength. Table 3 shows first- and second-order construct validity and reliability.

The causal relationship between research model constructs was examined using a structural model. Standardized path coefficients, t-statistics, and hypotheses testing significance were used to evaluate the structural model. Structural model fit was good (CMIN/DF = 2.169, GFI = 0.898, NFI = 0.909, IFI = 0.949, TLI = 0.941, CFI = 0.949, RMSEA = 0.051, RMR = 0.031). Table 4 shows the hypothesized results.

Table 3 Validity and reliability of first- and second-order constructs

Second-order construct	First-order construct	Indicator code	EFA	First-order CFA			Second-order CFA		
				Loading	AVE	CR	Loading	AVE	CR
Organizational change due to COVID-19	Procedural change	PC1	0.87	0.873	0.783	0.551	0.711	0.759	0.512
		PC2	0.866	0.86					
		PC3	0.856	0.884					
		PC4	0.825	0.81					
	Interactional change	IC1	0.856	0.834	0.917	0.735	0.865		
		IC2	0.854	0.847					
		IC3	0.825	0.822					
		IC4	0.819	0.802					
	Cynicism	CSM1	0.859	0.871	0.896	0.683	0.822		
		CSM2	0.816	0.734					
		CSM3	0.724	0.597					
		CSM4	0.801	0.734					
		CSM5	0.785	0.725					
		CSM6	0.741	0.767					
	Change commitment	CC1	0.808	0.775	0.87	0.627	0.859		
		CC2	0.791	0.791					
		CC3	0.789	0.744					
		CC4	0.788	0.726					
		CC5	0.755	0.706					
Employee engagement	Vigor	VG1	0.832	0.763	0.85	0.586	0.799	0.783	0.551
		VG2	0.819	0.738					
		VG3	0.788	0.75					
		VG4	0.812	0.771					
		VG5	0.794	0.722					
		VG6	0.792	0.746					
	Dedication	DD1	0.846	0.82	0.939	0.84	0.877		
		DD2	0.823	0.798					
		DD3	0.744	0.706					
		DD4	0.736	0.733					
		DD5	0.812	0.771					
	Absorption	AB1	0.923	0.927	0.822	0.537	0.778		
		AB2	0.914	0.879					
		AB3	0.883	0.805					
		AB4	0.872	0.893					
		AB5	0.849	0.948					
		AB6	0.668	0.53					

(continued)

Table 3 (continued)

Second-order construct	First-order construct	Indicator code	EFA	First-order CFA			Second-order CFA		
				Loading	AVE	CR	Loading	AVE	CR
Constructive deviance	Organizational deviance	OD11	0.791	0.767	0.822	0.537	0.788	0.786	0.551
		OD12	0.786	0.725					
		OD13	0.774	0.754					
		OD14	0.721	0.682					
		OD15	0.704	0.597					
	Interpersonal deviance	ID11	0.951	0.992	0.846	0.658	0.801		
		ID12	0.94	0.973					
		ID13	0.833	0.767					
		ID14	0.825	0.822					
Destructive deviance	Organizational deviance	OD21	0.861	0.839	0.791	0.557	0.752	0.795	0.563
		OD22	0.851	0.849					
		OD23	0.823	0.822					
		OD24	0.82	0.807					
		OD25	0.812	0.771					
	Interpersonal deviance	ID21	0.878	0.865	0.846	0.659	0.789		
		ID22	0.877	0.876					
		ID23	0.87	0.891					
		ID24	0.837	0.811					
		ID25	0.831	0.798					

Source Authors' Calculations

Table 4 Result of SEM model

Hypotheses	Path			Standardized estimate	Unstandardized estimate	S.E	C.R	P
H1	OC	→	DD	0.132	0.165	0.035	4.657	***
H2	OC	→	CD	0.171	0.199	0.060	3.297	***
H3	OC	→	EE	0.196	0.213	0.050	4.254	***
	EE	→	DD	0.087	0.070	0.035	1.989	0.047
	EE	→	CD	0.447	0.518	0.050	10.285	***

Source Authors' Calculation

We also used indirect effects to test EE's role as a mediator between "OC and DD" and "OC and CD". Mediation analysis was tested using the three steps of the Baron and Kenny measurement model (1986). First, determine if the independent variable predicts the dependent variable. The mediator's predictive power for the independent variable is the second phase. The third phase determines if the mediator predicts addiction. EE mediates the relationship between "OC and DD" and "OC and

CD”, as shown in Table 5. However, employee engagement has the lowest mediating effect on the relationship between OC and DD.

Multi-group Moderation Analysis—Mode of Supervision

This study examined the moderating and interacting effects of mode of supervision between “OC and DD” and “OC and CD” using multi-group moderation analysis. The survey asked whether participants preferred high or low work supervision. Using SPSS’s “split file” on the demographic variable, the mode of supervision data was split into two groups, “high supervision” and “low supervision”, for comparison. AMOS provides a pairwise parameter matrix to compare all z-score-producing model parameter differences. Moderation is measured by a z-score over 1.96. Using critical ratios, the regression weights for each pair of relationships in the model can be compared between groups (Radomir & Nistor, 2013) (Table 6).

Multi-group moderator analysis looked at the link between “OC and DD” and “OC and CD” for participants with high and low supervision. Z scores show (Table VI) that mode of supervision moderates both relationships with 95% confidence. Increased supervisory supervision strengthened the moderation between “OC and DD” and “OC and CD”. High supervision moderates these relationships more than low supervision. The huge differences may be because increased supervision helps participants overcome new environmental issues, showcase their talents by exhibiting innovative works, and build trust among colleagues and supervisors.

Table 5 Mediation analysis: standardized regression weight

HYP	IV	MV	DV	IV → DV	IV → MV	MV → DV	Indirect effect	Total effect	Result
H4	OC	EE	DD	0.132	0.196	0.087	0.017	0.149	Accepted
H5	OC	EE	CD	0.171	0.196	0.447	0.088	0.259	Accepted

Source Authors’ Calculation

Table 6 Moderation analysis: increased supervision

Hypotheses	Constructs	Mode of supervision				Z-value	Relationship
		Low supervision		High supervision			
		Estimate	P-value	Estimate	P-value		
H6	OC → DD	0.185	0.001	0.477	***	4.585	Supported
H7	OC → CD	0.159	0.005	0.457	***	4.541	Supported

Source Authors’ Calculation

5 Discussion and Conclusion

In many nations around the world, the COVID-19 pandemic has dramatically changed the social and work environment of the organizations. In many instances, these changes and the hazards that they could represent to working conditions occurred quickly and evolved over a period of time (Couch et al., 2021). Work from home (WFH), especially for service organizations, has become the standard. Even academic institutions must temporarily shut down, disrupting academic delivery, in accordance with government guidelines. They therefore had to discover new ways of delivering academia, and virtual classes were the way forward (Arora & Srinivasan, 2020). The prevalence and accompanying organizational cost of the workplace deviation require a special, methodical, and theoretical study programme. To date, the darker side of employee behaviour for the case of academic staff is rather limited in empirical studies. Thus, although such research can analyse and be valuable to understand the same behaviour as the study of employee deviation, it is vital to consider the deviation from the workplace itself as a different and important organizational issue. Several behavioural modifications approaches were identified by a sample of the associated literature and positive enhancement is indicated as a good strategy for dealing with employee problems. Rewards, incentives, feedback, encouragement, and gratitude are included in positive enhancement. The occurrence of an appropriate reaction is increased by positive reinforcement (Badham et al., 2003; Bryant & Higgins, 2010).

Businesses are required to convey diversity issues, employee demands, and perk descriptions. Due to the necessity of diversity, organizations must maximize its benefits while minimizing job variation. The literature on divergent behaviour emphasizes attitude shifts. Most published works describe organizationally distinct and interpersonal behaviours. Work delays, late reports, and property destruction may result in a restructuring of the organization. Interpersonal deviance can also result in violence, bullying, or a refusal to cooperate with co-workers, subordinates, or superiors. According to past research, as firms adapt to a changing environment, life becomes more stressful (Islam et al., 2021; Nazir & Islam, 2017; Schaufeli & Bakker, 2010). At the same time, organizations must maintain the dedication of their employees. Due to the COVID-19 situation, academic institutions have experienced significant changes in working from home, which has affected academic personnel. Due to this “organizational change”, the deviant behaviour of the workforce influences the conditions of working from home. When organizations are attempting a transformation, everyone must make strategic decisions (Whittington et al., 2020). Change initiatives commonly result in new positions and responsibilities for employees (Messinger & Havelly, 2013). As organizations are composed of people and organizational change necessitates personal transformation, management should not disregard its staff during the transitions. This study confirmed, as previous research has shown, that organizational change is directly related to employee engagement.

Research has expanded over the last 20 years on constructive and destructive deviance, including research on the identification of a common constructive factor

in behaviours (Cropanzano et al., 2017; Potočnik & Anderson, 2016). We tried to combine these deviations in this study and explore their connection to personal characteristics. In various counterproductive behaviour research, finding shows that there are crucial interpersonal distinctions to expose deviant behaviours in the workplace. (Barling, 1996; Neuman & Baron, 1998; O'Leary-Kelly et al., 1996). The study is conducted by using five elements (Galperin, 2012) to establish a structuring organizational deviance level and four elements to create destructive interpersonal deviance (Galperin, 2012). According to Buchwald et al. (2015), the primary controls for the engagement of employees in different working conditions the responsible stakeholders will be able to know, after an empirical verification, whether and to what extent psychological empowerment of employees' results in greater commitment of the organizations. From our result, we can also see that employee engagement also considered as a mediating variable on organizational change and constructive and destructive deviances. This finding is consistent with earlier research of Buchwald et al., (2015); Cropanzano and Mitchell, (2005); Shantz et al., (2013) etc.

When establishing a new working environment, the supervisory role in an organization plays a significant role. The pandemic crisis has therefore influenced the organizational working environment and it has been challenging for personnel in different educational institutions. The forced labour from the home notion therefore saw a high surge as compared to normal circumstances. Many researchers such as Judge et al., (2006); Wang et al., (2012) have discussed that the role of the superiors has an impact on the employee engagement and employee behaviours. Our hypothesis also depicts the same that increased supervision has a moderating role on the constructive and destructive deviance behaviours of the employees. It has been concluded that in the opinion of employees, the new environment is expected to present a difficulty, because not all employees work with same mind-set. Committed staff that want to progress within the organization can see this as a challenge to stay competitive and work additional hours to accomplish the allocated task in a different setting. Academic heads may create an environment for employees to feel linked, recognized and supported by doubling their mission, making their staff feel closer. And employee engagement is increasing for organizations which pay attention to the way they treat their people. Employee involvement is increasing for organizations which pay attention to the way they deal with their workforce by their supervisors.

6 Suggestions and Recommendations

Divergent conduct in organizations has attracted more attention in recent years. Surprisingly, little study, however, has concentrated on positive and not destructive deviances. The present study examined the constructive and destructive deviances and their link to the employees of the educational institutions to bridge this gap. More research needs to be carried out to analyse the difference in the workplace of professionals at university level. More research should be done to study the causes of the deviation from the workplace at the university level and to study the effect of

the deviance of employees on university advancement and dignity. Further research should be carried out to examine the behaviour change approaches by the academic heads. We recommend that future study expands its coverage across India to gain a better knowledge.

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Exploring Consumer Motivation to Participate in Sharing Economy



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Abstract With the increase in internet and web technologies, the sharing economy has become more popular in recent years. Policymakers and commercialized companies want to lead consumers to the sharing economy. This paper explores the effects of enjoyment, economic benefit, sustainability, and reputation motivations as psychological factors on the intention to participate in the sharing economy. In this context, a survey was conducted on Turkish and Mongolian consumers. In conclusion, we reach the positive effects of enjoyment and sustainability. We did not find the effect of economic utility and reputation on sharing intention. In addition, we performed an independent sampling t-test. As a result of the test, we found that Turkish consumers give more importance to sustainability and Mongolian consumers to enjoyment motives. Sustainability-oriented advertisements should be presented to Turkish consumers and enjoyment-oriented advertisements to Mongolian consumers. In addition to psychological factors, cultural differences can also affect the sustainability of sharing.

Keywords Sharing economy · Collaborative consumption · Motivation

1 Introduction

Policies that build the economy on scarce resources and unlimited needs have not been able to solve the problems of economic units and draw a sustainable perspective. With the effect of increasing environmental problems, regional rivalries, and the developments in internet technologies, individuals have entered into a culture of solidarity as a type of perceiving and managing the environment. In the last century, with the COVID-19 epidemic crisis, there has been a significant increase in

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e-commerce activities, especially in sharing economy platforms with a commercial consumer-to-consumer (C2C) business model (Goddevrind et al., 2021).

The sharing economy breaks trade barriers, creates new job opportunities, and encourages entrepreneurial activity in different markets (Dervojeda et al., 2013). The sharing economy has given the consumer and producer a new vision and attracted the attention of many policymakers and researchers with its new business model (Bauwens et al., 2012).

Ensuring the continuity of individuals' participation in sharing economy platforms leads to the decrease in inequality and efficiency of resources (Yakın, 2018). The self-determination theory has been adapted to the sharing economy to explore which motivations predominate in maintaining a particular behavior (Deci & Ryan, 1985). On the other hand, the lack of a universal recipe for understanding the participation of individuals in the sharing economy due to psychological and sociocultural factors has been expressed by many researchers (Davidson et al., 2018; Gupta et al., 2019).

This research applies Hamari et al.'s (2016) motivation scale, which is seen as one of the most popular prescriptions to ensure continuity in the behaviors of individuals to participate in the sharing economy, to two different consumer groups, such as Turkish and Mongolian. Two types of consumer samples, completely different regarding religion, symbols, practices, and doctrine, make this research special. In addition, most of the studies in the literature show China as an example of Asian culture. However, no international study examines Mongolian consumers' motivation to participate in the sharing economy. Due to its location, Mongolia was a buffer country between communist and socialist regimes in the past. On the other hand, Turkey has a cosmopolitan structure due to its geographical location and cultural dynamics. Individuals are affected by the culture of the society they live in. Therefore, the main purpose of our research is to discover the motivation preferences of consumer groups adopting different cultures and to guide policymakers, institutions, and companies.

2 Literature Review

The literature review on the subject of the study is detailed by taking into account some subject subtitles.

2.1 *The Rise of Sharing Economy*

Collaborative consumption dates back to ancient times. Men showed examples of the first division of labor by hunting and women by gathering. In order to ensure the lack of regional resources and respectability in the transition to settled life, the tribes continued the collaborative movement by giving each other the goods they needed (Botsman & Rogers, 2010). Sharing economy activities started to be seen

in a more multi-structure with the use of money in trade (Saygın & Çimen, 2014). The dynamics of time and social structure have been such to increase collaborative activities in many countries. During the war, women supported the men by producing vegetables in their backyards. Thus, organizations such as women's land armies were formed (Reinhard, 2021).

Since the dynamics of the social structure are different in every country, the spread of collaborative production and consumption is different. In the geography where Turkey, Azerbaijan, Kazakhstan, Kyrgyzstan, and Iran are located, the culture of flatbread making and sharing is one of the most basic indicators that collaborative consumption depends on the old geographical conditions (UNESCO, 2016). Similarly, depending on religious identity and worldview, societies' attitudes toward sharing activities can be affected. In societies where the Protestant ethic is dominant, the philosophy of being hardworking attributed to the Protestant may give rise to individualism. On the other hand, more sharing behavior is expected from Eastern societies where collectivist (Türkdoğan, 1981).

In the last century, with the increasing use of the internet, the development of web technologies, and socialization, sharing economy activities have emerged as a way of perceiving the environment. Technological innovations have reduced transaction costs, and the benefit of constantly owning a product has been less than the benefit of sharing (Zervas et al., 2017). Commercialized institutions, seeing the benefits of the sharing economy, encouraged consumers and enabled the rapid increase in sharing platforms (Yakın & Kazançoğlu, 2018).

There is not truly sharing economy definition because of the its virtual structure. It has been seen that the collaborative consumption term is used as descriptive concept of the sharing economy (Zhu & Liu, 2021). The concept of an alternative to private property used in the gift exchange (Belk, 2007), seeing the large-scale rental, lending, barter, and gift-giving process in traditional markets with the development of network technologies (Botsman & Rogers, 2010), mesh (Gansky, 2010), trade sharing system (Lamberton & Rose, 2012), stranger sharing (Frenken & Schor, 2017), peer-to-peer sharing activity coordinated through community-based online services (Hamari et al., 2016), inconsistent that reinforces neoliberalism innovation (Martin, 2016), and mass-based capitalism (Sundararajan, 2017) are some of the descriptions for the sharing economy. It is thought that sharing platforms may cause possible problems such as trust, security, uncertainty in price structure, difficulty in income declaration, taxation, and unfair competition (Cusumano, 2015; Esen & Nardali, 2018; Kalaycı Oflaz, 2019; Malhotra & Van Alstyne, 2014). Some trade associations who think the sharing economy will cause problems for the economic system in the future use the platform economy term (Dølvik & Jesnes, 2017). In this study, sharing economy refers to giving unused goods and services to someone else for a fee or through exchange through platforms and applications.

Botsman and Rogers (2010) mentioned four important features of the sharing economy: critical mass, idle capacity, belief, and trust in the platform. The most important point for researchers is trust. In the past, sharing was limited to trusted groups such as family and friends. With the development of the internet, transaction cost has decreased, and the sharing economy has extended to third parties called

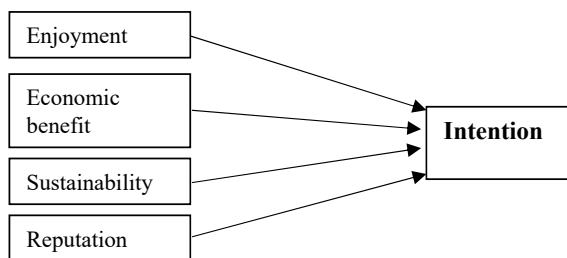
strangers. For this reason, Schor (2014) defines the sharing economy as stranger sharing. Unlike previous researchers, Sundararajan (2017) described the sharing economy as mass-based capitalism and mentioned that the sharing economy has five important points: the emergence of new markets, full capacity utilization, the disappearance of centralized institutions, the reduction of the distinction between personal and professional, and part-time employment contracts.

2.2 Consumers Behaviors and the Sharing Motivations

There are different factors affecting consumer's behaviors. Depending on age, individuals' attitudes toward events may change. Children experience difficulty controlling impulses because the "prefrontal cortex," which is the perception and reasoning part of the brain, is not developed (Atabek, 2020). Studies have shown that younger consumers have a higher rental tendency than older people, and they have higher potential to participate in the sharing economy (Hendriksz, 2017). Occupation, gender and education are other factors affecting consumer's behaviors.

When we examine the motivation literature, we encounter Maslow's hierarchy of needs theory, one of the most popular theories. This theory indicates that physiological, safety, belonging, esteem, and self-actualization play an important role in shaping behaviors (Schiffman & Wisenblit, 2019). On the other hand, it is thought that the elements that direct individuals to the sharing economy come from the self-determination theory. Self-determination is a theory that explains what factors can motivate the continuity of specific behavior. Some individuals use the self and internal motivations more, regardless of the objectivity of the events (Deci & Ryan, 1985). While intrinsic motivation arises from intrinsic values and pleasures, extrinsic motivations are related to external pressures such as reputation and gain (Hamari et al., 2016). The study on Indonesia observed that the forbidden rules in Islam increase users' trust and Muslim users use both internal and external motivations (Weng et al., 2020). Motivations to participate in the sharing economy may differ from sector to sector or according to income level and gender. The sustainability factor is more prominent motivation for women. In addition to institutional studies, empirical studies should also be carried out in different samples to determine the factors affecting the sharing behavior (Kiracı, 2017).

Although the most common motivations in the literature are economic, sustainability, and social motivation, it is possible to see different sharing economy motivations of different researchers. Economical (Bauwens et al., 2012; Hamari et al., 2016), convenience (Owyang, 2014), uniqueness (Owyang, 2014), authority (Marchand et al., 2010), trial (Phipps et al., 2013), word of mouth (Van de Glind, 2013), enjoyment (Hamari et al., 2016; Owyang, 2014; Van de Glind, 2013), social cohesion, altruism (Van de Glind, 2013), lifestyle (Owyang, 2014; Van de Glind, 2013), environmental awareness (Lawson, 2010; Van de Glind, 2013), indirect mutual relationship (Kleine & Baker, 2004), and reputation (Hamari et al., 2016) motivations were seen to be some of the sharing economy motivations in the literature. In this

Fig. 1 Conceptual framework

paper, we use Hamari et al.'s (2016) sharing motivations. Figure 1 indicates the conceptual framework of the our research.

Enjoyment. According to the Digital in January 2023 report published by We Are Social, the number of social media users worldwide has increased by 3% compared to last year (Wearesocial, 2023). It shows that socialization is increasing all over the world. Some sharing platforms have realized consumers' socialization and enjoyment needs and have developed strategies for consumer needs (Eatwith, 2023). Enjoyment motivation is one of the most effective internal motivations on the sharing economy (Hamari et al., 2016). It can change according to meet with the needs and according to the life span (Smith et al., 2014). Perceived enjoyment in an organization that requires collaboration positively affects perceived individual learning and knowledge sharing (Lin et al., 2020). Studies on the hospitality sector show that enjoyment motivation significantly explains attitudes and intentions toward the sharing economy (So et al., 2018; Tussyadiah, 2016). In addition, some studies show that socialization and enjoyment motivations are important factors in turning to lower alternatives (Lindenberg, 2001). Therefore, the hypothesis is formulated as follows:

H1. Enjoyment (EN) has a significant and positive effect on the intention to participating in the sharing economy.

Economic Benefit. Consumption needs and imbalance of monetary resource push individuals toward cheaper products and a more modest lifestyle (Sijabat, 2019). Individuals benefit economically by sharing goods and services they do not use. Renting products and services saves costs and makes sharing sustainable (Yaraghi & Ravi, 2017). Individuals engage in joint ventures as a solution to their economic concerns and cost increases (Bardhi & Eckhardt, 2012). The sharing economy creates a stronger consumer socially and economically (Martin, 2016). In their study on Amsterdam, Böcker and Meelen (2017) found that economic and social motivations are prominent for accommodation sharing, whereas sustainability motivation is more prominent in car sharing than others. Previous studies have shown that economic and monetary motives positively affect attitudes and intentions toward the sharing economy (Chatterjee et al., 2019; Hamari et al., 2016; Möhlmann, 2015). Therefore, the hypothesis is formulated as follows:

H2. Economic benefit (ECO) has a significant and positive effect on the intention to participating in the sharing economy.

Sustainability. Although sustainability means many things, the concept of sustainability for the sharing economy refers to environmental sustainability (Mostafa, 2007). With this dimension, sustainability means using land and sea resources in accordance with environmental standards and protecting the ecosystem while benefiting from it (Mengi & Algan, 2003). Some individuals care about whether their behavior harms the environment. Hamari et al. (2016) demonstrated that sustainability motivation positively affects the sharing attitude. In another study, Tussyadiah (2016) found that sustainability motivation positively affected sharing satisfaction. In some societies, bike-sharing platforms have been used as a tool to reduce energy use and carbon emissions in transport (Zhang & Mi, 2018). Sustainability and environmental motives affect consumer preferences in sharing clothes and fashion in India (Jain & Mishra, 2020). Therefore, the hypothesis is formulated as follows.

H3. Sustainability (SUS) has a significant and positive effect on the intention to participating in the sharing economy.

Reputation. Consumption is made for intangible needs as well as tangible needs. The consumption process can be used to create status, interest, and artificial identity within the framework of empathy and sympathy, regardless of the morality of the behaviors (Belk, 1985; Smith, 2010). Wasko and Faraj (2005) found results that reputation positively affects knowledge sharing. Veblen (2017) used the concept of conspicuous consumption for this type of consumption. For rich people, conspicuous comes from having the morality of laziness and creating a snob effect in consumption. Individuals are only as much as they access (Belk, 2014). Some consumers consume for brand and prestige (Elliott, 1994). On the other hand, reputation is achieved through the consumption of luxury goods for poor people without looking the cost. Therefore, the hypothesis is formulated as follows:

H4. Reputation (REP) has a significant and positive effect on the intention to participating in the sharing economy.

3 Methodology

3.1 Data Collection and Sample

In the study, we applied an online survey for Turkish and Mongolian participants. We carried out this study with 104 people. We presented the survey in Turkish and Mongolian. The sharing motivation scale was obtained from Hamari et al. (2016). We gave the questionnaire only to participants who used sharing platform before.

Table 1 indicates descriptive data of respondents' profile. Turkish participants account for 55.8% of the total profile, and Mongolian participants 44.2%. We have 53.8% male participants. We asked about their monthly income in euro. 210 euros and below is the largest group. Most participants are between 18 and 25. Lastly, in terms of education, bachelor's degree is the largest education profile.

Table 1 Descriptive data of respondents' profile (N = 104)

Variable	Frequency	%
<i>Nation</i>		
Turkish	58	55.8
Mongolian	46	44.2
<i>Gender</i>		
Female	48	46.2
Male	56	53.8
<i>Age</i>		
18–25	48	46.2
26–32	31	29.8
32+	25	24.0
<i>Income (Euro)</i>		
0–210	40	38.5
210–490	27	26.0
490+	37	35.6
<i>Education level</i>		
High school	24	23.1
Bachelor's degree	51	49.0
Master and doctoral degree	29	27.9

Lastly, we asked the participants questions on a 5-point Likert scale consisting of a motivation scale. The scale ranged from strongly disagree (1) to strongly agree (5).

4 Findings and Discussion

4.1 Reliability and Validity Analysis

In order to determine the factors, exploratory factor analysis with direct oblimin rotation was applied for 20 items (Table 2). As an item related to economic motivation has a more than one-factor load, we removed this item. The Kaiser–Meyer–Olkin value was found to be 0.877 in the factor test applied for 19 items. The Kaiser–Meyer–Olkin value is above 0.60 indicates that the data is suitable for factor analysis (Büyüköztürk, 2007). As a result of the analysis, five factors were found.

The factors explain 70.30% of the variance. If Cronbach's alpha is between $0.76 < \alpha < 0.90$, it indicates high reliability (Taber, 2018). The skewness and kurtosis values between -1.5 and $+1.5$ indicate that the data are normally distributed (Tabachnick et al., 2013). Table 3 shows the correlation matrix and variance inflation factor (VIF). The correlations among the variables are lower than 0.800 and VIF is lower than 5.

Table 2 Factors' statistics

Items	F1	F2	F3	F4	F5	Cronbach's alpha	% of variance explained	Mean
EN3	0.892							
EN5	0.890							
EN2	0.883					0.932	43.70	3.56
EN1	0.769							
EN4	0.692							
INT2		−0.904						
INT4		−0.867				0.904	12.57	3.34
INT3		−0.866						
REP3			0.875					
REP2			0.841					
REP4			0.767			0.861	8.97	3.32
REP1			0.755					
SUS2				−0.872				
SUS1				−0.870		0.897	7.25	3.62
SUS3				−0.859				
SUS4				−0.782				
ECO1					0.867			
ECO3					0.824	0.857	4.80	3.62
ECO2					0.727			
ECO4					0.544			

Table 3 Correlation analysis

	INT	EN	ECO	SUS	REP
INT	1.000				
EN	0.387	1.000			
ECO	0.302	0.694	1.000		
SUS	0.449	0.548	0.576	1.000	
REP	0.123	0.431	0.432	0.360	1.000
VIF*		2.122	2.217	1.617	1.970

Therefore, we think that there is not high correlation between to variables (Berry et al., 1985).

4.2 Formula and Testing Hypothesis

To test the impact of independent variables on behavioral intention to participate in sharing economy (dependent variable), a linear regression was performed based on the following model:

$$\text{Behavioral intention} = \beta_0 + \beta_1(\text{Enjoyment}) + \beta_2(\text{Economic benefit}) + \beta_3(\text{Sustainability}) + \beta_4(\text{Reputation}) + \varepsilon. \quad (1)$$

Result of the hypothesis test, the independent variables in the model explain approximately 21% of the variance in the dependent variable ($F = 7.844$ and $p = 0.000$ for ANOVA). The variables of enjoyment ($\beta = 0.301$, $p < 0.05$) and sustainability ($\beta = 0.459$, $p < 0.01$) have a significant and positive effect on the behavioral intention to participate in the sharing economy significant effect ($p > 0.05$ so H2 and H4 are not supported).

We applied independent samples t-test and one-way ANOVA test to explore differences between the groups. Sustainability variables differ significantly according to Turkish ($\bar{X} = 3.81$) and Mongolian ($\bar{X} = 3.39$) consumers ($t = 2.509$, $p < 0.05$). We could not find significant differences between gender, income, education, and age group ($p < 0.05$).

5 Conclusions

The sharing economy has grown in its popularity over the past decade. A general recipe is required to sustain the participation of individuals in the sharing economy. This research examined motivations' effect on the intention to participate in the sharing economy. As a result of the research, we have some implications.

5.1 Implications

Enjoyment motivation positively affects behavioral intention to participate in the sharing economy. This result supports the studies conducted by Hamari et al. (2016) and Lang et al. (2019). Individuals meet new people and have enjoyment through sharing activities. In this way, participation in sharing activities increases even more. For Mongolian consumers, perceived enjoyment in the sharing economy is more important than sustainability motivation. It may be due to the indulgence cultural values (Hofstede et al., 2010). Even though restrictive cultures place less emphasis on friendship and leisure, indulgence cultures place more time on it (Hofstede et al., 2010). Sustainability motivation positively affects behavioral intention to participate in the sharing economy. This result supports the studies conducted by Hamari et al.

(2016) and Jain and Mishra (2020). For Turkish consumers, sustainability motivation in the sharing economy is more important than perceived enjoyment motivation. It may be related to the value that societies ascribe to time. According to Trompenaars and Hampden-Turner (1997), the cultures of some societies are past and present-oriented, while others are future-oriented. We did not find the effect of reputation on behavioral intention to participate in the sharing economy. Even if reputation affects consumer behavior, there is no preference for reputation-based use in sharing platforms. Previous studies have seen reputation as an intangible reward for sharing (Featherstone, 2007). We think that the effectiveness of reputation varies according to the types of sharing. Indeed, Wasko and Faraj (2005) found that perceived reputation is an important factor in information sharing.

Psychological factors are insufficient to explain sharing economy motivations. Cultural dimensions can play a moderating role in sharing motivations that emerge as self-determination. Thus, a more general recipe for participation in the sharing economy can be presented (Davidson et al., 2018; Gupta et al., 2019).

If policymakers and companies present appropriate motivations to the target consumers as personalized advertisement content, they can keep consumers' participation in sharing activities. For example, sustainability-oriented advertisements should be presented to Turkish consumers, and enjoyment-oriented advertisements to Mongolian consumers.

5.2 Limitations and Future Research Directions

In this study, we applied a survey on participation motivations to sharing economic activities to Turkish and Mongolian participants. The more different nationalities consumers are, the stronger and more general recipes can be offered. Because previous studies show that gift-giving and sharing have cultural meanings. Motives can change according to cultural differences. As a different motivation, it would be beneficial to add materialism and trust motives to the model. In particular, trust and security problems are the most talked about in sharing platforms. In addition to psychological factors, Hofstede's cultural dimensions can be examined in the intention to participate in the sharing economy. We believe that this paper will shed light to future research.

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Circular Economy Approaches and Green Jobs in European Companies



Ardita Bytyqi, Arbër Jashari, and Shenaj Hadzimustafa

Abstract The European Green Deal is based on the circular economy (CE) dealing with reducing, reusing, recycling, and redesigning all stages of materials in order to achieve sustainable development. However, research on the impact of CE on firm-level employment is lacking. Our paper uses the latest Eurobarometer Flash 498 survey and a negative binomial regression model (NBR) to explore CE approaches and green job creation of European firms. The results show that the adoption of the CE approaches and the use of more resources and capabilities are correlated significantly with employing workers in green jobs, and this correlation is positive. The results could help policymakers and businesses to make informed decisions about implementing CE strategies to promote sustainable growth and employment.

Keywords Circular economy · Green jobs · Organizational resources · Capabilities

1 Introduction

The present and future welfare of our planet is at risk due to the impacts of climate change and environmental degradation. Governments are promoting sustainable business policies to conserve natural resources. In order to have a sustainable economy, preserve resources, reduce pollution, and prevent climate change, European Commission has created a plan of changes and projects called the “European Green Deal” to be implemented in order to archive these objectives by 2050 (European Commission,

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European Union, 2021) which aims to facilitate the adoption of the circular economy (CE) principles.

CE has many objectives which can be studied in different ways, analyzing business views, goals, material life cycle, or even the strategies needed to achieve sustainability. All these objectives are studied and analyzed separately (Ghisellini et al., 2016; Kirchherr et al., 2017; Zhu et al., 2010). CE aims to preserve resources in order to create value, unlike the linear model which essentially converse them (Stahel, 2019).

To transition toward the CE, it is essential to close the loop by recovering value from waste and improving used materials instead of discarding them, as stated by (Prieto-Sandoval et al., 2018). Consequently, this shift in approaches requires a change from reducing waste to capturing value through recovery. The value of a product is greater than the value of the materials used in its production (Stahel, 2019). Transition to more CE is an opportunity to promote sustainable growth, while preserving the value of materials in the supply chain. This involves a range of measures that align with reduce, reuse, recycle, and redesign.

In addition to the many impacts that the CE can have on different dimensions within the context of the environment, the circular economy also has an impact on the social dimension by specifying the creation of jobs, as pointed out by the (European Commission, EUR-Lex, 2015; Tambovceva et al., 2021). CE has a significant impact on economic and social aspects of life, but research is limited. Various studies have resulted in the conclusion that the CE, due to the primary goal of using the resources that are limited as efficiently as possible, has offered more employment opportunities than the traditional economy, therefore innovation in the green field has brought benefits as also highlighted by Hobart (Horbach and Rammer, Circular economy innovations, growth and employment at the firm level: Empirical evidence from Germany, 2019).

According to the International Labor Organization (ILO), green jobs are those that contribute to mitigate the detrimental effects on the environment caused by a company. As per (European Commission, 2022) green jobs bring back environmental quality and companies should have knowledge, training, or experience. Sustainability can be integrated into circular commercial frameworks with varying levels of strength. Despite the attention given to the job prospects related to ecological innovations within a CE, there is a dearth of research in the empirical literature on the impact of the CE on employment at the company level (Cecere & Mazzanti, Green jobs and eco-innovations in European SMEs, 2017), (Horbach & Rammer, Circular economy innovations, growth and employment at the firm level: Empirical evidence from Germany, 2019). The majority of research focuses on environmentally sustainable industries, leading to a depreciation of the CE's impact on employment (Burger et al., 2019).

Since the use of change or any improvement in technology that has a positive impact on the environment is accompanied by the need to have certain professional skills as emphasized by (Consoli et al., 2016), it is necessary to study and research more on innovations in the transition process of the CE in terms of the impact it has on jobs in the green field. To the best of our knowledge, (Cecere & Mazzanti,

2017) is the only research that examines the impact of company-level actions on green employment, but it does not specifically concentrate on circular economy (CE) strategies. Companies must consider the impact of CE initiatives on green jobs. This paper aims to address the connection between different approaches to the CE with job creation opportunities in the green field by analyzing European companies and considering how innovative they are.

To achieve this objective, we used the latest Eurobarometer Flash 498 launched by the European Commission for SMEs, in the field of resource efficiency and green markets and the negative binomial regression model (NBR) to address the issue of over dispersion, the possibility of an excessive number of zeros, and heteroscedasticity.

This paper continues in Sect. 2 presenting a theoretical framework for different approaches to the CE and Greenfield employment. This section also discusses the impact of other variables on green employment. Section 3 provides data details, definitions of variables used in the study, and methods and econometrics used. Section 4 presents the results along with a discussion of these results, and finally Sect. 5 contains the main conclusion and recommendations of our study.

2 Theoretical Framework

As per (Martínez-del-Río et al., 2012) environmental practices require a significant shift in human resources due to their complexity and need for training or hiring of employees with advanced technical expertise. The transition to a circular business model requires a range of resources and skills, which will affect employment as well.

Consequently, the quantity of green jobs will be contingent on the eco-friendly and circular approaches adopted by individual firms (refer to Fig. 1).

Further, (Hart, A Natural-Resource-Based View of the Firm, 1995) suggested the natural RBV, which maintains that eco-friendly practices mandate the procurement of distinct resources and the development of exclusive competencies by the firm. As a result, a tight correlation exists between pro-environmental approaches, green proficiencies, and competitive edge (Dangelico & Pontrandolfo, 2015; Hart & Dowell, 2010; Sanjay et al., 2007).

For the implementation of each of the CE approaches, innovation also plays a very special role in employees and employment in general, since companies that are more involved in innovation are inclined to be able to adapt any of the CE approaches more quickly.

2.1 The Correlation Between CE Approaches and Green Jobs

There is a vigorous discourse on the possibility of green development to either produce or obliterate jobs. As per (Bowen & Kuralbayeva, 2015) perspective, there

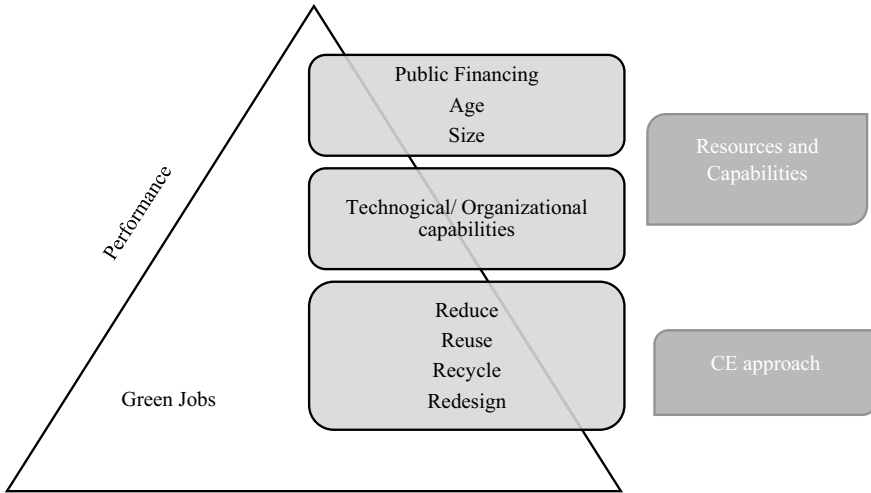


Fig. 1 Theoretical framework

are two approaches to appraise the immediate impact on employment. The first is to scrutinize changes in employment in relation to green industries. The second is to enumerate the positions engendered by businesses that implement eco-friendly technologies, while also evaluating the influence on employment in light of the precise circular and inventive strategies at the organizational level. This paper concentrates on the latter method.

CE strategies can be categorized as eco-process or eco-product innovations. Eco-processes aim to minimize resource consumption and recycle, while product eco-innovations involve introducing environmentally friendly products into the market. They can have both positive and negative effects (Horbach & Rammer, 2019).

The main goal of innovations in eco-processes is to minimize the consumption of electricity, water, and other resources, followed by recycling and the use of renewable energy.

Conversely, the implementation of eco-process technologies can have a favorable impact on employment if it results in the recruitment of additional personnel (though this is only the case if the innovation does not reduce labor demand).

The introduction of advanced technologies can have both positive and negative effects, with the former requiring additional highly skilled employees and the latter resulting in labor savings through employee substitution. In situations where a company opts to replace its human workforce with capital-intensive solutions to maximize productivity, it can potentially lead to significant negative consequences on employment (Horbach & Rammer, 2019).

In accordance with (Ettlie et al., Organization Strategy and Structural Differences for Radical Versus Incremental Innovation, 1984) work, it is essential to contemplate the structural and organizational tactics for radical versus incremental innovations.

Knowledge plays a crucial role, particularly in relation to innovation, as it distinguishes between radical and incremental innovation. This distinction, in turn, significantly affects the creation of new jobs, especially in green fields (Dewar & Dutton, 1986).

CE models aim to reduce resource flows and waste in the 4R paradigm (Vermunt et al., 2019). In order to include CE approaches within the micro level of companies and at the same time to promote the use of these approaches in production processes, it is necessary to include eco-design and conscious design (Winkler, 2011). The adoption of different approaches to the CE requires different knowledge and innovation, leading to greater green jobs.

Firms can improve their business performance through cost-saving and resource efficiency by minimizing inputs. Technology and efficiency can help achieve this goal. Based on previous studies, companies that have been more involved in technology have been more inclined to adapt eco-process innovations (Triguero et al., 2018). However, there are also studies which have demonstrated that the more involvement in the possible technology may have negative impact on job creation (Gagliardi et al., 2016). According to (Ghisellini et al., 2016), this objective can be achieved if the use of resources is reduced and at the same time the materials that are harmful are replaced with those that have a less negative impact on the environment when a unit of the product is produced. Reduce resource usage to achieve environmental benefits without pre-innovation or technical expertise (Ettlie et al., 1984).

2.2 The Correlation Between Organizational Resources, Capabilities, and Green Jobs

A lot of factors impact on eco-innovation are studied as per their impact on creating jobs in different ways. In the literature, there is evidence of an adverse correlation between age and employment (Gagliardi et al., 2016). Younger enterprises appear to harbor more favorable prospects for employment, particularly in growing markets like sustainable energy, where fledgling businesses occupy the vanguard (Horbach, 2016).

Elder companies possess a diminished inclination to generate jobs, despite having a greater likelihood of being environmentally innovative (Triguero et al., 2017). Concentrating on the correlation between firm size and employment, the majority of researchers conclude that size is the important factor on employment expansion.

As per (Gagliardi et al., 2016, Triguero et al., 2018) bigger companies make a greater contribution to employment. In particular, (Cecere & Mazzanti, 2017; Luca et al., 2019) declare that the size of the firm, whether determined by headcount or revenue, exhibits a favorable correlation with the establishment of sustainable occupations.

The literature indicates that public funding has a favorable influence on promoting environmental innovation (Hoogendoorn et al., 2015) and the advancement of the CE as noted by (Aranda-Usón et al., 2019). Grants that companies benefit can be for many reasons. They can be to address objectives on environmental protection, they can be for commercial issues, then for different projects of research and development, innovations and they can also include employment projects (Aranda-Usón et al., 2019). Generally speaking, public grants have a beneficial impact on employment (as discussed by (Bowen & Kuralbayeva, 2015). Authors (Cecere & Mazzanti, 2017) validate this finding by demonstrating a positive and noteworthy association between public grants and green employment.

Technological and organizational capabilities can help improve environmental performance by creating eco-friendly products and processes, and responding to market shifts (Cai & Li, 2018). In this field technical expertise plays a crucial role in enhancing environmental performance among EU SMEs (Moreno-Mondéjar & Cuerva, 2020). Acquiring external knowledge can help overcome in-house limitations and develop eco-friendly know-how as mentioned by (Ghisellini et al., 2016). Although few studies have investigated the relationship between a firm's openness to external knowledge sources and job creation, (Peters, 2004) underlines the significance of customers and scientific institutions (universities and public research facilities) in the connection between innovation and employment expansion in Germany.

Organizational proficiencies in offering eco-friendly products or services have a positive impact on firm performance as discussed by (Sáez-Martínez et al., 2016). More precisely, the introduction of eco-friendly products and services is positively associated with the creation of green jobs as noted by (Cecere & Mazzanti, 2017). Additionally, in an alternate analysis, we factor in firms' awareness of renewable energy.

Considering what was revealed above, we can say that companies that are new and practice CE strategies are more likely to offer green employment. Also, companies that use technology, offer green products and services, and have public funding are inclined to offer more green jobs. At the same time, in companies where awareness about the use of renewable energy is greater, green employment is also greater.

3 Data, Variables, and Methodology

The study is based on the Flash Eurobarometer 498, which surveyed large companies and SMEs in the European Union, neighboring countries, and the United States in December 2021. The survey included a total of 31,877 firms, with 14,215 located in EU27, and focused on topics such as green markets and resource efficiency. Our focus is solely on the EU-based companies. The primary subjects of interest pertain to ongoing efforts in resource efficiency, which may be associated with various domains for executing CE approaches. The study is based on a sample of 14,215 companies operating in EU27 that have implemented at least one CE approach and have provided

information on their payroll. The variable we are examining is the count of full-time employees engaged in green jobs on a periodic or regular basis (GreenJob) variable. Our dataset is cross-sectional from the evaluation of the existing market of green jobs. In accordance with the theoretical framework above, the factors that could impact the market of green jobs are the CE approaches adopted by the company and its resources and capabilities.

The questionnaires indicate whether companies have used any of these approaches as: saving 1. water, 2. energy, or 3. resource, further 4. minimizing waste and 5. leftovers sale, 6. recycling and 7. designing.

The CE measures are categorized as:

In order to examine the correlation between CE approaches and green jobs, the first, second, and third approach encompass the **reduction** category; fourth and fifth approach pertain to **reuse or waste minimization**; the sixth approach is **recycling** and the **redesign** category encompasses the approach seven.

As we consider the correlation between Organizational Resources, Capabilities, and Green Jobs, we take into account various factors, including the number of years the company has been operating, its financing methods, external expertise, the internal knowledge within the company, and whether the companies offer products or services in the green field. Internal technical knowledge and external resources are classified as technological capabilities, while the availability of products or green products as views of organizational skills and the company's resources are quantified based on size, company establishment, and public funding.

Table 1 represents the interpretation and observation of dependent and explanatory variables.

Among the 14,215 companies that were part of the interview, it was found that 42.41% have at least one employee engaged in green environment work. Then regarding resources and capabilities, 35.6% of companies are financed from public funds to improve the efficiency of resources. 54% of the companies have their own technical expertise.

The level of companies' receptiveness toward technological knowledge, quantified by the count of distinct external sources employed for resource efficiency is 23.50%. In regard to organizational capabilities, approximately 31.6% of companies provide eco-friendly products or services. In terms of company size, small companies account for 98.14% of the sample, while medium-sized companies make up 2.01%, and large companies comprise only 0.3%. When it comes to the 4Rs approaches, companies tend to focus on reducing water (45.70%), material (56.90%), or energy (60.70%) consumption, as well as reusing or minimizing waste (64.20%). However, external process recycling (47%) and redesign (26.4%) are less frequently employed approaches.

Table 1 Interpretation and observation of dependent and explanatory variables

Variables	Interpretation and observation	Total
<i>Dependent variable</i>		
Green job Number of companies: (min = 0; max = 6029)	Number of employees who work on a full-time basis, either periodically or consistently in green jobs	14,215
	• Zero green jobs (% Companies)	57.60%
	• At least one green job (% Companies)	42.41%
<i>Explanatory variables</i>		
<i>CE approaches</i>		
Saving water, energy, and materials	If a company has engaged in activities associated with:	
	Saving water	45.70%
	Saving energy	60.70%
	Saving material	56.90%
Minimizing waste	If a company has engaged in activities associated with minimizing waste	64.20%
Recycling	If a company has been involved in recycling-related activities such as utilizing its own waste or repurposing materials within its operations	47.00%
Designing	If a company has been involved in activities related to designing products that prioritize ease of maintenance, repair, or reuse	26.40%
<i>Other control variables</i>		
<i>Resources and capabilities</i>		
Company established	Years of company establishment	
Size	Company size:	
Small (% firms)	Small (1–49 employees),	98.14%
Medium (% firms)	Medium (50–249 employees)	2.01%
Large (% firms)	Large (over 250 employees)	0.30%
Public funding	If a company has been provided with financial aid from public sources, like grants, guarantees, or loans, to advance resource efficiency	35.60%
Technical expertise	A company has its own technical experience to enhance resource efficiency	54.00%
External support	The number of external sources that have provided advice or other forms of non-financial support to the company for enhancing resource efficiency	23.50%
Green products, services	If the firm offers green products or services	31.60%
Renewable energy	If a company is using renewable energy	19.40%

(continued)

Table 1 (continued)

Variables	Interpretation and observation	Total
Sector	Sector-specific dummy variables: manufacturing, retail, services, or industry	
<i>Other</i>		
	Manufacturing	10.00%
	Retail	28.60%
	Services	43.10%
	Industry	18.80%
Country	Dummy variables 1 = Member states of the European Union, 0 = Not member	

Source Eurobarometer 498

3.1 Methodology

Based on our data for analysis, we have a dependent variable that involves counting, (Long & Freese, 2005) suggest using the Poisson regression as the initial model for analysis. Because overdispersion appeared using this model, errors of the model are biased. This can lead to certain coefficients being inaccurately considered significant (Hilbe, 2017). In general, it would be advisable to employ negative binomial regression (Cameron & Trivedi, 1986; Long & Freese, 2001) as it appears to be the most fitting method.

We have evaluated the data using two frames, taking into consideration sector and country. Frame 1 comprises all the variables except green products and services and renewable energy which were ignored to proceed further with the Frame 2 with all variables including these two, in order to see exactly their influence. In order to evaluate ZIP and NBR and determine if the NBR model is appropriate, we performed overdispersion tests and likelihood-ratio tests. NBR was discovered to be a better choice.

The equation for the Frame 1 NBR model is:

$$\begin{aligned}
 \log(E[GJ1]) = & \beta_0 + \beta_1SW + \beta_2SE + \beta_3SM + \beta_4MW \\
 & + \beta_5REC + \beta_6D + \beta_7PF + \beta_8OF + \beta_9TE \\
 & + \beta_{10}ES + \beta_{11}MAN + \beta_{12}R + \beta_{13}SERV \\
 & + \beta_{14}I + \beta_{15}S + \beta_{16}M.
 \end{aligned} \tag{1}$$

When the intercept is 0, the coefficients for each independent variable range from 1 to 16, and the dependent variable $E[GJ1]$ reflects the anticipated value of GJ1 for a firm having at least one person working in green jobs. The relationship between the independent variables and the anticipated value of GJ1 is modeled using the log link function.

The equation for the Frame 2 NBR model is:

$$\begin{aligned} \log(E[GJ1]) = & \beta_0 + \beta_1SW + \beta_2SE + \beta_3SM + \beta_4MW \\ & + \beta_5REC + \beta_6D + \beta_7PF + \beta_8OF + \beta_9TE \\ & + \beta_{10}ES + \beta_{11}MAN + \beta_{12}R + \beta_{13}SERV \\ & + \beta_{14}I + \beta_{15}S + \beta_{16}M + \beta_{17}GP + \beta_{18}RE. \end{aligned} \tag{2}$$

When the intercept is 0, the coefficients for each independent variable range from 1 to 18, and the dependent variable $E[GJ1]$ reflects the anticipated value of GJ1 for a firm having at least one person working in green jobs. The relationship between the independent variables and the anticipated value of GJ1 is modeled using the log link function.

The NBR model seems to suit the data well, according to the findings obtained. A significant relationship exists between at least one of the predictor variables and the response variable, according to the LR chi2 test statistic with a p-value of 0.0001. The pseudo R2 number also shows that a respectable part of the variance in the response variable is explained by the model.

Each predictor variable’s coefficients, standard errors, matching p-values, and 95% confidence ranges are also provided. These may be used to determine the magnitude and direction of the connection between each dependent variable and the response variable. A Poisson distribution is a worse match for the data than the negative binomial distribution according to the LR test of $\alpha = 0$ with a chi-squared value and a p-value.

4 Results and Discussion

Overall, the results suggest that public funding, external support, technical expertise, using renewable energy sources, and minimizing waste and recycling are important factors for increasing the number of employees working in green jobs in companies, which in overall there is a correlation between CE approaches and green jobs and organizational resources. Moreover, Ellen MacArthur Foundation (2013) and EU action plan for the CE suggest that simulation of sustainable activity will enhance sustainable growth and jobs (Ellen MacArthur Foundation, 2013; European Commission, EUR-Lex, 2015).

In the Table 1 below are presented the results of the model used for both frames.

		Frame 1		Frame 2	
		NBR: green jobs	NBR: no green jobs	NBR: green jobs	NBR: no green jobs
Employees working in green jobs. At least 1/0		GJ1	GJ0	GJ1	GJ0
Saving water	SW	0.00000726	−0.000556	−0.00254	0.0000231

(continued)

(continued)

		Frame 1		Frame 2	
		NBR: green jobs	NBR: no green jobs	NBR: green jobs	NBR: no green jobs
		[0]	[−0.50]	[−1.33]	[0.02]
Saving energy	SE	0.000413	−0.0000966	0.00549***	−0.00264**
		[0.21]	[−0.08]	[3.07]	[−2.05]
Saving materials	SM	0.00227	−0.000724	−0.000361	0.00101
		[0.94]	[−0.47]	[−0.21]	[0.77]
Minimizing waste	MW	0.000306	−0.000668	0.00143**	−0.00112**
		[0.33]	[−1.08]	Bowen and Kuralbayeva (2015)	[−2.07]
Recycling	REC	0.000733	−0.000838	0.000648	−0.00063
		[0.73]	[−1.28]	[0.84]	[−1.14]
Designing	D	−0.00101	0.000475	0.000278	−0.000433
		[−0.42]	[0.31]	[0.17]	[−0.34]
Public funding	PF	−0.00918***	0.00373*	−0.00672***	0.00233
		[−2.66]	[1.71]	[−2.74]	[1.3]
Own financial resources	OF	−0.000511	0.00082	−0.000549	0.000951
		[−0.47]	[1.16]	[−0.69]	[1.6]
Own technical expertise	TE	−0.00495***	0.00276**	−0.00417***	0.00216**
		[−2.74]	[2.31]	[−3.30]	[2.2]
External support	ES	0.00591**	−0.00169	0.00346*	−0.000304
		[2.29]	[−1.01]	[1.87]	[−0.22]
Sector group manufacturing	MAN	0.0126	−0.00038	0.00521	0.00329
		[0.79]	[−0.04]	[0.46]	[0.39]
Sector group retail	R	−0.009	0.0101	−0.00981	0.0108
		[−0.69]	[1.21]	[−1.08]	[1.62]
Services	SERV	−0.00668	0.00971	−0.0105	0.0119*
		[−0.53]	[1.2]	[−1.19]	[1.82]
Industry	I	−0.0131	0.0133*	−0.0166*	0.0154**
		[−1.05]	[1.66]	[−1.92]	[2.41]
Size of company—small	S	0.00995	−0.00758	0.0111	−0.00827
		[0.75]	[−0.90]	[1.21]	[−1.22]
Size of company—medium	M	0.0493	−0.0236	0.0505	−0.0291
		[1.01]	[−0.74]	[−1.43]	[−1.11]
Size of company—large	L	−0.00363	−0.073	−0.0439	−0.0204
		[−0.02]	[−0.51]	[−0.28]	[−0.18]
Offer of green products or services	GP			0.00396***	−0.00228***

(continued)

(continued)

		Frame 1		Frame 2	
		NBR: green jobs	NBR: no green jobs	NBR: green jobs	NBR: no green jobs
Use of renewable energy				[4.91]	[−3.68]
	RE			−0.00363***	0.00159**
				[−3.23]	[2.07]
	_cons	3.487***	4.624***	3.557***	4.576***
		[13.89]	[27.94]	[18.48]	[32.14]
	lnalpha	−3.981***	−4.968***	−5.073***	−5.736***
		[−10.74]	[−11.46]	[−9.44]	[−9.51]
	N	27	27	27	27

Frame 2. The study discovered a link between the creation of green jobs and the adoption of sustainable practices. The NBR analysis reveals that saving energy is an example of marginally positive significant indicator of the **reduction** category impacting on the number of full-time employees in green positions at the organization.

The adoption of green jobs is favorably correlated with the sustainable practice of minimizing waste as an approach that pertains to **reuse or waste minimization**.

Recycling and the quantity of green jobs didn’t have a positive relationship. It is crucial to remember that the study did not distinguish between various types of recycling, and it is likely that some of these may actually be favorably related to the adoption of green jobs. The findings of the study cannot entirely confirm or disprove this notion.

Redesigning products is not a sustainable strategy that is positively related to the creation of green jobs. As a result, the study’s findings do not support this notion.

Own technical expertise, and using predominantly renewable energy are also positively associated with having more employees in green jobs. So according to the findings, businesses that use renewable energy sources, save energy, have access to public funding, and have technical know-how are more likely to employ more people in green jobs. To boost the number of employees working in green jobs, companies should prioritize investment in these areas and reduce waste and save energy.

Frame 1: The results for companies with at least one worker engaged in green employments and not taking in consideration green products and services and renewable energy uncovered that among the factors inspected, exclusively three of them show a statistically significant relationship with the number of full-time workers working in green: public funding (PF), external support (ES), and the technical capability of the company, showing that there’s a positive relationship fair between organizational resources, capabilities, and green employments and it appears as the effect of green products and services offered by companies and use of renewable energy as well.

So the coefficients suggest that a rise of one unit in public funding is linked with a reduction in the count of full-time employees engaged in green jobs. An increase of one unit in external support or the technical proficiency of the company is linked with an upsurge in the number of green jobs.

These results suggest that companies that have access to external support or have developed their own technical expertise in green technologies are more likely to employ workers in green jobs. On the other hand, companies that rely heavily on public funding may have fewer resources available for green job creation.

There was no evidence of an association between insignificant indicators and the number of green jobs. This means that while these variables may be important for promoting environmentally sustainable practices in the company, they may not necessarily lead to a direct increase in the number of employees working in green jobs.

Zero employers on green jobs: Even in these companies we found technical expertise and access to public funding as main determinants in the number of green jobs. These results also suggest that companies focused on waste minimization and recycling may not necessarily have higher numbers of employees working in green jobs.

This information can be used by companies to identify areas where they may need to invest in order to increase the number of employees working in green jobs, e.g., focusing on developing its own technical expertise or accessing public funding opportunities. However, it should also be noted that other factors, such as company culture and management priorities may also play a role in determining the number of employees working in green jobs.

Businesses that prioritize utilizing renewable energy sources and investing in technological know-how are more likely to have more employees working in green jobs, while businesses in the retail or service sectors may need to focus on other approaches to grow the number of workers in green jobs.

5 Conclusion and Recommendations

The study aimed to analyze the correlation between CE approaches and green jobs in EU companies. According to the results, employing people in green jobs is positively correlated with the implementation of the CE approaches. Companies that use CE approaches for energy saving and waste reduction and are offering green goods and services, and are using renewable energy as well in particular, tend to employ more people in green jobs. Also, businesses that are more resourceful and capable in terms of organizational and technological capability tend to hire more people for green jobs.

Hence, companies should concentrate on enhancing their organizational and technical competencies in order to boost their capacity to hire people for green jobs. Governments and public funding organizations may also help to encourage the creation of green jobs by giving businesses money to expand their CE-related resources and skills. Furthermore, additional study is required to examine the possible influence of the CE ideas on the development of green jobs in various industries and localities.

Policy recommendations can be made based on the findings of the study:

- **Promote the adoption of the CE approaches:** Policymakers should advocate for the adoption of CE approaches such as waste reduction, recycling, selling old materials, and developing items that can be repaired, reused, or maintained to increase resource efficiency and green employment.
- **Provide financial support:** Governments should provide financial assistance to businesses implementing CE strategies through grants, loans, and tax incentives.
- **Boost organizational and technological capacities:** Governments should help businesses improve their green capabilities through access to information, educational opportunities, and eco-friendly technology.
- **Encourage cooperation and partnerships:** Policymakers should support collaboration and partnerships between businesses, research institutes, and governmental organizations to promote the use of CE concepts.
- **Raise public awareness:** Policymakers should raise awareness of CE approaches and green jobs through media outreach, public events, and educational efforts.

Policy suggestions can lead to green jobs and a sustainable economy.

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Exploring the Potential of a Regional CoVE in Green Innovation: Insights from Skopje Region



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Abstract This paper focuses on green transition and explores the potential of regional Centre of Vocational Excellence in green innovation in the Skopje Region, North Macedonia. The study involves engagement of key stakeholders through roundtable workshops and a quantitative survey, the analysis of which is a basis for the CoVE strategy. The findings present the opinions and perspectives of key actors from the quadruple helix, emphasising the importance of collaboration and partnership between different stakeholders and the need to continually assess and update educational programmes to prepare learners for the constantly evolving trends in the labour market. The CoVE in green innovation was established in December 2021 and in the moment its portfolio of services and capacities are being built.

Keywords CoVE · Green innovation · VET

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1 Introduction

The world we are living in today is based on industrial development that prioritises sustainable practices and green initiatives. In this regard, the requirements of the industry, the labour market and the overall society are constantly evolving. In order to remain competitive, current and future workers need to acquire new skills in an ongoing manner. This type of persistent and lifelong learning requires flexibility, curiosity and a positive attitude towards gaining knowledge and developing or strengthening skills. Since 1948 and the Universal Declaration of Human Rights, education became main pillar of equality and socio-economic development, “everyone has the right to education”. Furthermore, “it is the single best investment countries can make to build prosperous, healthy and equitable societies” (United Nations, n.d.). Considering the importance of the education, so-called Centres of Vocational Excellence (CoVEs) are receiving significant attention due to their ability to provide high-quality skills to both young people and adults who will be able to respond to the emerging challenges and necessities (European Commission, n.d.). This paper presents a conducted analysis on what is needed for development of green innovation and what services of such CoVEs in green innovation can contribute to economic, environmental and social development in the Skopje Region, North Macedonia. Generally considered, vocational education and training (VET) are perceived as second-tier pathways to adulthood and the industry representatives are facing serious issues with lack of competent human resources (Velkovska et al., 2022). To overcome this challenge, the Skopje Region has taken a proactive approach to advance vocational education and training in the field of green innovation. The findings presented in this paper are result of research that was conducted with engagement of key quadruple helix actors, who participated in roundtable workshops and quantitative survey. The study is part of a comprehensive research conducted within the project “European VET Excellence Platform for Green Innovation”, co-funded by the Erasmus + programme of the European Union (www.greenovet.eu), which followed tailor-made methodological approach to establish regional Centres of Vocational Excellence in green innovation. The CoVE in green innovation was established in December 2021, as a body within the Faculty of Mechanical Engineering, University Ss. Cyril and Methodius in Skopje, with significant support and continuous engagement from the regional project consortium, National Centre for Development of Innovation and Entrepreneurial Learning, ASUC Boro Petrushevski, Rade Koncar TEP, Macedonian Chambers of Commerce.

2 Literature Review

2.1 *VET and Smart Specialisation for Green Transition*

The emergency of the environmental crisis has raised awareness among the world's population. "Green", "eco", "sustainable", "renewables" and "zero-waste" are common buzzwords that are becoming integrated into many processes, initiatives and workflows. The necessity for environmental sustainability and responsible way of acting is not a questionable matter. Even more, connecting green principles with technological development could lead to economic growth, as the implementation of green technologies reduces costs and waste, reduces utilisation of natural resources and increases competitive advantage (Albort-Morant et al., 2016; CEDEFOP; OECD, 2015; Wang et al., 2021; Weng et al., 2015). In Europe, significant number of resources are dedicated to improve and promote vocational education and training, which offers two key benefits: (1) economic benefits and (2) societal benefits (OECD, 2019). Education, formal or informal, is the foundation of growth, development, success and a better future for every individual. Each educational process should result with competent individuals who will contribute significantly to economic growth and a better society in the future. Well-developed vocational education and training systems can lead to high levels of employability and the capacity to respond quickly to changing trends in skills demand (OECD, 2019). One of the key initiatives in this regard are related to the establishment of Centres of Vocational Excellence that are expected to stimulate local business communities and gaining knowledge. CoVEs bring together a wide range of local partners such as providers of vocational education and training, employers, research centres, development agencies, and employment services (among others), to develop "skills ecosystems" that contribute to regional, economic and social development, innovation and smart specialisation strategies (S3) (European Commission, n.d.). The smart specialisation approach is crucial since each region has its own problems, priority areas for intervention and opportunities for growth and development. The idea of the smart specialisation is to convert the needs, strengths and opportunities of a region into product and services placed on the market, through building a common vision for regional innovation (Foray, The Economic Fundamentals of Smart Specialization Strategies, 2017) (National Centre for Development of Innovation and Entrepreneurial Learning, 2019). One of the issues that our society is facing nowadays is that very often activities are undertaken to replicate strategies and good practices from the best regions, without taking into account the local challenges and opportunities. The constant strives to achieve the most and to be the best is an inevitable part of the society, but the wondering is what should be considered as the best? Valuable and innovative ideas in one region can be anchored in another region already, and vice versa. Smart specialisation emphasises the role of the entrepreneurial knowledge which involves scientific knowledge, technology and engineering, as well as understanding of the potential market growth, competitors and needed resources to undertake a particular initiative (Foray, From smart specialisation to smart specialisation policy, 2014).

The process of developing a smart specialisation strategy in North Macedonia is still ongoing. A mapping of the economic, scientific and innovation potential in the Republic of North Macedonia was carried out in 2019, in order to provide a good starting point for the identification of the main priorities in the preparation of the national strategy for smart specialisation (National Centre for Development of Innovation and Entrepreneurial Learning, 2019). The mapping resulted in identification of six promising areas for development and economic growth: (1) sustainable food and beverage production and value chains, (2) information and communication technologies, (3) smart/sustainable buildings and materials, (4) electrical equipment and machine parts, (5) sustainable tourism and hospitality and (6) energy for the future. Based on the mapped industrial priorities, in the period from August 2020 to February 2021, the national team for the development of smart specialisation has conducted a qualitative analysis of the promising priority areas, in order to provide essential information for the dialogue with stakeholders during the entrepreneurial discovery process (EDP) (Expert team of Economic Chamber of North Macedonia, 2021). The analysis resulted in four priority domains: (1) sustainable food and beverage production and value chains (smart agriculture, processing of food with high added value), (2) information and communication technologies (customised development of software solutions), (3) smart/sustainable buildings and materials and (4) electrical equipment and machine parts.

2.2 Determining Factors Affecting Development of Green Technologies and Innovation

The literature review covers overview of key factors that impact the green transition which are of various types, as in Table 1. Technological factors are related to the level of technological progress, research and development opportunities and available equipment. Then, the organisational factors are related to the organisational structure of the institution which undergoes transition, while the economic factors are closely related to those that are led by the environment and the market. It is worth pointing out that the listed factors are crucial for successful implementation of any kind of change. Given the factors that are presented, the development of green competences should begin with a review of what has already been developed and implemented, as well as an assessment of what is missing and needs to be introduced or has potential for improvement. This research emphasises the importance of individual factors that include personal skills and competences to achieve a smooth green transition. Person's motivation, willingness and curiosity to acquire knowledge are of a high importance in any transition period.

Table 1 Determining factors affecting development of green technologies and innovation

Factor	Description	Source
Technological factors	Investments in research and development, materials, equipment, infrastructure, introduction and implementation of new technologies, university-industry cooperation, foreign investments	Stark (2020); Xia et al., (2019); Yin et al., (2020); Поленаковиќ et al. (2019)
Environmental and market-dependent factors	Business models, focus on environment and environmental protection, capital investment, infrastructure, government policies, competitors, consumer demands	Stark (2020); Wang et al., (2021); Yin et al., (2020)
Regulatory incentives	Pollution prevention and control fees, green subsidies, low-interest loans, penalties for environmental irresponsibility	Stark (2020); Yin et al., (2020)
Organisational factors	Organisational leaders, organisational culture, organisational strategy, top management support	Wang et al., (2021); Xia et al., (2019); Yin et al., (2020)
Normative and legal factors	Changes in laws and regulations, awareness and good knowledge of national and international laws, compliance with government plans, strategies and laws	Wang et al., (2021); Поленаковиќ et al. (2019)
Innovation orientation	Openness to new ideas, technologies, skills, resources and administrative systems, ability to effectively implement new services, systems and processes	Wang et al., (2021)
Individual (human) factors	Ability, talent, relevant knowledge, creativity, cognitive factors, upskilling (training to manage new machines and technologies), sustainability competences and after-sales services	Xia et al., (2019); Поленаковиќ et al. (2019)
Environmental factors	Reducing the uncontrolled use of resources, directing them to their rational use	Stark (2020); Гечевска (2014)
Economic factors	Ensuring economic value, costs also play an important role	Stark (2020); Гечевска, (2014)

3 Methodology

3.1 *Research Model and Methods*

The research model is developed within the Greenovet project with the main aim to conduct strategic research, develop a strategy and establish a regional CoVE in green innovation. The model for development of a viable CoVE in Green Innovation involves: (1) identification and engagement of key stakeholders, (2) conducting skills gap analysis for green innovation considering the regional (or national) smart specialisation and (3) conceptualisation and CoVE strategy development. The engagement of stakeholders and skills gap analysis are conducted as part of a comprehensive strategic research. The identification of representatives from educational, governmental, non-governmental and of course, the business community, who would be impacted by the CoVE or are able to provide some kind of support for its development, is necessary to recognise the needs and expectations of the regional ecosystem. The process of identification followed a predefined template with key information that should be provided, such as: brief description of the stakeholder, contact person details, stakeholder's influence on the project and foreseen impact on the stakeholder, importance of the identified stakeholders and an initial plan or actions to engage them.

Through regional roundtable workshop, those stakeholders were gathered together to discuss the existing knowledge and skills, as well as missing capacities and occupational profiles that could accelerate the green transition. In order to address wider audience, the research model involves quantitative survey with the main aim to measure the skills gap in green innovation, but also to perceive the sustainable awareness of the regional stakeholders and their readiness to develop VET excellence by using and offering services through the regional CoVE. The goal of the skills gap analysis is to assess the difference between the actual and future, desired state in regard to green innovation. The research phase and identification of such skills is highly important as it paves the way for introduction of the preferred changes towards a green transition (Polenakovikj et al., 2022).

The insights from these activities are necessary for development of relevant strategy which is well-aligned with the priorities of the stakeholders and guides the CoVE staff to bridge the gap between the industry and the educational sector, with focus on vocational education. The strategy statement focuses on the strategic objectives, the scope of the CoVE, its key services, main partners and customers, as well as the competitive advantage. That strategy is a roadmap for achieving VET excellence, providing clear overview of resource allocation and essential information for making timely and relevant decisions.

3.2 Research Instrument: Roundtable Workshop

In the beginning, January 2021, the key stakeholders were gathered together in a roundtable workshop to discuss the status quo of the VET institutions and the overall educational system, with the aim to spot the biggest challenges and missing elements that are crucial for the labour market and for development of green innovation. A total of 35 participants took part in the workshop and shared their valuable opinions on the following topics:

- (1) In general, which skills are provided by the VET institutions in the Skopje Region (or nationally)?
- (2) Which of the existing skills that a learner can acquire during the studies are relevant and needed for development of green innovation?
- (3) Apart from the skills that are already provided by (VET) educational institution, which skills are relevant for development of green mindset and finding green and sustainable solutions?
- (4) How can the missing elements be developed or strengthened in your environment? Is there a need for changes in the educational system, both formal and informal?

The results are highly important for development of regional CoVE in green innovation and presented in the findings section.

3.3 Research Instrument: Quantitative Survey

This study used a quantitative questionnaire since it is the most suitable instrument to attract a wider audience. The questionnaire was well-structured by using the online survey software QuestionPro. The target number for responses was set to be at least 90 totally completed and relevant responses. The final analysis was conducted with gathered data from 92 responses. It is noteworthy to mention that some of the respondents belong to an organisation that fits into more than one sector, as indicated in Table 2. For instance, one company that operates in the field of sustainable tourism and hospitality, also produces its own food. The personal data of the respondents remains anonymous. However, they were carefully selected to possess the needed expertise and experience in their field in order to be able to detect the missing elements for development of green innovation and better collaboration between educational institutions and the business sector.

Table 2 Respondents' profile (N = 92)

Variable	Sum of sample
<i>Sector</i>	
VET	30
Higher educational institution (HEI)	7
VET school	16
Public authority in charge of education/VET/green innovation	2
Other VET provider (NGO, CSO providing VET)	4
Enterprise	73
Company (smart/sustainable buildings and materials)	4
Company (sustainable food and beverage production and value chains)	14
Company (sustainable tourism and hospitality)	4
Company (ICT)	9
Company (energy for the future)	4
Company (electrical equipment and machine parts)	7
Company (other industry)	19
Other	11
Size	92
Micro	18
Small	20
Medium	33
Large	21

4 Findings and Discussion

4.1 *Identifying Existing and Missing Skills for Development of Green Innovation*

The initial findings are drawn from the roundtable workshop through a qualitative analysis, Table 3. Representatives from educational institutions (formal and informal), companies, civil associations and public institutions key to educational reforms and economic development, discussed about the needed skills and qualifications that could support and foster the green transition. Worthy of discussion is the fact that key stakeholders consider that critical and innovative thinking, focusing on challenges and the ability to develop new ideas are the basic skills that every student needs and acquires, during their educational process. It is a positive fact that both representatives from educational institutions and the business sector believe that the innovative way of thinking and addressing challenges to find solutions to overcome them are currently encouraged, which is especially important when talking about green concepts and technologies. In spite of that, there is a need for greater

motivation, encouraging interest and creative thinking and enabling flexibility in the educational process, in order to use those skills properly. Additionally, greening of personal, generic skills (soft skills) still seems to be missing. Curricula should include content that will bring green concepts closer to students, such as: description of the way green technologies work, overview of the latest green innovation, introducing and understanding the concept of circular economy, as well as developing awareness of extending products lifecycle, reusing and recycling.

The regional stakeholders who participated in the workshop agreed that for different areas there is a need for different actions. The missing skills cannot be developed properly without proper educational contents and study programmes, both formal and informal. Moreover, stakeholders firmly believe that the involvement of all relevant actors is crucial to develop and sustain the regional CoVE in green innovation. With the aim to implement a meaningful change, in this regard achieving VET excellence, fostering green and sustainable innovation and supporting (self) employability of learners, it is essential to consider and take into account views, opinions and perspectives of all key actors in the region. In this way it can be ensured

Table 3 Workshop results: identifying existing and missing skills for green innovation

Skills provided by VET institutions		Skills that need to be developed further
Basic skills	Skills for green innovation	Skills for green innovation
Critical thinking	Collaboration and communication with the business community	Awareness for green technologies and green innovation
Innovative thinking	Technical skills—energy efficiency	Practical implementation of the theoretical basis
Challenge-oriented thinking	Taking individual initiative	Understanding of the circular economy concept
Digital skills	Understanding of the environmental crisis and climate change	Motivation and perseverance
Literacy and language skills	Collaboration and communication with the non-governmental sector	Flexibility
Technical skills	Identifying solutions to protect the environment	Social entrepreneurship
Skills for work-based learning		Sustainable thinking
Skills for developing new ideas (creativity)		Skills for clean production
		Skills for recycling and reusing
		Water management
		Reversible logistics

Table 4 Respondents' interest in CoVE services (N = 92)

Variable	Frequency
<i>Potential CoVE services</i>	
Cooperation with industry	68
Trainings	64
Support for internship programmes	57
Cooperation with VET providers	56
Support for project applications for international funding	52
Support for project applications for national funding	43
Preselection of potential employees (VET trainees)	24
Job vacancies announcement	16
Other	0

that the CoVE will be beneficial and sustainable and will have a positive impact on the community.

4.2 Benefit of Potential Services Offered by the CoVE in Green Innovation

The research identified initial interest for CoVE's services and benefits that it can offer to the key stakeholders in the region. The potential CoVE services and instruments are considered quite important and relevant for the stakeholders who took part in the survey, Table 4. Most of the respondents believe that it would be beneficial for them to establish or strengthen the contacts with the industry in order to collaborate on green and sustainable topics. Moreover, there is high interest for trainings, which in the moment of the research remain quite general and are being shaped with the development of CoVE's portfolio of services. The findings reveal the interest in project endeavour and capacity building for developing project applications. On the other hand, the least attractive services are preselection of potential employees and announcements of job vacancies, indicating that respondents prefer services that facilitate skills development and training.

4.3 Supporting the Regional CoVE in Green Innovation

The analysis shows that regional stakeholders identify their capacity, and the capacity of the organisation they are part of to provide training in their area to expand the offerings of the CoVE and support its sustainability, Fig. 1. Since approximately 70% of the respondents come from the industry, it is of great value to know that

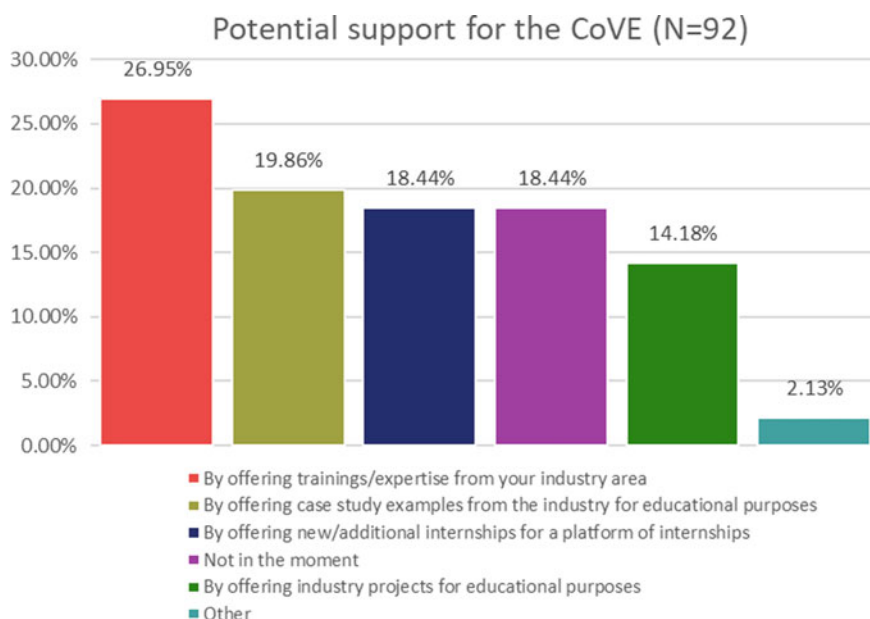


Fig. 1 Potential support for the CoVE by key stakeholders

they are willing to share their knowledge and expertise in various kinds of trainings. Moreover, they are eager to collaborate further with the educational institutions and to provide case study examples and internships in order to ensure that the educational process is relevant and addressing current and future challenges.

5 Conclusions

The aim of this study was to assess the current state of VET in Skopje Region and identify the potential in terms of development of green skills, green technologies and green innovation, as well as the perspectives of key stakeholders. The stakeholders were encouraged to think in a sustainable way and imagine a greener future. It is evident that they recognise the importance of sustainability, circularity and the overall green transition, which is a good starting point for the sustainability of the regional CoVE in green innovation. In addition to that, the importance of updating the existing curricula and providing more flexibility in the educational processes is emphasised. This is important for students to acquire the needed skills on the labour market. Overall, this study highlights the importance of collaboration and partnership between different stakeholders in developing sustainable solutions and the need to continually assess and update educational programmes to prepare learners for the constantly evolving trends in the labour market.

5.1 Implications

This study, accompanied by a skills gap analysis, served as a basis for development of a concept and strategy for the future functioning of the regional CoVE in green innovation. The CoVE was established in December 2021, and ever since its staff is collaborating to build its capacities, manage and sustain the CoVE and develop valuable portfolio of services. The analysis supports the CoVE by providing clearer insight on the direction in which it should be developed, based on the perspectives of quadruple helix actors in the region. Considering the importance of collaboration and providing links between different initiatives, the CoVE in green innovation is collaborating closely with the established FabLab (Faculty of Mechanical Engineering, 2022) and Learning Factory (Learn4SMEs, 2022) at the Faculty of Mechanical Engineering, in order to enable wider access to knowledge and connections with the industry that will contribute to smooth green transition, stronger research and innovation performance, but also higher competitiveness of our companies.

5.2 Limitations and Future Research Directions

Significant measures were taken to ensure validity of the strategic research and collect statistical relevant data. However, this analysis served as a basis for establishing the CoVE, therefore the participants might not have been very well-acquainted to the concept of the CoVE, and they may not have understood it as a network that will serve the regional ecosystem. For future research, it might be beneficial to conduct a more comprehensive survey with a wider range of respondents to enable more in-depth statistical analyses and to further support not only the CoVE development, but also its impact on the society. Considering the overall research, the Skopje Region is lagging behind because the smart specialisation strategy is not finalised yet. In the moment of the research, all available resources were used to align it with the recognised industry priorities in the region. However, future research should focus on integrating the final industry priorities and principles of smart specialisation into the core functioning of the CoVE, in order to foster economic development and growth. By incorporating smart specialisation into the CoVE's operations, the Skopje Region can position itself more strategically within the European landscape. It is essential for the region to invest in further research and innovation initiatives that will address the smart specialisation approach for development of responsible and sustainable solutions. In addition to this, taking into account the size of the country and the fact that the Skopje Region is the economic and educational centre of North Macedonia, the initiatives that are taken there have high potential to be replicated on a national level. The CoVE in green innovation established in the Skopje Region could be beneficial for all kinds of stakeholders around the country. Even more, as the first CoVE of its kind in the wider region, the Skopje CoVE in green innovation could provide valuable insights and lessons learned for other countries and regions looking to establish

similar initiatives and serve as a good model for strengthening the collaboration with the neighbouring countries and the region. Finally, it is vital to consider the principles of responsible research and innovation that facilitate the social-economic advancement in an open, transparent and inclusive manner. The CoVE development should ensure ethical principles, open access and inclusivity.

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Employee Creativity During Crisis: A Review of Literature Since 1982



Shanthi Banishetty

Abstract Nearly 40 years passed since the research started on creativity during crisis. Are we creative ahead with solutions to face crises? Creativity is one of the most important resources for any organization to think innovatively and grow especially in crisis or sudden environmental jolts. The SCOPUS database was searched till 2022 and 27 articles were considered for in final review. The research findings were summarized with recent trends in the field of interest and reported independent variables, mediators, moderators, and outcomes studied in creativity research during crisis. Despite being a demanding area of research less literature is reported in crisis context. The current study took the opportunity to pave the future directions identified to enhance the creativity knowledge for developing organization strategies and programs to address crises efficiently by firms.

Keywords Employee creativity · Crisis · Review · COVID-19

1 Introduction

Crises are times of challenge for individuals and society. It can be a global effect like pandemic or wars, firm level like financial crunch or at individual level like lethal health issues or demise of loved ones. These are times of uncertainty that slows down the reasoning and action ability of individuals, but also ignites the creative potential to overcome uncertainty, creating urgency to avoid negative consequences (Ansell & Boin, 2019; Beghetto, 2021; Cohen & Cromwell, 2021). So crisis leads to anxiety thinking of threatening events to happen in the future, which can either make an individual react creatively to overcome the situation or lead to maladaptive behavior (Grupe & Nitschke, 2013). A review studied on the employee behavior during COVID-19 crisis reported reduced creativity levels at individual level reflecting in

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the slowed goal progress and increased team deviance by not sharing creative ideas in virtual meetings (Newman et al., 2022).

A bibliometric analysis studied how COVID-19 crisis has changed the workplace environment revealing the impact of creativity, leadership and organizational changes as one of important domain to be explored (Ayoko et al., 2021). An exclusive review of the Journal of Applied Psychology to identify the most emphasized topics in Applied Psychology revealed employee creativity as emerging topic of interest, with a mention on crisis management as belittled area in research (Piotrowski, 2016). In spite of the need to get a clear picture of knowledge around employee creativity in crisis, no review study is reported. Therefore, the current study takes the opportunity to review the extant research literature covered on creativity during crisis, an attempt to figure out research questions as.

- (I) What is the status of creativity research reported in crisis situations?
- (II) What are the research gaps which can pave scope for future researchers?
- (III) Can a conceptual framework be derived based on existing literature on employee creativity during crisis?

2 Literature Review

2.1 *Crisis in Organizations*

Sudden shocks like COVID-19 pandemic have shaken organizations of diverse industries to change as per the timely demands. The pandemic has created uncertainty and anxiety of survival at all levels of human life whether be personal or workplace or society. And firms were pressurized with dilemmas of short-term challenges, social and economic issues, learning and performance issues. Firms had challenges of cooperating with all stakeholders, redefining the time periods of goals, finding new collaborations, cost calculations of sudden investments in technology solutions at firm level and within firm leaders' challenges to make decisions on uncertain situations of considering employees well-being and economic demands of firm. While firms were learning from knowledge of prior crises situations, it also paved thoughts to focus on creative and innovation-driven knowledge building and training to happen in organizations (Carmin et al., 2021). During the financial crisis in 1997, firms in South Korea realized the need for creativity management to tackle the adverse situations effecting firm performance. Researchers observed the interlinking of different levels, i.e., societal, organizational and individual on creativity, in turn affecting the organization performance (Bhattacharyya & Nair, 2019). With the rise of technology and data analytics, the job demands of workforce are continuously changing where in near future the individuals would be getting short-term tasks over long-term job security and there would be a constant demand to upgrade skills leading to social crisis and organizations would be constantly looking for creative skills in employees. At the organization level, the firms have challenges to quickly adapt to technology demands,

assess current skills set of employees and training them, data access issues, privacy issues, remote working issues, team coordination and maintaining work ethics. Crisis also creates constraints of deadlines, resources, competitors and collaborations which can lead to knowledge leakages (Carmine et al., 2021). So understanding the future of organizations is based on how fast they can adapt to external shocks or demands and would be dependent on how much creativity and innovation are encouraged in the firm? Are their efforts constantly invested on exploring creative ways to face challenges? Though firms realize the need to focus on long-term strategies to boost employee creativity during crisis. However, under pressure firms fall back to short-term solutions. So, the question remains where are organizations on creativity at workplaces in crises and research on creativity explored in crises.

2.2 Creativity in Organizations

2.2.1 Employee Creativity

Whether the reasons be sudden crises or demands of industrialization, creativity of employees is an important element to come up with novel ways, strategies and techniques to cope from disasters or compete with industry competitors. Prior research suggests factors influencing the employee's creativity like freedom at work, clear role specification, self-efficacy, job complexity and leadership support (Kassa, 2021).

Theorists also observed the individual features like traits and moods influence on creativity and how situational factors like job characteristics, goals and work environment explain the relation between employee creativity and firm performance (Amabile et al., 1996; Baas et al., 2008; Sung & Choi, 2009). A study used ability-motivation-opportunity model to explain the antecedents to employee creativity—ability-based factors like social support, self-efficacy; motivation-based like leadership, job autonomy, stress, satisfaction, motivation, need for achievement, need for power, prevention focus, psychological engagement, empowerment, positive and negative affective states, promotion focus, personality traits; and opportunity-based include organization climate for innovation, tenure and also reported the moderating effects of uncertainty avoidance and long-term tenure on creativity (Ouyang et al., 2021). Studies also talk about forms of creativity—radical and incremental, how two are differentially linked to factors like intrinsic motivators, problem driven, abstract ideation associate to radical creativity, while extrinsic motivation, solution driven, concrete ideation link to incremental creativity (Gilson & Madjar, 2011).

Based on the cognitive theories, the individual's appraisal of job insecurity as a hindrance or a challenge influenced the creative behavior (Yao et al., 2021).

Individual creativity is also a great resource which over time transform into organizational creativity with the help of supportive leadership (Gao et al., 2021).

2.2.2 Leadership

Leaders have become an important pillar in supporting the individual creativity and continuing toward organizational creativity. Supportive leadership motivates employees to work to their best potential. Among the existing literature on leadership, transformational leadership, ethical leadership, authentic leadership and recently booming creative leadership are mostly found to be associated with enhancing employee creativity and organization creativity (Feuls et al., 2021; Gao et al., 2021). The characteristics like strong ethics and belief system, risk taking during times of challenges, ability to understand employee needs, articulate the organization goals, aware employees and motivate them, encourage open communication, push toward creative thinking and new solutions are considered important in a successful leadership. Theories like social cognitive theory says individuals learn and imitate others, so a creative leader can motivate others with display of creative skills and strategies (Wen et al., 2017). As per Leader-Exchange theory, the type of leadership plays a determining role in the kind of exchange relation maintained between leader and sub-ordinate. The relation is strong when the employee feels resourceful about the leader for support, guidance, information and feedback. Another theory on allocation preferences talks about how an ethical leader can maintain harmony in the team with the equal identification of every member (Wang et al., 2021).

2.2.3 Team Creativity

The famous quote “Together we win” emphasizes that teams can bring together people with diverse cultures and skill sets to generate a wealth of creative ideas. However, it is imperative to acknowledge that groupthink is a phenomenon that can potentially hinder creativity. VICTORY model derived from social cognitive theory well explains the antecedents which can lead to team creativity (Tang, 2019). Studies suggested how shared leadership keep live the team spirit and enhances team creativity (Ali et al., 2020).

2.2.4 Organization Creativity

With globalization there is a need for creative solutions at every phase of the organization. Organization creativity has become a crucial need to build an innovative environment for solving problems posed by the dynamic world. It is a complex process which culminates the individual creative resources and advance as a team and comes up with innovative strategies (de Vasconcellos et al., 2019). Research focus has increased on this level of creativity mainly focusing on building management, leadership, knowledge, infrastructure, organization structure and climate (Blomberg et al., 2017). Understanding the timely demands of crisis, organizations focus toward innovative ways to address problems encouraging creative workplaces. Studies reported

designing workshop methodology using design thinking process as a strategy to make employees develop creative solutions (Bertella et al., 2021).

3 Methodology

The purpose of this review is to observe the research streams developed around creativity in crisis situations of organizations during the period 1982–2022.

3.1 Search Criteria

The research articles were searched in SCOPUS database. The search methodology as mentioned in Fig. 1 is followed. The search resulted in 45 articles of which 18 were relevant to the scope of this review and 3 articles were with incomplete details of author. Among the 27 articles, 21 were empirical studies and 6 were review literature. And within empirical category, 18 studies used quantitative analysis and only 3 qualitative were reported.

3.2 Search Analysis

The search analysis shows a shooting rise in research in the year 2022 after 2018 and majority were research articles (86.7%), less of reviews (2.2%) and conference papers (11.1%) were reported. Most articles are published in business management studies followed by social sciences. Most of the studies were done in US followed by China and Romania indirectly inferring the countries most focused on business economy growth and readily investing in creativity research in crisis situations (Figs. 2 and 3).

4 Findings and Discussion

Though creative research is a highly focused area in demand, this review shows that very less research is done in crisis scenario. A lot of research is done to understand creativity as an outcome and process, cognitive, psychological and social mechanisms to describe the creative process, role and characteristics of leadership, team creativity and organizational creativity in general situations, but less literature talks about these findings in crisis. The existing research on creativity done in crisis context is summarized in Fig. 4 with details of antecedents, mediators/moderators and outcomes. Majority research focused on well-suited leadership during crisis followed by focus

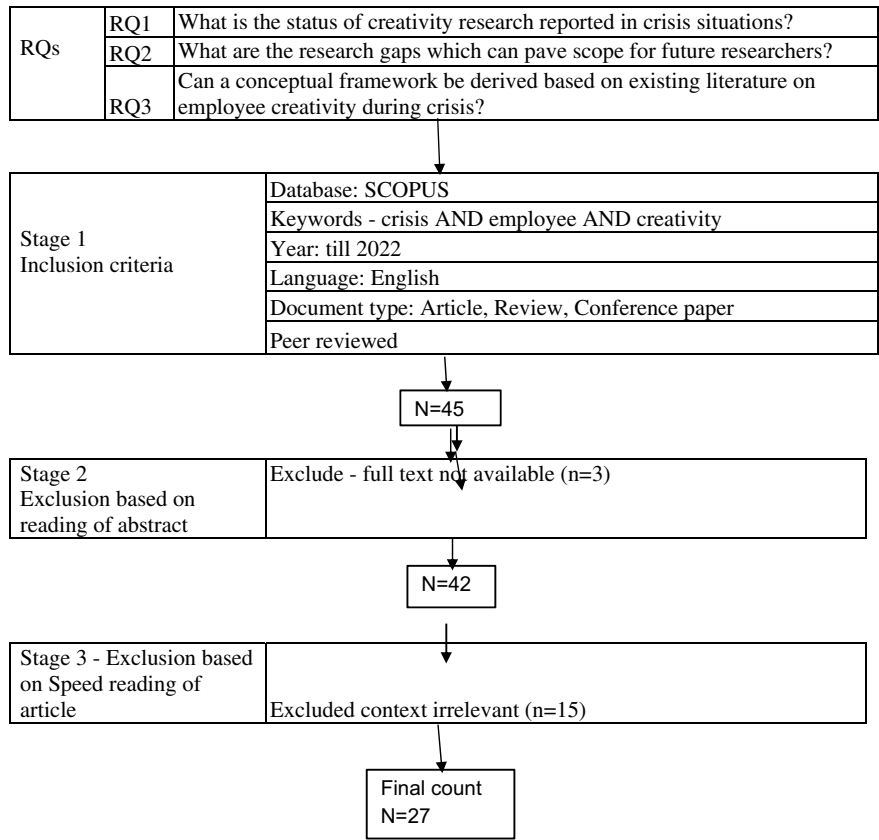


Fig. 1 Flowchart of search methodology

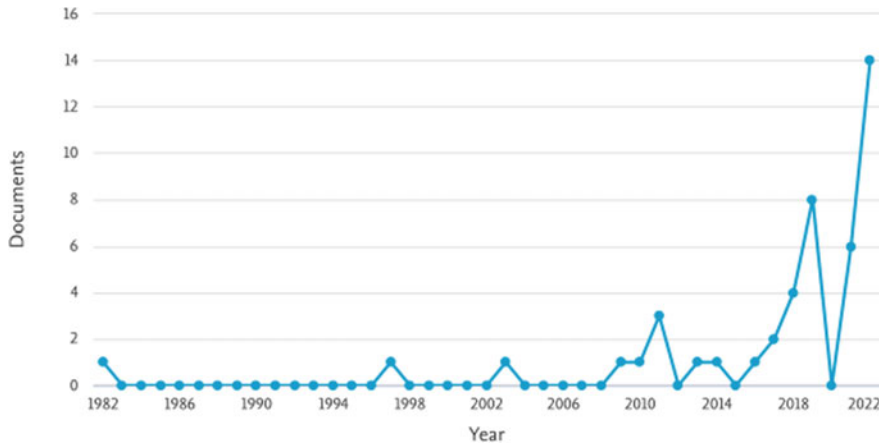
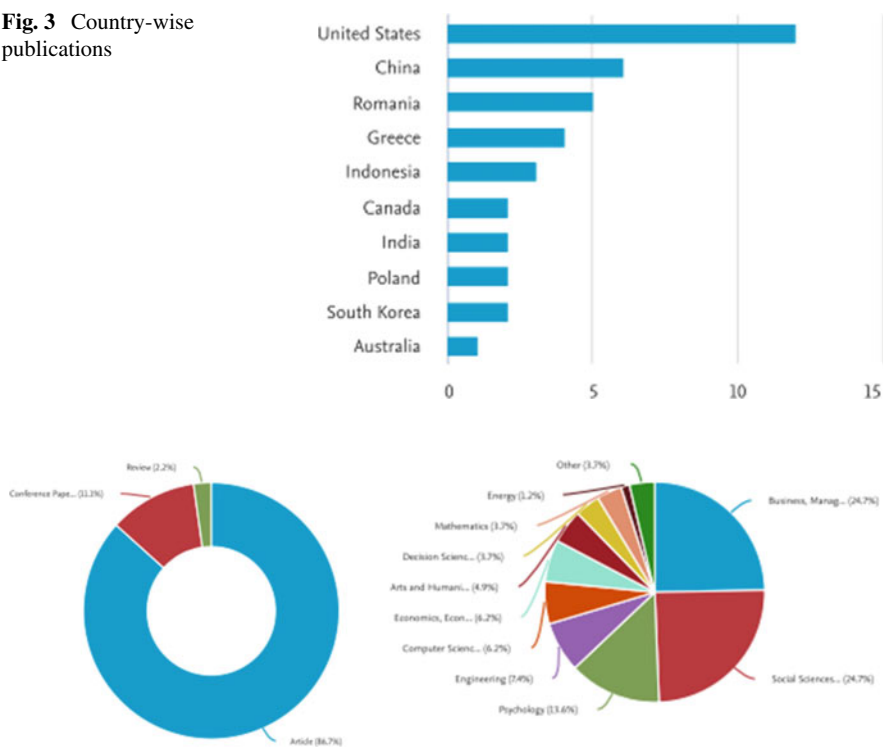


Fig. 2 Recent trends in publications on creativity during crisis

Fig. 3 Country-wise publications**Fig. 4** Percentage distribution by publication type and subject-wise

on individual well-being and performance, while only one study each was reported on team creativity and organization creativity.

4.1 Crisis and Individual Creativity

Studies reported that crisis or adverse events lead to positive or negative experiences. As proposed by Damian and Simonton, adverse experiences push individuals to think outside the routine to come up with new ideas giving cognitive flexibility. And the positive association of creativity with adverse experiences received empirical support (Damian & Simonton, 2014, 2015). Contrary, job burnouts arise with high job demands and low resources especially in crisis which adds uncertainty and leads to emotional exhaustion and disengagement from work. Research suggests the negative experiences inhibit creativity and rise cognitive errors at task (Gabriel & Aguinis, 2021).

One stream of researchers focused on role of leadership in employee creativity. Studies suggested ethical leadership style showed positive relation with employee

creativity through cognitive stimulation to perform and motivation to acquire new skills and knowledge to grow. Social exchange theory of leadership and self-determination theory explains the mechanism of how ethical leaders encourage knowledge sharing, and their constructive feedback motivates intrinsically to work creatively (Shafique et al., 2019).

The impact of psychological states on employee creativity is noteworthy. Studies suggest that positive affect enhances creative thinking, while negative affect hinders creativity.

Creativity as intervention to heal during crisis: A creative collaboration project during the pandemic focused on conducting creative art, literacy and expression activities seeing uncertainty as a possibility. The team realized these group creative activities helped understand each other's motions during crisis and care each other to face the situation positively (Hash et al., 2021).

A theoretical process model proposed by Ronald explains how individuals with creative confidence readily act taking risk during crisis, which lead to creative outcomes (Beghetto, 2021).

Many mental health studies have shown the use of creative activities as a coping strategy in adverse situations enhances positive affect which in turn improves well-being of individual. And the creative activity involves process engagement and motivation to grow as proposed in transaction model of stress and coping (Corry et al., 2015). Creativity plays a mediating effect between crisis and well-being (Tan et al., 2021).

Positive relations enhance team creativity which in turn strengthens social well-being.

During the financial crisis, ethical leadership gained importance reporting a positive association with employee creativity, where psychological empowerment and risk taking ability acted as mediators (Duan et al., 2018).

Proactive trait of manager during crisis is crucial to make creative decision-making on cost cutting and improves the performance of organization. Very few studies were reported and showed positive association between proactive personality and creativity (Meutia et al., 2018). As focus was on leadership styles, less work was reported on leader humility which had great impact on creative functioning of employees.

Uncertainty of the crisis situation can create doubt of oneself influencing the further actions at work. The uncertainty causes distress and severity depends on the personal relevance of crisis, this psychological state can hinder the creative thinking of individuals. And uncertainty reduction theory suggests that individuals take new information to avoid uncertainty of situation, this information can lead to positive or negative affect states (Yoon et al., 2021).

Few researchers studied the crisis effect on team creativity. The team dynamics has a positive association with team cultural tightness, but the team creativity was dependent on the kind of information shared, i.e., negative talks on crisis reduced the team creativity (Qin et al., 2021).

4.2 *Crisis and Leadership*

Leadership becomes critical during turbulent situations of environment who play key role in firm success. As literature says creativity is influenced by situational factors—leadership is prominent factor reported. And studies on leader humility showed positive association with employee creativity, this relation was explained through social information processing theory which says leader humility acts as a social signal encouraging to be creative and antecedent, and focused emotion regulation strategy appraises the cognitive process (cognitive reappraisal) to perceive the situation positively. The relation is mediated by perspective taking of employee which helps employee in empathizing with the leader's thoughts and get motivated to work creatively. So humble leadership challenges the traditional top-down leadership in enhancing employee's engagement, commitment and performance (Wang et al., 2017).

Ethical leadership showed positive association with creativity mediated by psychological empowerment, willingness to risk, perceived leader support and perceived organization climate (Duan et al., 2018; Li et al., 2021). Authentic leadership is another positive type of leadership which encourages creativity at workplace. The four elements which constitute authentic leadership are self-awareness, transparency, balanced processing of information and ethical which enables appropriate decision-making in any kind of pressure some situations. So employees feel autonomous and open to express their ideas under this leadership, thus increasing the organization potential with their creative ideas (Ribeiro et al., 2018).

Proactive trait in leaders was positively related to creativity. Individuals with proactive personality are always ready to learn new things, open to new challenges at work, think creatively to solve problems. So, during crisis their skills help firms to reduce costs in materials or operations or supply chain functions and enhance efficiency. This kind of combination of proactive leaders and creativity help small medium-based firms toward innovative strategies to grow (Meutia et al., 2018).

4.3 *Crisis and Team Creativity*

Studies suggest the importance of group work in taking responsibility on crisis and creativity. The group capabilities and cohesion are dependent on the composition and leader's decision-making (Moraru et al., 2019). One study reported on how cultural tightness in the group can have a negative impact on team creativity while sharing the negative information on crisis like COVID-19. Backed by cultural tightness-looseness theory, the group cohesion is enhanced by team cultural tightness, i.e., less deviance in the team which has an advantage while sharing good or positive information, but sharing negative or discouraging talks of a crisis or disasters disturbed the group spirit and reduced creativity in the team. This affect was high when team had

face-to-face interactions, so remote working during pandemic acted as a moderator to reduce this effect (Qin et al., 2021).

4.4 Crisis and Organization Creativity

Overtime crisis incidents have taught organizations the need to invest in human resources is the best strategy to unlock productivity and cost cutting to firm and encourage employees to show creativity, supportive behavior and positive attitude at work. Studies also show that bureaucratic firms which believed in stable approach could not adapt to the sudden jolts of environment, emphasizing the importance of organization creativity to meet the changing demands of world. And organization creativity is only possible if the employees are encouraged and trained to develop new skills under guidance of supportive leadership who can motivate and build trust on the organization. Existing literature even says organization creativity is a multistep process which involves identifying problem, formulating, ideating a solution and then implementation of solution (Basadur, 1997). Another research identifies the role of culture which can hinder the change process. During financial crisis of 1997, though organizations wanted to move toward providing freedom to employees and permit to be flexible to involve in change process, cultural tightness acted against flexibility (Kamoche, 2003) (Fig. 5).

5 Future Directions

The current study clearly shows a smaller number of studies are done to understand the three levels of creativity during crisis or turbulent situations. There is need to understand the sociological and cognitive mechanisms of creativity during crisis and cross-talks between the three levels. The factors and mechanisms positively or negatively connect to creativity.

A bibliographic study of 2016 identified the most emphasized research areas in applied psychology and listed predictors of creativity and crisis management as a trending topic (Piotrowski, 2016). There is a need of research on understanding the creative engagement process of employees (Tan et al., 2021).

5.1 Impact of Personal Characteristics

More research is needed in understanding the role of proactive trait on creativity and ways to enhance this trait (Meutia et al., 2018). Other personal variables like self-motivation, personal initiative, radical and incremental creativity can also be studied. Many studies are reported on positive leadership role in increasing employee

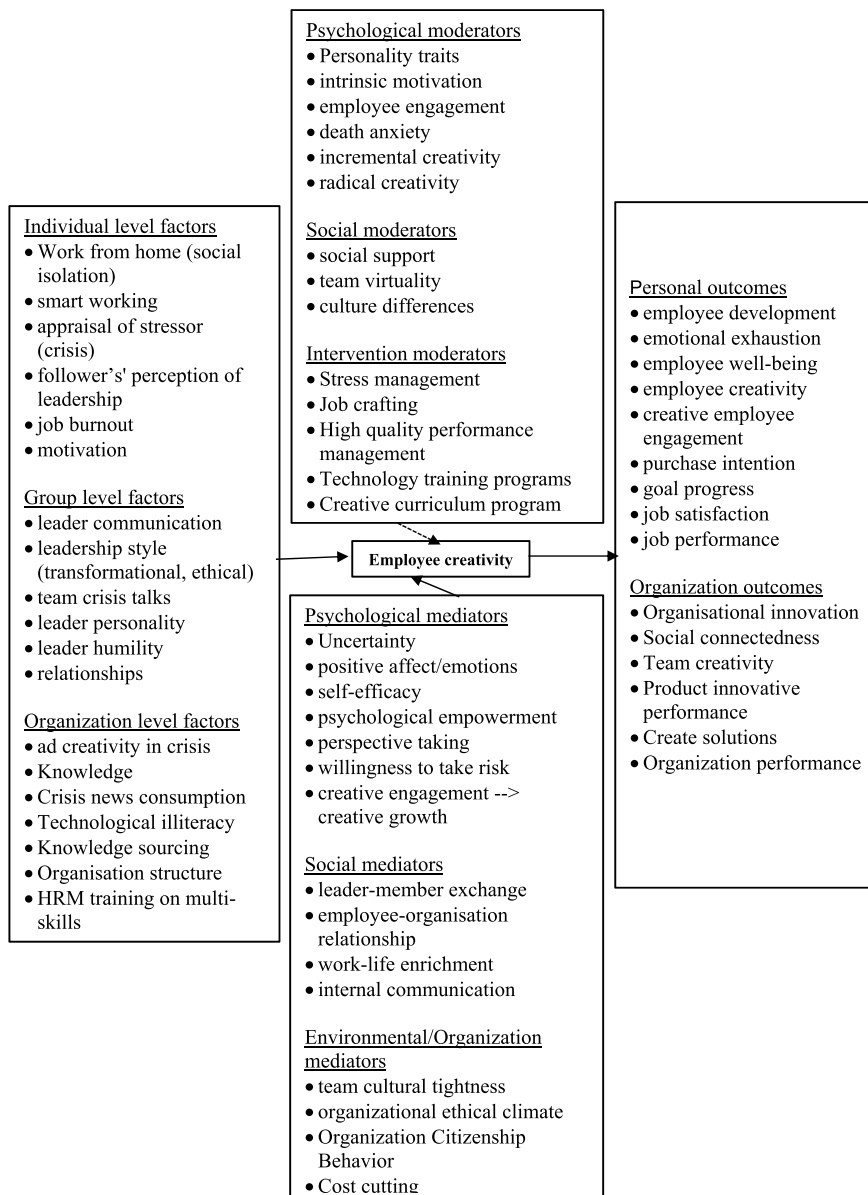


Fig. 5 Antecedents, mediators, moderators and outcomes of employee creativity during crisis

creativity but very few are reported which were conducted during crisis/turbulent situations. Likewise, less research is done to study the effect of pressure situations like burnout or turnover (Ribeiro et al., 2018).

5.2 Methodology Issues

Extant literature suggests the need to use mixed-method design of methodology to identify variable relations and understand the causal relationships of HR dimensions with creativity and innovation of organization (Muñoz-Pascual et al., 2021). And most of the studies suggest longitudinal research of all the three levels studied through the entire crisis period.

Studies also identified a need to choose appropriate research designs and methodologies to study creativity at individual, team and organization level and test theoretical process models proposed in few studies (Beghetto, 2021).

5.3 Culture Impact

During threats, team cultural tightness may hinder team creativity due to sharing of negative talks, but in future need to research on general talk and levels of self-disclosure also. Also, need to explore the level of job control in the team also reduces the spread of talks in group. Cross culture studies are needed as creativity is a complex process influenced by cultural factors which are unexplored (Tan et al., 2021).

5.4 Influence of Organizational Factors

Research in organization creativity has a scope to work on ways to identify appropriate decision-making rules to balance adaptability and efficiency; rules for higher management to motivate low-level managers toward creativity; technological illiteracy; rules for firms with long-term goals to swiftly shift the balance between adaptability and efficiency so that they can address the sudden demands of environment (Basadur, 1997). Organizational creativity is the most focused among three levels, but still a lot needs to be explored on situational and environmental factors influencing it and its barriers. Organizational creativity plays an important part in international business collaborations, especially after COVID-19 effect; what could be the creative strategies to enhance these relations is quite an interesting area to explore whether be for sustainability or development.

5.5 Contextual Studies

Only few contexts of crisis like COVID-19 and earlier economic crisis were studied, while environmental disasters might also need focus. Likewise, few leadership styles are only analyzed leaving a scope for future aspirants to explore other types (Katou et al., 2022). E-leadership is the emerging area to focus with the advent of virtual teams. Leader's motivation and performance feedback through virtual means is that effective in encouraging creativity at work. Understanding body language and emotional state of employees has become a big challenge for leadership roles. Further research is needed to understand virtual strategies to encourage team spirit, empathetic language, timely feedback and effective team interactions (Fan et al., 2014). Creativity is a process and very few studies considered the different phases for their analysis, so there is ample scope to observe the models at different stages of creative process (Katou et al., 2022).

5.6 Psychological Mechanisms at Play in Creativity

Cognitive mechanisms are explored to understand how an uncertain situation impacts the perceptions of individuals, while emotional regulation pathway is less explored during crisis. The emotions like fear, anger, anxiety developed impact creativity, and what kind of coping strategies are evoked to solve the problems is an interesting area to study (Yoon et al., 2021).

6 Conclusion

To summarize, crisis or disasters or environmental turbulences are very uncertain situations which affect human race at every level. And creativity is a great resource to adapt or find new ways or solutions to deal with uncertainty. Especially, COVID-19 pandemic has shocked individuals and organizations with sudden chaos and confusion to face it. Remote working was a great challenge for many organizations, specifically for small and medium enterprises to quickly adapt to the needs. And creativity comes out a great weapon to deal with these situations. Organizations which focused and invested on creativity development programs could address situations better than others. Therefore, the area of creativity during crisis needs to be further explored to help organizations to combat crisis with confidence.

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Ethical Leadership, Green HRM Practices and Environmental Performance of Manufacturing SMEs at Selangor, Malaysia: Moderating Role of Green Technology Adoption



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Abstract The relevance of the environmental agenda for the business has increased tremendously in recent years globally. The ecological performance of small and medium-sized enterprises (SMEs) in Malaysia deserves more academic scrutiny since it is expected that this sector influence on the environment is significantly higher than the large corporations. To tackle the negative ecological influence of SMEs, ethical leadership from top management level, green HRM practices, and green technology adoption can play crucial role. Thus, this paper examined the association between ethical leadership (EL) and green human resource management practices (GHRMP) on environmental performance (EP) of manufacturing

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SMEs at Selangor, Malaysia along with moderating influence of green technology adoption (GTA). Quantitative methodology, non-probability convenience sampling method was applied and responses were collected from 140 managers and from 140 manufacturing firms situated at Selangor, Malaysia. Data analysis through smart PLS software reveals that EL, GHRMP have positive significant relationship on EP. EL and GHRMP both significantly moderate with EP in the presence of GTA. The research findings will inspire the industry player, policy makers, and different stakeholders to develop policies and engage in green practices. With the inclusion of diverse constructs, the model offers novel contribution on both academia and industry practice.

Keywords Ethical leadership · Green HRM practices · Green technology adoption · Environmental performance · Manufacturing SMEs · Selangor · Malaysia

1 Introduction

The relevance of the environmental agenda for the business has increased tremendously in recent years, especially at the worldwide level, as has the importance of the climate change agenda (Ogiewonyi et al., 2022). Consumers' growing consciousness of the environmental effect of their consumption decisions, as well as their determination to lessen their ecological footprint, has opened up new market prospects for manufacturers in recent years (Csutora, 2012; Hadler et al., 2022). As a result, in response to rising environmental pressure, green practices have emerged as one of the essential strategic tools for achieving sustainable growth in manufacturing industries.

As substantial contributors to employment and economic growth, SMEs are widely recognized as the backbone of any economy. In most developing countries, SMEs act as a support in supply chain for established firms (Driouach et al., 2019). SME development is critical to Malaysia's development as one of the emerging countries whose economies are heavily reliant on it (Manap et al., 2016). According to SME Corp (2020), Malaysia got 1,151,339 SMEs, accounting for 97.2% of the total number of business enterprises. SMEs have expanded by 4.9% on average per year since 2015, according to the small business administration (SBA) (SME Corp, 2020).

The environmental practices of SMEs in Malaysia deserve more examination since it is expected that this sector causes more environmental harm than the big corporations (Hillary, 2000). According to the air quality index (AQI), Malaysia was rated 58 out of 106 nations in 2020 for having the poorest air quality, with Selangor being named the most polluted city in the country (AQI, 2022). On the other hand, as an industrialized economy, Malaysia is transitioning away from material creation and manufacturing.

Sungai Kim Kim in Johor, Malaysia, was the site of an industrial pollution incident that occurred on March 7, 2019, and which reportedly harmed the health of approximately 6000 people (Ghouri et al., 2020). As a result of the growing social awareness in Malaysia, particularly in the wake of this news, about ecological sustainability, corporations place a strategic emphasis on green practices in order to improve EP, while also gaining a competitive edge (Deshpande & Swaminathan, 2020; Hossain et al., 2022a, 2022b, 2022c, 2022d).

SMEs are gaining interest to develop environmental policies and management systems, hire specialized people, and communicate their ethics and objectives to stakeholders. In this light, there is minimal evidence that scale affects the adoption of waste reduction efforts and greener design techniques. According to Lewis and Cassells (2010), SMEs believe that environmental protection is the duty of the local government and planners, not of them. This demonstrates the difficulties inherent in achieving sustainability in SMEs.

Scholars explored link between environmental and human resource management (HRM) (Hossain et al., 2022a, 2022b, 2022c, 2022d; Bhutto, 2021; Jabbour et al., 2018). Eco-conscious managers' values have a significant influence on the EP of the businesses (Han & Hyun, 2019). Prior research has stressed the importance of senior managers in promoting corporate environmental sustainability, but there is a dearth of literature on their leadership in environmental studies. Moreover, green technology (GT) also recently gained attention to tackle environmental problems. The term "GT" is used to describe technologies those used to minimize the firms' environmental pollution in a circular economy (Dey et al., 2022; Hossain et al., 2022a, 2022b, 2022c, 2022d). This includes technologies that ensure minimal water pollution, reduced carbon dioxide emissions, eco-friendly transport, sustainable supply systems, and sustainable manufacturing processes. Thus, this study integrates these three crucial factors to examine their impact on green performance.

Following the introduction section, the next section explains literature review, theories on EP, GHRMP, GTA, EL, and stakeholders. Then methodology and data collection strategies are elaborated. Finally, findings are interpreted along with implications, limitations, and future research avenues.

2 Literature Review

2.1 *Environmental Performance of Manufacturing SMEs*

Following the structural transformation of the Malaysian economy that began in 1987, the manufacturing sector has been regarded as the engine that drives the country's economy. Recently, the manufacturing sector has overtaken the agriculture sector in importance (Ahmed, 2020). SMEs account for 70% of industrial pollution and create between 50 and 80% of garbage (Hossain et al., 2022a, 2022b, 2022c, 2022d; Ong et al., 2021).

According to previous research by Jayeola (2015), SMEs are responsible for 70% of industrial pollution. Quintás et al. (2018) evidenced that, SMEs are responsible for 60% of carbon emissions. Koirala (2019) coined that SMEs pollute the air and water besides generating immense waste. More than half of all commercial and industrial waste is produced by SMEs (Woodard, 2021), and the Environment Agency (2019) estimates that 60% of commercial wastes and 80% of pollution incidents can be traced back to SME operations in the UK. However, fewer than 33% of American enterprises are transitioning to green business (Weber & Matthews, 2008).

SMEs in developing nations face numerous obstacles when attempting to adopt sustainable practices. These challenges include restricted access to financial and non-financial resources, elevated production expenses, and onerous tax burdens. Nonetheless, the outcomes were limited in their applicability due to insufficient up-to-date information and the high cost of conducting the necessary surveys. According to Yin and Wang (2017), while the suppliers are equipped to provide the necessary goods, there exists financial impediments and other limitations in the production process. The topic of sustainability practices in large corporations has been extensively covered in literature. However, the implementation of environmentally friendly practices in small and medium-sized enterprises (SMEs) has not received as much scholarly attention, as noted by Moss et al. (2008). Aragón-Correa et al. (2008) said that SMEs should use distinct solutions to modify their environmental behaviors owing to their organizational emphasis differences.

2.2 *Top Management Ethical Leadership*

Business leaders understand the need of taking charge to solve environmental problems (Ruokonen, 2020). Epstein and Buhovac (2014) highlighted the significance of leadership on formulating green strategies. To improve sustainable performance of firms, responsible leadership is advocated in leadership literature (Voegtlin et al., 2012).

Executives who care about the environment can convince their staff that environmental sustainability is an important company goal and stress its significance, so that workers may include environmental concerns into their routines and be proactive on eco-friendly activities (Banerjee et al., 2003). Furthermore, extant literature has demonstrated a correlation between leadership style and organizational performance (Vullings et al., 2020). Leaders who set a positive example by constantly acting in ways that benefit the environment may inspire their employees to do the same (Rodríguez and Cruz, 2018). This encourages employees to take part in these activities (Rizqiani & Yulianto, 2020). To fulfill their social duties, however, leaders work largely to reduce pollution and waste, rather than to sway the public.

H₁: Top management ethical leadership positively influence environmental performance of manufacturing SMEs

2.3 Green HRM Practices (GHRMP)

GHRMP refers as “the deliberate, planned integration of conventional HRM procedures with an organization’s environmental goals” (Jabbour et al., 2018). GHRMP is essential for businesses because it enables other green processes like management, operations, marketing, and supply chain management to succeed. GHRMP is widely regarded as an all-encompassing firm that places a premium on ensuring that all employees support the company’s environmental strategy.

GHRMP methods can increase workers’ motivation and talents in the area of environmental management, as well as provide them with the chance to make a positive impact to environmental development (Guerci et al., 2016). As far as we are aware, green job analysis and task description are yet to explore much in the context of GHRMP (Zaid et al., 2018). Green performance appraisal and fringe and benefits have positive association with sustainable economic performance (Guerci et al., 2016), and sustainable EP (Masri & Jaaron, 2017). Based on the discussion second hypothesis proposed is:

H2: GHRMP positively influence environmental performance of manufacturing SMEs

2.4 Green Technology Adoption (GTA) as a Moderator

Since new technical and administrative information creates innovation and development, green initiatives enhance the competitiveness. The effects of GT on both organizations and the natural world have been studied by researchers such as Hossain et al. (2020), Ong et al. (2019), Saudi et al. (2019), and Yacob et al. (2019).

There is a positive correlation between GTA and EP in the context of textile industry, as evidenced by Bollinger (2015). According to research by Wang et al. (2018) into the role of competition in driving the creation and acceptance of GT, the manufacturing sector is becoming more and more receptive to the green concept.

The studies on strategic management domain have not adequately explained the way of improving EP through GTA (Przychodzen et al., 2018). Existing studies such as Hossain et al. (2020), Ong et al. (2019), Saudi et al. (2019), and Yacob et al. (2019) reveal that GTA has contradictory effects. However, the perspectives of ethical leadership and green HRM provide a new dimension in this setting. Based on the discussion, third and fourth hypotheses proposed are:

H3: GTA moderates on ethical leadership and environmental performance of manufacturing SMEs

H4: GTA moderates on green HRM and environmental performance of manufacturing SMEs

3 Theoretical Background

3.1 *Resource-Based View (RBV)*

RBV is used in this study as an underpinning theory. Research on the RBV theory of the firm emerged in the early 1980s and gained prominence in the 1990s (Barney, 1991), establishing the importance of HRM to the study of strategic management (Wright et al., 1994). Firms need what RBV calls “valuable,” “rare,” “imperfectly imitable,” and “non-substitutable” resources in order to maintain an edge over competitors over the long term (Hoskisson et al., 1999). Using internal strengths and minimizing external disadvantages can give a company a competitive edge, according to the RBV. Though a company’s assets may be spread everywhere, RBV considers its human capital to be its most valuable intangible asset (Lazazzara & Galanaki, 2020; Wright et al., 1994).

3.2 *Upper-Echelon Theory*

Upper-echelon theory posits that senior managers’ perspectives and expertise should be factored into company strategic decision-making (Abatecola & Cristofaro, 2018). Existing studies have shown a correlation between ethical leadership and business environmental innovation (Bahzar, 2019; Hashim et al., 2021; Kim & Thapa, 2018). To warrant the organization attains the goals and visions, ethical leaders act as change agents, mentors, housekeepers, and visionaries by cultivating a network of stakeholders (Maak, 2007). Therefore, managers who exercise responsible leadership can contribute exponentially on firm’s EP.

3.3 *Conceptual Framework*

See Fig. 1.

3.4 *Measurements*

See Table 1.

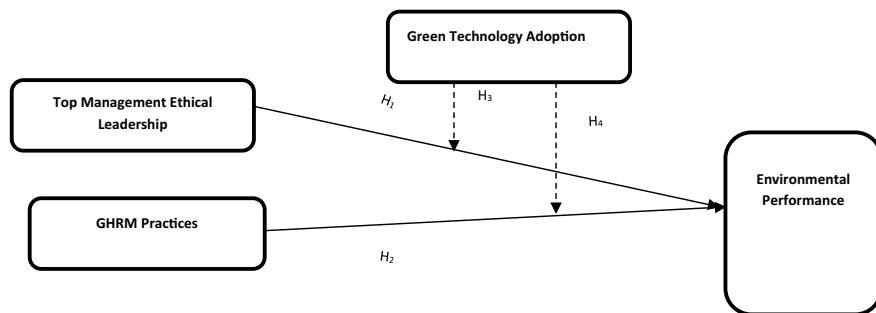


Fig. 1 Conceptual framework *Source* Developed by authors

4 Method

Manufacturing SMEs in Malaysia are the scope of the study. The aim and nature of the study determine the post-positivism paradigm. Since the study validates the association among EL, GHRMP, and GTA with EP in SMEs, thus quantitative methodology with survey approach and deductive method are suitable. Data was collected through structured questionnaire to get more data in a quick time frame. The items were adapted from the previous studies and applied a five-point Likert scale. Three (3) academicians and three (3) industry players checked the item's relevancy and quality. The sentence structures of the items were revised in accordance with the feedback provided by experts and respondents. The researchers considered dropping few questions to ensure relevancy of the items with the context.

The study is of a cross-sectional nature as data was obtained at a singular point in time (Saunders et al., 2016). A pilot study was performed and consists 30 respondents. The unit of analysis was individuals consisting top and middle management officers including supervisors who have supreme knowledge about sustainability of the firms.

The non-probability sampling method and convenience sampling technique were employed as the sample frame was not available. According to the economic census Malaysia (2016), there are 47,698 manufacturing SMEs available in Malaysia. HRDF listed manufacturing SMEs are 4581, and among them, 19.8% are situated in Selangor. So, it is assumed that 907 manufacturing SMEs are available in Selangor and they are the total population for the study. Krejcie and Morgan (1970) suggest, 270 SMEs responses are sufficient as sample. However, by using the G-power software, based on the four (4) predictors in this study's framework, 129 sample sizes are suggested (Fig. 2).

One response from one firm was considered. 152 responses were received after distributing questionnaire through a Google form link in various sources such as social media groups of manufacturer, entrepreneurs, and email sending personally. 140 questionnaires were found usable for final analysis.

Table 1 Measurement of the variables

Variable	Items	Source
Demographics		Researcher
Ethical Leadership (EL)	<p>Manager aware of key stakeholder demands related to environmental problems</p> <p>Consider the consequences of environmental decisions for the key stakeholders</p> <p>The manager listens to what employees have to say</p> <p>Manager disciplines employees who violate environmental standards</p> <p>Manager conducts his/her personal life in a pro-environmental manner</p> <p>The manager makes fair and balanced decisions on environmental practices issues</p> <p>Manager discusses business ethics or environmental values with employees</p> <p>The manager sets an example of how to do things environmentally</p>	Roeck and Farooq (2018)
Green HRM Practices (GHRMP)	<p>Enable acquisition of knowledge on environmental management</p> <p>The company prefers to hire employees who have environmental knowledge</p> <p>Employee selection takes environmental motivation into account</p> <p>Environmental training is a priority</p> <p>Every employee has specific environmental goals to achieve</p> <p>Contributions to environmental management are assessed</p> <p>Cash rewards are provided to recognise environmental performance</p> <p>Environmental performance is recognised publicly</p>	Jabbour et al. (2016); Yong and Mohd-Yusoff (2016)

(continued)

Table 1 (continued)

Variable	Items	Source
Green Technology Adoption (GTA)	Adopting Green Buildings Having GT financing schemes Installing water-efficient devices and equipment Using green chemicals Installing effluent treatment plants (ETP) Using energy efficient electrical equipment	Yacob (2019); Reza et al. (2017)
Environmental Performance (EP)	Our firm minimises the environmental impacts of its operations Encourage stakeholders involved in planning and executing environmental practices Allow environmental audits Adoption of cleaner production methods	González-Benito and GonzálezBenito, (2006); Agyabeng-Mensah et al. (2020)

Source Developed by authors

5 Research Findings

5.1 Demographics Data

Table 2 shows that 30.7% of participating SMEs were electrical machinery, apparatus appliance, and suppliers SMEs; 25.7% were from food manufacturing; 23.6% from non-ferrous metal basis SMEs, and 20% from wood manufacturers. Majority of the companies (32.1%) were operated less than two years. 28.5% of the SMEs had 81–130 employees on an average. 52.8% of these SMEs had annual incomes not exceeding 0.10 million MYR. It may be one of the primary obstacles to adopt the costly GTs. Considering the nature of the job and the immense workload; males (77.8%) were dominants in the industry where only 22.2% were females. The maximum respondents were 30–36 years (35%) and worked for 6–8 years (35.29%).

5.2 Measurement Model

Convergent Validity

The outcome on Table 3 has shown that average variance extracted (AVE) is more than cut-off value 0.5 (Hair et al., 2017), Cronbach's alpha (CA), and composite reliability (CR) higher than 0.7, confirming the convergent validity of the constructs (Hair Jr et al., 2021).

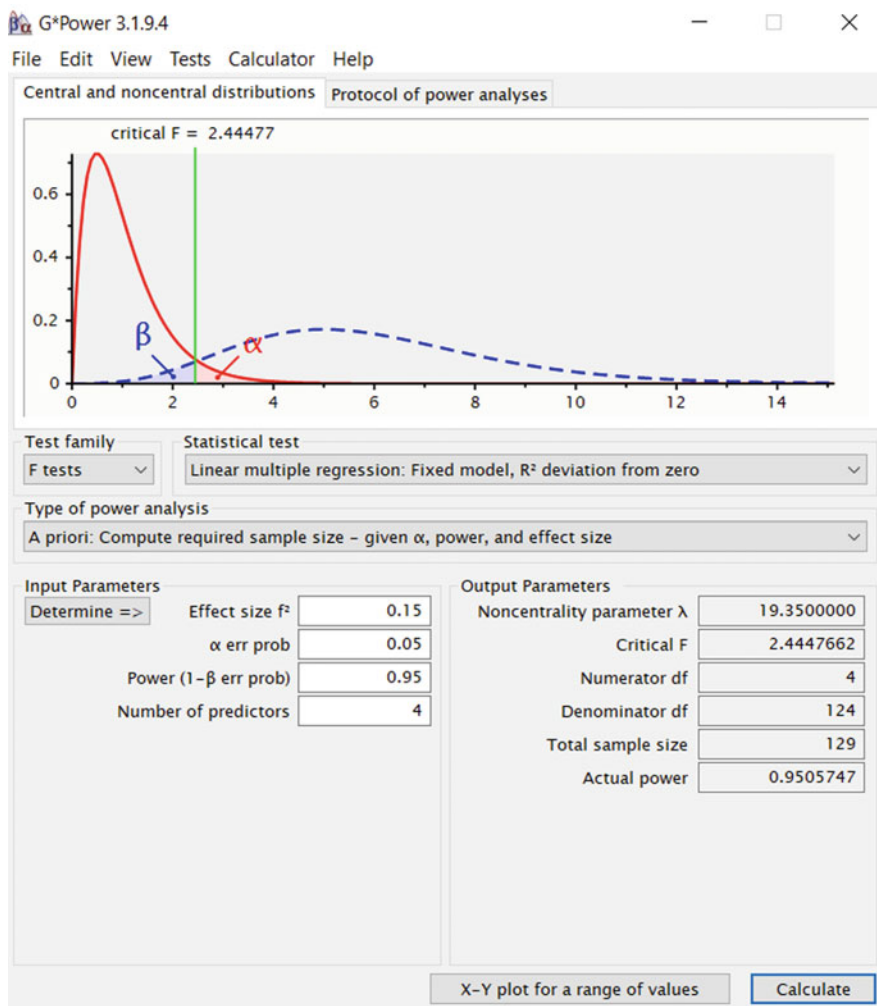


Fig. 2 Sample size determinations. Source G-power software output

Discriminant Validity

The criteria established by Fornell and Larcker (1981) and the Heterotrait-Monotrait (HTMT) ratio are commonly employed in order to ensure the presence of discriminant validity. Table 4 demonstrates that the square root of AVE surpasses its correlation with other constructs, thereby providing sufficient evidence of discriminant validity. According to Henseler et al. (2015), the HTMT approach is a recommended method for evaluating the discriminant validity among constructs. Table 5 illustrates that the HTMT values fall below the threshold of 0.90.

Table 2 Demographic profile of companies and respondents

Type of company	Frequency	Percent
Wood manufacturers	28	20.00
Food manufactures	36	25.71
Electrical machinery, apparatus appliance and suppliers	43	30.7
Non-ferrous metal basis SMEs	33	23.6
<i>Company age</i>	<i>Frequency</i>	<i>Percent</i>
Less than 2 years	45	32.14
3–5 years	39	27.86
6–8 years	35	25.00
9–11 years	18	12.86
12 years or above	3	2.14
<i>Number of employees</i>	<i>Frequency</i>	<i>Percent</i>
31–80	26	18.57
81–130	40	28.57
131–180	31	22.14
181–230	25	17.86
231 or Above	18	12.86
<i>Company's annual income</i>	<i>Frequency</i>	<i>Percent</i>
Not exceeding 0.10 million MYR	74	52.86
Between 0.10 and 1.0 million MYR	29	20.71
Between 1.1 and 2.0 million MYR	13	9.29
Between 2.1 and 3.0 million MYR	21	15.00
More than 3.0 million MYR	3	2.14
<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Male	109	77.86
Female	31	22.14
<i>Employee age</i>	<i>Frequency</i>	<i>Percent</i>
Less than 30 years	5	3.57
30–36 years	49	35.00
37–43 years	40	28.57
44–49 years	32	22.86
More than 50 years	14	10.00
<i>Job experience</i>	<i>Frequency</i>	<i>Percent</i>
Less than 2 years	25	17.86
3–5 years	22	15.71
6–8 years	48	34.29
9–11 years	24	17.14
12 years or above	21	15.00

Table 3 Convergent validity

Constructs/items	CA	CR	AVE
EL	0.93	0.94	0.72
GHRMP	0.93	0.94	0.73
GTA	0.94	0.95	0.77
EP	0.94	0.95	0.75

Notes CR: Composite Reliability; AVE: Average Variance Extracted; CA: Cronbach's Alpha

Table 4 Discriminant validity—Fornell and Lacker criterion

Constructs	EL	GHRMP	GTA	EP
EL	0.846			
GHRMP	0.008	0.858		
GTA	0.201	0.134	0.879	
EP	0.270	0.116	0.210	0.864

Table 5 Heterotrait-Monotrait ratio (HTMT)

Constructs	EL	GHRMP	GTA	EP
EL				
GHRMP	0.042			
GTA	0.214	0.139		
EP	0.290	0.128	0.221	

Structural Model Assessment

Coefficient of Determination (R²)

Table 6 illustrates the R² value of EP which is 0.137, which is above 12%, indicating the acceptable level of the model to predict (Cohen & Levin, 1989).

Effect Size (F²)

The effect sizes of the exogenous constructs were investigated through f² (Cohen & Levin, 1989). Table 7 evidenced that EL, GHRMP, and GTA had a small effect size on EP.

Table 6 R-square

Endogenous variables	R square	R square adjusted
EP	0.160	0.137

Note Substantial > 0.25; Moderate > 0.12, Weak > 0.02 (Cohen & Levin, 1989)

Table 7 F-square

Exogenous variables	EP
EL	0.022
GHRMP	0.022
GTA	0.020

Note Large: f^2 effect size > 0.34; Medium effect > 0.14; Small: $0.0 > 0.01$ (Cohen & Levin, 1989)

Table 8 Collinearity

Exogenous variables	EP
EL	1.181
GHRMP	1.094
GTA	1.228

Multicollinearity (Inner VIF)

Table 8 confirms that there is no multicollinearity concern in the model; as the inner VIF values are lower than 5.

Predictive Relevance (Q² Value)

The model is perfectly fit with greater predictive relevance since the Q² values were above zero (Table 9).

Direct Effect (Path Coefficient) Analysis

The path coefficient analysis confirmed that both two directly associated hypotheses were accepted (Table 10) as p values were lower than 0.05.

Moderation Effects

Table 11 illustrates that both two moderating hypotheses were significant and accepted ($p \leq 0.05$; $t > 1.96$).

Table 9 Predictive relevance

Endogenous variables	Q ² (=1-SSE/SSO)	Q ² (=1-SSE/SSO)
EP	0.119	0.676

Table 10 Path coefficient result

Hypotheses	OS	SM	SD	T	P values	Decision
EL - > EP	0.111	0.110	0.051	2.202	0.028	Significant
GHRMP - > EP	0.103	0.107	0.049	2.101	0.036	Significant

Note Significant: $p < 0.05$

Table 11 Moderation analysis result

Hypotheses	OS	SM	SD	T	P	Decision
EL*GTA - > EP	0.088	0.085	0.051	1.738	0.023	Significant
GHRMP*GTA - > EP	−0.117	−0.113	0.054	2.162	0.031	Significant

6 Discussion

The statistical outcomes of path coefficient (Table 10) revealed that EL ($t = 2.202, p < 0.05$); GHRMP ($t = 2.101, p < 0.05$), evidenced significantly positive influence on EP on Malaysian manufacturing SMEs context. Thus, H1, H2 were accepted. The outcome indicates that EL is crucial for ensuring EP. CEOs with strong ethical standards would hold beliefs that align with the company’s GHRM guidelines. Recognizing that GHRM policies can be helpful in implementing proactive environmental initiatives that contribute to financial success, ethical leaders are more willing to investigate and pursue these tactics (Islam et al., 2020).

GHRMP is critical for inspiring staff involvement in eco-friendly initiatives that align with the company’s goals (Roscoe et al., 2019). According to Labella-Fernández and Martnez-del-Ro (2019), GHRMP is a set of procedures used by businesses to promote environmentally friendly policies. According to Shah (2019), GHRMP is essential for the effective implementation of sustainability programs leads to EP. The role of GHRMP in promoting green activities within an organization is crucial, as it facilitates the enhancement of employees’ abilities, motivation, and chances to participate in eco-friendly initiatives. This is achieved through the provision of environmentally conscious training and the implementation of green performance evaluations, as highlighted in recent studies (El Dessouky & Alquaiti, 2020; Hossain et al., 2022a, 2022b, 2022c, 2022d; Pinzone et al., 2019).

Table 11 evidenced the moderating influence of the GTA on EL-EP and GHRMP-EP associations. GTA significantly influence on EL and EP ($t = 1.7, p < 0.05$). The justification for this outcome can be that when organization is empowered with the technology, leader’s eco-proactivity also correspondingly increases and they feel more technologically oriented. Moreover, GHRMP also demonstrates positive moderation with EP in the presence of GTA. Human resources technology platforms include a wide range of applications designed to improve many facets of HR operations. They can be narrowly focused on a single task like candidate screening, or more comprehensive, covering a wide range of HR procedures, such performance and talent management. The HR department embraces advanced technology by automating routine processes and producing and analyzing data about applicants and employees. Today’s HR software is designed to boost productivity for the entire company, not just the HR department. According to Zaid et al. (2018), green recruitment within the context of a GHRM package has a favorable impact on the firm’s social performance (Zaid et al., 2018). Application of GTA can influence on green job analysis and task description; green recruiting; green training and development; EP evaluation; and green rewards.

7 Theoretical Contribution

The present study enhances the existing scholarly literature by broadening the academic understanding of the interplay between top-level management's ethical leadership, GTA and GHRM practices, and EP. Although recent research (Saleem et al., 2020) evidenced the associations between ethical leadership and pro-environmental conduct on the part of employees, it failed to determine the mechanism by which this type of leadership contributes to organizational effectiveness in this area. The statistical outcome advocates that ethical leadership has an influence on long-term success. The findings suggest that executives who want to be respected as ethical role models for their teams should view protecting the environment as a personal moral commitment (Zhang et al., 2021). Integrating EL, GHRMP, and GTA with the upper-echelon theory (UET) and resource-based view provides novel theoretical contributions. The current study extended the applicability of UET and RBV theories by integrating GTA aspect.

8 Practical Contribution

The study's model and statistical findings have implications for business leaders who are trying to implement environmentally friendly policies. To begin with, the outcome of the research supports the idea that sustainability is an ethical concern and that in order to ensure sustainable performance, a leader must place a premium on the promotion of environmentally responsible behaviors in the ethical realm (Khan et al., 2019). Secondly, according to Eva et al. (2020), an ethical leader is responsible for developing moral standards through the establishment of a code of ethics, impartial decision-making, prevention of unethical practices within the organizational structure, promotion of incentive schemes to encourage ethical practices, and fostering an ethical environment throughout the organization to protect the rights of employees, customers, and the public.

This study serves as a valuable addition to the ongoing discourse on the involvement of government and regulatory bodies in promoting environmentally sustainable outcomes, as well as the potential ramifications for policymakers. This research can help businesses rethink their approaches and priorities when it comes to going green. The benefits of implementing EP extend beyond those realized by supply chain partners. It's a win-win scenario for both parties involved. It is imperative that stakeholders and financial institutions work together to foster GTA. The resource crunch can be alleviated through cooperation between nearby SMEs or other stakeholders in terms of knowledge sharing and material pooling.

9 Limitations and Future Research Suggestions

Despite the accomplishments, the study has drawbacks that should be addressed around. This study does have numerous limitations that must be taken into account, and those limitations are detailed below.

The initial restriction of the study is the study's low response rate. Limited time severely hampered the investigation. The surveys were performed during the COVID-19 crisis, which contributed to a reduction in participation. There is little doubt that email surveys are one of the most successful strategies for getting quantitative data from target respondents, yet there are worries surrounding the data quality. However, it is well established that the survey cannot cover the entire population segments due to the low response rate.

In addition, only a small number of managers are returning the survey, despite the fact that the sampling size was increased to encompass three-level managerial responsibilities in order to boost the responsiveness of findings. The short length of the survey period may also be a factor in the low response rate.

Moreover, the study's objective was to develop a conceptual model with diverse factors that may be helpful to improve the EP of the manufacturing industry. However, it is supposed to serve as a broad reference for all manufacturing companies, despite the fact that it may not be able to produce the greatest plan or reach the best conclusion. In addition, it is probable that the conclusions of this study do not apply to other subcontractors in Malaysia, as the study focused primarily on the outcomes in Selangor. Other states of Malaysia may have adopted a different survival strategy than Klang Valley. Other researchers can investigate service industry also with this existing framework.

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Revenue Oriented Fiscal Consolidation in the Function of Sustainable Growth



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Abstract In the aftermath of COVID-19 crisis, high inflation, the rise of public debt for more than 10% of GDP worldwide and energy crisis due to war in Ukraine, governments seem to have no other choice but fiscal consolidation. This paper aims to identify the composition of fiscal consolidation through interventions on the revenue side from the perspective of Kosovo. To achieve its aim, this study will employ structural vector autoregressive model to obtain results for the short-term period and will employ vector error correction model to obtain results for the long-term period. This paper concludes that the reforms in a possible fiscal consolidation in Kosovo should be oriented in personal income taxes and corporate income taxes.

Keywords Direct taxes · Public revenues · Fiscal policies · SVAR · VECM

1 Introduction

In the aftermath of COVID-19 crisis, high inflation, the rise of public debt for more than 10% of GDP worldwide and energy crisis due to war in Ukraine, governments seem to have no other choice but fiscal consolidation. While the financial crisis of 2008 brought in surface very challenging and debatable consolidations, the crisis that started in 2020 with COVID-19 and is still ongoing due to war in Ukraine, has created more difficult circumstances. Radoniqi and Konxheli (2020), have pointed out that during a crisis the deflation should be avoided, but this is not the case. Governments cannot count much on monetary policies as the inflation is at high

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levels, therefore the strategy to overcome the crisis is based mostly by changes in fiscal policies through fiscal consolidations (Balasundharam et al., 2023). Meantime monetary policymakers cannot be indifferent and take care only for price stability as their main responsibility, but they need also to stay committed to sustain growth.

Planning and implementing fiscal consolidations have always caused big debates in policymaking, as well in academia and the results are still inconclusive. It was Kyenes (1936), who pointed out that fiscal consolidations cause recessions, but over time it was argued that this is not always the case. Giavazzi and Pagano (1990), are the first ones in academia who concluded that fiscal consolidations can be expansionary and moreover these findings were followed by the other scholars. Alesina and Perotti (1995, 1997), Alesina and Ardagna (1998, 2009, 2012), Blanchard and Perotti (2002), Perotti (2004) and Alesina et al. (2019), are the authors with the greatest contribution on analyzing the expansionary fiscal consolidations and making the composition of it as a determinant factor for its success. Even though the literature offers strong arguments that the consolidations oriented through expenditure cuts tend to be more successful than those oriented through tax increases (Okwuokei, 2014), the actual situation with a combination of financial crisis, health crisis, humanity crisis, energy crisis and climate crisis is applying consolidations that are directed through revenue side, using windfall taxes or as they are called now “solidarity contribution”. This is happening, because the role of fiscal consolidation has evolved a lot through the years. In the 90s, fiscal consolidations were used primarily to reduce fiscal deficits caused by high levels of public debts, but now fiscal consolidations are seen also as a tool to reform public finances and to offer fairer systems for the citizens, even though public debt might be in moderate levels.

Following this approach, our paper aims to identify the right composition of fiscal consolidation through interventions on the revenue side from the perspective of Kosovo, a country in Western Balkans 6.¹ This paper will employ structural vector autoregressive model (SVAR) to obtain results for the short-term period and will employ vector error correction model (VECM) to obtain results for the long-term period. In vector autoregressive models, all the variables are endogenous and that is the reason why Caldara and Kamps (2008), have pointed out that vector autoregressive models have become the main instrument to analyze fiscal consolidation. Radoniqi and Bexheti (2022, 2023) have already analyzed fiscal consolidation of Kosovo using VAR models and have found that the appropriate fiscal consolidation composition in this country is made by interventions in revenues and as well in expenditures. Furthermore, Radoniqi and Bexheti (2022, 2023), have pointed out that the categories of revenues and expenditures that seem to have a positive impact on GDP during consolidations are taxable revenues and transfer and subventions expenditures. This paper will not focus on the expenditure side, since the orientation of the biggest economies to overcome the crisis of the 20 s is on the revenue side, therefore this paper will analyze the right composition of fiscal consolidation using the major categories of direct taxes. We are excluding indirect taxes from the

¹ Western Balkans 6 is a region in South East Europe made from Kosovo XK, North Macedonia MK, Albania AL, Serbia SRB, Montenegro MNE, Bosnia and Herzegovina BH.

equation for two reasons. First of all, even though the impact of indirect taxes is positive and significant in GDP (Rexha et al., 2021), in the case of Kosovo there is no space to increase furthermore indirect taxes. According to the Annual Reports of the Ministry of Finances of Kosovo for the period 2008–2022, indirect taxes have made a contribution to the total public revenues with an average of 71%, one of the highest in Europe. Having a revenue structure dependent on critical levels from indirect taxes does not contribute to the principle of uniformity and represents an unfair system. And the second reason is that Kosovo and other countries in Western Balkans, 6 are candidates/potential candidates to join the European Union and these countries need to make a fiscal convergence with the big family of Europe. In the European Union, the direct taxes are the ones with the major contribution to the total revenues and this structure has resulted as a success story for the development. In the literature are found papers such as Stoilova and Patonov (2013), and Stoilova (2017) that have argued that in the case of the European Union direct taxes are the ones with a positive impact on growth. Therefore, our paper regarding the revenue side consolidations will treat just direct taxes, since in Kosovo their role needs to be strengthened.

The contribution of this paper is threefold. First, to the best of our knowledge this is the first paper that treats fiscal consolidation of Kosovo using direct taxes at disaggregated levels. Estimating the major groups of direct taxes will offer specific instructions to design and implement fiscal consolidation in Kosovo. The second contribution is linked with the integration of Kosovo in the European Union. Promoting a fiscal consolidation which is directed through reforms in direct taxes will serve for a fiscal convergence of Kosovo with the EU family. It is well-known that countries which aim to join the EU need to fulfill numerous criteria including fiscal policies and presenting a study that offers a solution for uniformity challenge, making the tax system fairer for citizens is so far one of the greatest contributions. Lastly, this paper represents one of the few works that use both SVAR and VECM models together and having findings obtained through the models mentioned above represent a contribution also in the methodological aspect.

To sum up, this paper concludes that the reforms in a possible fiscal consolidation in Kosovo should be oriented in personal income taxes and corporate taxes. Property taxes are shown not to have a significant impact, but here is one of the limitations of the study. The property tax system in Kosovo needs to be reformed and to be inclusive for all the citizens. The actual property tax system in Kosovo is characterized as discriminatory and a crucial reform is needed on it.

This study is organized as follows: the next part will bring the existing literature about the main topic of this study. The third part shows the methodology and data analysis and the fourth one will present the conclusions.

2 Literature Review

Fiscal consolidation is not a favored topic and process among policymakers, even though last years have become an inseparable part of their everyday duties. Dixit & Nalebuff (2008), have explained that policymakers live in the illusion that bad times will never return, therefore they are not prepared for bad times and do not plan them. Furthermore, Dixit and Nalebuff (2008), have pointed out that in good times, risks are underestimated and the expenditures experience a large increase, which causes challenges during bad times. Bad times bring in the surface the need for fiscal consolidation, despite the fact that it is not a well-liked process by policymakers.

As was stated in the introduction part, the results about the appropriate composition of fiscal consolidation are still inconclusive. Even though literature offers strong arguments that expenditure cuts-oriented consolidations tend to produce more expansionary effects in economy, than those oriented through tax increases (Alesina & Perotti, 1995, 1997; Giavazzi, et al. 2000; Blanchard & Perotti, 2002; Perotti, 2004; Alesina & Ardagna, 2012; Molnar, 2013; Cogan et al. 2013; Attinasi & Metelli, 2016; Lacalle, 2021), this does not mean that the interventions in the revenues are excluded as a possibility in fiscal consolidations. If we take a look especially in the studies published last decade, we can see that authors alongside interventions in expenditures are also promoting tax increases. Pereira and Roca-Sagales (2011), Courneade et al. (2014), Papadamou and Tzivinikos (2017), and Radoniqi and Bexheti (2022, 2023), are just a few authors that have found that tax increases are a very important segment in the success of fiscal consolidation. The authors mentioned above point out the need of planning and implementing fiscal consolidation according to the market needs of a country, which means that neither expenditures nor the revenues should be excluded from the plans. Following the debate, “expenditure cuts or tax increases?”, the study by Marattin et al. (2021), analyzes the behavior of local governments when central governments introduce fiscal consolidations plans, through expenditure cuts. Marattin et al. (2021), have brought the experience of Italy and have concluded that the response of local governments to the expenditure cuts by central governments was by increasing local taxes, questioning the real direction of fiscal consolidation.

Maebayashi (2023), in his study using an OLG model with exogenous growth settings has concluded that taxed oriented consolidations ensure more fiscal sustainability than consolidations that are oriented through expenditure cuts. Another interesting conclusion about this paper is that the impacts of fiscal consolidation cannot last more than 30 years (Maebayashi, 2023), reconfirming how complex fiscal consolidations can be.

Banerjee (2014), has pointed out that tax increases represent one of the easiest ways to consolidate public finances because they are less harmful for the population in comparison with expenditure cuts which can cause domestic tensions. Alesina et al. (2019), even though they have argued and supported consolidations through expenditure cuts, they have explained in detail the reasons why governments choose to introduce fiscal consolidation through tax increases. According to the Alesina

et al. (2019), tax increases are faster to implement, bring revenues rapidly and mean-time taxpayers are not a politically organized group. On the other hand, expenditure cuts affect retirees, students and employees who can cause domestic tensions like protests and strikes (Alesina et al., 2019). Another thing mentioned from Alesina et al. (2019a), is that some countries, like the most of OECD countries have already high tax rates and there is no space to increase them further and at this point we are getting back once again to the need of consolidation according to the market condition of a country. Especially the post-COVID situation, high inflation and energy crisis have created huge imbalances in the market, therefore scholars and policymakers are promoting fiscal consolidation through tax increases.

In September 2022, the European Commission introduced windfall taxes for fossil fuel, oil, gas and power companies which have recorded very high profits during the crisis (Bray & Weigel, 2023). The windfall tax was not even presented as a tax, but as a “solidarity contribution” from the companies with high profits to the citizens that were impacted from the crisis. Anyway, despite the name, the solidarity contribution is a windfall tax and according to the Bray and Weigel (2023), it will be approximately 33% of the windfall profits. The windfall profits are considered all surpluses above 20% of the average profits between 2018 and 2021 (Bray and Weigel, 2023). Furthermore, Bray and Weigel (2023), have pointed out that the European Commission has planned revenues from windfall taxes about € 140 billion. These measures indicate big fiscal consolidations plans ahead through very challenging times because as was mentioned, the situation is very complex from the humanitarian crisis to the economic crisis. Citizens are facing very high prices, but some companies are experiencing their highest profits, therefore authorities found a possibility for fiscal consolidation through windfall taxes. The windfall taxes are considered acts of fairness, despite the fact that in many circles they are opposed. Once again we are mentioning the fact that fiscal consolidation should be planned and implemented according to the market conditions and at this point we are going to analyze the countries in Western Balkans 6, with a focus in the case of Kosovo.

Bexheti et al. (2023) have brought a study that analyzes the needs for fundamental reforms of the tax system in North Macedonia. This study also presents the situation of the whole region of Western Balkans 6, where there is a need for a more sustainable, balanced, fairer and also more efficient tax system. Bexheti et al. (2023) have put on view the obstacles of tax the system, proposing essential and deep reforms. According to Bexheti et al. (2023), changes should include the introduction of environmental taxes and as well of specific taxes for specific circumstances (times of crisis—windfall taxes). Furthermore, the study mentioned above concludes that the tax system should be oriented in progressive direct taxes with higher taxes. The allocative function should be more efficient for investments in healthcare, education, infrastructure, energy and environment (Bexheti et al., 2023). In this study, it is also pointed out that a more effective allocative function would have great impact in human capital development.

Another study with a great contribution in academia regarding fiscal consolidation processes in the time of crisis is Bexheti et al. (2023a). Bexheti et al. (2023a) have brought concrete steps that the government of North Macedonia should take

to make its economy more resistant to the crisis. Similar to the previous study that was presented, also in this study, through the case of North Macedonia are brought the challenges of the whole region of Western Balkans 6. Bexheti et al. (2023a) have started their study presenting the old debate between Classical School and Keynesian School regarding the need of interventions by state into the economy. While the Classical School believes that the “invisible hand” regulates the market and the role of state should be as small as possible, on the other hand Keynesian School believes that the role of state is determinant especially during the crisis times (Bexheti et al. (2023a). According to Bexheti et al. (2023a), both theories are right because during good times is the “invisible hand” that regulates things, but during the crisis is the state that should take steps. Following this approach, Bexheti et al. (2023a) propose a pace that includes the increase of tax revenues from direct taxes, better management of state’s capital, improvement of social system which will serve in the function of the employment simulation and of course improvement of energy policies. Bexheti et al. (2023) and Bexheti et al. (2023a), present studies in the literature of Western Balkans 6 that have made great contributions in the management of the crisis that started with COVID-19 and is active due to war in Ukraine. We will follow their conclusions to make the case for the fiscal consolidation in Kosovo.

To summarize, we can see that due to COVID-19 crisis, high inflation and energy crisis, the need to implement fiscal consolidation is urgent. The countries of Western Balkans 6 have fundamental problems with the tax principles, therefore the fiscal consolidation will serve also to create fairer tax systems. Our focus will be in the direct taxes of Kosovo since their role needs to be strengthened. While most of the studies in this field treat direct taxes in aggregated levels, we will make a step forward analyzing in detail major groups of this category to have a better view about the steps that Kosovo needs to take for fiscal consolidation and as well for fiscal convergence with the EU.

3 Methodology

We already presented that this paper uses the SVAR model to obtain results for the short period and the VECM model to obtain results for the long period. The variables that will be included in models are GDP, personal income taxes (PIT), corporate income taxes (CIT) and property taxes (PT). The study covers quarterly data from 2008Q1 to 2022Q3 which are retrieved from quarterly and yearly reports of the Ministry of Finance, Labor and Transfers of Kosovo. All data in this study are used in the logarithmic form (ln variable). All the results are processed using Eviews 10.0 software.

Table 1 Descriptive statistics

	ln GDP	ln PIT	ln CIT	ln PT
Mean	7.219179	3.360917	2.906754	1.568699
Median	7.24108	3.351657	2.895359	1.534714
Maximum	7.763616	3.993603	3.929863	2.408745
Minimum	6.561879	2.681022	2.208274	0.641854
Std. Dev	0.284222	0.356386	0.32366	0.401842
Skewness	−0.290468	−0.078846	0.764253	0.041422
Kurtosis	2.436455	1.978524	4.03644	2.700388
Jarque–Bera	1.610383	2.626189	8.384246	0.23755
Probability	0.447002	0.268986	0.015114	0.888008
Sum	425.9316	198.2941	171.4985	92.55323
Sum Sq. Dev	4.685363	7.366644	6.075837	9.365659
Observations	59	59	59	59

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

3.1 Descriptive Data

The descriptive statistics are presented in Table 1.

3.2 Short-Term Period Analysis—SVAR Model

The specification of the model is as it follows:

$$X_t = \beta + \beta_1 X_{t-1} + \dots + \beta_p X_{t-p} + \varepsilon_t.$$

The above equation is identified as a four-dimensional vector. A mandatory step before performing any VAR analysis is the stationarity test. This paper uses augmented Dickey-Fuller test to check the stationarity of data. The results from the augmented Dickey-Fuller at levels indicate that variables possess unit roots at their levels, so we checked them in their first differences. Data in the first differences fulfill the condition of stationarity. Stationarity tests' results are presented in Table 1 in annex 1. The next step in our analysis is running the basic VAR to select lag order and to perform diagnostic tests. The study uses Akaike information criterion (AIC) for the lag order selection and regarding diagnostic tests, it performs Lagrange multiplier (LM) autocorrelation test, normality residual tests (skewness, Kurtosis and Jarque-Berra) and stability test. The lag order criterion is 4 and diagnostic tests show that VAR is a good model. Detailed results can be found in annex 1.

Since all the preconditions to run SVAR are fulfilled, we continue with the identification of shocks using Cholesky decomposition. According to the Cholesky decomposition, the four variable SVAR model has the following form:

$$X_t = \begin{matrix} \text{TP} \\ \text{CIT} \\ \text{PIT} \\ \text{GDP} \end{matrix} B_0 = \begin{matrix} 1 & 0 & 0 & 0 \\ b_{21} & 1 & 0 & 0 \\ b_{31} & b_{32} & 1 & 0 \\ b_{41} & b_{42} & b_{43} & 1 \end{matrix}.$$

From the matrix, we can see that the SVAR model is just identified and the number of coefficients of the matrix is 6. After finishing all the procedures described above, now we can move on with the impulse response functions analysis see the impact of chosen variables on GDP. Since impulse response functions are used for conclusions in the short term, the results are analyzed just for 6 quarters.

Figure 1 shows that GDP will be impacted in significant ways from shocks in personal income taxes and corporate income taxes. Shocks in property taxes will not cause any significant changes in GDP.

We start more detailed discussions with the effects of personal income taxes which will put GDP in the negative region in the first quarter for approximately ten months, but after that GDP will be recovered, get into the positive region, experience an increase and get stabilized by the sixth quarter.

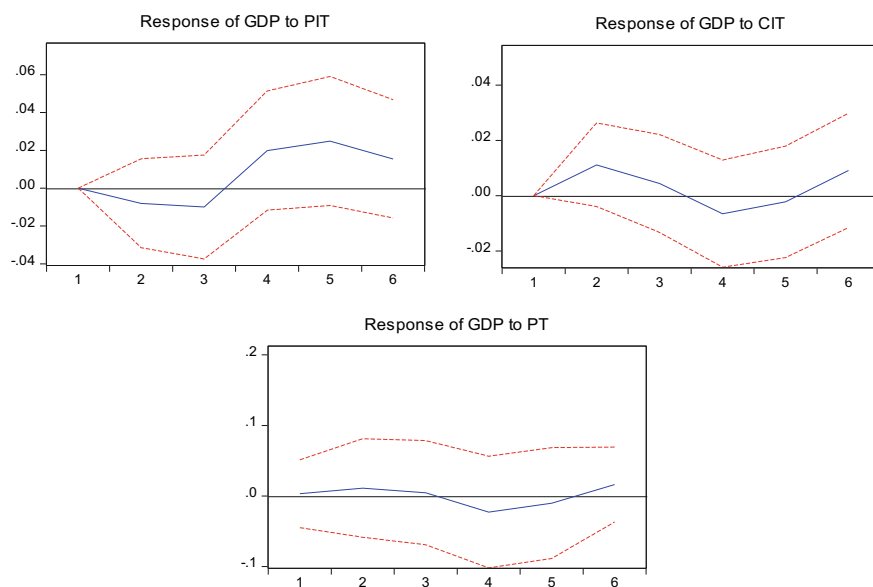


Fig. 1 Response of GDP to shocks in personal income taxes (PIT), corporate income taxes (CIT) and property taxes (PT). *Source* Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2009–2022) and authors' calculations

On the other hand, corporate income taxes will increase GDP from the second quarter, but after that, from the third quarter to fifth quarter it will experience a decrease going into the negative region. By the sixth quarter, GDP will get stabilized into the positive region.

According to the property taxes as we stated, their impact is insignificant and we will not proceed with this variable for further analysis in the long-term period. Property taxes are considered a very good source for public revenues, which are not very well-optimized and used (Gaffney, 2009). In the case of Kosovo, Disha et al. (2012) and Levizja Fol (2014), point out that not all the properties are included in the property tax system. Furthermore, in the abovementioned publications it is pointed out that local governments do not plan revenues from property taxes according to the number of properties in their region, but the plans are made according to the trend of the last year payments. The payments approximately include just half of the real potential from the property taxes (Disha et al. 2012; Levizja Fol, 2014), therefore we can conclude that the property taxes system in Kosovo is discriminatory and needs an urgent reform. As long as this situation is present in Kosovo, we cannot further proceed with detailed analysis of property taxes. What we can say for the property tax is that it is a very good source of revenues which needs to be reformed.

From the all analysis and discussions above, we can say that impulse response functions have shown that possible composition of fiscal consolidation for the short term in Kosovo is made by interventions in personal income taxes and corporate income taxes.

3.3 Long-Term Period Analysis—VECM Model

Before performing VECM analysis, we need to check for the co-integrating vector using the Johansen co-integration test. The results indicate that the model possesses one co-integrated vector, therefore we can proceed with the VECM model. Results of Johansen co-integration test are given in the annex 1. The equation of VECM is presented as:

$$\Delta \ln \text{GDP}_t = \beta_0 + \sum_{i=1}^n \beta_i \Delta \ln \text{GDP}_{t-i} + \sum_{i=0}^n \pi_i \Delta \ln \text{PIT}_{t-i} + \sum_{i=0}^n \rho_i \Delta \ln \text{CIT}_{t-i} + \omega_t.$$

Table 2 presents the results obtained from the VECM analysis. As we mentioned in the VECM analysis, we have included only personal income taxes and also corporate income taxes.

Table 2 VECM test results

Co-integrating equation	Coefficient	Standard error	P > z
$\Delta \ln \text{GDP}$	1.000000	–	–
$\Delta \ln \text{PIT}$	–0.625179	0.02345	0.002
$\Delta \ln \text{CIT}$	–0.444027	0.03911	0.003
C	–5.264649		

Source Quarterly Reports of the Ministry of Finance, Labor and Transfers of Kosovo (2009–2022) & Authors' calculations

In the VECM analysis, when the interpretation of results is made, the signs of coefficients are changed. The results show that in the long-term period, both personal income tax and corporate income tax have a positive and significant impact on GDP. The co-integration vector equation can be written as follows:

$$\text{GDP}_{t-1} = 0.625179 \ln \text{PIT}_{t-1} + 0.444027 \ln \text{CIT}_{t-1} + 5.264649.$$

Before moving with discussions, we run diagnostic tests such as Lagrange multiplier (LM) autocorrelation test, normality residual tests (skewness, Kurtosis and Jarque-Berra) and stability test which show that our model can be counted as a good one. The results are shown in the annex 1.

These results are in accordance with the findings of Maebayashi (2023), and Banerjee (2014), who have found that the tax increases are not a segment to exclude from the fiscal consolidation plans. Furthermore, these findings support the conclusions of Bexheti et al. (2023), Bexheti et al. (2023a), that have proposed the increase of direct taxes primarily in North Macedonia and all the region of Western Balkans 6. Bearing in mind the fiscal convergence of Kosovo and the region of Western Balkans 6 with EU, our results argue that direct taxes (personal income taxes and corporate income taxes) do not harm growth, on the contrary the increase of tax rates will help and maintain growth in the short term and as well in long term.

4 Conclusions

This paper aimed to identify the right composition of fiscal consolidation that offers sustainable growth through interventions on the revenue side from the perspective of Kosovo. While most of the literature has argued that fiscal consolidation tends to be more successful if it is oriented through expenditure cuts, in the case of Western Balkans 6, the interventions in revenue sides are not excluded either. To achieve the aim of this study, we employed structural vector autoregressive model (SVAR) to obtain results for the short-term period and we employed vector error correction model (VECM) to obtain results for the long-term period. SVAR analysis indicates that in the short-term period, personal income taxes put GDP in the negative region in the first quarter for approximately ten months, but after that GDP will be recovered,

get into the positive region and experience an increase. On the other hand, corporate income taxes increase GDP from the second quarter, but after that from the third quarter to fifth quarter experience a decrease, going into the negative region to get back again into the positive region. Property taxes showed that they do not impact GDP and we did not include this variable into the VECM. VECM analysis indicated that in the long-term period, personal income taxes and corporate income taxes have a positive and significant impact on GDP. This paper concludes that a fiscal consolidation based on increase of personal income taxes and corporate income taxes can lead to a sustainable growth. Another thing that is worth mentioning for the case of Kosovo, regarding fiscal policies is the relation of Kosovo and Serbia. Kosovo has declared its independence from Serbia in 2008, but the independence is not known from Serbia. This complex relation has caused a lot of challenges in the foreign affairs but also in fiscal policies. The lack of agreement between Prishtina and Beograd regarding pension funds, public debts, energy sector and some properties has a critical impact in fiscal policies of Kosovo. Therefore, Kosovo needs to be prepared for further challenges in fiscal policies and to implement fiscal consolidation also to be more sustainable in the potential agreement with Serbia.

4.1 Implications

This study tried to offer a better view of possible revenue-based fiscal consolidation from the perspective of Kosovo. Regarding taxable revenues, Kosovo is critically dependent on indirect taxes. According to the Annual Reports of the Ministry of Finance, in Kosovo, from the independence that was declared in 2008 indirect taxes made approximately 71% of total revenues. This practice should be changed, first of all to create a fairer system for the citizens and then to converge with the fiscal policies of the European Union. Findings of this study are offering a solution for a fiscal consolidation through the increase of direct taxes which showed that do not harm growth. It is understandable that the changes cannot happen overnight and the state needs to do a smooth transition from indirect taxes to direct taxes, but this process should start. Since corporate income taxes have resulted with a positive and significant effect on GDP, the government of Kosovo should take in consideration the introduction of windfall taxes. Regarding reforms in direct taxes, a focus should be oriented in property taxes. We mentioned in the previous parts that property taxes are not inclusive and also planning of revenues is not made according to the real number of properties, letting numerous properties outside the taxing system. This practice is discriminatory and should be addressed in the framework of fiscal consolidation.

4.2 Limitations and Future Research Directions

The main limitation of this study is the short period of analysis. The analysis includes the period from the year 2008 when Kosovo declared its independence and despite the fact that we used quarterly data, there is still a gap for detailed analysis. The lack of data in property taxes and the challenges identified regarding the taxing system for properties is another limitation that needs to be addressed in future research. Another point for future research is the analysis of the impact of social contributions on direct taxes and the effect of windfall taxes on crisis management.

5 Annex 1

See Tables 1, 2, 3, 4 and 5

See Fig. 1, 2 and Tables 6, 7.

Table 1 Stationarity test results

Level	Variables	T- statistic	Test critical values at 5% level	MacKinnon one-sided p-values	Comment
I(1)	$\Delta \ln \text{GDP}$	−3.915689	−3.497543	0.00116	H1
I(1)	$\Delta \ln \text{PIT}$	−3.37349	−2.915522	0.0000	H1
I(1)	$\Delta \ln \text{CIT}$	−4.12658	−2.915522	0.0000	H1
I(1)	$\Delta \ln \text{PT}$	−3.21359	−2.915522	0.0000	H1

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Table 2 Lag order selection criteria

VAR lag order selection criteria	
Endogenous variables: $\ln \text{GDP}$ $\ln \text{PIT}$ $\ln \text{CIT}$ $\ln \text{PT}$	
Lag	AIC
0	−1.712789
1	−3.938109
2	−4.376144
3	−4.852458
4	−6.371495*
* indicates lag order selected by the criterion	
AIC: Akaike information criterion	

Source Quarterly Reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Table 3 Johansen co-integration test results

Hypothesized no. of CE(s)	Trace statistic	0.05 Critical value (Trace)	Max-Eigen statistic	0.05 Critical value (Max-Eigen)
None	68.61219*	47.85613	37.74209*	27.58434
At most 1	27.86010	29.79707	20.80764	21.13162
At most 2	13.06246	15.49471	12.86920	14.2646
At most 3	0.193261	3.841466	0.193261	3.84166
	Trace test indicates 1 co-integration eqn at the 0.05 level		Max-eigenvalue 1 co-integration eqn at the 0.05 level	

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Table 4 VAR diagnostic test—Lagrange multiplier autocorrelation test

Lag	LRE*stat	Df	Prob
1	33.51210	16	0.0659
2	21.84468	16	0.1499
3	8.923491	16	0.9171
4	18.39478	16	0.3034

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Table 5 VAR diagnostic test—normality test

Component	Skewness	Kurtosis	Jarque-Berra
1	0.5260	0.0174	0.0634
2	0.3065	0.9856	0.5928
3	0.5658	0.2071	0.3827
4	0.7020	0.1438	0.3192
Joint	0.7498	0.0523	0.1851

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Fig. 1 VAR diagnostic test—stability test. *Source* Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

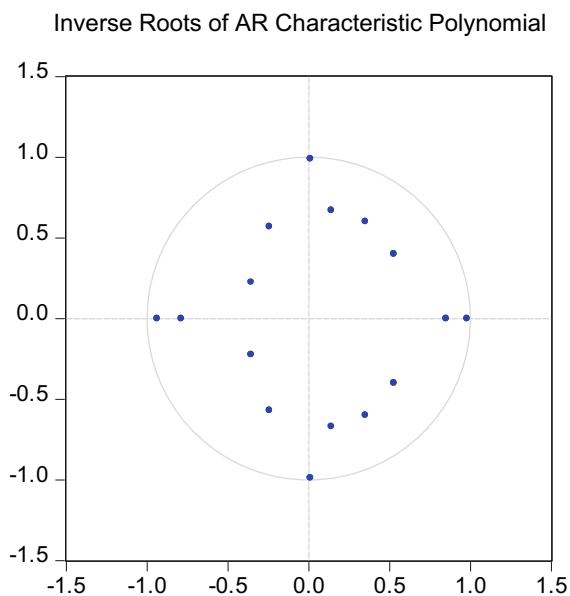


Fig. 2 VECM diagnostic test—stability test. *Source* Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

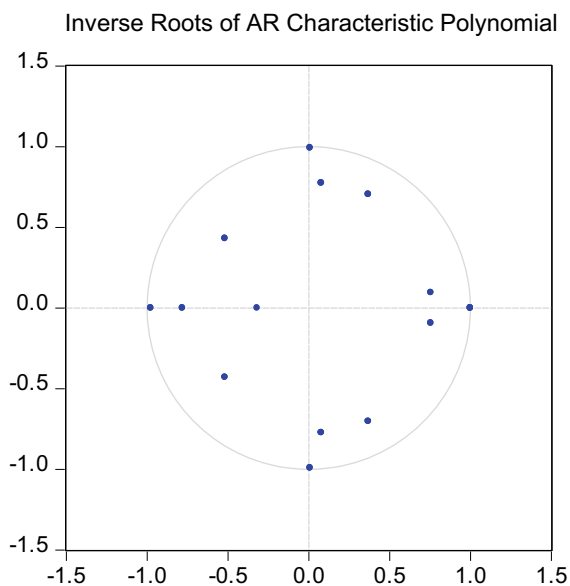


Table 6 VECM diagnostic test—Lagrange multiplier autocorrelation test

Lag	LRE*stat	Df	Prob
1	8.743362	9	0.4619
2	4.674527	9	0.8619
3	15.20891	9	0.0857
3	13.65046	9	0.1358

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

Table 7 VECM diagnostic test—normality test

Component	Skewness	Kurtosis	Jarque-Berra
1	0.3110	0.0487	0.0654
2	0.2050	0.8696	0.4419
3	0.5282	0.2688	0.4424
Joint	0.0838	0.0712	0.4542

Source Quarterly reports of the ministry of finance, labor and transfers of Kosovo (2008–2022) and authors' calculations

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The Impact of Energy Crisis and the Military Conflict in Ukraine on the Economy in the Eurozone and in the Republic of North Macedonia



Biljana Hadzi-Velkova

Abstract The current economic crisis is specific in many respects. Its beginnings are related to the COVID-19 pandemic emergence and the measures taken to mitigate its consequences, both for people's health and for companies' survival. Acknowledging the first signs and considerations that the uncertainty could last, global monetary authorities, relatively uniformly, launched expansionary monetary policy measures to support the economies. From the end of 2021 and 2022, these measures became restrictive, given the increasingly persistent inflation. The paper focuses on explaining the causes and consequences of the economic and energy crisis, as well as on presenting the current situation and the prospects for further development of the economies in the Eurozone and in the Republic of North Macedonia. Notwithstanding the various structural specifics of individual economies, they are all affected by the crisis to a different extent; however, there are still certain common characteristics and movements of the basic macroeconomic parameters.

Keywords Monetary policy · Financial institutions · Economic development

JEL Classification E52 · G2 · O01

1 Introduction

The interconnections of international markets, built by globalization and strengthened by modern technology and lifestyles, have proven to be the weakest link of the economies during the COVID-19 crisis. Four years in a row, economic and monetary policymakers have been facing challenges which emerged along with the pandemic and changed over time, while measures taken to mitigate one problem generated another.

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The purpose of this paper is to present the reasons for economic crisis, energy crisis and inflation, currently being the biggest problem in world economy. All these are interrelated and intertwined, so some of the consequences of a certain state are the causes of another, subsequent state. The situation and the expectation regarding the future developments in the Eurozone are analyzed, as well as the GDP growth forecasts and the inflation reduction possibilities. Special section is dedicated to the situation in the Republic of North Macedonia, as a small and import-dependent economy. The paper ends with concluding observations. Since these events are relatively new, data used for analyses is mostly from websites of relevant international institutions, such as the European Central Bank, the IMF, and the World Bank.

2 Reasons for the Economic and Energy Crisis in 2022

2.1 The Beginnings of the Economic Crisis

As a result of the COVID-19 pandemic and the shock caused on the supply side, central banks worldwide launched measures that meant great relief in the part of monetary policy.

Given the uncertainty regarding the duration of the pandemic and the series of lockdowns which would inevitably result in a greater drop in GDP, supply, and consumption, i.e., a larger-scale world economy recession, global monetary authorities, relatively uniformly, implemented expansionary monetary policy measures: They were buying securities, implementing a policy of low-interest rates on bank borrowings, allowing moratoriums and postponement of debtors' credit obligation repayment to banks, without negative consequences on banks' balance sheets. On the other hand, governments were taking measures to help companies and households and also aimed at stimulating consumption.

In March 2020, the European Central Bank (ECB) introduced the Pandemic Emergency Purchase Program-PEPP, intended to stabilize the financial markets in the Eurozone, in response to the economic shocks in manufacturing, trade, investments, employment, and liquidity, caused by the pandemic. The Program was approved for a total amount of EUR 1850 billion,¹ intended to purchase several types of securities, including bonds issued by banks and companies, aimed at supporting the market operations and facilitating the monetary policy transmission mechanism—all with the aim of maintaining price stability in the Eurozone. It decreased the volume of public and private securities on the market and thus further decreased their profit. The total amount of funds placed through the Program equaled 7% of GDP of the Eurozone in 2020. The ECB's estimates are that PEPP and other measures have supported the growth of the Eurozone cumulatively by 1.8% in the period 2020–2023.

¹ The program initial amount was EUR 750 billion, which was increased twice: once for EUR 600 billion and later for additional EUR 500 billion. The total amount of net purchased securities reached EUR 1718 billion, which amounts to 93% realization of the program total amount.

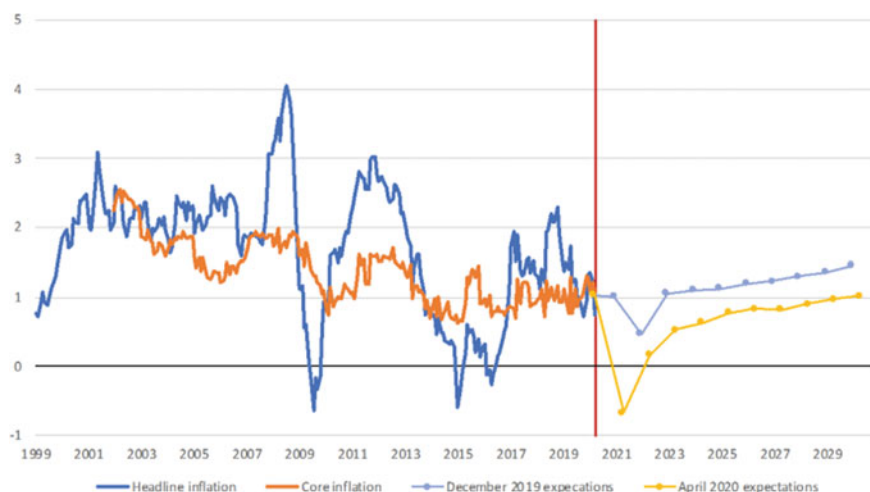


Fig. 1 Annual inflation rate in % in the Eurozone and its forecast. *Source* Claeys (2020)

The pandemic and the preventive measures led to downward revisions of economic and financial projections and significantly increased uncertainty. The IMF's expectation in 2020 was that GDP in the Eurozone would decrease by 7.5% in 2020, while the European Commission expected a decline by 7.7%. Inflation was forecast to turn negative over the next 12 months and, more worryingly, to remain below 1%, far below the ECB's defined price stability rate (Fig. 1).

Given the existing risks of quick sale of securities by investors and unwinding of negative liquidity spiral, PEPP, as a complement to the Asset Purchase Program-APP, implemented by the ECB since 2014, has proven to be effective since its very announcement, because it reduced the expectations that there will be a lack of liquidity due to the inability of investors to sell the securities they had in their portfolios. Moreover, the ECB implemented monetary facilitation by easing credit conditions for companies and individuals. It implied interest rate reduction of long-term refinancing operations—TLTRO² below the level of interest rates that banks paid for placing deposits from excess liquidity with the ECB. This had direct negative effect on the ECB's profits; however, the justification is that central banks have different objectives and are not profit-maximizing institutions at all costs.

All measures taken at that time were aimed at supporting the recovery of economic activities, stabilizing the markets, and loosening the monetary policy to achieve price stability, being the ultimate goal of the ECB and the Eurosystem, as stated in the EU Treaty. This goal implies maintaining inflation of 2% in medium term. In addition to this objective, the ECB must contribute to financial stability, which was also ensured through the PEPP (apart from these objectives, the ECB also supports: balanced

² Targeted Longer-Term Refinancing Operations.

economic development, sustainable development, full employment, improvement of environmental quality, efficient allocation of resources).

The Eurozone saw GDP rise by 3.5% in 2022 (Fig. 2), down from 5.3% growth in 2021 (which followed a 6.1% decline in 2020). The European Commission forecasts GDP growth of 0.9% in 2023 and 1.5% in 2024, although the economy still faces several challenges, including record high core inflation rate, rising financing costs, and disrupted international trade supply chains. Household consumption fell by 0.9%, but government spending rose by 0.7% in 2022. In the Eurozone, exports grew by 0.1% and imports decreased by 1.9%. Among the largest economies in the Eurozone, GDP recorded increase in the Netherlands, Spain, and France and decrease in Germany and Italy. The approved PEPP funds and other measures taken by the ECB had the following effect on the assets, as shown in the ECB's balance sheet:

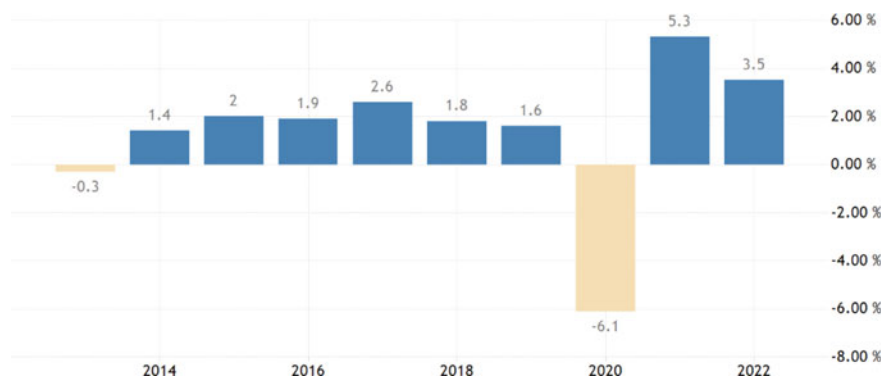


Fig. 2 Annual GDP growth/decrease rate in % in the Eurozone in the period 2014–2022. *Source* Tradingeconomics, <https://tradingeconomics.com/euro-area/gdp-growth>

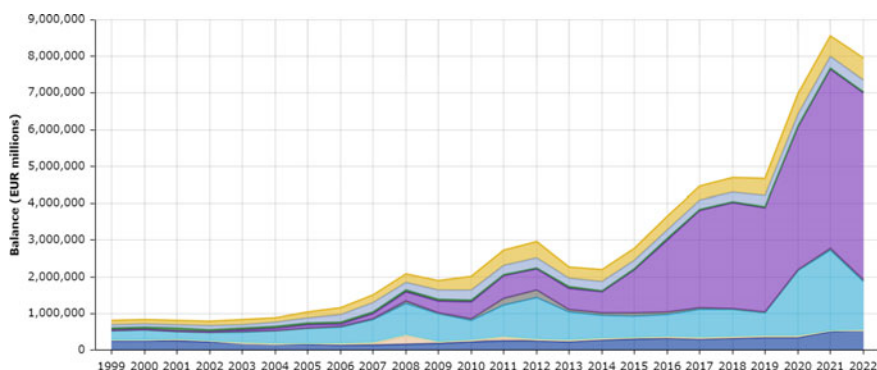


Fig. 3 Movement of ECB's assets. *Source* ECB, <https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html>

The picture above shows the biggest increase in securities bought by the ECB in 2020 and 2021 (the part in purple color), as well as credit institution loans related to monetary operations (the part in light blue color). As a result of the expansionary policy, these two items have the largest share in the ECB's assets (Tables 1 and 2).

With the additionally introduced measures, the ECB attempted to prevent (seen from this perspective, it can be said it succeeded) shifting of the initial shock from the supply to the demand. Namely, due to "lockdowns," interruptions in manufacturing processes and uncertainty regarding the pandemic duration and severity, global supply chains were disrupted. The ECB research shows that if company participates in global supply chains that have been disrupted due to lockdowns, it turns increasingly vulnerable to pandemic shocks. This is especially true for companies at the bottom of supply chains. The lockdowns, i.e., the halt in production for many companies, were most massive in the first half of 2020, when there was a significant disruption

Table 1 Total assets of the ECB in 2021 (In EUR million)

		In EUR million
A1	Gold and gold receivables	559,373
A2	Claims on non-Eurozone residents denominated in foreign currency	500,191
A3	Claims on Eurozone residents denominated in foreign currency	24,529
A4	Claims on non-Eurozone residents denominated in EUR	12,983
A5	Lending to Eurozone credit institutions related to monetary policy operations denominated in EUR	2,201,882
A6	Other claims on Eurozone credit institutions denominated in EUR	26,627
A7	Securities of Eurozone residents denominated in EUR	4,886,410
A8	General government debt denominated in EUR	22,168
A9	Other assets	330,198
Total		8,564,361

Source ECB, <https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html>

Table 2 Share of lending to credit institutions and securities in the Eurozone denominated in EUR, in the total assets of the ECB in 2021

	A5 Lending to Eurozone credit institutions related to monetary policy operations denominated in EUR			A7 Securities of Eurozone residents denominated in EUR			Total assets
	Amount	Trend (%)	Share in total assets (%)	Amount	Trend (%)	Share in total assets (%)	
2019	624,232		13.4	2,847,102		60.9	4,671,425
2020	1,793,194	187.3	25.7	3,890,770	36.7	55.8	6,977,658
2021	2,201,882	22.8	25.7	4,886,410	25.6	57.1	8,564,361
2022	1,324,347	-39.9	16.6	5,102,174	4.4	64.1	7,955,797

Source Own calculations based on ECB's data: <https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html>

to global supply chains, both in terms of importing raw materials and semi-finished products, and in terms of selling finished products. Due to the uncertainty, companies refrained from investments, but there was a need for increased working capital due to the need to provide a larger amount of raw materials and semi-finished products to run the work processes smoothly. During this period, transport costs increased several times. All this contributed to shocks on the supply and increase in its price.

In addition to this serious problem, a drastic drop in demand and an increase in savings was expected, increase in unemployment, reduced increase in wages, reduced investments, increased company debts and impossibility of reducing them, increased company liquidity, etc. All these conditions pointed to a possible decline in total consumption that would be greater than the reduction in production due to the “lockdowns” and disrupted supply chains.

However, such response to the crisis by the ECB, among certain analysts, caused fear of significant increase in inflation and concerns about whether the measures taken are in line with its price stability competences.

2.2 *Energy Crisis*

The rapid growth that followed the economic contraction period caused by the pandemic and the measures to prevent its spread were the main reason for increase in energy prices during 2021. This was complemented by the cold winter and insufficient amounts of electricity produced by some types of renewable sources (hydro, wind) in certain regions due to weather conditions caused by climate change. 2022 saw Europe’s hottest summer in 500 years, causing severe reductions in electricity production from hydropower plants in Norway, photovoltaic plants, reactor water cooling systems at nuclear power plants in France, and hampering coal transport for thermal power plants in Germany. The long-term policy of closing thermal power plants in Europe, as well as the decisions of certain oil and gas producers to reduce production and investment, prevented a quick reaction to increase production to meet growing energy needs. Russia began cutting gas supplies to Europe in 2021, a few months before the start of the war. The military attack greatly worsened the situation, which was followed by a series of sanctions from the EU and the USA, aimed at reducing dependence on Russian gas and oil. In 2021, 1/4 of all energy consumed in the EU originated from Russia, which is 60% of its total oil export. The EU rapidly imported gas from alternative producers such as Algeria, Norway, and Azerbaijan, some countries restarted thermal power plants or increased their production, and some extended the life of nuclear power plants. In a transitional period, the EU considers electricity obtained from nuclear power plants as “green” energy. Within the EU, “efficiency measures” were agreed to reduce the gas and electricity demand by 15% and increase the renewable sources utilization. All these drastically increased CO₂ emissions and had negative impact on climate change.

It is expected the global energy crisis to contribute to an increase in the share of electricity obtained from renewable sources, above all, wind and sun as “cleaner

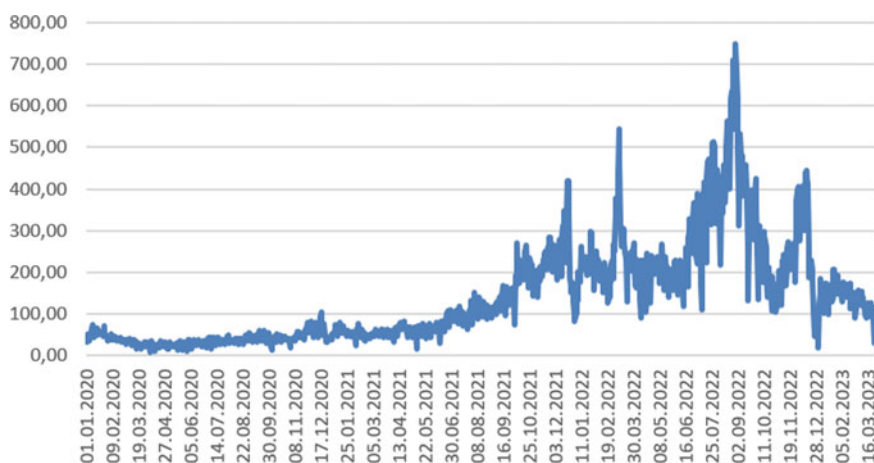
energy,” just as the 1973 oil crisis contributed to the acceleration of energy efficiency and energy production from nuclear, solar and wind power plants. The crisis also highlighted the necessity of investing in energy infrastructure grid that would better integrate regional markets.

2.3 The Russia-Ukraine Military Conflict

Russia possesses the largest natural gas reserves and was the world's largest gas and oil exporter. To the international sanctions that began with the annexation of Crimea in 2014 and intensified with the military attack on Ukraine in February 2022, Russia responded by reducing gas supplies to the EU, which were completely stopped in September 2022. Oil price reached the highest levels since 2008 and gas price reached historical highs, which in some countries led to drastic increase in electricity price (Graph 1). All electricity-dependant industries, including agriculture and food-processing industries, faced a steep rise in costs, which inevitably led to increased prices of final products. The two belligerent countries are the main exporters of fertilizers and have 30% share in the export of cereals.

There was a second, this time partial disruption of global supply chains due to disrupted transport routes passing through warring regions. As a consequence of the war, the price of many food products rose further.

The graphic below presents prices of oil, gas, as well as the dollar-euro ratios, values that suffered the greatest changes, along with other products traded on the stock exchanges (Figs. 4, 5 and 6).



Graph 1. Movement of electricity price in EUR. *Source* Own calculations based on: <https://hupx.hu>

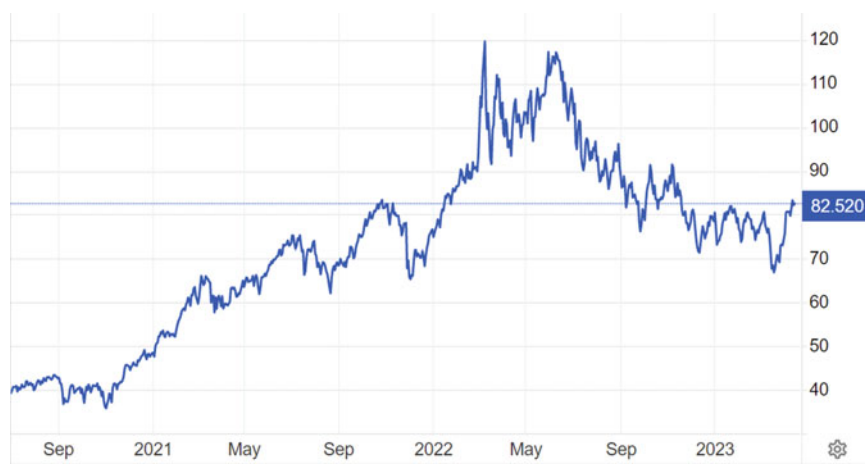


Fig. 4 Oil price movement in USD/Bbl. *Source* Tradingeconomics, <https://tradingeconomics.com>

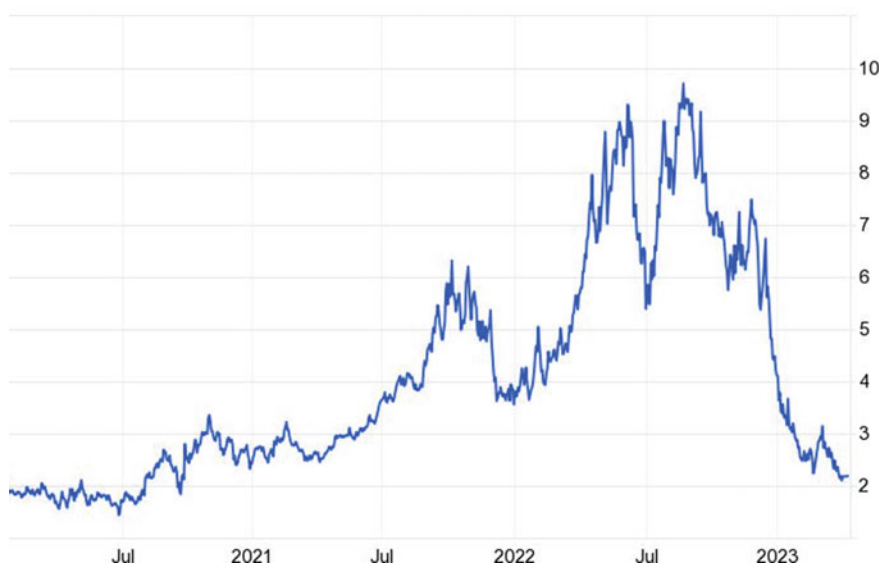


Fig. 5 Natural gas price movement in USD/MMBtu.³ *Source* Tradingeconomics, <https://tradingeconomics.com>

The expectation for growth of Chinese economy and the OPEC + announcement that from May until the end of 2023 it will reduce production by 1.16 million barrels per day, increased the price to 82 dollars per barrel on April 14th, 2023.

³ Million British Thermal Units.



Fig. 6 Changes in euro-dollar ratio. *Source* Tradingeconomics, <https://tradingeconomics.com>

After peaking in mid-2022, natural gas prices are now stabilized, given the level of reserves reached in the EU, the replacement of supplies from Russia with other producers, and the mild winter.

At the end of September 2022, the dollar was at the lowest level of 0.96 against the euro. Currently, its value is stabilized at 1.099 against the euro.

2.4 Inflation

As a result of the aforementioned: the shocks caused by the pandemic, the response of monetary and fiscal authorities to more quickly overcome the economic consequences thereof, the unexpectedly rapid economic growth that followed, the energy crisis and the military conflict, the world witnessed the highest inflation rates in recent decades (Fig. 7).

The annual inflation rate in the Eurozone fell to 6.9% in March 2023, which is the lowest level since February 2022, but still well above the ECB's targeted rate of 2% per year. The price of energy for the first time in two years recorded a decrease of 0.9%. Inflation grew mostly due to the increase in food, tobacco, and alcohol prices: 15.4%.

Except in Finland, Belgium, and Malta, in all other countries of the Eurozone, the annual inflation rate decreased compared to the previous month.

Inflation in Eurozone is calculated using a weighted average of the Harmonized Index of Consumer Prices-HIPC values. Basic components are: food, alcohol, and tobacco (participating with 21% in the weight), energy (11%), non-energy industrial products (27%), and services (42%) (Fig. 8).



Fig. 7 Movement of inflation in the Eurozone. *Source* Tradingeconomics, <https://tradingeconomics.com>



Fig. 8 Movement of basic inflation rate in the Eurozone. *Source* Tradingeconomics, <https://tradingeconomics.com>

The core inflation rate in the Eurozone, which excludes products with variable prices, such as energy, food, alcohol, and tobacco, reached a record high of 5.7% in March 2023. In the Eurozone, this rate is calculated using a weighted average of the Harmonized Index of Consumer Prices-HIPC values, excluding the aforementioned products. Growing rates indicate constant price increase of products that are included in the calculations of this rate. Due to the electricity price stabilization, which is excluded from the calculation of the core rate, the core inflation rate recorded a downward revision in the previous month. This is partly due to the slight appreciation of the euro against the dollar, as well as the re-establishment of supply chains.

Economists assess that core inflation is better indicator of long-term inflationary trends. The ECB expects the core inflation rate to decline, but forecasts are not so optimistic when it comes to core inflation rate. The latest core inflation rate values indicate that inflation may last longer than initially expected.

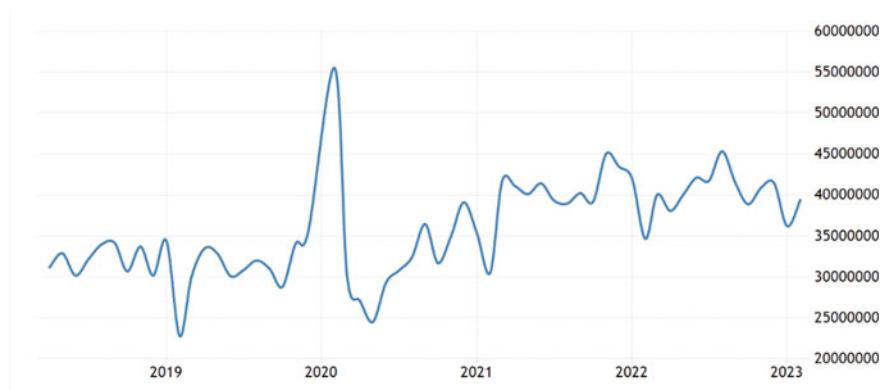


Fig. 9 Movement of China's imports from EUR in 000 USD. *Source* Tradingeconomics, <https://tradingeconomics.com>

Moreover, there is fear among some economists that pressure to increase wages may open inflationary spiral and inflation may last longer. The ECB estimates that there are currently no such risks despite the low unemployment rate (7% at the end of March 2023). However, if this happens, it will cause significant increase in costs in all industries and will make services more expensive, whose price change significantly affects the core inflation rate.

Second factor that could contribute to the longer-term retention of inflation above the desired level is the tendency to increase profit margins in several activities, which appeared after the COVID-19 pandemic. In certain industries, the increase in profit margins is currently greater than the increase in employee wages.

Third factor that currently receives great attention is China's opening up. If its economic growth takes a galloping upward trend (which is very probable), additional inflationary pressure may appear in the EU (Fig. 9).

3 Expectations for Future Developments

In the public announcement for the last, sixth, increase in interest rates, the ECB⁴ also announced its latest macroeconomic projections. However, the announcement states that they were made before the recent financial market tensions, which contribute to additional uncertainty in the projection of inflation movements and economic growth. As a result of the electricity price situation, the projected average inflation rate is 5.3% in 2023; 2.9% in 2024; and 2.1% in 2025. Core inflation rate is expected to average 4.6% in 2023, 2.5% in 2024, and 2.2% in 2025, which is a prediction of a

⁴ The three ECB's core interest rates increased by 5% since 22.03.2023: the Main Refinancing Operations-MRO interest rate to 3.5%; the Marginal Lending Facility-MLF interest rate to 3.75% and the deposit facility interest rate to 3% per year.

looming start of downward trend in this rate due to the monetary policy aimed at reducing demand.

Moreover, the ECB announced reduction of its securities portfolio by EUR 15 billion per month as of June 2023 through the mechanism of their smaller reinvestment from maturity.

Accordingly, the ECB announces to use all instruments at its disposal to reduce inflation to the targeted 2%. Still, measures are taken gradually so as not to cause additional shocks in the economy. Given that inflation is caused by a price rise due to a more expensive supply, monetary policy measures, at least so far, failed in obtaining quick and desirable results in the fight against inflation. Monetary policy signals sent through gradual increases in central bank interest rates should be transmitted as more expensive bank loans to customers, companies, and households, which should reduce their appetite for investment and consumption. Yet, it does not necessarily mean that it will force companies to reduce the prices of offered products because they were not increased as a result of demand pressure, but as a result of increased operation costs, i.e., inputs. Once the product price increases, it never returns to its previous level. Hence, those companies that will not be able to adapt, i.e., reduce their costs or profit margins, may cease to exist because they will operate below their break-even point. It is unsustainable in medium and long terms, especially if they are indebted and lack solid reserves of accumulated profits or capital. Given that electricity price has stabilized in the last month at about EUR 100 per mwh, the biggest pressure to increase prices has been removed, and thus we could expect inflation rate stabilization and its downward trend in the coming period.

The IMF, in its latest report from April this year, on the forecasts for the world economy, reduces the projected GDP growth rate compared to its previous report from three months ago. The report predicts global GDP growth of 2.8% for the current year, assuming the “ripples” in financial markets subside, but, in a possible scenario of further stress on financial markets, the global growth rate is forecast to be 2.5% in 2023 year. In the first case, the growth rate of developed economies is predicted to be only 1.3% in 2023, and in the second scenario, it is predicted to be below 1%. The report also predicts the lowest medium-term GDP growth rate in recent decades of 3%, as a result of all the aforementioned factors.

In January, the global inflation forecast was 6.6%, while now the IMF predicts global inflation of 7% for this year, a decline from the 8.7% rate in 2022. Still, this report also predicts a more difficult core inflation rate reduction.

In its latest financial stability report, the IMF refers specifically to the latest developments in financial markets. The strong response of monetary authorities reduced the nervousness of markets: in the USA, the FED took measures to guarantee the uninsured deposits of two failed banks (SVB and Signature Bank) and approved a special program—Bank Term Funding Program—to prevent further escalation of the situation in the banking sector. In Switzerland, the central bank approved emergency bailout of Credit Suisse, which was then taken over by UBS. However, investors reassess the stability of financial systems, and these conditions are listed as vital for the future developments related to the economic crisis in the reports of all relevant

international financial institutions. The reports increasingly emphasize the significance of stability of non-banking financial institutions, given the greater risks they are exposed to in their operations, which, on the other hand, are allowed by the regulations. Following the great financial crisis of 2008, regulatory changes were introduced globally in the banking sector, making the banking sector more resilient, but the question remains whether these recent events are isolated cases that occurred as a result of the restrictive monetary policy and other related developments or they announce a coming major financial crisis. We speak of a financial crisis when prices of financial assets, such as shares, bonds, oil, or real estate, experience rapid and significant drop in their value. During a financial crisis, stock markets experience a crash, but it is also possible that panic withdrawals of funds from bank depositors may occur, which inevitably leads to their collapse. Usually, financial crises occur after periods of expansive credit activity followed by a tightening of lending criteria as a result of the economic crisis or the need for a restrictive monetary policy to reduce inflationary pressure, as in the current case.

Nevertheless, it can be concluded that the supervisory standards in Europe are more restrictive than in the USA; thus, it is expected the banks to be significantly more stable. Recent developments have highlighted the need for better internal procedures for risk assessment in relation to the changes in interest rates and liquidity, as well as strengthened supervision by monetary authorities, regardless of the size and type of financial institution. Moreover, it is estimated that there is a need for strengthened and internationally harmonized supervision and regulation for non-banking financial institutions, as it is estimated that currently the greatest risks to financial stability emerge from this segment.

There is a concern among monetary authorities that if the situation in the financial system escalates, a compromise will have to be achieved between the measures for price stability and those for stability of the financial system.

As a response to the recent developments in the banking sector in the USA and Switzerland, investors expect a slight easing of the hitherto extremely restrictive monetary policy (Fig. 10).

In emerging markets, such as ours, banks recorded no significant losses in their securities portfolios. As a result of the “shallow” financial markets in these countries, major stresses of this nature are not expected.

The World Bank's latest report on the prospects of Europe and Central Asia economies forecasts modest real GDP growth of 1.4% in 2023, taking into account the Russia-Ukraine military conflict, as well as the recent earthquakes in Turkey. In medium and long terms, crucial problems are seen in low productivity, population aging, poor education, etc. Recent energy crisis in the region is considered an opportunity for faster achievement of the “green” agenda goals.

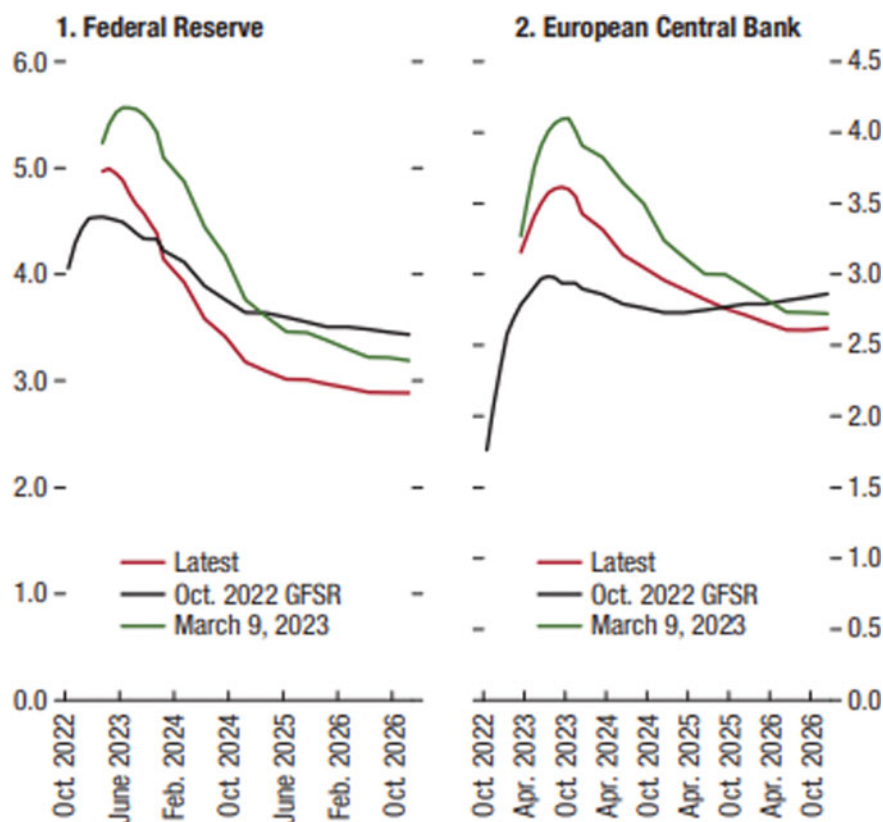


Fig. 10 Movement forecasts of key interest rates of FED and ECB. *Source* IMF, Global Stability Financial Report

4 The Situation in the Republic of North Macedonia

In the last few years, significant macroeconomic changes took place in our economy, which for a large part of the companies meant more difficult working conditions. The factors and conditions that affected the economies our country exercises foreign trade with have also been transmitted to us: the consequences of the COVID-19 crisis in the form of interrupted or disrupted supply chains; the war in Ukraine; the energy crisis, rising inflation, unstable prices of resource. All these factors contributed to greater uncertainty in the economy and among businesses. But, on the other hand, they were also an incentive to undertake certain activities for faster adaptation to the specific environment, in terms of finding alternative suppliers or transport routes, but also reducing work costs. During last year, a large number of companies invested in photovoltaic power plants to reduce their electricity costs, the price of which has increased several times. Companies have faced liquidity challenges due to the increased need for working capital and procurement financing to ensure continuity

in production and sales, as well as financing higher raw material inventories due to disrupted supply chains. In addition, some companies, due to the increase in resource prices, followed by the difficult correction of output prices, faced reduced profit margins.

In response to rising inflation, the National Bank, starting from April 2022, repeatedly increased the interest rate on treasury bills from 1.25% to 5.5% per year, thus sending signals to commercial banks to make loans to companies and households more expensive (Fig. 11).

In Macedonia, electricity, oil, and oil derivatives and unprocessed food are excluded from the consumption basket when calculating the core inflation rate.

Inflation rate (Fig. 12) peaked at 19.8% in October 2022 and marks a slight decline since then (14.7% in March 2023). Core inflation rate (Fig. 13) also peaked in October 2022, reaching 17.9%, while the most recently announced rate in February 2023 was 16.62%. Inflation in our country is considered “imported,” i.e., arises

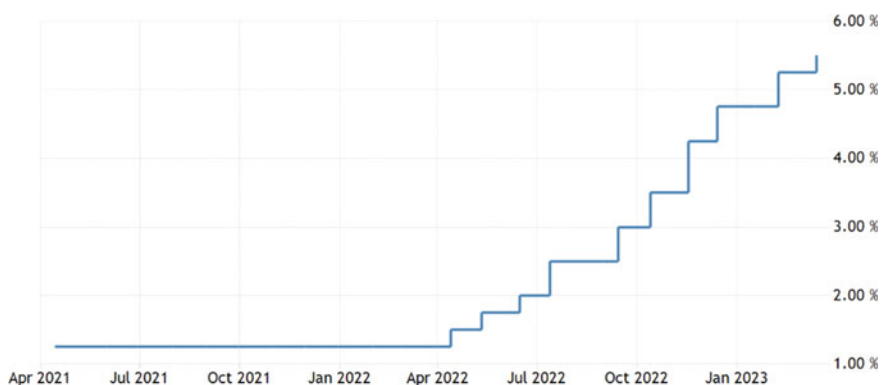


Fig. 11 Changes in interest rates on NBRSM treasury bills. *Source* Tradingeconomics, <https://tradingeconomics.com>



Fig. 12 Inflation rate movement in RSM. *Source* Tradingeconomics, <https://tradingeconomics.com>

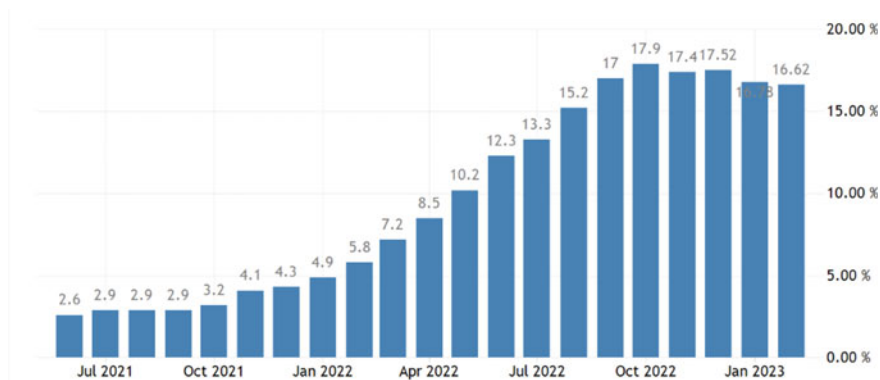


Fig. 13 Core inflation rate movement in RSM. *Source* Tradingeconomics, <https://tradingeconomics.com>

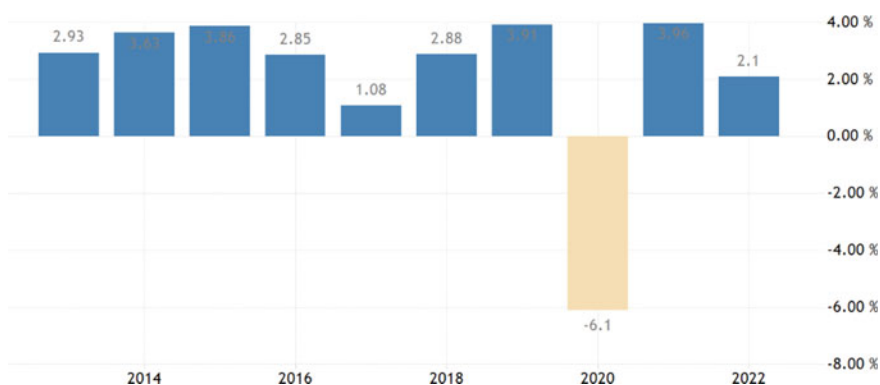


Fig. 14 Movement of GDP in North Macedonia. *Source* Tradingeconomics, <https://tradingeconomics.com>

mainly from world food and energy prices increase, including domestic electricity and heating price and their transfer effect on the prices of other products and services, in the absence of sufficient domestic resources to mitigate these shocks. Uncertainty regarding the future dynamics of primary product prices on the stock exchanges still exists due to the war in Ukraine and the sanctions against Russia, but it is estimated to have decreased since the end of last year. Considering that the economy is import-dependent, inflation and core inflation rates in our country are higher than those in the Eurozone. North Macedonia is among the most open economies in Central and Eastern Europe. According to the National Bank estimates, domestic inflation components account for 11% of total consumer price index-CPI, which is quite different from the EU, where the share exceeds 30%. Energy and food sector accounts for 51% in our consumer price index, while in the EU it is 31%. 75% of inflation in our country is driven by food and energy, as direct effect. Energy also

has indirect effect, since our economy is energy inefficient—we consume three times more energy per unit of GDP compared to the EU, which means that these shocks have impact on many products, affecting core inflation as well.

Part of the expert public here believes that monetary policy can do little in the fight against inflation, given that it is caused by the supply and mainly results from the price increase of imported goods and services. However, each central bank is obliged to do everything in its capacity to preserve the primary monetary policy objective, i.e., to maintain price stability. The National Bank follows the signals of the ECB and has so far revised the treasury bills rate ten times (Fig. 11); however, it is also known that the transmission mechanism in the country functions with difficulty. The increase in wages fails to follow the inflation rate, which inevitably leads to a decline in the citizens' living standard. Unemployment rate in the country marks a decline since mid-2020 and is currently at its lowest level (14%).

The decline in GDP in 2020 of 6.1% is identical to that in the Eurozone; the growth in 2021 and 2022 is comparatively lower and amounts 3.96% (compared to 5.3% in the Eurozone) and 2.1% (compared to 3.5% in the Eurozone) in both years, respectively (Fig. 14).

The banking system is stable, as are the deposits, which continue to mark upward trend (increase of 5.9 in February 2023 compared to the same month last year), as well as the credit activity of the banks (increase of 7.7 in February 2023 compared to the same month last year). The share of non-performing loans in total gross loans in the banking sector at the end of 2022 is 2.8% and is at the lowest level ever. However, if the crisis lasts, it is possible this indicator to achieve upward movement. Banks are expected to tighten loan granting criteria and increase interest rates on loans, which, on the other hand, should discourage consumption and investments among population and companies. The National Bank projects that the average annual inflation rate in 2023 in the Republic of North Macedonia will range between 8 and 9%. Recent bank closures in the USA and Switzerland are not expected to affect the stability of the country's banking sector.

Projections from the latest IMF report predict GDP growth in North Macedonia by 1.4% in 2023 and 3.6% in 2024.

5 Concluding Observations

The COVID-19 pandemic had numerous negative consequences on global economy: direct effect on supply, which was reduced due to closures; disrupted supply chains; decreased revenues of companies, increased purchase costs of necessary raw materials, etc. Otherwise, households increased savings and reduced consumption, given the current uncertainty and new work-from-home method. It all contributed to a 6.1% GDP decline in the Eurozone in 2020. Similarly, North Macedonia recorded the same decline in GDP that year.

In response to such situations, the ECB introduced special program—Pandemic Emergency Purchase Program—PEPP, intended to stabilize the financial markets

in the Eurozone, as a response to the economic shocks in manufacturing, trade, investments, employment, and liquidity, caused by the pandemic. The Program was approved for a total amount of EUR 1850 billion intended for purchase of several types of securities. With the measures taken, the amount of credit institution loans and euro-denominated securities in the Eurozone in the ECB's assets doubled in the comparison period: the end of 2021 compared to the end of 2019.

In the second half of 2021, the energy crisis outburst, which at the beginning of 2022 worsened with the Russia-Ukraine military conflict. The energy crisis and the military conflict have had significant impact on the economy in the Eurozone and in North Macedonia. Rising energy prices have led to reduced competitiveness of businesses. The negative impact is greater in certain industries and activities, but the greatest in agriculture, food industry, and all other energy-dependent industries.

Approaching the end of 2021, inflation began to ascend, reaching its peak in October 2022, both in the Eurozone and here. In the period that followed, slight downward movement is observed, but the core inflation is seen as more persistent because it can be influenced less by the monetary economy measures, when caused by the supply.

Relevant international financial institutions, in their last announcements of this month, make downward revisions to economic growth forecasts for 2023; however, inflation forecasts are revised slightly upwards.

The latest financial market developments in the USA and Switzerland cause particular concern, but the assessment is that in the Eurozone and in our country, transmission of such shocks is not expected. Consequently, the role of central monetary authorities in maintaining financial stability, in addition to maintaining price stability, is emphasized. Increasingly, there are calls for uniform and harmonized regulation for supervision of non-banking financial institutions, which are currently estimated to carry greater risk than banks.

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Measuring the Dimensions of Experiential-Sharing Behavior



Muhammad Dharma Tuah Putra Nasution , Yossie Rossanty ,
and Pipit Buana Sari 

Abstract This preliminary study sought to validate the experiential-sharing behavior measurement scale using two factor analyses: principal component analysis and common component analysis. The analysis found a relationship between items that were mutually independent, forming two dimensions of experiential-sharing behavior: altruistic and self-actualization. These dimensions meet the measurement criteria suggested by scholars and academicians. This study provides a way for authors to enrich and deepen our knowledge regarding the stream of social media marketing. Practical contributions can be useful for decision-makers involved in marketing communications. The value of originality in research is specifically demonstrated through the reinterpretation of existing concepts within a different context.

Keywords Experiential-sharing behavior · Emotional post-purchase · Intrinsic enjoyment · Self-expressions · Purchase type · Materialism value

1 Introduction

In contemporary society, social media has emerged as a prominent technology, with billions of people worldwide utilizing its services. Facebook, for instance, had 2.38 billion monthly active users and 1.56 billion daily active users as of March 31, 2019 (Appel et al., 2020), while Twitter had 316 million monthly active users, and 500 million tweets were posted every day (Kaul et al., 2020). Instagram is also

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popular, with users spending an average of 28 min per day and more than 80,000 photographs shared every minute (Shah et al., 2019). The increasing access to social media platforms through mobile devices has led to a surge in active and new users, making social media an essential part of daily life that transforms personal and professional interactions. As a result, social media has garnered significant attention from scholars and practitioners who investigate various aspects of social media, including user behavior when sharing stories and experiences (Sukhu et al., 2015; Ukpabi & Karjaluoto, 2018).

Currently, social media users have the ability to generate their own content and share their experiences and specific brand interactions (Ashley & Tuten, 2015). For example, users may share their experiences and reviews of purchased products or traveled destinations on Instagram (Carah & Shaul, 2016; Munar & Jacobsen, 2014). This behavior enables users to communicate their experiences and feelings about product brands or travel destinations through social media platforms in diverse languages (Wang et al., 2017).

Experiential sharing is a unique behavior in which users share their experiences and the use of goods, trips, or services on social media platforms to express their thoughts and feelings (Barger et al., 2016). This behavior is motivated by the desire to express oneself, attract attention, interact with others, or showcase social status (Munar & Jacobsen, 2014; Seidman, 2013; Sung et al., 2016). Unlike traditional word-of-mouth communication, which primarily aims to influence the message recipient's information search, evaluation, and decision making (Porter, 2017; Wang et al., 2017), social media users can share information at their convenience, and their opinions and feelings about products are likely to be shared with a larger audience (Barasch & Berger, 2014; Barreto, 2014; Walther, 2011). Social media users can share various types of products, including those consumed publicly or privately, and may use their experiences with these products to showcase their social status or personal image (Barasch & Berger, 2014).

The purpose of this study is to explore the different aspects of experiential-sharing behavior on social media, characterized previously as impressive behavior, expression of identity, and social ties (Berger, 2014). However, this study proposes that intrinsic enjoyment, self-expression, and the type of purchase are alternative factors that drive such behavior. Additionally, this study posits that materialism, a consumer value that influences individuals' perceptions of the products they purchase or use (Goldsmith & Clark, 2012), may moderate the relationship between experiential-sharing and emotional post-purchase behavior.

Phillips and Pugh (2010) proposed that in order for research to meet the requirements of originality, it should involve the reinterpretation of existing theories in varying contexts, testing concepts from other scholars, and replicating research in diverse settings. The study on experiential-sharing behavior on social media meets these conditions by proposing new factors that drive such behavior and adding to the existing body of knowledge in the field. Specifically, the study proposes intrinsic enjoyment, self-expression, and the type of purchase as alternative factors that drive experiential-sharing behavior, and examines the potential moderating effect of materialism on the relationship between experiential-sharing and emotional post-purchase

behavior. These findings contribute to the current body of knowledge and understanding of experiential-sharing behavior and may be useful for decision-makers in marketing communication or social media users who engage in such behavior.

2 Literature Review

2.1 *Experiential-Sharing Behavior*

The phenomenon of experiential sharing on social media has become prevalent, where users share their opinions and feelings about products or services they have purchased. This behavior is driven by various factors such as the need for self-expression, attention, social interaction, and showcasing social status (Munar & Jacobsen, 2014; Seidman, 2013; Sung et al., 2016). Understanding experiential-sharing behavior is essential as it offers insights into consumer behavior and preferences and generates brand content (Ham et al., 2019).

Experiential sharing is a form of electronic word-of-mouth (e-WOM), referring to informal, oral communication between non-commercial storytellers and news recipients about a particular brand, product, organization, or service (King et al., 2014). Unlike conventional word-of-mouth, e-WOM leverages the convenience of social media proximity, enabling users to share their experiences and ideas effectively and convey messages to a broader audience (Barreto, 2014; Porter, 2017; Wang et al., 2017).

Social media platforms provide users with a means to share their purchases as part of their life experiences, whether it is a material item or an experience. Sharing such acquisitions on social media is a significant part of users' self-concept and self-image (Thomas & Miller, 2013). For example, a student sharing pictures from a recent trip to Europe updates their life experience, which holds greater value than material possessions. Additionally, sharing these experiences on social media has implications for users' social relationships as it provides them with opportunities to interact with their networks. Comment sections are often used to discuss travel experiences and destinations, indicating that users' sharing behavior affects their relationships with their social networks. Research has shown a positive correlation between increased social interactions and happiness (Bhattacharjee & Mogilner, 2014; Hamilton et al., 2016).

Sharing experiences related to purchased items can provide valuable insights into users' preferences and sentiments toward a product or service. For instance, users may broadcast messages to attain high visibility, sharing their personal experiences with products that can be publicly viewed (Barasch & Berger, 2014). By engaging in sharing activities, users can emphasize product features or their experiences of using the product, which can help shape their image or social status. Sharing purchase experiences on social media can lead to increased feelings of happiness for users, as previous studies have shown (Duan & Dholakia, 2017; Thomas & Miller, 2013).

This suggests that users believe that sharing their purchases on social media can impact their social relationships with their networks, ultimately contributing to their happiness through increased social interaction (Bhattacharjee & Mogilner, 2014; Hamilton et al., 2016). While studies on word-of-mouth (WOM) have typically focused on its impact on message recipients, such as influencing their information search, evaluation, and decision making (King et al., 2014), relatively few studies have explored the consequences of experiential-sharing behavior, which is a form of electronic WOM.

2.2 Emotional Post-Purchase

Consumer behavior constructs have been utilized to measure post-purchase emotions, which are distinct from one another. For instance, consumption experience (Chaney et al., 2018), consumer satisfaction (Triantafyllidou et al., 2014), and purchase happiness (Lee et al., 2018) have been used as constructs to operationalize post-purchase consumer emotions. Westbrook and Oliver (1991) suggest that emotional consumption is a process that elicits a unique sequence of emotional responses that arise when using or experiencing a product. These responses can be classified into different dimensions that underlie emotion categories, such as pleasure or discomfort, relaxation or action, and calm or joy. Moreover, the experience of pleasure or happiness is a fundamental aspect of the consumption phenomenon (Holbrook, 2018). Richins (1997) characterizes the consumption experience as an emotion that is directly related to product usage and emerges from it. The emotions that consumers experience are linked to usage situations, such as anticipation of product acquisition, ownership post-purchase, and product usage itself. The usage experience aims to provide an authentic description of an individual's state that is unrelated to the commercialization of a product.

Extensive studies have been conducted on consumption and usage experiences in different contexts and products, such as tourism (Su & Hsu, 2013), services (Han et al., 2010), and specific products (Yao, 2016). Studies have also investigated post-purchase experiences (e.g., Ladhari, 2007), and how positive experiences can lead to positive word-of-mouth (WOM) behavior. For instance, Ladhari et al. (2017) found that a positive post-purchase experience positively impacts WOM behavior. However, Richins (2013) showed that the experience of use can also occur before a purchase is made, and consumers who highly value materialism tend to experience stronger positive emotions toward products. When anticipating desired consumption or use, consumers are more likely to experience positive emotions, such as joy.

Consumer satisfaction is another measure of post-purchase emotional behavior that has been extensively studied. Satisfaction has been classified as an emotional response to a purchase experience (Martin et al., 2008), with consumers feeling that their needs, desires, and goals have been fulfilled, resulting in a sense of pleasure (Oliver, 2014). Satisfaction can be viewed as a confirmation or disconfirmation of

their consumption or purchase experience of a standard of pleasure or displeasure (Palací et al., 2019).

A considerable body of literature has examined the role of emotional experiences in consumer behavior across different stages of the purchase and consumption process. For instance, these emotional experiences are not limited to the actual purchase or consumption but can also be influenced by expectations before purchase or use and can persist even after use (Aurier & Guintcheva, 2014). Consumers may compare the emotions experienced during the consumption or use of a product with their anticipated emotions and form satisfaction responses accordingly (Prayag et al., 2013). Product performance on functional attributes is not the only factor determining the purchase or use experience; consumers' emotional responses to the product can also play a crucial role in shaping their overall satisfaction (Penz & Hogg, 2011). Such affective expectations can be based on past experiences with the product or future expectations formed during the purchase process (Bond et al., 2017; Koenigstorfer & Baumgartner, 2016). Consequently, consumer satisfaction can be shaped by pre-purchase affective expectations, the actual emotional experiences during purchase or use, and the discrepancy between anticipated and experienced emotions (Baumgartner, 2012).

Another important emotional measure in the post-purchase context is overall happiness, which is not a specific consumption experience but rather a psychological state that can be influenced by different types of purchases (Gilovich et al., 2015; Nicolao et al., 2009; Van Boven & Gilovich, 2003). Unlike previous studies that focused on how different types of purchases affect consumer happiness, this research examines how purchases lead to different emotional responses. Specifically, we investigate how different types of purchases and their emotional experiences contribute to consumers' overall happiness, as measured by their subjective sense of happiness post-purchase and the extent to which this purchase contributes to their overall happiness in life (Van Boven & Gilovich, 2003).

Accordingly, we propose that experiential-sharing behavior can amplify the emotional experience of a purchase and increase overall happiness. Specifically, we propose the following research hypothesis.

H1. Experiential-sharing behavior on social media platforms correlates with emotional post-purchase.

2.3 Intrinsic Enjoyment

In their seminal work, Deci and Ryan (2000) contend that the quality and nature of motivation carry greater weight than its mere quantity in determining behavior and outcomes. Specifically, they differentiate between two types of motivation: intrinsic and extrinsic. Intrinsic motivation is driven by one's inherent interest in an activity or task, while extrinsic motivation is initiated by external factors such as rewards or punishments.

Over the years, various studies have shed light on the intrinsic values of social media and online communities. For instance, Dholakia et al. (2004) and Nambisan and Baron (2007) have revealed that entertainment value is a significant motivator for participation in virtual communities. Similarly, Kunz et al. (2012) have demonstrated that intrinsic enjoyment stimulates engagement in online review sites. Nov et al. (2010) have found that intrinsic enjoyment contributes to participation in online photosharing communities, while Okazaki (2009) has shown that enjoyment is a critical motivator for the distribution of messages through e-WOM. Moreover, Toubia and Stephen (2013) have suggested that intrinsic utility encourages Twitter users to share content, while Teichmann et al. (2015) have demonstrated that enjoyment has a positive impact on content contribution to online communities. Additionally, Lin and Lu (2011) have identified enjoyment as an intrinsic benefit of social media use. Despite these findings, relatively few studies have explored the intrinsic enjoyment of sharing user experiences on social media.

Recent research has demonstrated that social media use is often motivated by intrinsic enjoyment and can lead to experiential-sharing behavior (Dholakia et al., 2004; Kunz et al., 2012; Nambisan & Baron, 2007; Nov et al., 2010; Okazaki, 2009; Toubia & Stephen, 2013; Teichmann et al., 2015). Social media's unique features, such as the ability to present oneself without the constraints of offline social norms and expectations, may contribute to this phenomenon (Boyd & Ellison, 2007; Lyu, 2016; Wilcox & Stephen, 2013).

Social media users are often more comfortable expressing themselves online than offline because they perceive anonymity on these platforms, which reduces fears of rejection or criticism (Marwick & Boyd, 2011; Miller & Arnold, 2001). Furthermore, social media provides a more flexible and enjoyable way for users to share personal information and present themselves compared to offline contexts (Belk, 2013). For example, sharing information about purchases on social media is often more socially acceptable than showing off privately owned items in face-to-face settings, which may be perceived as impolite (Belk, 2013).

Therefore, the authors argue that social media is inherently enjoyable, and sharing experiences and purchases on these platforms represents a unique and engaging way to express oneself. Based on these insights, we propose a hypothesis for further investigation.

H2. Intrinsic enjoyment correlates with experiential-sharing behavior on social media platforms.

2.4 *Self-Expressions*

Saenger et al. (2013) have identified additional motives for individuals to share information through word-of-mouth and express themselves. Individuals who are driven by self-expression do not necessarily aim to influence others' purchasing behavior or encourage them to make purchasing decisions. Instead, they simply

want to share information about their purchases. Those motivated by self-expression are not necessarily seeking to be viewed as more knowledgeable or innovative than others, but rather seeking attention and expressing themselves (Sung et al., 2016). In addition, when individuals are motivated by self-expression, their behavior reflects brand loyalty (Geng & Li, 2018), self-concept communication, and attention-seeking (Dimitriu & Guesalaga, 2017). Therefore, people motivated by self-expression tend to discuss their purchases more in order to better express themselves and receive attention throughout the process.

Self-expression motives are relevant to sharing behavior on social media because sharing often involves self-expression and attention-seeking. The construct of self-expression in sharing stories and messages has been applied in various contexts. For example, Ruane and Wallace (2015) found that self-expression is associated with loyalty to online brand communities. Sudbury-Riley (2016) found that the baby boomer market in England was motivated by self-expression when sharing information. Consumer-driven media channels where consumers share stories do not represent the product producer or service provider, but convey product performance information as a social and psychological outcome of the purchase decision, and this is defined as word-of-mouth (King et al., 2014). Scholars have shown a growing interest in understanding the reasons behind social media users' sharing behavior, particularly in terms of electronic word-of-mouth (e-WOM) (King et al., 2014). Some of the key motivations for sharing include the appropriateness and nature of the behavior that encourages it, as well as the desire to impress others with one's self-image (López & Sicilia, 2014). Individuals are driven to enhance their self-status and stand out in order to gain favorable social interaction impressions (Pounders et al., 2016).

Social media users are motivated to share information and experiences on social media platforms to enhance their self-expression and self-status (Çadırcı & Güngör, 2019; Saenger et al., 2013; Heinonen, 2013), as well as communicate their self-identity, traits, knowledge, or expertise to themselves and others (Packard & Wooten, 2013; Hollenbeck & Kaikati, 2012; Berger & Heath, 2007; Reed II et al., 2012). Displaying one's wealth or ownership can also indicate one's buying identity and group affiliation (Kauppinen-Räsänen et al., 2018; Berger & Heath, 2007). Sharing personal experiences on social media can help strengthen interpersonal connections (Berger, 2014; Ritson & Elliott, 1999) and create shared emotional bonds between individuals, enhancing their social bonding needs (Chan & Berger, 2013; Peters & Kashima, 2007).

Users are motivated to engage in electronic word-of-mouth (e-WOM) on social media for impression management, identity expression, and interpersonal connections (Saenger et al., 2013). Social media's immediacy and access through mobile devices facilitate self-expression and the sharing of personal experiences, which can influence the formation of a particular impression or self-view (Barreto, 2014; Kaplan, 2012; Naaman et al., 2010; Walther, 2011). Self-presentation behavior is a common feature of social media use (Gretry et al., 2017), including the desire to appear polite during interactions. Undirected communication on social media can provide individuals with opportunities to establish social connections and obtain

support without risk, especially when they require social support (Buechel & Berger, 2018).

Buechel and Berger (2018) suggest that social media communication is often less targeted than offline communication, which is more commonly directed toward specific individuals or groups. Indirect communication on social media can provide a way for individuals to establish social connections and obtain support without the fear of rejection or being a burden. Berger and Iyengar (2013) indicate that written communication can be utilized to make brands and products more attractive. Synchronous written communication on social media allows individuals to construct and refine their messages, which can enhance their appeal. Social media provides anonymity options that enable users to interact and share content without revealing their identity or profile information (Gupta & Brooks, 2013), but this type of interaction also carries a social risk as social media audiences may not always be identifiable (Miller & Lammas, 2010). Building on these findings, we posit the following hypothesis for our research:

H3. Users' self-expression correlates with experiential-sharing behavior on social media platforms.

2.5 Purchase Type

Several studies have shown that people derive more happiness from experiential purchases than material purchases (Carter & Gilovich, 2012; Kumar & Gilovich, 2016; Nicolao et al., 2009). An experiential purchase refers to an activity or event that someone deliberately takes part in to gain life experience, such as a trip, a movie, or sports club membership, while a material purchase refers to the acquisition of tangible items, such as jewelry, laptops, or shoes (Kumar & Gilovich, 2016; Van Boven & Gilovich, 2003).

Research has shown that people tend to define themselves through their life experiences rather than their possessions, which explains why experiential purchases reflect a person's true self (Carter & Gilovich, 2012; Gilovich & Gallo, 2020). This could be the reason why experience has a greater impact on a person's happiness than material goods (Thomas & Miller, 2013). Experiential purchases often involve other people and are more likely to be shared with them, thus fostering social relationships and a sense of belonging (Caprariello & Gallo, 2020; Caprariello & Reis, 2013). This may be why experience has a greater impact on a person's interpersonal relationships and subsequently greater happiness (Gilovich & Gallo, 2020; Thomas & Miller, 2013).

Overall, experiential purchases provide pleasure as they contribute to successful social relationships and become an important part of one's self-identity (Gilovich & Kumar, 2015; Howell & Hill, 2009). Studies have also found that individuals who engage in experiential purchases are more content compared to those who prefer material purchases (Kumar et al., 2014; Van Boven et al., 2010). Moreover, people experience greater happiness when they gain experiences rather than waiting to

acquire material goods (Kumar et al., 2014). It would be worthwhile to investigate the extent to which consumer purchase patterns motivate social media sharing.

Carter and Gilovich (2012) revealed that individuals gain a deeper understanding of their true selves through their life experiences rather than their material possessions. As such, purchases made for the sake of experiences more accurately reflect an individual's self-concept. In addition, purchases based on experiences have a more significant impact on an individual's well-being compared to material possessions (Thomas & Miller, 2013). This is because experiences typically involve other people and are more likely to be shared, promoting social connections and fulfilling an individual's need for relatedness (Baumeister & Leary, 1995; Caprariello & Reis, 2013; Guevarra & Howell, 2015; Raghunathan & Corfman, 2006). Thus, experiences have a stronger impact on an individual's social relationships than material possessions, leading to greater happiness for the individual (Thomas & Miller 2013).

To summarize, experiential purchases provide greater enjoyment as they foster successful social relationships and contribute to an individual's self-identity (Howell & Hill, 2009; Van Boven, 2005). Research suggests that users who make experiential purchases are viewed as more likable than those who purchase material goods (Van Boven et al., 2010). Furthermore, individuals tend to experience greater happiness when acquiring experiences compared to material possessions (Kumar et al., 2014). However, there is a lack of research exploring the link between types of purchases and experiential-sharing behavior on social media. Thus, the authors propose to delve further into this relationship in the context of social media, building upon these previous findings. The research hypothesis being proposed is as follows.

H4. The type of purchase correlates with experiential-sharing behavior on social media platforms.

2.6 *Materialism Value*

Research has established a connection between conspicuous consumption and materialism (Chacko et al., 2018). Materialism has been studied from individual and socio-cultural perspectives, with some scholars viewing it positively as a source of pleasure and achievement (Goldsmith & Clark, 2012; Twitchell, 1999), while others consider it a negative value system that prioritizes wealth and ownership (Podoshen & Andrzejewski, 2012). Materialism is a personality trait (Belk, 1985; Górník-Durose & Pilch, 2016) and a value that is integral to an individual's beliefs (Górník-Durose & Pilch, 2016; Richins & Dawson, 1992).

Materialism has three main components: the centrality of gains and possessions in one's life, the tendency to evaluate personal success based on one's gains, and the belief that happiness is determined by what one possesses (Górník-Durose & Pilch, 2016; Richins & Dawson, 1992). Individuals with high levels of materialism derive pleasure from purchasing non-essential items and engage in luxury consumption (Richins & Dawson, 1992). They measure their success based on the assets

they possess and compare their social status with others based on their possessions (Richins & Dawson, 1992; Sundie et al., 2011). Materialistic individuals prioritize the acquisition of material possessions as a means to achieve happiness, often at the expense of personal relationships, experiences, and accomplishments (Richins & Dawson, 1992). They tend to envision a future characterized by greater wealth and possessions, and view goods as a sign of success (Pieters, 2013).

However, research suggests that high levels of materialism are associated with lower levels of happiness, potentially due to negative emotions such as stress, discomfort, and low self-esteem (Dittmar et al., 2014). Materialistic individuals prioritize extrinsic goals, such as financial success, image, and status, over intrinsic goals, such as personal growth and self-actualization, which are more beneficial for subjective well-being (Ryan & Deci, 2000). This can lead to negative interpersonal relationships and a diminished sense of autonomy (Shrum et al., 2013; Srikant, 2013). In contrast, individuals with low levels of materialism prioritize interpersonal relationships and intrinsic goals, which are associated with greater happiness and fulfillment (Kasser, 2002).

Low materialism individuals derive greater personal enjoyment and emotional significance from their possessions, particularly those that have a connection to important people in their lives (Richins, 2013; Richins & Dawson, 1992). High materialism individuals, on the other hand, tend to value goods based on their financial worth, aesthetic appeal, or potential for enhancing their social status (Richins, 2013; Richins & Dawson, 1992). These values are often influenced by societal norms and expectations. High materialism individuals experience more positive emotions related to product usage, whereas low materialism individuals tend to exhibit negative tendencies (Richins, 2013).

Chilembwe and Mweiwa (2020) suggest that sharing photos and videos of specific moments and experiences on social media can allow individuals to engage with their friends and family in new ways, creating a shared experience that promotes bonding through likes and comments. For individuals who prioritize social connections over external recognition, sharing experiences on social media can be a source of enjoyment that aligns with their values. However, those who place more emphasis on materialistic values may prioritize displaying their wealth and self-expression over social connection. The ability to customize self-presentation content on social media may limit the effectiveness of this self-promotion, especially for users with high materialistic values (Wilcox & Stephen, 2013). Tafesse (2016) also supports the idea that sharing experiences on social media can promote social bonding between users and their audience. Building upon prior research, we suggest further investigation of this relationship in the context of social media. Based on this, we propose a research hypothesis to explore this relationship.

H5. On social media platforms, the value of materialism moderates the relationship between experiential-sharing behavior and emotional post-purchase.

3 Research Method

3.1 *Research Approach*

The research methodology employed in this study is associative research, which examines the causal effect dimensions of variables by means of empirical evidence. To ensure precision in calculations and minimize errors, a computer program called SPSS was utilized to assist with statistical data processing. The research procedure involved several stages, including the preliminary stage, data analysis, data interpretation, and conclusion drawing. The study population comprised two groups: Gen X or Bust Gen (born between 1965 and 1979) and Gen Y or Millennials (born between 1980 and 1994) who reside in North Sumatra, Indonesia. The sample size of 384 respondents was determined using the Krejcie and Morgan table since the population size was unknown. The respondents had to meet specific criteria, such as being active users who share their purchases, such as holiday experiences, products, and restaurant menus, not endorsing a particular brand or location, and regularly and actively sharing content on at least one of the three social media platforms, namely Facebook, Instagram, and Twitter.

3.2 *Operationalization of Variables and Measurement*

In this study, the independent and dependent variables are operationalized as follows: Experiential-sharing behavior (DV-1) refers to the behavior of users who share their experiences and usage on social media platforms to convey or communicate their feelings or thoughts related to the goods, trips, or services they have purchased or experienced. This construct is measured using six items synthesized from previous research (Kang et al., 2013; Munar & Jacobsen, 2014). Emotional post-purchase (DV-2) is the feeling that arises from the emotion, satisfaction, or happiness that the user feels after making a purchase. It is measured using two dimensions, excitement and joy, with six items adopted from Richins (1997). The study also includes three independent variables. Intrinsic enjoyment (IV-1) refers to a person's motive for engaging in an activity to obtain emotional self-benefits such as pleasure and satisfaction inherent in the activity. It is measured using two dimensions, Enjoyable and Fun, with three indicator items adopted from Lin and Lu (2011). Self-expression (IV-2) is defined as highlighting self-expression in seeking attention to who the person really is. It is measured using two dimensions, impression and attraction, with six indicator items adopted from Saenger et al. (2013). Purchase type (IV-3) is operationalized as an underlying purchase motive, either to gain life experience or to obtain something material. It is measured using two dimensions, material-centric and life experience-centric, with four indicator items adopted from Van Boven and Gilovich (2003). Lastly, materialism is included as a moderator variable. Materialism is defined as a set of values, beliefs, and orientations toward material possessions. It

is measured using three dimensions, centrality values, success values, and happiness values, with nine indicator items adopted from Richins (2004).

3.3 Data Analysis

To identify the latent dimensions of experiential-sharing behavior, exploratory factor analysis (EFA) was conducted using principal component analysis (PCA). A component matrix was used to analyze the significant loading factors of the indicators, with a minimum threshold of 0.50. The suitability of the process was confirmed using Kaiser–Meyer–Olkin (KMO) MSA. Indicators with low communalities (less than 0.50) and those with significant loadings on two or more factors were considered for deletion. On the other hand, confirmatory factor analysis (CFA) is applied to all constructs to validate the measurement model. This method was used to assess the degree to which the observed indicators were consistent with measured theoretical constructs. The aim was to test the hypothesized model by comparing the observed data with the model's predicted data. By conducting CFA, researchers can determine whether the measurement model fits the collected data and whether the constructs are properly operationalized.

4 Results

4.1 Exploratory Factor Analysis (EFA)

During the implementation of EFA, all the indicators were deemed acceptable and were combined into two dimensions, which were identified as “altruistic practice” and “self-actualization practice.” The measure explained 84.31 variance of the variance with a KMO value of 0.707, while the communalities and loading factor values ranged from 0.509 to 0.939 and 0.702 to 0.959, respectively (Table 1).

4.2 Confirmatory Factor Analysis (CFA)

The CFA models for all constructs were found to be appropriate and acceptable (Table 2).

Cronbach's alpha was used to measure the reliability of each variable. This decision is based on three factors. First, Cronbach's alpha is the most commonly used tool for assessing questionnaire reliability. Second, this test can identify inconsistent indicators (Malhotra, 2015). Finally, Cronbach's alpha provides a reliability measure with a threshold value between zero and one (Hair et al., 2014), where a minimum

Table 1 Exploratory factor analysis (EFA) results on experiential-sharing behavior

Factors	Items	CV	FL	KMO	VE
Altruistic	"I want to help other people"	0.932	0.959	0.707	46.897
	"I want to prevent people from using bad products"	0.932	0.955		
	"I want to contribute to the public what is useful for me"	0.939	0.929		
Self-actualization	"I want to be recognized for my purchase or consumption experience"	0.883	0.917		37.413
	"I like to share what I want people to think of me"	0.863	0.896		
	"It's important to me that people know what I eat"	0.509	0.702		

CV—community values; FL—factor loading; KMO—Kaiser–Meyer–Olkin; VE—variance explained

level of 0.70 is typically considered acceptable (Nunnally, 1994; Hair et al., 2014). Table 3 presents the reliability levels for each variable as measured by Cronbach's alpha.

Cronbach's alpha was used to evaluate the reliability of all constructs. According to Nunnally (1994) and Hair et al. (2014), a construct is deemed reliable when its Cronbach's alpha score is above the recommended limit of 0.7. As presented in Table 4, Cronbach's alpha values for all scales met the threshold criteria. Hence, the reliability of all the scales was established.

Table 2 CFA results

Factors	Items	MSA	FL	KMO	TVE
Emotional Post-Purchase				0.904	66.766
Excitement	Pre-purchase “The emotion felt is excited to something”	0.876	0.911		
	“The emotions felt are mixed happiness with interest”	0.922	0.749		
	“Emotions that are felt enthusiastic about something”	0.909	0.836		
Joy	Post-purchase “Emotions over something happy that has happened”	0.913	0.780		
	“Emotions of pleasure for what has happened as desired”	0.891	0.888		
	“Emotions with joyful”	0.927	0.720		
Intrinsic enjoyment				0.727	63.691
Enjoyable	“For me, interacting on social media is something fun”	0.714	0.818		
	“I enjoy the time I spend on social media”	0.744	0.775		
Fun	“For me, social media is something that is entertaining”	0.725	0.801		
Self-expression				0.895	62.235
Impressions	“I like to talk about what products and services I use so people can get to know me better”	0.853	0.841		
	“I love the attention I get when I talk to people about the products and services I use”	0.912	0.799		
	“I talk to people about my consumption activities to tell them more about me”	0.933	0.746		

(continued)

Table 2 (continued)

Factors	Items	MSA	FL	KMO	TVE
Attract attention	"I like to communicate my consumption activities to people who are interested in knowing about me"	0.923	0.765		
	"I love the idea of people wanting to learn more about me through the products and services I use"	0.855	0.806		
	"I like it when people pay attention to what I have to say about my consumption activities"	0.918	0.769		
Purchase Type				0.868	90.698
Life experience-centric	"I buy consumer goods because I want to find life experiences"	0.892	0.935		
	"For me, life experiences can enhance social interactions"	0.858	0.955		
Material-centric	"I buy goods that are consumed because I want to get the best goods"	0.837	0.971		
	"For me, buying the best things grows my social status"	0.858	0.955		
Materialism				0.894	75.359
Centrality values	"I admire people who own expensive houses, cars, and clothes"	0.905	0.815		
	"The things that I have say a lot are about how well I am doing in life"	0.881	0.713		
	"I like to have things that impress people"	0.869	0.630		
	"I try to keep my life simple, as far as possessions are concerned"	0.902	0.982		
Success values	"Buying things gives me a lot of pleasure"	0.877	0.957		

(continued)

Table 2 (continued)

Factors	Items	MSA	FL	KMO	TVE
Happiness Values	“I like a lot of luxury in my life”	0.895	0.953		
	“My life would be better if I had certain things that I don’t have”	0.909	0.952		
	“I would be happier if I could afford more stuff”	0.863	0.813		
	“Sometimes it’s a little annoying when I can’t afford all the things I want”	0.930	0.926		

CV—community values; FL—factor loading; KMO—Kaiser–Meyer–Olkin; TVE—total variance explained

Table 3 Reliability level of Cronbach’s alpha

Cronbach’s alpha	Reliability level
0.0–0.20	Less
> 0.20–0.40	Rather
> 0.40–0.60	Enough
> 0.60–0.80	Reliable
> 0.80–1.00	More reliable

Table 4 Construct reliability results

Construct	Cronbach’s alpha
Experiential-sharing behavior	0.713
Emotional post-purchase	0.889
Intrinsic enjoyment	0.881
Self-expression	0.908
Purchase type	0.975
Materialism	0.963

5 Conclusion

The aim of this preliminary study was to validate a measurement scale that was being developed. To achieve this, the authors used two different factor analysis techniques: principal component analysis and common component analysis. In the first pilot study, principal component analysis was employed since the dimensions that were

to be formed could not be predetermined. The authors randomly selected six self-designed items for the construct, and through the analysis process, identified two new dimensions, altruistic practice and self-actualization practice, which met the measurement criteria established by scholars. Measures such as communality value, factor loading, Kaiser–Meyer–Olkin, and variance explained were used to assess the adequacy of these dimensions. The overall objective of this measure was to validate the dimensions and construction of experiential-sharing behavior to facilitate further investigation. In the second pilot study, common component analysis was used, which confirmed several constructs such as intrinsic enjoyment, self-expression, purchase type, post-purchase emotion, and materialism. The appropriateness of the analysis was confirmed through measures such as Kaiser–Meyer–Olkin (KMO), communality value, MSA, factor loading, and total variance explained.

5.1 Limitations

This preliminary research is not without limitations, particularly concerning the new dimensions of altruistic and self-actualization practices. First, there may be bias between the textual and contextual aspects of the new construct. Second, the derivative process from theory may not have been carried out adequately, specifically concerning the epistemological and ontological bases of a construct. Third, related to the knowledge gap, the logical coherence and causality approach used by the authors may not entirely fulfill the principle of the relationship from the exclusive moment as it should. Finally, the selection of the main theory of the consumption emotions set (CES) may have weak justification as the parent theory of management. Thus, to overcome the limitations of this research and to further develop the body of knowledge in the field of social media marketing, future research needs to confirm and deepen the findings. This will require addressing the aforementioned limitations by ensuring an unbiased approach to the construct, appropriately carrying out the derivative process, and improving the logical coherence and causality approach. Additionally, a more robust justification for the selection of parent theory should be considered in future research.

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Economics

Relationship Between Remittances and Economic Growth: Evidence from Southeast European Developing Countries



Krenare Shahini Gollopeni  and Hyrije Abazi Alili

Abstract For developing countries, remittances are an important source of external financing. Remittances show how well managing employment migration can contribute to a country's development and have an impact on poverty eradication. The purpose of this study is to investigate the impact of migrant remittances on economic growth by examining data from nine developing countries in Southeast Europe from 2008 to 2019. The data used are panel data and cover 12 years and using several models and econometric analyses to determine the relationship between these factors. The technique is based on these five econometric regression models to achieve better-quality results. Models used for econometric analysis include OLS, OLS Robust, fixed effect, random effect, and generalized method of moments (GMM). For the interpretation of the results, the generalized method of moments GMM was selected as the most suitable method. According to the results of this study, there is a positive and statistically significant relationship between remittances and economic development in the countries and periods studied.

Keywords Remittance · Direct foreign investments · Economic growth · Panel data · GMM

JEL Classification F21 · F24 · O11

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1 Introduction

One of the most important and long-lasting sources of foreign aid for poor countries is remittances. They are the income of immigrants mainly from developed countries. Remittances, often known as the money or products that migrants send to their family one's back home, are frequently the most obvious and direct link between migration and development. Although they are private monies, remittances surpass official development support.

Remittances are an important source of foreign earnings for developing countries, increasing dramatically in size over the past decades (Feeny et al., 2014).

The main macroeconomic impacts of remittances can be divided into two ways. From a theoretical point of view, workers' remittances are mainly used for consumption purposes and have a negligible impact on savings and investment (Pradhan, 2016).

Researchers have examined several factors associated with remittances in recent years. The impact of remittances on remittance-receiving countries is one of the main features of remittances. Immigration is traditionally higher in developing countries. Since they are developing countries, according to the author (Gollopeni, 2016), depending on the social, economic, and political situation in which the society is located, migration aims to move to more developed countries, which guarantee a better life and favorable.

Empirical evidence regarding the impact of remittances on economic growth is categorized in two ways. Numerous researches demonstrate the positive effects of remittances on economic growth, whereas other studies demonstrate the negative effects of remittances on economic growth. Here it is important to emphasize that the impact of remittances on economic growth varies depending on the countries taken for research and the way they are received in the country of origin.

Migrant remittances are understood as financial transfers, regular way of their transfer or even through non-regular ways, and in which it is difficult to know exactly their impact on economic growth.

Developing countries need development, and in development, without a doubt, capital formation is crucial. These countries are benefiting from migrant remittances and seeing a high flow of these remittances, their role is undoubtedly of particular importance in economic growth.

The summary of this study is as follows: Sect. 2 presents the literature review. Section 3 shows the methodology. In Sect. 4, results and discussions are presented. In Sect. 5, conclusions are presented.

2 Literature Review

Welfare and economic growth are the main goals of a state. Remittances are an important source of income that contributes to growth and development.

Remittances are household income received from abroad, resulting mainly from international labor migration (Bank, 2010).

Gupta et al. (2007) shows that remittances increase the resources of beneficiary families, moderate consumption, provide working capital, and have multiplier effects through increased household spending.

The literature lists several ways in which remittances can affect economic growth.

The study by Barajas et al. (2009) shows that remittances can reduce macroeconomic domestic volatility, thereby encouraging greater domestic investment, while in contrast, remittances will have a limited impact on growth if they are spent on consumption and not for investment.

From the research (Catrinescu et al. 2009), it has been established that a sound institutional environment affects the volume and efficiency of investments; therefore, in the presence of good institutions, remittances can be invested more and more efficiently, ultimately leading to higher output.

Kokotovic (2022), based on the literature review shows that some studies conclude that remittances can hinder economic growth, while several authors suggest that inflows of remittances contribute to economic activity by alleviating poverty and enabling the development of investment economic activities.

Various studies on the impact of remittances on economic assistance:

2.1 The Positive Impact of Remittances on Economic Growth

Some authors show a positive and significant impact of remittances on economic growth, (Kajtazi & Fetai, 2022), using the endogenous empirical growth model and different econometric approaches, have evaluated the causal relationship between immigrants' remittances and economic growth in ten countries of Southeast Europe, including Greece as a developed country in the period 2009–2019. The results have shown that remittances positively affect economic growth and the coefficient is statistically significant.

Bucevska (2022), using quarterly data (2008q1–2020q2) for six Southeast European countries, panel regression with a fixed effects model has shown that remittances have a significant positive impact on economic growth.

The study from (Comes et al., 2018), after applying the fixed effects model for the analysis carried out for seven European countries, showed that there is a positive impact of remittances and foreign direct investment on economic growth.

The results from (Fayissa & Nsiah, 2010), exploring the impact of remittance aggregates on economic growth within the conventional neoclassical growth framework using panel data from 1980 to 2004 for 37 African countries show that the remittance variable has a positive and statistically significant effect on GDP- in per capita ($P < 0.01$) in African countries.

The results of the empirical study of remittances on economic growth in Pakistan for the period 1972–73 to 2002–2003 by Iqbal (2010), show a positive and highly

significant relationship between remittances and real GDP growth, implying that higher remittances are associated with higher economic growth.

2.2 The Negative Impact of Remittances on Economic Growth

While it is undeniable that remittances have poverty-alleviating and consumption-alleviating effects on recipient households, the results show that, at best, workers' remittances have no impact on economic growth, sometimes encouraging unemployment. According to some studies, there is no relationship between remittances and GDP.

Chami et al. (2005), have developed a model for examining the causes of migrant remittances, and their empirical estimates reveal substantial evidence that remittances tend to be negatively related to GDP growth, suggesting that they are compensatory in nature.

The study by Sutradhar (2020), using panel data for the period 1977–2016 for South Asian countries, based on the regression model shows a negative relationship between remittances and economic growth. The negative outcome suggests that a larger portion of remittances is used for consumption and other non-productive activities.

The study by Pradhan (2016), for the BRICS countries for the period 1994–2013, shows a long-term existence of an equilibrium between remittances and growth rate, and it is found that there is a long-term negative impact of remittances on economic growth as the result of PVECM shows that the change of remittances is 1% at a root of 0.24% of GDP per capita in the long run.

To further analyze the impact of remittances on economic growth, we will continue with the empirical analysis.

3 Methodology

3.1 Sample and Sampling

This study is based on secondary data from the nine developing countries of Southeast Europe which are Kosovo, Albania, North Macedonia, Serbia, Montenegro, Croatia, Bosnia and Herzegovina, Bulgaria, and Romania. The data is panel data obtained from the World Bank and covers 12 years (2008–2019) (Table 1).

Table 1 Description of research variables

Definition	Variable	Unit	Source
Economic growth	GDP	% Annual	World Bank
Remittances	REM	% e GDP	World Bank
Direct Foreign investments	FDI	% e GDP	World Bank
Broad money	BM	% e GDP	World Bank
Inflation	INF	% e GDP	World Bank
Final consumption expenditure	FCE	% e GDP	World Bank

3.2 Instruments, Data Collection Procedures, and Analysis

To have a clearer picture of the situation and to achieve results, a secondary source of data was used. The data were analyzed using econometric methods through the STATA program. Panel data were obtained for economic growth (GDP), remittances (REM), foreign direct investment (FDI), broad money (MB), inflation (INF), and final consumption expenditure (FCE). The methods used are the method of least squares, the method of fixed effects, the method of random effects, and the method of generalized moments GMM. The generalized methods of moments (GMM) popularized are the ones that are preferred to be used (Arellano & Bond, 1991). Moreover, the GMM offers more accurate and dependable projections than other econometric techniques.

3.3 Econometric Models

From the data we have in the research, the econometric model takes this form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \mu.$$

When we substitute the variables we used in our model, we create the following equation:

$$\text{GDP} = \beta_o + \beta (\text{FDI}) + \beta (\text{REM}) + \beta (\text{BM}) + \beta (\text{INF}) + \beta (\text{FCE}) + \mu i.$$

Table 2 Testing for multicollinearity

Variables	VIF	1/VIF
FCE	2.71	0.369
REM	2.44	0.409
FDI	1.31	0.764
INF	1.29	0.775
BM	1.22	0.820
Mean VIF	1.79	

Source STATA Author's Calculation; Data from the World Bank

3.4 Analysis for Multicollinearity

In the following Table 2, the VIF test is presented to test the data for multicollinearity; according to the data, there is multicollinearity, but it is within the allowed norms since the average of the VIF is less than 10.

4 Results

The results begin with the statistical description of the variables for the study states (Table 3).

The table above shows the descriptive statistics of the study variables for all the countries of the research, so we have nine countries in a period of 12 years, a total of 108 observations. Study model countries have positive economic performance an average of 2.42%, remittances average of 7.97% of GDP, foreign direct investment is 5.82% of GDP, broad money average of 58.06%, inflation for study countries has an average of 2.54% while final consumption expenditure constitutes 89.76% of GDP.

Table 4 presents the correlation coefficient between the independent variables and the dependent variable, where four variables remittances ($r = 0.24$), foreign direct investments ($r = 0.01$), inflation ($r = 0.04$), and final consumption expenditure ($r =$

Table 3 Descriptive statistics of the variables

Variables	Obs	Mean	Std. Dev	Min	Max
GDP	107	2.42	2.78	-7.28	9.30
REM	108	7.97	4.86	0.37	21.05
FDI	108	5.82	5.04	0.08	37.27
BM	108	58.06	15.35	32.24	85.80
INF	108	2.54	2.94	-2.41	12.41
FCE	108	89.76	9.84	75.30	112.12

Source STATA Author's Calculation; Data from the World Bank

0.04) have a positive relationship with economic growth; meanwhile, broad money variable has a weak negative relationship ($r = 0.09$) with economic growth.

Table 5 shows the results of five econometric models: OLS, OLS Robust, fixed effect, random effect, and GMM.

Table 5 shows the results of the five econometric models. Based on the Hausman test where the P value is higher than 0.05 ($P = 0.31 > 0.05$) which means that the

Table 4 Correlation matrix analysis

	GDP	REM	FDI	BM	INF	FCE
GDP	1					
REM	0.2446	1				
FDI	0.0146	0.2512	1			
BM	-0.0975	-0.0351	-0.0222	1		
INF	0.0425	-0.1314	0.2867	-0.3095	1	
FCE	0.0418	0.7427	0.3766	-0.2276	0.0604	1

Source STATA Author's Calculation; Data from the World Bank

Table 5 Econometric model

	OLS	OLS robust	FE	RE	GMM
Variables	Economic growth	Economic growth	Economic growth	Economic growth	Economic growth
REM	0.328***	0.328***	0.624**	0.419***	0.674***
s.e	(3.85)	(3.48)	(3.08)	(3.78)	(3.30)
FDI	-0.00133	-0.00133	-0.00579	-0.0139	-0.174*
s.e	(-0.02)	(-0.01)	(-0.07)	(-0.20)	(-2.33)
BM	-0.0257	-0.0257	0.0661	-0.0157	0.171**
s.e	(-1.38)	(-1.49)	(0.98)	(-0.56)	(2.73)
INF	0.0941	0.0941	0.282*	0.172	-0.0193
s.e	(0.93)	(0.79)	(2.42)	(1.63)	(-0.19)
FCE	-0.117**	-0.117**	-0.162*	-0.156**	-0.222**
s.e	(-2.68)	(-2.49)	(-2.17)	(-2.90)	(-3.14)
cons	11.57**	11.57**	7.560	13.65**	7.779
	(3.03)	(2.74)	(0.81)	(2.76)	(0.89)
R-square	13.69	13.69			
Prob > F	0.0100	0.0012	0.0052	0.0089	0.0000
N	107	107	107	107	89

Hausman test = 0.31

Notes *** Statistically significant at 1% level, ** statistically significant at 5% level, * statistically significant at 10% level

Source Author's calculation

difference in the coefficient is not systematic, and it is preferable to use the model with random effects, but for the interpretation of results The GMM model was selected, and this model was selected as the most suitable model for the analysis of the results of this paper. The GMM, Arellano–Bond model shows a statistically significant $P = 0.0000$.

The interpretation of the coefficient is made according to the *ceteris paribus* assumption. The coefficient of remittances is positive 0.674, so for every 1% increase in remittances, economic growth increases on average by 0.67%, and this coefficient is significant at the 1% level.

The coefficient of foreign direct investment is negative (0.174) and is statistically significant at the 10% level, also the paper by Bucevska (2022) shows that foreign direct investment was negative and statistically significant for six SEE countries, as well as the paper by Sutradhar (2020), shows the negative impact of foreign direct investments and that they are statistically significant in economic growth.

The coefficient of broad money is positive 0.171 and is significant at the 5% level; it is consistent with the study by Šulíková (2019), that an increase in the broad money supply is generally favorable for production, but only if inflation is kept within limits of assigned.

Also, the findings of the study by, Gatawa et al. (2017) showed that an increase in the rate of broad money supply has a positive impact on the growth rate of real GDP in Ethiopia in the short term from the year 2002–2017.

The coefficient of final consumption expenditure is negative (0.222) and is statistically significant at the 5% level.

5 Conclusions

The main focus of the study is to investigate the effect of remittances on economic growth and development in nine developing countries of Southeast Europe.

When households receive remittances, they can use the funds to start or expand businesses, which can create jobs and generate additional income. In addition, remittances can help reduce poverty and inequality in the developing countries of Southeast Europe. Remittances can help lift people out of poverty and improve their living standards by providing families with a source of income.

In this study, we have investigated the impact of remittances on economic growth for nine Southeast European countries using panel data from 2008 to 2019 and explained using the GMM model as the most appropriate model.

The results show that there is a significant and economically significant relationship between remittances and economic growth, i.e., for every 1% increase in remittances, economic growth increases by an average of 0.67%. The study also shows that foreign direct investment, broad money, and final consumption expenditure are statistically significant for economic growth for the study countries.

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The Relationship Between Rule of Law Level and Economic Growth



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Abstract Historically economic growth has been a crucial macroeconomic objective for countries all over the world. Nonetheless, for the well-being of society, a sustainable and functional rule of law is another objective which is non-economic but still might be related to the economy. Therefore, as the title suggests, this paper aims to examine the relationship between the rule of law level and economic growth in 107 countries with different levels of economic growth and a variety quality of rule of law. The study, using a quantitative scientific approach, respectively econometric analysis, finds ought that there is a statistically significant relationship between the rule of law level and economic growth in such countries.

Keywords Economic growth · Rule of law · Relationship

1 Introduction

As it is already generally known, there are lots of economic and non-economic factors (i.e. variables and indicators) that impact economic growth in different countries. Meanwhile, it is also obvious that all of the countries around the world have one common macroeconomic objective: reaching the high level and sustainable economic growth. This research paper aims to investigate the relationship between the rule of law level (being one of the main non-economic variables) and economic growth. While economic growth is an understandable and straightforward concept already, the rule of law level is not that easy to measure or define. In other words, the measurement of economic growth is well-known, but the measurement of the rule of law level is not that obvious, since it has more variables and indicators, depending on which institution you refer to. All in all, the rule of law concept tends to be used as the extent

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to which laws are implemented and applied effectively by countries, being measured by some variables. This study's objective is to answer the following research question: *Is there a significant relationship between the rule of law level and economic growth?* Consequently, from this research question, are raised hypotheses that are presented below. But before presenting the hypothesis, it should be explained that the variable economic growth in this research is considered GDP per capita (World Bank, 2022, constant 2015 US\$). On the other hand, the rule of law variable is measured with the following five indicators: *Absence of Corruption, Open Government, Property Rights, Constraints on Government Powers and Order and Security* (World Justice Project, 2018; International Property Rights Index, 2018).

1.1 Hypotheses

The research uses the format of Null and Alternative Hypotheses, which hypotheses, of course, are drawn from the above-mentioned research question raised. See the respective hypotheses in the following.

- **The Null Hypothesis H_0 :** *The relationship between the rule of law level and economic growth is not statistically significant (H_0 : $\beta = 0$).*
- **The Alternative Hypothesis H_1 :** *The relationship between the rule of law level and economic growth is statistically significant (H_1 : $\beta \neq 0$).*

2 Literature Review

Generally speaking, scholars see the functional and effective rule of law as an important factor to economic growth, i.e. the relationship between rule of law level and economic growth is seen as positively correlated and statistically significant (Butkiewicz & Yanikkaya, 2006; Cieřlik & Goczek, 2018; Dima et al., 2018; Gründler & Potrafke, 2019; Haggard & Tiede, 2011; Haggard et al., 2008; Hajdini et al., 2023; Mendonça & Fonseca, 2012; Nedanovski & Kocęvska, 2023; Swaleheen, 2011). However, one might still say that not many studies (research papers) have been conducted and published in this field (i.e. in researching of topic of this paper), respectively, in measuring the relationship between the rule of law and economic growth.

According to Gründler and Potrafke (2019), corruption and economic growth have a negative relationship. They claim to offer evidence in their study of 175 countries for the period 2012–2018 by showing the results that corruption is in a negative relation to economic growth. Always according to their study, while the corruption perception index (CPI) increased by one standard deviation, economic growth (measured by GDP per capita) decreased rapidly by 17%; especially in the countries where the rule of law level is really weak and non-effective. Similar results of a negative relationship between corruption and economic growth, respectively, of the negative impact

of corruption on economic growth are shown by other papers as well with panel data (Cieřlik & Goczek, 2018; Swaleheen, 2011). Hajdini et al. (2023), by using the Corruption Perception index, or CPI, and Western Balkan Corruption Ranking or WBCR, found out in their research that they have done for Western Balkan countries that corruption has significant negative effect on foreign direct investments. Consequently, this would impact economic growth, as well, having into consideration that investments are one of the crucial promoters of growth. Moreover, a study by scholars Haggard and Tiede (2011) provided evidence of the positive relationship between the rule of law level and economic growth through 3 clusters of the countries covered in the research, i.e. by showing the importance of the rule of law level to economic growth. Indeed, the significance of the relationship between the rule of law level and economic growth is not the same at all levels of development divided by countries; that happens only in the high level of income, i.e. high level of developed countries, not the others according to Ozpolat et al. (2016). The rule of law level is also significantly meaningful in controlling the shadow economy, which means again is proved to be important to economic growth by another study using a different model, such as the GMM that is used in the study by respective scholars (Luong et al., 2020). One can also say that the effective rule of law level is the go-between in economic growth and the environment, or as it is said, the rule of law is a win-win situation for indicators, i.e. environment issues and economic growth (Castiglione et al., 2015). On the other hand, according to Dima et al. (2018), who conducted a study in 45 countries, there is a positive significant relationship between the rule of law level and capital market development. This indeed means that the relationship is positively correlated to economic growth as well since it is empirically proved that financial market development has a positive relation to economic growth (Čižo et al., 2020; Deltuvaitė & Sinevičienė, 2014). While Şasmaz and Sagdic (2020), in contrast to the other researchers mentioned above in this paper, found out in their study that the rule of law level does not have a significant impact on economic growth. Similarly, the study in the Balkan States in the period 2000–2015 presented the results that the improvement in the rule of law level has not impacted economic growth significantly (Ftoreková & Mádr, 2017). They, indeed, present the government's effectiveness as a significant factor in economic growth level, but not the rule of law variables. It is also worth mentioning that Roxas et al. (2012) measured the impact of rule of law level on the performance of the businesses organization, by finding out that rule of law has a significant impact on business performance, as they included independent variables in the study such as crime, theft, corruption and tax administration.

All in all, as explained above, it can be stated that the relationship between the rule of law level and economic growth, by most scholars (using different methods and models), is seen to be positive and statistically significant. But it is worth mentioning that it depends also on the indicators that have been taken in the study as the rule of law variables, because not all of the above-mentioned studies have taken in their researches the same variables or indicators that measure and describe the rule of law level. However, this research paper takes into consideration closely related variables to rule of law for variety kind of countries (107 countries) as it is explained below in detail in the methodology part.

3 Methodology

3.1 *Research Model and Methods*

This research is based on quantitative research methods, using the Median Regression model as a cardinal instrument of the study. Data used to run Median Regression are cross-sectional and from secondary sources, but reasonably reliable since they are from credible international institutions. Moreover, a scatter plot with the predicted values (\hat{y}) on the y-axis and the actual values of the dependent variable (GDP per capita) on the x-axis is created and presented in this paper. Certainly, the purpose of this plot is to visually assess the fit of the model; and based on this scatter plot (i.e. see the findings below), it appears that the model fits the data relatively well, as the points appear to follow a general upward trend. All the analyses were conducted using the Stata software.

As far as the data are concerned, from the WJP Rule of Law Index are variables presented in the following: Absence of Corruption, Open Government, Constraints on Government Powers, Order and Security. While, another variable (that of the Property Rights), is from the International Property Rights Index source. And it is worth mentioning that since the research is done with cross-sectional data, it means that all the respective variables are for one year, in this case the 2018 year. It was not taken as a sample of the examination one of the more recent years because of the different crises that have happened around the world, the likes of the Covid-19 pandemic, Energy Crises, Inflation, etc., which would have caused to be a non-typical year to study the rule of law level and the economic growth relationship. One more necessary disclosure of the variables that have been covered in this research is the GDP per capita variable, which has the source from (World Bank, 2022, constant 2015 US\$). Indeed, other variables have been also involved at the beginning of the study, such as Regulatory Enforcement, Fundamental rights, etc., but were dropped afterwards because of the multicollinearity issues, resulting in the high VIF (Variance Inflation Factor). After all, the Median Regression model was used to handle data with outliers and non-normality, which is well known as a robust regression instead of ordinary least squares (OLS). Of course, all of that makes the results less sensitive to the effects of outliers and skewed data.

3.2 Sample

A sample of this research paper covers 107 countries around the world. In fact, it is worth mentioning that the study was going to take into account all the countries in the world, but because of the non-accessible and not enough reliable data, only 107 countries were considered. However, a sample of 107 countries is still considered to be a good representative of the population being studied, since it contains countries with all levels of economic growth and development, as well as countries with a variety of rule of law effectiveness. For the sake of transparency and in case the research is to be replicated by another scholars using other methods and models of study, all 107 countries involved in the sample are presented at the end of this research.

3.3 Descriptive Data

The descriptive statistics analysis of this research paper, done for all the variables (non-log transformed variables and log-transformed variables), is reported in the following table, which is the initial part of the quantitative analysis conducted in the research paper.

Variable	Obs	Mean	Std. Dev.	Min	Max
GDPpercapita	107	14582.25	17484.49	386.0601	75953.58
AbsenceofC~n	107	.53	.1899205	.25	.95
OpenGuvern~t	107	.5449533	.152621	.23	.88
PropertyRi~s	107	55.39252	19.39096	5.2	98.4
Constrains~s	107	.5714953	.1640973	.18	.94
OrderandSe~y	107	.7158879	.1296872	.32	.93
lnGDPperca~a	107	8.836101	1.319519	5.955993	11.23788
lnAbsenceo~n	107	-.6982929	.3593883	-1.386294	-.0512933
lnOpenGuve~t	107	-.6469136	.2876536	-1.469676	-.1278334
lnProperty~s	107	3.942722	.414968	1.648659	4.589041
lnConstrai~s	107	-.6024286	.3013895	-1.714798	-.0618754
lnOrderand~y	107	-.3528529	.2023263	-1.139434	-.0725707

4 Findings and Discussion

4.1 Reliability Analysis

Reliability analysis of this research is done through Cronbach's Alpha, as recommended for the evaluation of internal consistency of the Likert scale (Gliem & Gliem, 2003). The results of this test show a high level of internal consistency (0.9061) of this paper, having into account that a level of Cronbach's Alpha of 0.7 or higher is generally considered acceptable for research purposes and examinations.

```
Test scale = mean(unstandardized items)

Average interitem covariance:    .0679581
Number of items in the scale:    5
Scale reliability coefficient:    0.9061
```

4.2 Formula and Results

The econometric computation was done through the STATA application, having the GDP per capita as the dependent variable, while as the independent variables having the other five as follows: *Absence of Corruption*, *Open Government*, *Property Rights*, *Constraints on Government Powers* and *Order and Security*. Thus, the Median Regression is conducted under the following model:

$$\begin{aligned} \text{GDP per capita} = & \beta_0 + \beta_1 (\text{Absence of Corruption}) \\ & + \beta_2 (\text{Open Government}) + \beta_3 (\text{Property Rights}) \\ & + \beta_4 (\text{Constraints on Government Powers}) \\ & + \beta_5 (\text{Order and Security}) + \varepsilon_i. \end{aligned}$$

The outcomes of the econometric analysis (as mentioned using the STATA application), such as the Median Regression model being the pivotal part of the study, are presented in the following (which outcomes will be analysed in detail aftermath).

As mentioned above, the formula for this research paper, i.e. the Median Regression model is as follows, where the results of the study are now also incorporated.

Formula without results:

$$\begin{aligned} \text{GDP per capita} = & \beta_0 + \beta_1 (\text{Absence of Corruption}) \\ & + \beta_2 (\text{Open Government}) + \beta_3 (\text{Property Rights}) \\ & + \beta_4 (\text{Constraints on Government Powers}) \\ & + \beta_5 (\text{Order and Security}) + \varepsilon_i. \end{aligned}$$

Formula with results:

$$\begin{aligned} \text{GDP per capita} = & 7.452329 + 2.724067 (\text{Absence of Corruption}) \\ & + 1.518113 (\text{Open Government}) \\ & + 0.8471991 (\text{Property Rights}) \\ & + 1.509308 (\text{Constraints on Government Powers}) \\ & + 0.513242 (\text{Order and Security}) + \varepsilon_i. \end{aligned}$$

As presented with the outcomes above, the pseudo-R-squared value of 0.5610 indicates that the model explains approximately 56% of the variation in GDP per capita. On the other hand, the intercept (or constant term) is 7.452329, indicating that if all independent variables are equal to zero, the expected value of GDP per capita would be approximately 7.45. Meanwhile, other coefficient shows or illustrates as follows: the coefficient for the *Absence of Corruption* is 2.724067, indicating that a one-unit increase in *Absence of Corruption* is associated with an increase of approximately 2.7 in GDP per capita, holding all other variables constant; similarly, the coefficient for *Open Government* is 1.518113, indicating that a one-unit increase in *Open Government* is associated with an increase of approximately 1.5 in GDP per capita, again holding all other variables constant; the coefficient for *Property Rights* is 0.8471991, indicating that a one-unit increase in *Property Rights* is associated with an increase of approximately 0.8 in GDP per capita, yet again holding all other variables constant; the coefficient for *Constraints on Government Powers* is – 1.509308, indicating that a one-unit increase in *Constraints on Government Powers* is associated with a decrease of approximately 1.5 in GDP per capita, of course, holding all other variables constant; the variable *Order and Security* is not statistically significant, which means that the interpretations of the coefficient and the negative sign of it are not important to be conducted at all. To be more precise, it is worth mentioning that since the above-mentioned outcomes are in the log numbers, it means that also the interpretations of the above-mentioned results are in percentages, not in unit or in absolute values. Moreover, the descriptive (or summary) statistics provide

information on the dependent variable (GDP per capita) and the predicted values, or variables (yhat), from the regression model. These statistics present data, as usual, about the central tendency, dispersion, and skewness of the data. For example, let us mention as seen above, the mean GDP per capita is 8.836101, with a standard deviation of 1.319519. The median of GDP per capita and yhat is 8.751595 and 8.787763, respectively.

In other words, from the results of five independent variables of the rule of law level that are included in the robust model (i.e. Median Regression model), only one of the variables is non-significant, that of *Order and Security*, all the other four variables (*Absence of Corruption*, *Open Government*, *Property Rights and Constraints on Government Powers*) are statistically significant in the relationship to economic growth. So the overall regression is statistically significant, meaning that the relationship between the rule of law level and economic growth is positively correlated; even though one of the variables is negative, that of the *Constraints on Government Powers*. This does not make it easy to interpret, but it looks like the higher the *Constraints on the Government Power*, the worse is for economic growth and vice versa, the lower the *Constraints on Government Powers*, the better is for economic growth. In other words, it might be said that too many constraints and controls towards the government, such as limitation by the legislature, limitation by the judiciary, limited by the auditing and review authority, etc., is not a good thing for economic growth, since it may cause too many barriers for government to effectively implement its policies and economic programs. One can say that this is also an argument to those of the more left-wing economic ideologies, or as it is said, the big government on the economy proponents, rather than to those of the laissez-faire doctrine, who seem to recommend constraints to government powers, and are in total favours of freely functioning the economy. Even it might be said the Neo-Keynesians economists prefer government interventions in the economy, especially when it comes to environmental issues and financial crises, which means this outcome that the relationship between the *Constraints on Government Powers* and economic growth is statistically significant and negatively correlated, goes in their favour. But, to be more precise with the claim of the negative impact of the *Constraints of Government Power* on economic growth, it is recommended to be studied the causality through panel data of these variables, and not only to be drawn the relationship between them. However, the results of the regression (Median Regression model) still seem to be quite valid and reliable, and even the scatter plot presented above proves that the model fits the data relatively well.

5 Conclusions

This paper, through the cross-sectional data and quantitative scientific approach, respectively, through econometric analyses, aimed to examine the relationship between the rule of law level and economic growth in 107 countries around the world, which countries have different levels of rule of law and economic growth.

Findings prove that there is a statistically significant positive relationship between the rule of law level and economic growth in these countries. Therefore, the null hypothesis ($H_0: \text{Beta} = 0$) that there is no significant relationship between the rule of law level and economic growth is rejected ($H_1: \text{Beta} \neq 0$). Economic growth in this study was considered a dependent variable, as measured by GDP per capita, while five variables related to the rule of law were considered independent ones. Four variables out of five were found to be statistically significant (i.e. *Absence of Corruption*, *Open Government*, *Property Rights* and *Constraints on Government Powers*) since all four have a p-value less than 0.05; in other words, they were found to be statistically significant at the 5% level of significance with the Median Regression model. Indeed, this research did not study the impact of the rule of law level on economic growth, but only the relationship between them. Data used in this paper were cross-sectional; therefore, it cannot be confirmed the causality of the variables by this study, but only the significant relationship between the variables. Moreover, future research studies should go in the direction of finding the causality, by measuring the impact of rule of law level on economic growth with panel data.

All in all, this research paper reports valid findings that the relationship between rule of law level and economic growth is statistically significant, which was its aim and objective driven by the research question. Therefore, the results should encourage and recommend the policymakers to further strengthen the rule of law level, especially if the causality is strongly proven in future studies, so that economic growth, as the main macroeconomic objective, is also improved in the countries that still struggle to develop their economies.

Note: The list of 107 countries involved in the sample of this research paper

Afghanistan, Albania, Argentina, Australia, Austria, The Bahamas, Bangladesh, Barbados, Belarus, Belgium, Belize, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Cambodia, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Croatia, Czech Republic, Denmark, Dominica, Dominican Republic, Ecuador, Egypt Arab Rep., El Salvador, Estonia, Ethiopia, Finland, France, Georgia, Germany, Ghana, Greece, Guatemala, Guyana, Honduras, Hong Kong SAR (China), Hungary, India, Indonesia, Iran Islamic Rep., Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea Rep., Kyrgyz Republic, Lebanon, Liberia, Madagascar, Malawi, Malaysia, Mexico, Moldova, Mongolia, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, North Macedonia, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, South Africa, Spain, Sri Lanka, Suriname, Sweden, Tanzania, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela, Vietnam, Zambia, Zimbabwe.

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VAR Analysis Between Interest Rates and Foreign Direct Investment Inflows in OECD Countries



Fisnik Morina , Djellza Loci , and Fitim Deari

Abstract This paper aims to analyze the correlation and causality between the inflows of foreign direct investments and the interest rate in OECD countries. The scientific methodology applied in this study is quantitative methods through econometric models, and the data are analyzed through dynamic panels and time series. The sample of this scientific paper includes 38 OECD member countries for the 14-year time period (2009–2022). The independent variables of this study are interest rate, GDP, exports, loans, inflation, and market liberalization, whereas the dependent variable is the incoming flows of foreign direct investments in OECD countries. The statistical tests that have been applied to verify the validity of the hypotheses of this study are linear regression, random effect, fixed effect, Hausman–Taylor Regression, GMM—Arellano Bond Estimation Model, Generalized Estimating Equations, VAR analysis (Vector Autoregression Model), Granger Causality Wald Test, and Johansen Cointegration Test. According to the results of this study, we can conclude that there is a positive correlation and long-term causality between FDI inflows and interest rates in OECD countries. Also, according to panel econometric models, we can conclude that interest rates, loans, market liberalization, exports, and economic growth have a positive impact on FDI inflows, while inflation has a negative impact. The empirical findings of this study will serve as a reference basis for the governments of OECD countries, and other countries to design appropriate strategic policies at the macroeconomic level in order to create a stable and safe economic environment. Such an economic environment will affect the optimal level of interest rates, the increase in the volume of FDI inflows, and the sustainable economic growth of the OECD countries.

Keywords FDI · Interest rate · GDP · Inflation · Export · Market liberalization

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1 Introduction

Foreign direct investments (FDI) generate advantages and are regarded as the “key engine” of economic growth. Foreign investment can help a country grow by providing a financial package of capital, technology transfer, risk sharing in large projects, job opportunities, information, goods, and services that can help the country compete in the global market (Krifa-Schneider & Matei, 2010). As a result, developing nations regard FDI as a key instrument for poverty alleviation, as well as vital indicators that facilitate the flow and application of monetary and strategic arrangements.

To create an investment-friendly market, emerging economies have liberalized their markets by improving infrastructure and reducing economically volatile variables. Foreign direct investment helps the host nation strengthen its market by improving its capacity for resources, money, and organizational and managerial forms. FDI makes assets available for capital creation investment. FDI is an essential avenue for knowledge transfer between countries, and it stimulates international trade by providing access to overseas markets.

Foreign direct investment flows (FDI Flows) measure the value of cross-border transactions connected to direct investment over a specific time period, generally a quarter or a year. Financial flows include equity transactions, profit reinvestment, and foreign loan transactions. External flows are transactions that enhance the amount of money invested in foreign firms by investors in the reporting economy. For example, between capital acquisitions and borrowing from a foreign firm by domestic investors. Inward flows are transactions that raise foreign investor investment in the reporting economy minus transactions that lower foreign investor investment in resistive businesses.

According to economic theory, which describes how money flows across the world, capital tends to flow to countries with greater returns on investment rather than those with higher interest rates. As a result, investment is concentrated in states that provide superior investment returns as well as security in the form of lower interest rates and a more favorable business climate. As a result, capital flows more from low-return countries to high-return countries (Pholphirul, 2002).

This scientific paper is organized into four sections. In the first section, the literature review is presented through the meta-analysis method. In the second section, the scientific research methodology applied in this study is elaborated, and the variables of the econometric model are specified. In the third section, the econometric results of the study are presented, and in the last part, the discussions, conclusions, and recommendations that resulted from this study are presented.

2 Literature Review

Foreign direct investment (FDI) has been considered one of the engines that power economic growth in developing countries in recent years since it increases economic growth indicators of the host country such as job training, market development, financial stability, technology transfer, and skills transfer. Their ability to reduce shortages of financial resources and technology, as these critical resources can contribute to the development of human skills, which leads to economic growth. In this part of this study, through the method of meta-analysis, the studies of different authors have been analyzed, and through empirical findings, they have been analyzed and discussed from a critical perspective (Table 1).

According to the results of the meta-analysis, we can conclude that FDI and the interest rate have a high positive correlation between themselves. The interest rate in the economies of different countries is vital in attracting FDI. If the interest rate is relatively high in one country, then the locals will not invest in that country but will attract foreign direct investment to that country. In addition to the correlation between the interest rate and FDI, other studies also analyzed the role of FDI in different countries, where it can be seen that FDI has a significant impact on the economic growth of different countries in the world.

3 Methodology

The main purpose of this study is to identify the relationship between the interest rate and FDI inflows for the 38 OECD member countries for the time period 2009–2022. Another goal of this study is to analyze the relationship between FDI inflows and other variables such as inflation, GDP, corruption, exports, and market liberalization, which can largely explain the main variable (FDI), and the final goal of this study is to highlight the conclusions and recommendations in order to serve as a reference base for future studies.

Research Questions

1. *What effect do interest rates have on foreign direct investment (FDI) inflows?*
2. *What impact does inflation have on foreign direct investment (FDI) inflows?*
3. *What effect do loans have in relation to foreign direct investment (FDI) inflows?*
4. *What is the impact of Gross Domestic Product (GDP) on foreign direct investment (FDI) inflows?*
5. *What impact does exporting have in relation to incoming flows of foreign direct investment (FDI)?*
6. *What is the effect of market liberalization in relation to incoming flows of foreign direct investment (FDI)?*

Table 1 Summary of the results of other authors' studies through the meta-analysis approach

Authors	Year	Variables	Methods	Findings
Nwaogu and Ryan (2015)	1970–2009	Remittances, FDI, Gross fixed capital formation, inflation, telephone lines, education, government expenditure and political right	Random and fixed effect, GMM model, OLS	Foreign aid and FDI have statistically significant effects on economic growth. Remittances' beneficial influence on GDP is significant in explaining economic progress in developing countries
Tsaurai (2018)	1994–2014	FDI, human capital, financial capital	GMM model	To positively impact FDI growth, emerging economies are urged to improve economic growth, mobilize savings, promote trade openness, develop human capital, and finance, as well as lower inflation levels
Yao (2006)	1978–2000	Exports, FDI, economic growth	GMM model	Exports and foreign direct investment have an important and positive effect on economic growth. As a result, the export promotion strategy, which replaced the strategies of self-reliance and import substitution, as well as the adoption of technology and international business practices through the use of foreign direct investment, has influenced exports and FDI in China's economy to have a positive impact on the country's economic growth

(continued)

Table 1 (continued)

Authors	Year	Variables	Methods	Findings
Pegkas (2015)	2002–2012	Stock of FDI, economic growth	Johansen test for cointegration	Foreign direct investment stock is an essential component that positively impacts economic growth, and there is a long-term positive cointegration between FDI stock and economic growth
Alfaro et al., (2004)	1975–1995	FDI, financial markets, economic growth	Linear regression (OLS)	Foreign direct investment has an unbalanced influence on the economic growth of countries with developed financial markets that may benefit from it
Inekwe (2014)	1990–2009	Economic growth, employment, FDI, production	Johansen test for cointegration	FDI in the service sector is associated with positive economic growth, but FDI in the manufacturing sector is associated with negative economic growth. FDI in the industrial sector correlates positively with the employment rate, while FDI in the service sector correlates negatively with the employment rate
Mitraa and Abedin (2021)	1980–2017	Population life expectancy, Net FDI flows, GDP	Cointegration analysis	There is a positive long-term correlation between population aging and net FDI flows
Kim and Seo (2003)	1895–1999	Domestic investment inflows, production, economic growth	VAR analysis	FDIs are external variables, yet the study's findings show that FDIs demonstrate considerable dynamic endogeneity in domestic macroeconomic situations

(continued)

Table 1 (continued)

Authors	Year	Variables	Methods	Findings
Campbell (2012)	1979–2008	Foreign direct investments, economic growth	The Engle-Granger model	A 1% increase in FDI inflows will enhance economic growth by 0.10%, while the association between FDI and economic growth will be positive in the short run
Delgado and McCloud (2016)	1984–2010	Domestic interest rate, FDI inflows, FDI outflows, Savings lagged in interest rate, investment, money supply, growth rate, inflation rate, exchange rate, corruption	GMM model and multiple linear regression	Using corruption as a proxy for institutional uncertainty, we demonstrate that a 1% increase in FDI inflows and outflows across countries is more likely to reduce corruption by 0.7%
Vidhya and Ahamed (2019)	1970–2000	GDP, FDI, real interest rate, exchange rate	Multiple linear regression, correlation analysis, cointegration analysis and granger causality test	The Chinese economy is characterized by a high level of FDI funded by government funds. As a result, a probable drop in FDI in China owing to macroeconomic shocks would not have a long-term impact on China's economic development, given that the Chinese economy has substantial foreign exchange reserves and minimal external debt
Mokuolu (2018)	1960–2008	GDP, FDI, exchange Rate, interest rate	Multiple linear regression, phillips-peron unit root method	FDI inflow and economic growth, as measured by GDP, have a significant positive correlation. The macroeconomic variables used in the study demonstrated that the study's conclusions corresponded with economic theory

(continued)

Table 1 (continued)

Authors	Year	Variables	Methods	Findings
Oyegoke and Aras (2021)	1970–2019	GDP, foreign direct investment inflows, foreign direct investment outflows	OLS method	Investments play a significant role in economic growth, whether they be in the form of assets, financial flows, capital, or other forms that are intended to have a positive impact on the economy
Sukar et al., (2006)	1975–1999	Growth rate of real income per capita, GDP, FDI	Conditional convergence model	The econometric results of the study show that the effect of FDI on economic growth is positive
Koojaroenprasit (2012)	1980–2009	Real GDP growth rate, domestic capital investment, foreign direct investment, employment, export, human capital	OLS method	According to this study, FDI has a significant and favorable influence on South Korea's economic growth. Human capital, exports, and employment all contribute to South Korea's economic growth
Louzi and Abadi (2011)	1990–2009	GDP, FDI, domestic investments, market liberalization	Testi Dickey-Fuller (DF) and Augmented-Fuller Test (ADF)	Using time series data from the Jordanian economy, the authors investigated the relationship between FDI and GDP and showed a positive correlation and influence between both variables
Zain (2019)	2000–2016	GDP, FDI, inflation rate, gross capital formation	Linear regression	Overall, the statistical analysis indicates that there is a positive correlation between GDP and FDI in Pakistan. Various governments have attempted to increase FDI in Pakistan over time, which has resulted in the country's overall economic development

(continued)

Table 1 (continued)

Authors	Year	Variables	Methods	Findings
Tan and Tang (2016)	1970–2012	Domestic investment, FDI, trade, real interest rate, economic growth	Johansen-Juselius cointegration approach, granger causality approach	The study's findings indicate that collaboration between local and foreign investors is critical since the success of local businesses contributes to the engagement of more international investors
Dinda (2010)	1970–2006	FDI, inflation and currency exchange rate, foreign debt, infrastructure, corruption	Johansen approach, ECM technique, Vector error correction model (VECM)	The study's findings indicate that, in the long run, market size is not a key factor in attracting FDI in Nigeria, which contradicts prior research

Hypotheses

- *H1: Interest rates have a substantive impact on the volume of FDI inflows in OECD countries.*
- *H2: Inflation has a substantive impact on the volume of FDI inflows in OECD countries.*
- *H3: Loans have a positive effect on FDI inflows in OECD countries.*
- *H4: Gross Domestic Product has a positive impact on FDI inflows in OECD countries.*
- *H5: Exports have a positive impact on FDI inflows in OECD countries.*
- *H6: Market liberalization has a positive impact on FDI inflows in OECD countries.*

To test the hypotheses of this study, quantitative methods were used by analyzing the secondary data of the annual reports of the OECD and the World Bank. In order to analyze the relationship between the interest rate and FDI inflows, other factors have been analyzed that explain the causality and correlation between the main variables of the model. The time period included in this study is 14 years (2009–2022), the number of countries included in this research is 38 OECD member countries, and the number of observations is 532. The validity of the alternative hypotheses of this study has been proven through these statistical tests: linear regression, random effect, fixed effect, Hausman–Taylor Regression, GMM Model—Arellano Bond Estimation, Generalized Estimating Equations (GEE Model), Johansen Test for Cointegration, Model Vector Autoregressive (VAR), and Wald Test of Granger Causality (Table 2).

The econometric model of this study is specified as follows:

$$FDI_{it} = \beta_0 + \beta_1 IR_{it} + \beta_2 GDP_{it} + \beta_3 EXP_{it} + \beta_4 INFL_{it} + \beta_5 L_{it} + \beta_6 TL_{it} + \gamma_{it}$$

Table 2 Description of the variables included in the econometric models

Variables	Variable description	Data source
Dependent variable (<i>Y</i>)	Foreign Direct Investment (FDI) Inflows	OECD annual reports time period (2009–2022)
Independent variable (<i>X1</i>)	Interest Rate (IR)	OECD annual reports time period (2009–2022)
Independent variable (<i>X2</i>)	Gross Domestic Product (GDP)	OECD annual reports time period (2009–2022)
Independent variable (<i>X3</i>)	Exports (EX)	OECD annual reports time period (2009–2022)
Independent variable (<i>X4</i>)	Inflation (INFL)	OECD annual reports time period (2009–2022)
Independent variable (<i>X5</i>)	Loans (L)	OECD annual reports time period (2009–2022)
Independent variable (<i>X6</i>)	Trade Liberalization (TL)	OECD annual reports time period (2009–2022)

Source Data processing by authors (2023)

where

- FDI Foreign Direct Investment Inflows
- IR Interest Rate
- GDP Gross Domestic Product
- EX Exports
- INFL Inflation
- L Loans
- TL Trade Liberalization
- γ stochastic variables (other factors not considered in the model).
- i* code and
- t* time period.

4 Findings and Discussions

In this section of the paper, the results and findings of the study are presented through the analysis of statistical tests such as linear regression, random effect, fixed effect, Hausman–Taylor Regression, GMM Model—Arellano Bond Estimation, Generalized Estimating Equations (GEE Model), Johansen Test for Cointegration, Vector Autoregressive (VAR) Models, and Granger Causality Wald Test (Table 3).

Table 3 Results of linear regression, fixed effect, random effect, Hausman–Taylor Regression, GEE Model, and GMM model

Variables	Linear regression	Random effects–GLS regression	Fixed—effects regression	Hausman–Taylor regression	GEE model	GMM model
FDI	–	–	–	–	–	–0.5257863*** (0.000)
IR	0.1184956*** (0.000)	0.1184956*** (0.000)	0.0930116*** (0.000)	0.1158716*** (0.000)	0.11854*** (0.000)	–0.0556089** (0.050)
GDP	–0.0004416 (0.927)	–0.0004416 (0.927)	–0.2461748** (0.037)	–0.0257441 (0.483)	–0.0000138 (0.987)	–2.222829*** (0.927)
EX	–0.3677295*** (0.000)	–0.3677295*** (0.000)	–0.3404279*** (0.000)	–0.3649184*** (0.000)	–0.3677771*** (0.000)	–0.4525452*** (0.000)
INFL	–0.1471364*** (0.000)	–0.1471364*** (0.000)	–0.1319959*** (0.000)	–0.1458465*** (0.000)	–0.1474633*** (0.000)	–0.0626775** (0.011)
L	0.0533477* (0.054)	0.0533477* (0.053)	0.0477358* (0.098)	0.0527699* (0.056)	0.0533575* (0.062)	0.2379891*** (0.000)
TL	0.2109992*** (0.000)	0.2109992*** (0.000)	0.1976345*** (0.000)	0.2096231*** (0.000)	0.2110225*** (0.000)	0.2829161*** (0.000)
Const	6.53*** (0.000)	6.53*** (0.000)	9.725982*** (0.000)	6.847739*** (0.000)	6.524435*** (0.000)	
R Square	0.3724	0.0000	0.3790	–	–	–
Adj. R ²	0.3640	0.3724	0.0355	–	–	–

Source Data processing by the authors of the Stata program (2023)

Clarification *p*-values shown in brackets: *** indicates statistical significance at the 1% level; ** indicates statistical significance at the 5% level; and * indicates statistical significance at the 10% level

4.1 GMM Model (Arellano Bond Estimation)

According to the results of the GMM (Arellano Bond Estimation) model, we can see that all the variables included in this study are significant within the confidence interval at the 1%, 5%, and 10% levels. β_0 —If we hold all other variables constant, the value of FDI inflows is -0.5258% . Because the significance value is within the statistical significance range ($p\text{-value} = 0.000 < 0.05$), this statement is correct. β_1 —If the interest rate increases by 1% while keeping other independent variables constant, then FDI inflows will decrease by -0.55% . This statement turns out to be correct since the significance value is within the statistical significance range ($p\text{-value} = 0.05 < 0.1$). β_2 —If GDP rises by 1%, FDI inflows will fall by 0.22%. However, the values are not statistically significant ($p\text{-value} = 0.927 > 0.05$).

β_3 —If exports increase by 1%, holding other independent variables constant, then FDI inflows will decrease by 0.45%. The significance value is within the statistical significance range ($p\text{-value} = 0.000 < 0.05$). β_4 —If inflation increases by 1%, holding other independent variables constant, then FDI inflows will decrease by 0.06%. This statement turns out to be correct since the significance value is within the statistical significance range ($p\text{-value} = 0.011 < 0.05$). β_5 —If loans increase by 1% while holding other independent variables constant, then FDI inflows will increase by 0.23%. This statement turns out to be correct since the significance value is within the statistical significance range ($p\text{-value} = 0.000 < 0.05$). β_6 —If market liberalization increases by 1%, holding other independent variables constant, then FDI inflows will increase by 0.28%. This statement turns out to be correct since the significance value is within the statistical significance range ($p\text{-value} = 0.000 < 0.05$).

According to the results of the GMM model, we can prove that FDI inflows and the interest rate have a positive relationship, which means that the interest rate has an important and meaningful role in the FDI inflows. So, if the interest rate increases by 1% while holding other independent variables constant, then FDI inflows will increase. This statement has been ascertained by means of five statistical tests carried out, such as linear regression, fixed effect model, random effect model, Hausman–Taylor Regression, and GEE Model at a significance level of 5%.

According to the GMM—Arellano Bond Estimation Model, we see that FDI inflows and the interest rate have an inverse relationship between them, that is, if the interest rate increases by 1% while keeping other independent variables constant, then the inflows of FDI will decrease. This statement has statistical significance at the 5% level. This hypothesis has been established by other authors, where according to Irving Fisher (1930), in the theory of investments, the optimal condition for the firm's investment decision is the marginal one, that is, when the efficiency of the investment is equal to the interest rate ($MEI = r$), and he added a condition that the investment in each time period gives a return only in the next period. When the interest rate increases, then to equalize r and MEI, the investment must fall, so there is a negative relationship between the investment and the interest rate. Other study results accept the hypothesis that interest rates do not affect FDI and that high interest rates do not affect the variability of FDI in the economies of different countries.

4.2 Johansen Test for Cointegration

In order to verify the validity of the hypotheses presented in this study and to give more support to the econometric results presented in the findings of the study, this paper also presents some additional analyses related to the analysis of the VAR model (Vector Autoregressive Model). Therefore, following the analysis, the results of the statistical tests are presented as follows:

1. Johansen Test for Cointegration
2. Vector Autoregressive Models (VAR)
3. Wald Tests of Granger Causality.

The first test, the Johansen Test for Cointegration, analyzed whether the main variables in this study, “FDI Inflows” (FDI) and “Interest Rate” (IR), in OECD countries are integrated with each other. In the second statistical test, through the VAR analysis, we see whether the main variables explain each other or not. Finally, through the Granger Causality Wald Test, it was verified whether these variables have long-term or short-term causality with each other.

Table 4 shows the results of the first test, where two hypotheses are presented:

H0: There is no dynamic correlation and cointegrating relationship between FDI inflows and the interest rate.

H1: There is a dynamic correlation and cointegrating relationship between FDI inflows and the interest rate.

According to the data presented in Table 4, the value of the Trace statistic is greater than the critical value ($950.2792 > 15.41$) for the significance level of 5%, and the value of the maximum statistic is greater than the critical value ($728.3122 >$

Table 4 Econometric results from the Johansen test for Cointegration

<i>Trend:</i> constant					Number of obs = 453
<i>Sample:</i> 4–0456					Lags = 3
Maximum					5%
Rank	Parms	LL	Eigenvalue	Trace statistic	Critical value
0	10	−572.56531		950.2792	15.41
1	13	−208.4092	0.79966	221.9670	3.76
2	14	−97.425723	0.38737		
Maximum					5%
Rank	Parms	LL	Eigenvalue	Trace statistic	Critical value
0	10	−572.56531		728.3122	14.07
1	13	−208.4092	0.79966	221.9670	3.76
2	14	−97.425723	0.38737		

Source Calculations by the authors of the Stata program (2022)

14.07) for the level of significance of 5%. Consequently, from here, we can say that the null hypothesis is rejected and the first alternative hypothesis is accepted. This implies that there is a long-term causality between FDI inflows and the interest rate. So the hypothesis that there is a dynamic and cointegrating correlation between FDI inflows and the interest rate is confirmed.

4.3 Vector Autoregressive Models (VAR)

Since the two main variables in this study are integrated with each other in the same range, in the econometric analysis, we can work with the VAR model. Given the fact that the variables “FDI inflows” and “interest rate” are integrated with each other, we can conclude that there is a long-run causality between interest rate and FDI inflows for countries in the OECD. So now, through the VAR model, we will prove the validity of the hypotheses if the “interest rate” variable in the long term explains the “FDI inflows” variable (Table 5).

Referring to the above table, we can conclude that the variable “FDI inflows” depends on the values of this variable in the previous periods in the long run at time distances 1, 2, and 3, since the significance values are at the standard level of 5%.

The results of the causal relationship of FDI inflows between previous and following years:

FDI—Lag_1: (P-Value = 0.000 < 0.05)

FDI—Lag_2: (P-Value = 0.000 < 0.05)

FDI—Lag_3: (P-Value = 0.000 < 0.05)

According to the results of the VAR analysis, between the values of FDI inflows in the current year compared to previous years, it can be observed that there is a positive causal relationship and a statistically significant dynamic correlation. So, the increase in inflows of FDI in the economies of the OECD countries in the previous years will positively affect the increase in the volume of FDI in future periods.

The results of the causal relationship between FDI inflows and the interest rate:

IR—Lag_1: (P-Value = 0.000 < 0.05)

IR—Lag_2: (P-Value = 0.000 < 0.05)

IR—Lag_3: (P-Value = 0.000 < 0.05)

Also, we can conclude that there is a positive causal relationship and a significant dynamic correlation between FDI inflows and interest rates in OECD countries. An increase in FDI inflows in previous years has caused an increase in interest rates in the economies of these countries, and such an increase in interest rates also causes an increase in inflation in the current year. According to statistics at the global level, FDI affects the domestic inflation of a country by approximately 30%.

The results of the causal relationship between the interest rate and FDI inflows:

FDI—Lag_1: (P-Value = 0.038 < 0.05)

Table 5 Econometric Results of VAR Analysis

Sample: 4–0456				Number of obs = 453		
Log likelihood = −97.42572				AIC = 0.4919458		
FPE = 0.0056066				HQIC = 0.5420671		
Det (Sigma_ml) = 0.0052706				SBIC = 0.6191478		
Equation	Parms	RMSE	R-sq	Chi2	P > chi2	
FDI	7	0.086219	0.8013	1827.219	0.0000	
IR	7	0.874296	0.5864	642.3427	0.0000	
	Coef	Std. err	Z	P > z	[95% conf. interval]	

FDI

<i>FDI</i>						
L1	0.8514664	0.0321801	26.46	0.000	0.9145383	0.7883945
L2	0.3775406	0.0321805	11.73	0.000	0.4406133	0.3144679
L3	0.3448256	0.0262222	13.15	0.000	0.3962201	0.293431
<i>IR</i>						
L1	0.0850582	0.0037116	22.92	0.000	0.0777835	0.0923328
L2	0.0517455	0.0047914	10.80	0.000	0.0423545	0.0611365
L3	0.1181573	0.0051826	22.80	0.000	0.1079997	0.1283149
_cons	21.76898	0.5497701	39.60	0.000	20.69145	22.84651

IR

<i>FDI</i>						
L1	0.6772249	0.326319	2.08	0.038	0.0376515	1.316798
L2	1.846894	0.326323	5.66	0.000	1.207313	2.486476
L3	−3.670323	0.2659031	−13.80	0.000	−4.191483	−3.149162
<i>IR</i>						
L1	0.7269949	0.037673	19.32	0.000	0.6532271	0.8007626
L2	−0.2913251	0.0485869	−6.00	0.000	−0.3865536	−0.1960966
L3	−0.0387095	0.0525531	−0.74	0.461	−0.1417116	0.064296
__cons	11.88447	5.574881	2.13	0.033	0.9579042	22.81103

Source Calculations by the authors of the Stata program (2022)

FDI—Lag_2: (P-Value = 0.000 < 0.05)

FDI—Lag_3: (P-Value = 0.000 < 0.05)

The econometric results of the VAR analysis show that there is a positive causal relationship and a statistically significant dynamic correlation between the interest rate and FDI inflows in OECD countries. When interest rates increase in previous periods, in the following years, these countries tend to attract foreign direct investments, increasing demand and the value of the currency of the country of origin.

The results of the causal relationship of interest rates between previous and following years:

IR—Lag_1: (P-Value = 0.000 < 0.05)

IR—Lag_2: (P-Value = 0.000 < 0.05)

IR—Lag_3: (P-Value = 0.461 > 0.05)

Referring to these results, we can conclude that there is a positive causal relationship and dynamic correlation between interest rates in previous periods and the level of interest rates in future periods. An increase in real interest rates will positively affect the increase in the volume of foreign direct investments in OECD countries.

4.4 Wald Tests of Granger Causality

To verify the hypothesis that there is any long-run causality between the variables “interest rate” and “FDI inflows” for OECD countries for the period 2009–2022, we have applied the Wald Tests of Granger Causality.

The hypotheses of the study are as follows:

H0: There is no long-run causality between FDI inflows and the interest rate.

H1: There is a long-run causality between FDI inflows and the interest rate.

According to the data in Table 6, we can conclude that there is a long-term causality between FDI inflows and the interest rate because the significance value is smaller ($0.000 < 0.05$). On this basis, we say that the basic hypothesis (H0) and the alternative hypothesis (H1) are rejected and accepted, so there is a long-term causality between these variables.

Based on these tests, we can say that these variables are cointegrated with each other, i.e., they have a dynamic correlation, are statistically significant, and have short-term causality between the two main variables included in our model. So the FDI inflows are affected by the interest rate for the OECD countries included in this research. So our hypothesis is confirmed: there is a positive causal relationship between inflows of foreign direct investments and the interest rate.

Table 6 Results of the Wald Test of Granger Causality

Equation	Excluded	Chi2	Df	Prob > chi2
FDI	IR	1549.4	3	0.000
FDI	ALL	1549.4	3	0.000
IR	IHD	299.01	3	0.000
IR	ALL	299.01	3	0.000

Source Calculations by the authors of the Stata program (2022)

5 Conclusions and Recommendations

According to the econometric results of this study, it can be concluded that interest rates affect FDI inflows. FDI inflows and the interest rate have a high positive correlation, where we see that with an increase in the interest rate, FDI inflows will increase in OECD countries. According to the results of the Johansen Test for Cointegration, we see that there is a cointegrating relationship between FDI inflows and the interest rate. So the alternative hypothesis that there is a dynamic correlation and cointegrating relationship between FDI inflows and the interest rate in OECD countries is confirmed. Given the fact that the variables “FDI inflows” and “interest rate” are integrated with each other, we can conclude that there is a long-run causality between interest rate and FDI inflows for countries in the OECD.

According to the empirical findings of the VAR analysis, we can conclude that the variable “FDI inflows” depends on the values of the variable “interest rate” in the previous periods in the long term in the time distances 1, 2, and 3, since the significance values are at the level of statistical significance of 5%. Also, referring to the Wald Test of Granger Causality, we can conclude that there is a long-run causality between FDI inflows and the interest rate because the significance value is less than 5%, and we can conclude that there is a long-run causality between these variables. Based on these tests, we can say that these variables are cointegrated with each other, have a dynamic correlation, are statistically significant, and have long-term causality between the two main variables included in our model.

The findings of other authors both confirm and refute the empirical findings of our study. According to Pholphirul (2002), economic theory, which explains how capital moves around the world, insists on the fact that capital tends to flow to countries that have a higher return on investment compared to countries with high interest rates. Consequently, investment is high in states that offer better investment returns as well as security in the form of lower interest rates and a better business environment. Therefore, capital tends to flow more from low-return countries to high-return countries.

OECD countries should further strengthen their technology transfer policies for foreign companies that are related to the protection of foreign direct investment. Also, the governments of these countries should strengthen the support of the private sector to mobilize domestic resources for productive investments. The governments of some OECD member countries need to work even harder toward increasing openness to foreign trade so that the domestic enterprise sector can fully participate in the global economy. Trade openness has proven to be an important factor influencing FDI flows in several countries. Therefore, it is recommended that some of the OECD countries implement more liberalizing policies to attract foreign direct investment.

5.1 Implications

First, the results of this study provide empirical and scientific evidence for future studies that will be carried out in the fields of financial economics and international investments. The scientific methodology and the application of advanced statistical and econometric techniques that have been applied in this study will serve as a good reference for future studies that will be carried out in the field of foreign direct investments. Through this study, readers have the opportunity to identify, through econometric analysis, comparative analysis, and scientific discussions, the correlation and causal link between the interest rate and FDI in OECD countries.

Secondly, the results of this study will serve as a reference basis for the governments of OECD countries, and other countries to design appropriate strategic policies at the macroeconomic level in order to create a stable and safe economic environment. Such an economic environment will affect the optimal level of interest rates, the increase in the volume of FDI inflows, and the economic growth of the OECD countries.

5.2 Limitations and Future Research Directions

Many authors have discovered data on FDI inflows and their dynamic correlation with interest rates. This prompted various articles to argue for and against the influence of interest rates on FDI inflows. However, it is worth noting that all of the authors' studies conclude that this relationship varies from country to country, depending on the country's level of economic development and other macroeconomic factors, and thus we do not have an optimal theory that will be valid for all OECD economies.

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Do Institutions Accelerate Economic Growth? Case Study of the Balkan Countries



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Abstract The aim of this paper is to identify the impact of institutions in achieving higher economic growth. Institutions defined as rules of a game within the society are considered as one of the driving forces toward achieving higher economic growth. In that respect, the main subject matter is whether higher developed institutions will lead to better economic perspective in the Balkan Countries. The methods employed in this paper are pooled OLS, Fixed and Random Effects Model as well as the Hausman-Taylor IVs model. Although measuring institutional effects is quite complex, the conclusion drawn from the findings is that de facto institutions do matter in achieving better economic performance.

Keywords Institutions · Economic growth · Balkan countries · Panel data

1 Introduction

Although there are a vast number of papers trying to explain the factors encouraging economic growth, there is a scarcity of papers which empirically test the impact on institutions on economic growth in the developing countries. Most of the studies (Bartlett et al., 2013; Beck & Laeven, 2005; Chousa et al., 2005; Lane & Rohner, 2004; Mauro, 1985; Mbaku & Kimenyi, 1997; Sachas & Warner, 1995; Sarwar et al., 2013; Zegni & Fabry, 2008) which empirically test the institutional impact on economic growth do in general provide support that the institutions are a driving factor of economic growth. Conversely, Bartlett and Prica (2011) concluded that institutions have a negative impact on economic growth. Unexpectedly, only a few studies try to depict the intuitional impact on economic growth in the developing Balkan countries (Lazarov & Slaveski, 2015; Terek & Ahmed, 2013; Tevdovski, 2015). Therefore, the main research question is whether the institutions impact the economic growth in the Balkan countries. The Balkan developing countries were part

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of the transition process in the 1990s, thus the structural reforms included macroeconomic stabilization, liberalization of the market and prices, privatization and most importantly institutional reforms. Considering the inconclusiveness of the studies in general, as well as the scarcity of empirical research in the developing countries, the primary objective of this study is to identify the impact of institutions on economic growth for 8 Balkan countries from the period 2000–2019. Thus, the main research question is do institutions play a crucial role in the process of fostering economic growth? Having established the research question, the hypothesis in this research paper is that institutions have a positive impact on the economic growth in the Balkan countries. In an attempt to answer the research question as well as to test the hypothesis, this study employs several testing techniques such as pooled OLS, Fixed and Random Effects Model as well as the Hausman-Taylor IVs Model on a panel data.

The contribution of the study is threefold. First and foremost, the scarcity of empirical studies identifying the causal direction between institutions and economic growth, i.e., whether institutions and their level of development accelerate economic growth in the developing Balkan countries. Thus, this study's contribution will be enriching the empirical literature on the topic of interest. Secondly, the choice of variables as institutional proxy used in most of the empirical research studies (Beck & Laeven, 2005; Lane & Rohner, 2004; Lazarov & Slaveski, 2015; Tevdovski, 2015; Zegni & Fabry, 2008) is based on only one or two institutional representatives such as corruption, democracy, property rights. As a measure for institutions in this study is taken the Index of Economic Freedom developed by the Heritage Foundation which incorporates 12 institutional aspects separated into 4 categories, such as the rule of law (property rights, judicial effectiveness, government integrity), government size (tax burden, government spending, fiscal health), regulatory efficiency (business freedom, labor freedom, monetary freedom), and market openness (trade freedom, investment freedom, financial freedom). The incorporation of the index in the empirical analysis would provide better and more accurate results on the institutional impact on economic growth, since it covers as previously stated more aspects of institutions. Third, most of the studies (Djankov et al., 2006; Easterly & Levine, 2003; Grier & Tullock, 1989; Mauro, 1985; Mbaku & Kimenyi, 1997) in the empirical literature on this issue used simple OLS techniques on cross sectional data, which has been criticized for the lack of robustness of the results due to the endogeneity problem. Considering the obstacles of the regression analysis stated above, this study used different approaches on panel data: pooled OLS, fixed and random effect models and the Hausman-Taylor Instrumental Variables (IVs) model. As mentioned above, the study uses the index of economic freedom as a proxy variable for institutions, and the commonly known variables that impact the economic growth such as gross fixed capital formation, education index and the population growth rate. The data used in this study was from the World Bank database, United Nations Development Programme (UNDP) and the Heritage Foundation.

To the best of our knowledge, we managed to find only one empirical research paper (Tevdovski, 2015) which tries to test the institutional impact on economic growth in the Balkan countries. However, that research paper analyzes only one of

the Balkan countries, that is North Macedonia, and it does not cover many institutional aspects, as well as does not employ the methodology used in this paper. This outlines yet another important implication of this research study in the area of new institutional economics.

To recapitulate, the regression analysis in this study confirms a positive relationship between institutions and GDP per capita growth, therefore, institutions plays a growth-supporting role in the process of economic growth in the Balkan developing countries. Moreover, the gross fixed capital formation also has a positive impact on the real GDP per capita. On the contrary, the education index and population annual growth rate indicate a negative relationship with the real GDP per capita growth.

The rest of the paper is organized as follows: Sect. 2 reviews the related literature; Sect. 3 presents the research methodology and data employed in the study; Sect. 4 presents the empirical results, and Sect. 5 provides the concluding remarks.

2 Literature Review

This section analyzes the important empirical research studies which tested the institutional impact on the economic growth. So far, the empirical studies testing the causal relationship between institutions and economic growth are inconclusive. North (1990), the founder of the institutional economics emphasized the role of institutions in economic prosper. Acemoglu et al. (2002) also provided support on the hypothesis that institutions are a driving force of economic growth. The initiative that institutions in both private and public sectors play a distinctive role in supporting economic growth is also acknowledged by Acemoglu and Robinson (2012) and Rodrik (2008). It could be stated that the appropriate institutions can trigger economic growth and act as important growth accelerators (Hausmann et al., 2004).

Hall and Jones (1999) by testing data from large sample of countries found a strong positive relationship between institutions and economic growth. In addition, Beck and Leaven (2005) also provided a political economy answers that the quality and development of institutions are crucial for economic prosper. Furthermore, Sachas and Warner (1995), focusing on economic convergence and the importance of sound economic policies, by running several regression analysis, concluded that open trading policies and effective protection of private property rights are usually sufficient to enable poorer countries to achieve higher economic growth. However, Easterly and Levine (2003) concluded that the institutions and not policies have a positive impact on economic growth. The analysis of corruption and political freedom as proxy variables for institutions also provided support of the hypothesis that institutions are a driving force of economic growth (Bartlett et al., 2013; Mauro, 1985; Mbaku & Kimenyi, 1997). A positive relationship between progress of liberalization and output growth was depicted from a study by De Melo et al. (1996), while Alsund et al. (1996) found no robust effect of measures of reforms (including liberalization) and macroeconomic policies on output growth. By considering a wide range of institutional factors, Sarwar et al. (2013) came with the conclusion that institutions,

their quality and development play a key role in determining the level of economic growth.

However, only a few empirical studies have been conducted on the relationship between the institutions and economic growth in the Balkan developing countries. Additionally, those studies in general do not provide a conclusive answer of whether the institutions are a driving force of economic growth. Tarek and Ahmed (2013), Bartlett et al. (2013) and Tevdovski (2015) concluded that institutions have a positive impact on economic growth in the Balkan developing countries. Lazarov and Slaveski (2015) provide mixed results given different tests they performed. The study by Bartlett and Prica (2011) indicates a negative relationship between the institutions and economic growth.

Consequently, this study is yet another attempt to verify whether institutions accelerate economic growth. Concerning the econometric methodology, panel data analysis is assumed to be the most appropriate one for the testing, due to the fact that it takes into account individual heterogeneity; it is more informative data; includes more variability, less colinearity and more efficiency. However, given the fact that panel data has been criticized for ignoring large variations among countries, and the fact that the results lack robustness due to instability of long time series and endogeneity problems, this study performs different testing techniques: pooled OLS, Fixed and Random Effects Model and Hausman-Taylor IVs Model.

3 Methodology

3.1 *Research Methodology*

In this section, we developed an empirical model to evaluate the impact of the institutions on economic growth in the Balkan countries over the period 2000–2019. For that intention, we employed pooled OLS, Fixed and Random Effects Model and Hausman-Taylor IV Model (Baltagi, 2013). The main question that should be considered in the empirical testing is choosing the best appropriate model which provides the most accurate answers of the hypothesis. For that reason, the Hausman Test is performed.

Before proceeding with the empirical testing, it is vital to identify the variables included in the testing.

3.1.1 GDP Per Capita

In this study, as a proxy for economic growth, the GDP per capita is used and abbreviated by Y . A note has to be made, that the reason why GDP per capita is used instead of GDP growth, relies on the fact that when assessing economic growth, it

matters more whether the people are getting wealthier rather than the aggregate level of economic growth. The data is used from the World Banka Database.

3.1.2 Institutional Index

The main consideration in this model was choosing the right variables. Moreover, it could be stated that, that is the main issue when discussing the empirical testing of institutional impact on economic growth. Considering Table 4 (see Annex 2) it could be considered that the index of Economic Freedom is covering a variety of aspects, thus it is most suitable to be used as a proxy variable of institutions. It incorporates 12 aspects grouped into 4 categories such as:

- Rule of law-property rights, judicial effectiveness, government integrity
- Government size-tax burden, government spending, fiscal health
- Regulatory efficiency-business freedom, labor freedom, monetary freedom
- Market openness-trade freedom, investment freedom, financial freedom

3.1.3 Gross Fixed Capital Formation

Considering the neoclassical economic growth theory capital plays one of the key roles in the determinants of economic growth, thus, this variable is included in the model. The World Bank defines gross fixed capital formation as a summation of land improvements, plant, machinery, and capital investments in terms of infrastructure, schools, hospitals, etc. The data used for this variable is from the World Bank Database.

3.1.4 Population Growth

The inclusion of population growth in the model is due to two reasons. First and foremost, the importance of population relies on the fact that it provides the labor force in the country and also creates the economy of scale. The second reason implies that population have a key role in establishing new markets and creating incentives for production. In this model, the data for population growth annual rate is used from the World Bank Database.

3.1.5 Education Index

Taking into account the fact that education plays a key role in creating human capital, the index of education is included in the model. The data used in this model is gathered from UNDP database. The Education Index created by the UNDP presents the ratio between the average adult years of schooling and expected years of schooling for children.

3.2 *Estimated Model*

Considering the above analysis, since the Hausman-Taylor IV model is considered to be more consistent and efficient compared with the fixed and random effects, the model specified for testing the impact of institutions on economic growth for the 8 Balkan countries in a time span of 20 years, from 2000 to 2019. This paper also presents the results from the pooled OLS, Fixed and Random Effects Model just for comparison reasons. Considering the importance of the endogeneity problem in an econometric model, the Hausman-Taylor IV model is used so that that obstacle would be conquered. Moreover, some of the variables could be considered as endogenous, which can create a problem due to the fact that the determinants of growth could be determined by growth itself, which could consequently lead to a system of simultaneous equations (Fetai, 2018). Thus, the endogenous independent variables could lead to biased coefficients. Based on what is stated so far, and the selection of the Hausman-Taylor IV model as the most appropriate one, the model specification is as follows

$$Y_{it} = c + \beta_0(Y_{it} - 1) + \beta_1(INST_{it}) + \beta_2(GFCF_{it}) + \beta_3(PG_{it}) + \beta_4(EI_{it}) + \varepsilon_{it} \quad (1)$$

for each $i = 1, \dots, I$ and $t = 1, \dots, T$.

where Y_{it} is dependent variable which represents real GDP per capita growth rate for each country i and t represent years; c is a term of constant; the explanatory variables include $Y_{it} - 1$ which is the first lagged of the dependent variable; $INST_{it}$ represents the institutions measured through the index of economic freedom composed by the Heritage Foundation; $GFCF_{it}$ is the gross fixed capital formation; PG_{it} is the population growth annual rate and EI is the education index developed by the UNDP; and ε_{it} is the error term.

3.3 *Descriptive Statistics*

This study uses a panel data for 8 Balkan countries from 2000 to 2019 presented in Table 3 in Annex 1. The selected period is due to availability of data. Sources of the data set are collected from the WB, UNDP and Heritage Foundation. One of the important issues is the selection of right variables, the variables that would explain the best relationship between the institutions and the economic growth. When considering the issue of institutions, there is no one unit variable as a measure. Most of the studies are considering only one or two aspects of institutions, such as either political or economic institutions. In that manner, after careful selection, Table 4 in Annex 2 presents the considered institutional proxy variables, and the choice among them was the Index of Economic Freedom by Heritage Foundation (Table 1).

Table 1 Descriptive statistics

Variable	Observations	Mean	Std. deviation	Minimum	maximum
GDP per capita	160	3.649606	3.089984	−8.554	11.93
Instit_index	147	6.97415	0.438723	5.6	7.8
Gross fixed capital	150	5.325096	11.65512	−33.93975	50.99759
Population growth	160	−0.3932635	0.5940807	−3.847671	0.9038755
Education index	152	0.7217434	0.0830803	0.544	0.893

Source Author's personal calculations

4 Empirical Findings and Discussion

Table 2 presents the results from Pooled OLS, Fixed Effects, Random Effects and the Hausman-Taylor IV Model. Due to the fact that the coefficients obtained from the Pooled OLS are biased due to heterogeneity of the unobserved individual specific effect, the testing proceeded further with the Fixed and Random Effect Models and the Hausman-Taylor IV Model. In order to choose which model provides the most efficient estimates, the Hausman test is provided (Table 5 in Annex 3). The first comparison is between the Fixed and Random Effects Model. Considering the Hausman test value of 9.24, the null hypothesis is rejected in favor of the Fixed Effects Model, thus implying that the Random Effects estimator is inconsistent and less efficient. It should also be pointed out that, unlike the random effects estimator, the fixed effects estimator eliminates a correlation between unobservable individual-specific effect and explanatory variables. The endogeneity problem might lead to biased coefficients in the regression, thus in order to deal with that problem the Hausman-Taylor estimator is estimated (Table 2). Considering the fact that the fixed effects estimator was chosen over the random effects estimator, the Hausman test is also applied in the comparison between the fixed effects estimator and the Hausman-Taylor estimator in order to identify whether the IV technique has eliminated correlations between the unobservable individual specific effect and the explanatory variable. The Hausman test has the value of 5.29, which means that the null hypothesis is not rejected in favor of the Hausman-Taylor IV (see Table 5 Annex 3). Hence, the Hausman-Taylor IVs method eliminates the correlation between the variables included in the model and the individual components of the error term. Additionally, this method also eliminates the endogeneity problem. Therefore, it could be concluded that the Hausman-Taylor IV model was chosen as to be the most efficient and suitable model to explain in impact of institutions on economic growth in the sample selected developing countries. In the application of the Hausman-Taylor IV estimator, the variables that are considered to be as exogenous variables are used as their own instruments are institutional index, education index and the gross fixed capital formation. The variables that

are considered as endogenous and are instruments by the deviation of the individual means are real GDP per capita growth, first lag of real GDP per capita growth or initial level per capita and the population annual growth rate.

The first lag of real GDP is initial level of real GDP per capita growth which is instrumented by the deviations of the individual means. This variable is used in order to control convergence of 8 Balkan countries. As it could be observed from below Table 2, the coefficient is positive ($Y_{it} - 1$) 0.934578 (s.e. 0.04660) and statistically significant, a conclusion could be drawn that these countries have moved higher than the average steady state level.

As it could be observed in Table 2, the regression analysis did not provide all the expected coefficients signs. The Institutional index has a positive coefficient of 0.5474822 which was expected and a standard error of (0.599), thus it could be stated that institutions in fact have a positive impact on economic growth. The result coincides with most of the studies presented in the above part (Bartlett et al., 2013; Terek & Ahmed, 2013; Tevdovski, 2015). Moreover, the gross fixed capital formation also has the expected positive coefficient sign of 0.1535893 and a standard error of (0.017), thus the capital plays a vital role in the economic growth process for the selected Balkan countries, which also confirms the general theory of economic growth (Mankiw et al., 1992; Meyer & Sanusi, 2019).

However, unexpected results were generated from the education index and population growth. The education index has a negative coefficient sign of -8.795834 and a standard error of (4.438), which implies that has a negative impact on GDP per capita, hence the economic growth in the specified countries. The result obtained from the regression analysis is contrary to the already established theories that education is

Table 2 Panel regression results

Variables	Pooled OLS	Fixed Effect	Random Effect	Hausman-Taylor IV
GDP per capita L1				0.934578** (0.04660)
Instit_idx	0.6364634* (0.4912922)	0.6785018* (0.6558366)	0.6374915* (0.4957376)	0.5474822* (0.5992103)
Gross fixed capital Formation annual	0.1693284* (0.0175842)	0.1589912* (0.0175019)	0.1695829* (0.0176834)	0.1535893* (0.0173909)
Population growth Annual	-1.069437^{**} (0.3296804)	-1.283443^{*} (0.4145474)	-1.04167^{*} (0.3328481)	-1.154877^{*} (0.4098597)
Education index	-3.903019 (2.833391)	-12.28719 (5.51957)	-4.143598 (2.860608)	-8.795834 (4.438073)
No. of obs	136	134	134	134
R-squared	0.4999	0.4726	0.5071	
F	32.73	31.89		
Chi ²			130.05	128.73

Note * Statistically significance at 5% level; ** statistically significance at 10% level

Source Author's personal calculations

one of the key accelerators of economic growth (Barro, 1991; Barro & Sala-i-Martin, 1997). It could be stated that this coefficient is not significant in this model. The same negative coefficient sign of -1.154877 is obtained for the population growth rate with a standard error of (0.409), implying that in the sample selected Balkan countries, population growth has a negative impact on the economic growth.

5 Conclusion

Striving to find the causes of economic growth for the developing countries, the paper examines the impact of institutions on economic growth in Balkan countries by using several techniques. After performing pooled OLS, Fixed and Random Effect Model and Hausman-Taylor IV model, the choice had to be made between the most efficient and suitable model which depicts the impact of institutions on economic growth. By using the Hausman test, it was shown that the Hausman-Taylor IV Model presents the best results, due to the fact that all the theoretical assumptions and possible obstacles were eliminated.

5.1 Implications

The empirical results showed a significant support of the hypothesis, implying that institutions have a positive impact on economic growth in the Balkan countries examined in this study. The results also show a positive impact of gross fixed capital formation on economic growth. Unlikely, the regression analysis in this study showed a negative impact of education and population growth on economic growth.

Even though the main research question was answered by testing the hypothesis that de facto institutions are a crucial factor in deterring the prospects of the economic prosper, the importance of the institutions relies in the fact that they are crucial for the EU acceleration process. Those Balkan countries which are not member states of the EU (Albania, Bosnia and Herzegovina, North Macedonia and Serbia) but strive toward becoming member states need to enhance their institutions not only to accelerate their economic prosper, but also to be able to join the EU.

5.2 Limitations and Future Research Directions

Although the empirical testing shows support to the impact of institutions on economic growth, the sample of the countries was small, only 8 countries were analyzed. In addition to this, as stated previously in the above parts, the selections of the proxy for institutions play a crucial role and at the same time most difficult limitation to the research in this area.

This topic provides a wide range of opportunities for further research. Instead of using one variable which indicates the institutions in the regression analysis, several different variables could be divided into for example political institutions (rule of law, level of corruption, property rights), economic institutions (tax burden and market openness), etc.

Annex 1

See Table 3.

Annex 2

See Table 4.

Table 3 List of Countries included in the research

No.	Name
1	Albania
2	Bosnia & Herzegovina
3	Bulgaria
4	Croatia
5	North Macedonia
6	Romania
7	Serbia
8	Slovenia

Table 4 Choosing the right indicator for Institutions

Institutions	Aspects covered
Freedom House-Annual Survey of Freedom	Political rights and civil liberties
Polity IV-Political Regimes	Institutionalized democracy and autocracy
Heritage Foundation-Index of Economic Freedom	Rule of law, regulation efficiency, government size and market openness
World Bank-Governance indicators	Political stability, rule of law, control of corruption, government effectiveness
World Bank Ease of Doing Business	Starting a business, employing labor, enforcing contracts and paying taxes
International country risk	Economic risk, political risk, financial risk

Table 5 Hausman Test

Test	Chi2	Prob > Chi2	Result
Fixed versus Random Effect Model	9.24	0.0157	Reject Ho
Fixed Effects versus Hausman-Taylor	0.2672	5.2987	Does not reject Ho

Annex 3

See Table 5.

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Migration Trend and Labor Market in Kosovo



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Abstract Migration is a global phenomenon, and as such continues in Kosovo, the main target for us in Western Europe. It even seems as if this phenomenon has become a pandemic. Kosovo continues to be the country with the youngest population in Europe even for 2020. 1.8 million people live in Kosovo, according to World Bank data from 2021. Based on data from the statistical office of the European Union Eurostat, the average age was 30.5 years in 2020, thus ranking Kosovo in the first place in Europe in terms of the population with the lowest average age. In addition to the labor market in Kosovo, this valuable asset does not find itself in Kosovo, and the young people of Kosovo are more motivated and ready to migrate to a European country. Due to the lack of prospects in their country, experts in this field, as well as various international reports, show that the increase in migration (regular or irregular) has influenced in global development. Interviews conducted with citizens of Kosovo say that the main factor is: the political-social and economic situation that is pushing them toward migration. So the low wages in the private sector, the high rate of unemployment, and inadequate public services, including the weak education and health system of the country the possibility to migrate. Only in 2022, Germany issued more than 60,000 visas under this act to workers from these countries. Meanwhile, in 2020, Kosovars were among the 10 main nationalities that benefited from this scheme. The object of the study is the impact of migration, the flight of the qualified workforce, and the less qualified workforce in various fields in the labor market in Kosovo. For the realization of the purpose of the paper, data from the Statistics Agency of Kosovo, interviews of experts in the media of the field, consultations with online literature and publications—various scientific reports on the topic, as well as interviews with citizens of Kosovo were used.

Keywords Migration • Causes of migration • Unemployment • Political-economic and social situation

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1 Method of Work

Comparative method, in different periods during the years of migration in Kosovo and the labor market. Statistical Analytical Method—through which the interviews of citizens will be evidenced which are the causes, or the main reasons for migration toward different European countries, and what the labor market is offering in Kosovo.

While through the cartographic method and tables will reflect the phenomenon of migration and the labor market in Kosovo.

2 The Purpose of the Study

This study is being done because of the phenomenon called migration, and the labor market in Kosovo.

I consider that this study will serve to encourage the country's institutions to provide opportunities for a better life in Kosovo, for the creation of jobs, in order to prevent this phenomenon which has reached massive proportions, unfortunately it has become a pandemic where every second person who lives and works in Kosovo.

The institutions of Kosovo should be encouraged to undertake some urgent measures at the institutional and policy-making level.

3 Introduction

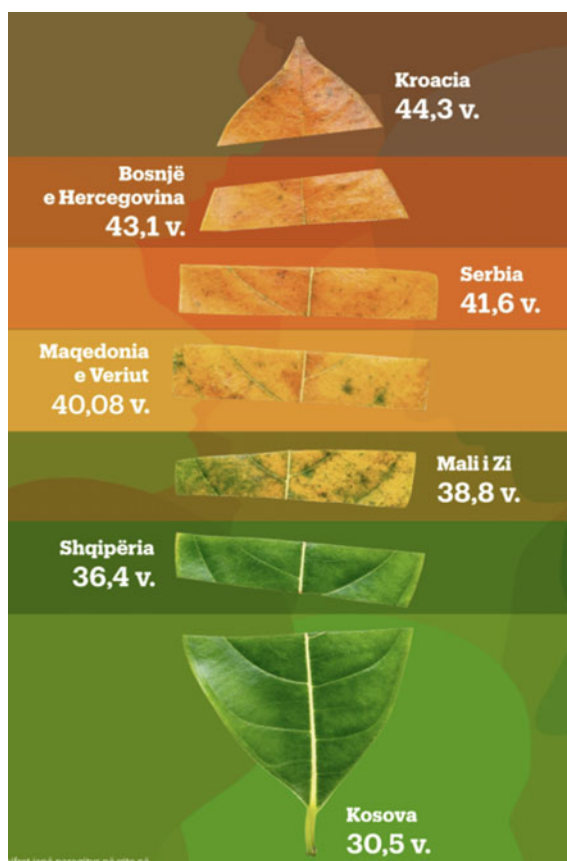
Kosovo, as the youngest country in the world, has been affected for decades by the population's flight. Migration to Western Europe remains an important demographic characteristic of the population of Kosovo. Migration as a global phenomenon has also accompanied the people of Kosovo through different historical stages. In the past decades, it has been the cause of political oppression in the occupation, in the period (1989–1999) of the suppression of autonomy, the destruction of the economy, culture, and education, the dismissal from work, and the mass displacement of the Albanian population in the world external,¹ fortunately, this trend has continued even after the release and declaration of independence of the state (Fig. 1).

Kosovo with less than 1.8 million inhabitants, a total population of 1,798,188, Male 50.3%, Female 49.6%, with a new average age of 30.5 years,² even in these last years, there is a noticeable increase in the population leaving the country.

¹ sq.m.wikipedia.org-prof.AsllanPushaAspektetgjeopopullativenekosovedherrethsaj. Prishtine (2000, p. 302).

² TRT Ballkan “ sipas te dhenave te’ indeksmundi’ pg statistikat nderkombetare.

Fig. 1 Western European countries according to the youngest population



Bosnia and Herzegovina 43.1; Croatia 44.3; Serbia; 41.6; North Macedonia 40.08; Montenegro 38.8; Albania 36.4; Kosovo 30.5.

Source: info traffic: TRE Balkan.³

This trend is continuing massively now due to the political, economic, and social situation. The most important driver of this model is the weak situation in the labor market to stay, which is caused by an extremely high level of unemployment and the desire for a better life. This mass exodus of the people of Kosovo is affecting the labor market in Kosovo. The trend of the last three years is loyal migration, with work visas, to European countries.

Among the first countries that eased the procedures for regular migration permits was Germany, providing Kosovo citizens with work visas. This is also proven by the Regulation of the European Union and official data from the German state in 2020, where it eased the procedures for qualified employees, being provided with work permits and work contracts in one of the fields for which workers are required. Even

³ Info traffic: TRE Balkan.

to this day, this state is continuing in a very transparent and open way to search for workers. Every day, there are long waits at the doors of the Embassies in Kosovo, mainly young people from Kosovo, and the most favorite destination is Germany, hoping for a better life.

Also other countries like France, Croatia, Slovenia, Switzerland, United States, Canada, etc. they are becoming very attractive for Kosovars.

4 Causes and Motivational Purposes for Population Migration from Kosovo, in Focus Qualified or Professional Workers

Migrations of the population from Kosovo have been almost cyclical phenomena, linked to the cycles of political and economic-social development of Kosovo and the area around it. During the period (1989–1997), Kosovo's autonomy was removed with the aim of degrading the Kosovar people by the Serbian regime. This directly affects the destruction of the economy and culture and education, and more than 150,000 Albanian workers were fired from the public sector and social enterprises. Qualified and educated young people from rural and urban areas migrated to the countries of Western Europe to find a job for subsistence and to escape from Yugoslav military service. Migration was seen as a way, or the only way, to escape from poverty and to improve the quality of life for family members that they had left behind by sending remittances.⁴

The even bitterer period of the Serbian state's politics in Kosovo was the year 1998–1999, as a result of the war in Kosovo. During this period, the Serbian paramilitary forces, some over 800,000 citizens of Kosovo, forcibly drove us from our properties, as refugees, in different directions, mainly in Albania, North Macedonia, Montenegro, and then also in European countries, in the United States in Canada, etc. In June 1999—after NATO's intervention, Kosovo experienced a rapid return of the displaced population.

However, even after the recovery of life in Kosovo, where the people started their lives from scratch, migration was still the address of many young people of that time for a better life, to help their families in Kosovo. An invasion of Kosovars toward Europe was in the year 2015, and the number of Kosovar immigrants during the year 2015–2010 is estimated to be a total of 74,434 inhabitants. This number includes all legal and illegal immigrants. The main part of the immigrants for 2015 were the so-called illegal immigrants who sought asylum (applicants for the first time) in EU countries (EFTA) with 67,530 immigrants, while a symbolic number

⁴ Si nderveprojneMigrimi, kapitalinjerezordhetregu I punes ne kosove” Ardiana Gashi (2021, p. 10). Raport drafted by Ardiana Gashi for the Euroean Training Foundation, under the supervision of the Vienna Institute for International Economic Studies (wiiW). Manuscript completed in May 2021.

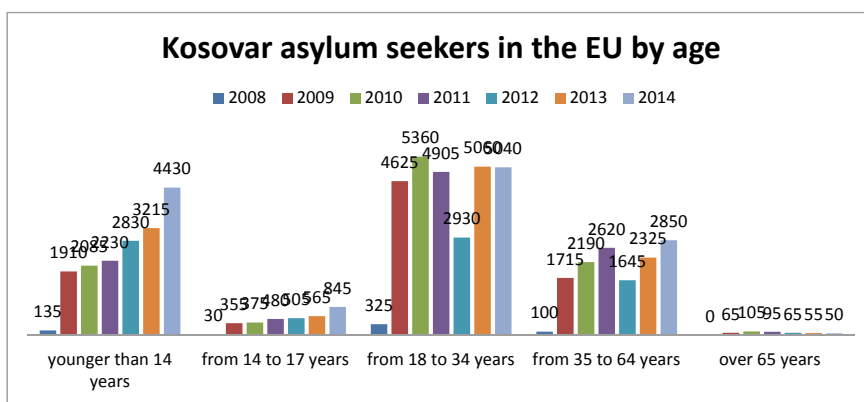
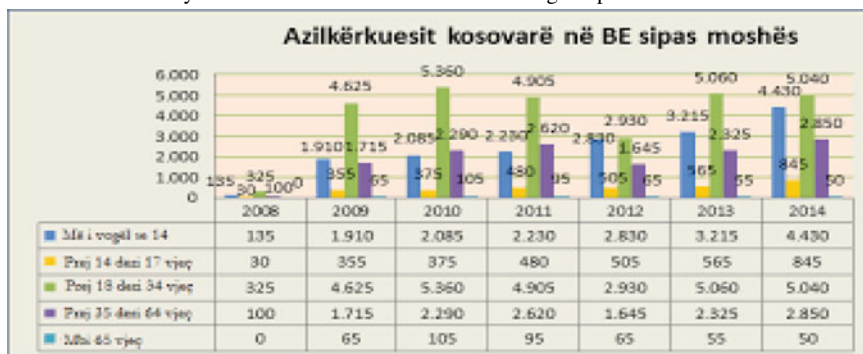
The contents of this report are the sole responsibility of the author and do not necessarily reflect the views of the ETF or the EU institutions.

(several hundred) Kosovars are estimated to have immigrated illegally, but that they had not been notified to the host institutions of the imperial countries.⁵ According to a report published 5 months ago by the online newspaper *nacionale.com*, referring to the Statistics Agency of Kosovo, it has published that 252 thousand people fled for the last 9 years. Based on official statistics between 2013 and 2022, a total of 252 thousand people have chosen to flee Kosovo in both illegal and legal ways. The highest number of departures is between the years 2014, 2015, 2021, and 2022. For more, the international emigration has started to grow after the COVID- pandemic 19 years ago, with 42 thousand Kosovars who have fled from Kosovo. International emigration, the number of Kosovar emigrants during 2015 is estimated to be 74,434 inhabitants, KAS writes in their report on international emigration during 2015 year. Legal and illegal immigration continues in 2016, and it is estimated to be 22,012 residents, KAS writes in the report for 2015. During 2014, there was a total of 45,333 residents who immigrated to different countries in Europe according to the KAS report. While in 2013, there were a total of 20,246 residents, including all legal and illegal immigrants. According to the KAS report, in 2022, it is estimated that there will be a total of 42,728 residents, including legal and illegal immigrants. According to the 2021 report of KAS, the least number of immigrants was in 2020, which is known to be the year of the COVID-19 pandemic, with 8724 residents according to the report ASK. Even in 2019, the last year before the pandemic, it is estimated that there will be a total of 34,911 residents. While 28, 164 people left Kosovo during 2018, according to the KAS report, while in 2017, there was a lower number of escapes with 11,263 residents, including illegal and legal emigrants, according to the KAS report for 2017.

Table 1 in the period 2008–2014 shows that the majority of Kosovar asylum seekers were aged between 18 and 34 years, followed by the category of “Smaller than 14.” The previous age profile reflects migration for the purpose of employment, while the next age profile is about family reunification. The high unemployment rate among young people (53%) is probably the main impetus for the first category, 18–34 years old, to flee Kosovo. This age of asylum seekers was common for most EU countries, where the majority of applicants were in this category. In other words, young people are the ones who are likely to leave the country in search of better opportunities.⁶

⁵ Ask.rks-gov.net “vleresimipopullsia e Kosoves 2015-Migrimipg 8”.

⁶ Ibidem.

Table 1 Kosovar asylum seekers and others in the EU during the period 2008–2014

This table is a translation of table 1 from the original

Source Eurostat (2015).⁷

5 The Trend of Increasing Asylum Seekers in the European Union—Where Does Kosovo Stand in the Last Three Years

Most asylum applications were made by Syrians, Afghans, and Turks, but the number of applications from the Western Balkans, apart from Kosovo, Albania, North Macedonia, and Serbia, also increased, according to the EU Asylum Agency (EUAA). According to the data of this agency, 3197 residents of Kosovo applied for asylum and this right was recognized for 8% of them. Of the total number of applications, 727 were repeated requests for asylum. The number of requests for asylum from citizens

⁷ http://indep.info/wpcontent/uploads/publikimet_sq/Nj%C3%AB%20v%C3%ABshtrim%20mbi%20imigrimin%20e%20kosovar%C3%ABve%20n%C3%AB%20BE%20imigrimi%20si%20dukuri%20shum%C3%ABdimensionale%205BZana%20Dobruna%20Burim%20Ejupi%20Dhe%20Learta%20Hollaj,2015%2006,Qeverisje%20Demokratike%5D.pdf, p. 13, 2015/06.

of Kosovo has increased in 2022, since in the previous year 2360 people had applied for asylum in the EU. Meanwhile, in 2019, a year before the COVID-19 pandemic, 3818 citizens of Kosovo had applied for asylum in the European bloc. The most applications for asylum were registered in 2015, when nearly 73,000 citizens of Kosovo sought asylum in the European bloc. Meanwhile, 4172 citizens of Serbia applied for asylum, or 900 more than in 2021. According to the data, only 3% of asylum applications were accepted. Albania has the highest number of asylum seekers, namely 13,043. Of this number, 2349 were repeated requests, while only 6% of applications were accepted. In North Macedonia, 6476 people applied for asylum and close to 3000 of these were repeated requests, while the acceptance rate of asylum requests was 1%. In 2021, the number of Macedonian citizens who had applied for asylum in the EU was 11,210. According to the report, about 4% of asylum seekers (43,000) were unaccompanied minors. This is the highest figure recorded since 2015. The EU agency linked the increase in the number of asylum requests to the easing of restrictive measures due to the coronavirus pandemic, increasing food insecurity and conflicts in many parts of the world. After more than 10 years of war and economic crisis, Syria continues to be the country with the most asylum seekers, namely 132,000 applications for asylum have been registered. After the Syrians, it is the Afghans who are fleeing due to security problems, humanitarian and financial situation since the Taliban returned to power in August 2021. Over the past year, 129,000 Afghans have applied for asylum in the EU. In third place is Turkey with 55,000 applications, a figure twice as high as in 2021. Rising inflation, “the rollback of democracy,” and several other factors are believed to have led to the increase in the number of applications; the EU agency said “Visa-free travel to non-EU member states in the Western Balkans is likely to have also contributed to the increase in the number of requests from Turkey and Tunisia”. This EU agency did not say which countries received the most asylum requests last year, but according to an internal EU migration report, which the Employment Agency had access to, Germany, France, Spain, Austria, and Italy are the countries that have received the most asylum requests. /REL/⁸

6 The Most Sought-After Professions in Europe as an Incentive for Migration, on the Other Hand, a Failure for the Labor Market in Kosovo

Emigration of qualified workers constitutes an important challenge for the perspective of the economy of Kosovo. This phenomenon is quite disturbing, especially for private businesses, which survive with difficulty of the job competition and the lack of qualified workers. In Kosovo, within a year, more job seekers are added to the labor market than new jobs. In such a competition, the likelihood of getting a job quickly is determined by the profession, especially the work practice in the relevant field of the

⁸ <https://www.gazetaexpress.com/rritet-numri-i-azilkerkuesve-ne-be-nga-ballkani-perendimor-ku-qendron-kosova/Shkurt> 2023.

profession. With a cloudy economic perspective, many professionals are left with the question of who is the best move for their future in their careers and for a better, more affordable Economic-Social life. According to BalkanWeb, the most sought-after professions in Europe are; Doctors, nurses, caregivers, livestock workers physical workers, and electronic engineers, as well as employees of the tourism, hotel, and gastronomy sectors. According to the Croatian Employment Center (CES)—seasonal jobs are more common in the tourism and hospitality industry, however, qualified cooks and waitresses will have the opportunity to be hired easily, especially if they have worked and proven themselves in the past season. In almost 80% of cases, language skills are necessary, 61% of employers require from workers advanced knowledge of the English language, while 21% of the German language.

According to the interviews conducted with the citizens of Kosovo, it turns out that the Kosovar youth have English as their second language, now most of them have a good command of it; however, on the other side, the great interest toward the German state has made the population attend German language courses in order to fulfill one of the criteria for obtaining a work visa.

Norway—there is a need for oil and gas export professionals. Also wanted are engineers and construction technicians, IT professionals, cooks, and bakers.

Germany—needs the most for caregivers for the elderly and children, in the hospitality industry, but also in professions—tall buildings and road infrastructure, technical work. Electricians and hydro-technicians are also wanted.

Switzerland—the part of Switzerland near the border with France traditionally remained the work of clocks, so in this area more and more professionals in this field are being sought. In the big cities of Switzerland, Kosovar interviewees say that they are also looking for professions in hotels, bartenders, waiters, and physical workers in livestock and agriculture.

Austria—Austria has developed winter tourism, during which the need for qualified waitresses and cooks increases.

Denmark—in the border region of Denmark and Sweden (Medicon Valley) is concentrated in the pharmaceutical and biotechnology industry, where the demand for workers in this sector has also increased.

Sweden—in Sweden, there are mostly requests for cooks and bricklayers).⁹

The most sought-after professions in Europe according to LinkedIn published on the businessmag.al portal 2023. This list is a brief representation of emerging trends in the workforce. The workplace will continue to evolve, with job titles growing the fastest across Europe.

France—Sales marketing manager—Most common skills: growth hacking, Google, Analytics, Digital Marketing, Current gender distribution 41.2% female, 58.7% male, Average years of previous experience 3.2 years, Availability of remote work 12.7%.

⁹ Balkanweb.com <https://ballkanweb.com>.

Customer Success Manager—this job role is growing in the technology world. Their mission is to support the customer of a product or service.

Germany—Sales Development Representative performs a mix of marketing and sales duties such as sales campaigns, customer acquisition, and target group analysis. The most common skills are Business-to-Business (B2B), Cold Calling, and Salesforce. Current gender distribution 38% female 62% male, Average years of previous experience: 2.1 years, Availability of remote work 35.9%, then ranked Growth Manager, Employer Brand Manager, etc.

United Kingdom—Customer Success Consultant. Most common skills: Software as a Service (SaaS) Customer Relationship Management (CRM), Customer Retention Current gender distribution: 51% female, 49% male, Average years of experience below: 4.1. The availability of remote work: varies from 11.4 to 31.2%, then we are looking for a Sustainability Manager, Product Operations Manager, etc.¹⁰

According to the interviews of the citizens of Kosovo, this fact of the wanted lists of professions from Europe results that the professions are tempting to migrate to Europe. States have made many facilities for people with work visas, outside the country, and as they say in Kosovo, they do not see prospects. The political-economic situation of the country is only pushing them to think about leaving Kosovo. This high-level mass phenomenon is a big blow to the labor market in Kosovo. Leaders and Managers of Economic Operators in Kosovo express concern regarding the professional workforce. They do not achieve the goals in their business plan due to the departure of workers. The workers do the practical work, then become professional, and then their goal turns out to be the completion of the criterion, (on the work test) for equipment with a work visa in one of the countries of the European Union, not excluding the United States and Canada.

According to electronic media monitorial: US News analyzed data from the Bureau of Labor Statistics to rank occupations based on demand, growth opportunities, average salary, employment rate, future job prospects, stress level, and work-life balance (Table 2).

According to the report, 13 of the 20 best professions and with the highest safety in the workplace are in the health sector, where jobs such as nurses or managers of medical-health services are listed (Table 3).

Chamber of Doctors: Since January, over 200 doctors have left Kosovo, 300 are unemployed, the group for the Balkans has published the report “Health in Kosovo: Emigration of doctors and health workers,” providing statistics and recommendations on how the institutions of country.

Arieta Dragusha, from the Group for the Balkans, said that the flight of doctors shows a lack of perspective in the country. According to the report of this group, from 2018 to September 2022, 666 certificates of ethics and profession were issued, and this document is required by health institutions when hiring doctors and nurses outside of Kosovo. However, only from January to September 2022, 183 such certificates were issued.

¹⁰ Businessmag.al-Linkedin.

Table 2 US news: best jobs of 2023. Top jobs are ranked by median salary, work-life balance, and future outlook

Job	Industry
1. Software Developer	Technology
2. Nurse Practitioner	Health care
3. Medical and Health Services Manager	Business
4. Physician Assistant	Health care
5. Information Security Analyst	Technology
6. Physical Therapist	Health care
7. Financial Manager	Business
8. IT Manager	Technology
9. Web Developer	Technology
10. Dentist	Health care

Source <https://www.monitor.al/profesionet-me-te-mira-per-vitin-2023-keto-jane-20-punet-me-te-kerkuara>; US news and world report

Note US news first identified the largest number and percentage of projected openings from 2021 to 2031 according to the Bureau of Labor Statistics. The jobs at the top of the list were then ranked using a weighted average of seven components: 10-year growth volume, 10-year growth percentage, median salary, employment rate, future job prospects, stress level, and work-life balance

Table 3 US news: careers with the most job security in 2023. Job security is increasingly important as recession fears mount

Job	Industry
1. Respiratory Therapist	Health care
2. Web Developer	Technology
3. Cardiovascular Technologist	Health care support
4. Epidemiologist/Medical Scientist	Science
5. Financial Analyst	Business
6. Environmental Science and Protection Technician	Science
7. School Psychologist	Social services
8. Database Administrator	Technology
9. Registered Nurse	Health care
10. Medical and Health Services Manager	Business

Source <https://www.monitor.al/profesionet-me-te-mira-per-vitin-2023-keto-jane-20-punet-me-te-kerkuara>; US news and world report

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Therefore, there was a call to urgently increase the budget for the health sector, approaching the EU average of 9.9% of the gross domestic product, writes EO. "This movement of doctors shows a lack of perspective." According to Statistics, 60% of citizens express the desire to live abroad. For the years 2019–2020, 352 work permits were issued for health workers from Kosovo in Germany. From 2018 to September 2022. The Chamber of Doctors of Kosovo has issued 666 certificates of ethics and profession, this document is required by health institutions when hiring doctors and nurses outside of Kosovo. Compared to 2020, when this Chamber issued 105 such certificates, from January to September 2022, it issued 183 certificates. According to Dragusha, the most serious situation is in the Chamber of Nurses, according to her, from January to September of 2022, there are 586 certificates issued for nurses. "The worst situation is from the Chamber of Nurses. During the year 2021, 140 certificates were issued by the Chamber of Nurses of Kosovo. The number of certificates issued by this chamber, from January to September of 2022, has quadrupled to 586 certificates. During the year 2021, 140 certificates were issued by the Chamber of Nurses of Kosovo. The number of certificates issued by this Chamber, from January to September 2022, has quadrupled to 586 certificates," she said. Ifran Krasniqi from the Ministry of Health said that this year the Ministry has increased the budget for health. "With the new law, we allocated 98 million euros, 300 new positions, 42 new positions in the inspectorates." We have added budget for essential lists. "We have also foreseen the administrative instruction, because we recently signed an agreement with USAID to help us manage finances," he said. Naser Gjonbalaj, from the Chamber of Doctors of Kosovo, said that since January over 200 doctors have fled from Kosovo and that around 300 other doctors are unemployed "To date, there are 215 doctors who have fled from January to today. What is worrying is that 37% more than we produce doctors. In our database we have about 300 doctors who are unemployed. If the increase in wages and working conditions are not taken into account. "We are not satisfied," he said. Naser Rustemaj, from the Chamber of Nurses of Kosovo, said that the number of health professionals is greater than the figures that are being presented¹¹ (Table 4; Graphs 1 and 2).

The 2011 census also shows that almost half of migrants emigrated for family reasons (mainly marriage or family reunification), while 38% emigrated for economic reasons and 8% because of war. Eurostat data on first-time permits shows that the proportion of first-time permits for work-related reasons increased by 19 percentage points from 2010 to 2019, while emigration for family reasons fell by 22 percentage points during the same period (see Graph 3). Emigration for education remained the same and accounted for only 2% of first-time permits in 2010 and 2019. Graph 2 Reasons for migration, first-time residence permits, 2010 and 2019.¹²

¹¹ <https://www.korrektpress.net/oda-E-mjekeve-nga-janari-kane-ikur-mbi-200-mjeke-nga-kosova-300-jane-te-papune/Dhjetor> 2022.

¹² ETF&WIIW 'SindervprojneMigrimi, kapitalidhetregu I punes ne Kosove'A. Gashipg15. Figure 7.

7 The Challenges that the Labor Force is Going Through in the Labor Market in Kosovo

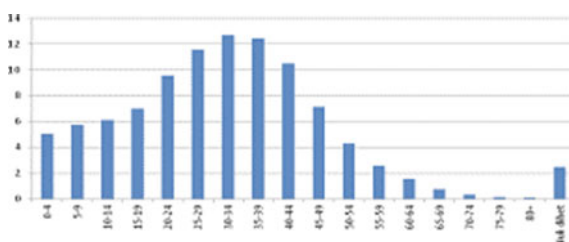
In Kosovo, despite the continuous economic growth during the last two decades, unemployment rate—along with other labor market indicators, remains the weakest in the Western Balkan region, presenting one of the biggest challenges for the country. In Kosovo, despite the continuous economic growth during the last two decades, unemployment rate—along with other labor market indicators, remains the weakest in the Western Balkan region, presenting one of the biggest challenges for the country. Less than 1/3 of Kosovo's adult population has a job. The unemployment rate remained high, especially among women and young people aged 15–24.

Remaining at 34.4% and 49.4% respectively in 2019. According to the results released by KAS, the last publications of 2019 are until April 2022. It turns out that 2/3

Table 4 Population and migration outside Kosovo 2011–2019

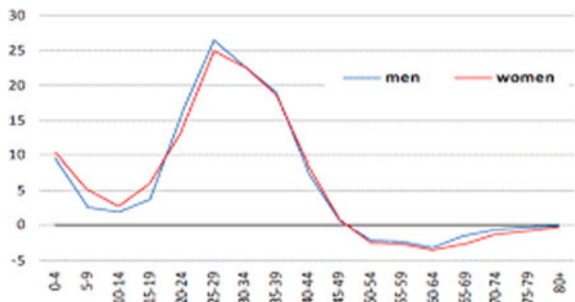
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Population on January 1 (thousands)	1794	1780	1816	1821	1805	1772	1784	1799	1796
Natural population change (number)	20,515	20,426	22,192	18,295	16,392	14,921	14,681	18,562	n.d
Migration and statistical correction (number)	−34,674	15,159	−17,167	−33,982	−49,732	−2994	294	−21,402	n.d
Population change as a result of migration (per 1000 inhabitants)	−19.4	8.4	−9.4	−18.7	−27.8	−1.7	0.2	−11.9	n.d

Source Eurostat (Internet data code: demo_gind)¹³

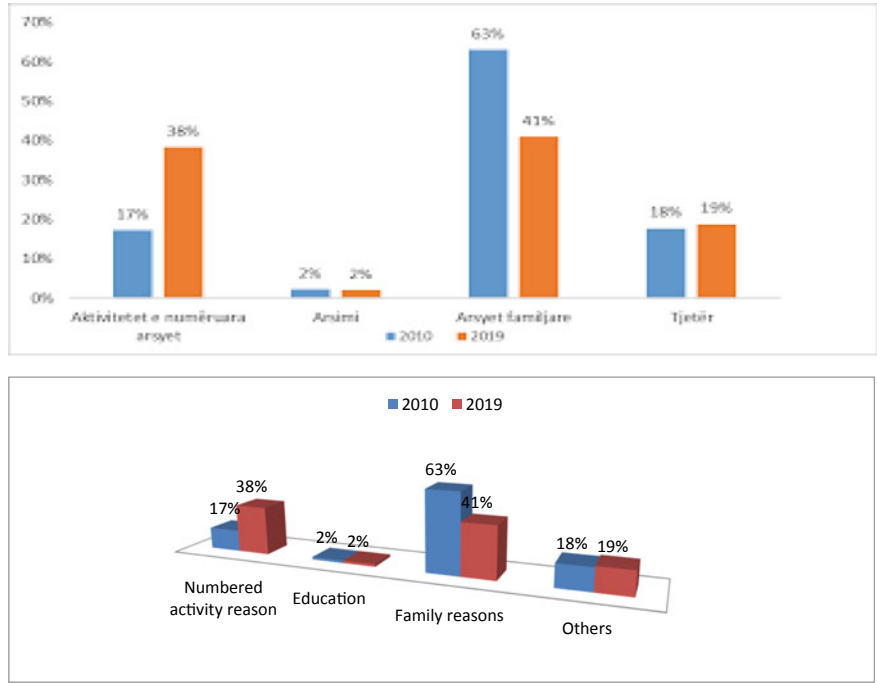


Graph 1 Number of immigrants by age group, in % (population census of 2011). Source https://openspace.etf.europa.eu/sites/default/files/202107/Migration%20human%20capital%20and%20labour%20market%20in%20Kosovo_Albanian%20version_0.pdfpg13

¹³ https://openspace.etf.europa.eu/sites/default/files/202107/Migration%20human%20capital%20and%20labour%20market%20in%20Kosovo_Albanian%20version_0.pdfpg12.



Graph 2 Net migration by age group and gender in % 2011–2016. *Source* https://openspace.etf.europa.eu/sites/default/files/202107/Migration%20human%20capital%20and%20labour%20market%20in%20Kosovo_Albanian%20version_0.pdf



This Graph a translation of graph 3 from the original

Graph 3 Reasons for migration, residence permit for the first time 2010 and 2019. *Source* Eurostat 2020, https://openspace.etf.europa.eu/sites/default/files/202107/Migration%20human%20capital%20and%20labour%20market%20in%20Kosovo_Albanian%20version_0.pdf

of the population in Kosovo are of working age. The working-age population includes the ages 15–64. As part of the working-age population, the labor force participation rate is 40.5%. The employment rate in the Labor Force Surveys (LFS) for 2019 is 30.1%. The highest employment is among men 46.2%, while the employment among women is 13.9%.

According to the results of the AFP, the unemployment rate in 2019 was 25.7%. The most pronounced unemployment was among women at 34.4%, compared to men at 22.6%. The most pronounced rate of unemployment is among the 14–24-year-old age group with 49.4%. The inactive workforce in 2019 was quite high, with a vacant focus on women with 78.0% compared to men, 40.3%.¹⁴

An overview of the situation in Kosovo for labor force migration to Germany was also published by the GAP Institute in February 2020.

Workforce in Kosovo	
Male (age 15–67) (%)	22.6
Female (%)	34.4
Youth unemployment (age 15–24) (%)	49.4
Unemployment rate (%)	25.7
Rate of passivity (%)	59.5
Employment rate (%)	30.1

Fifty (50) is the minimum working age according to Labor Law no. 03/L-212

Source Kosovo Statistics Agency

The data of the report show that during the years 2016–2018, from the six countries of the Western Balkans, a total of 204,638 labor contracts were reviewed for approval, of which about 80% were approved. However, only 40% of them have been provided with work visas, where 24% of them, or 15,824, have been for Kosovars. The professions that have obtained work visas include construction, catering, and care services, while the professions with the least successful applications are the finance, insurance, and education sectors.

The report also reflects the potential for even greater immigration after Germany's new immigration law comes into effect in March 2020.¹⁵

According to the World Bank Report, it appears that long-term unemployment has been a persistent problem in Europe since the economic crisis of 2008. The global economic and financial crisis of 2008 has severely affected European economies, also challenging both employment agencies as social protection service. The economic downturn resulted in record high unemployment rates across Europe. Younger, less skilled, and temporary workers were the hardest hit groups by the crisis.

¹⁴ <https://ask.rks-gov.net/media/5369/anketa-E-fuqis%C3%AB-pun%C3%ABtore-afp-2019.pdf>.

¹⁵ https://www.institutigap.org/documents/82484_emigrimi_gjermani_.pdf.

The increase in unemployment has also led to an increase in long-term unemployment and inactivity rates. Over 70% of the unemployed in Kosovo are long-term unemployed.¹⁶

Tables 5, 6, 7, and 8 Labor market indicators (2016–2019) by year and gender.

Table 5 Labor market indicators by year and gender (2016)

Indicatory	2016		
	Male	Female	Total
Employment-to-population ratio (employment rate)	43	12.7	27.85
The degree of inactivity	41.77	81.4	61.59
Population participation rate as labor force	58.23	18.6	38.41
NEET share of the youth population (15–24 year)	26.5	34.15	30.32
The share of the affected in the total employment	24	18.77	21.39
Unemployment rate	26.2	31.72	28.96
Youth unemployment rate (15–24 years)	47.42	65.2	56.31

Source Statistics Agency of Kosovo¹⁷

Table 6 Labor market indicators by year and gender (2017)

Indicatory	2017		
	Male	Female	Total
Employment-to-population ratio (employment rate)	46.57	12.68	29.62
The degree of inactivity	34.73	80.03	57.38
Population participation rate as labor force	65.28	19.98	42.63
NEET share of the youth population (15–24 years)	23.63	31.32	27.48
The share of the affected in the total employment	24.4	18.32	21.36
Unemployment rate	28.65	36.58	32.61
Youth unemployment rate (15–24 years)	48.27	63.57	55.92

Source Statistics Agency of Kosovo¹⁸

¹⁶ <https://documents1.worldbank.org/curated/en/246171592884930572/pdf/Integrating-the-Long-Term-Unemployed-into-the-Job-Market-Synthesis-of-international-experience-and-implications-for-Kosovo-Technical-Note.pdf>.

¹⁷ Sitp.rks-gov.net “Barometer of the Labor Market in Kosovo—The participation rate of the population as a factor in Kosovo 2016–2019”.

¹⁸ Ibidem.

Table 7 Labor market indicators by year and gender (2018)

Indicatory	2018		
	Male	Female	Total
Employment-to-population ratio (employment rate)	45.28	12.28	28.77
The degree of inactivity	36.73	81.55	59.14
Population participation rate as labor force	63.27	18.45	40.86
NEET share of the youth population (15–24 years)	30.23	30	30.11
The share of the affected in the total employment	20.32	17.07	18.7
Unemployment rate	28.43	33.02	30.72
Youth unemployment rate (15–24 years)	51.43	64.42	57.92

Source Statistics Agency of Kosovo¹⁹

Table 8 Labor market indicators by year and gender (2019)

Indicatory	2019		
	Male	Female	Total
Employment-to-population ratio (employment rate)	46.23	13.82	30.02
The degree of inactivity	40.35	78.88	59.61
Population participation rate as labor force	59.65	21.13	40.39
NEET share of the youth population (15–24 years)	31.4	34.27	32.84
The share of the affected in the total employment	20.23	13.85	17.04
Unemployment rate	22.6	34.33	28.46
Youth unemployment rate (15–24 years)	44.18	60.43	52.3

Source Statistics Agency of Kosovo²⁰

8 Conclusion

Migration, as a global phenomenon, has massively involved Kosovo. In recent years, Kosovo is severely experiencing the population's emptying, the departure to Europe. Especially the departure of qualified professionals in different fields, who are ready to start work in different sectors of different countries in Europe. Migration, as a global phenomenon, has massively involved Kosovo. In recent years, Kosovo is severely experiencing the population's emptying, the departure to Europe. Especially the departure of qualified professionals in different fields, who are ready to start work in different sectors of different countries in Europe. According to the official data of KAS and Eurostat, Kosovo has the youngest age in Europe, with 30.5 years. A high percentage of this youth age remains unused in the labor market, alongside other countries that have created regular policies to facilitate the procedures for granting

¹⁹ Ibidem.

²⁰ Ibidem.

visas or residence permits—work visas, in such a way that this human asset serves you labor market in Europe.

Based on statistics, the current unemployment rate is very high. The data show that in 2019, the highest rate of unemployment is between the ages of 15 and 24 years, where the male gender is 44,185, in a percentage of 40.18%, and female 25.9%. The latest Eurostat data from 2019 confirm that 321,486 Kosovar citizens have a residence permit within the EU, with the majority of residence permits being intended for Germany (58%). Based on the official data of the Statistical Agency of Kosovo, between 2013 and 2022, a total of 252,904 thousand people have chosen to flee from Kosovo. Most Kosovars have fled during 2014, 2015, 2021 and continue in 2022.

The labor market in Kosovo does not meet the demands of the population, it is unsustainable and passive.

The labor force participation rate in the labor market is only 40.4%, while even more worrying is the participation of women and girls with only 17.4%. This means that 59.6% of the labor force aged 15–64 are not active in the labor market, as a comparison according to Eurostat, where the labor force participation in EU countries is 73.8%.

It should be noted that in addition to the official data, there is also an unwritten percentage of the informal employment market, different sectors of employment mainly physical work such as Construction sector (masonry), Agriculture sector, Livestock, Production, Trade, barber, hairdressing, manicure-pedicure, clothing, etc.

The opinion of the citizens of Kosovo according to the interviews conducted by me as the author of this paper results that; migration is seen as an opportunity for a better life. During the survey, either from the interviewees with work relationships, or from those who are waiting to find the possibility to be employed, it is seen that the dissatisfaction is increasing every day and more to continue to live in Kosovo. Clinging to a passivity, high desperation compared to their expectations and desires to stay in Kosovo are quite worrying.

The salary is very low compared to the cost of living in Kosovo, where prices are high; job security and political situation not at all stable the situation in the health-hospital services is deplorable; the quality of contemporary education is degrading and these are only some of the most frequent concerns that are heard by the citizens of Kosovo.

9 Recommendation

Migration actually brings many dimensional effects for all layers of society. On this basis, there is a need for inclusive policies and debate tables, discussion regarding the migration trend, a trend that is becoming more and more popular in Kosovar society. This trend of citizens fleeing urgently should be of great concern to the institutions of Kosovo, and then to private businesses in Kosovo. The government should develop policies based on data and the real situation in the country and undertake a detailed analysis of the push and pull factors that are promoting the emigration of citizens. The

burden falls on the government of the country, on those who have been entrusted with a free vote on promises to create jobs and good social security. The ambassadors of the state of Kosovo should draft incentive policies on the promotion of the country with potential for foreign investors, in the way of creating jobs, mitigating unemployment, and avoiding migration.

The number of doctors in Kosovo does not meet the EU's minimum standards for the pre-calculation of the number per capita.

The migration of professionals from Kosovo such as: Doctors, nurses, health technicians, anesthesiologists, and many other professions, should be an alarm bell that requires an urgent response.

To create working conditions, opportunities for qualitative specialization and salary increase.

This conclusion also applies to private institutions in other fields for workers and professionals.

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Reforming Tax Systems: Steps to Take Toward Crisis Recovery



Liridona Seferi , Abdylmenaf Bexheti, and Uran Radoniqi

Abstract This study will analyze the tax systems of Western Balkan countries with a specific approach to Republic of North Macedonia. There is a used panel data of Western Balkan countries especially from Republic of North Macedonia which needs a real transformation of the tax system, and the reforms of the tax systems of these countries are more than necessary. The focus of the paper is creating a system that will be consistent during the crisis period and will help the economy to be recovered after the crisis period, especially after the COVID-19 crisis period.

Keywords Western Balkans countries · Crisis · Panel data · Fixed effect · Random effect

1 Introduction

The Western Balkan countries are characterized by regressive tax systems on the one hand, but do not realize the expected economic growth on the other. Also, from an income distribution perspective, the Western Balkan countries, although at regressive tax rates, have not mitigated the trends of income inequality; therefore, this is where the tax systems of the Western Balkan countries and the Republic of Northern Macedonia will be analyzed and compared; as well as scenarios for changes in direct tax rates in order to reform the tax system in the Republic of Northern Macedonia.

In Western Balkan countries especially in the Republic of North Macedonia is present the inefficient public finance management, extremely weak institutions and

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the inefficiency of the state applies the need for the need to increase the tax burden. But on the other hand, market inefficiency, along with low public revenue levels, are arguments in addition to the need to increase the tax scope.

There are theories that claim a negative correlation between tax burdens and economic growth, but there is no solid empirical support that the larger (or above-average) tax burden slows economic growth and vice versa. There are even funded analyses and research, for a long economic period that prove the opposite. One of the most famous examples is Sweden and the United States. The tax burden in Sweden is almost 2:1 compared to the United States (as % of GDP), but Sweden's average growth rate was almost 50% higher than the average US growth rate for a quarter of a century (Bexheti, 2017).

Of course, different political and social systems as well as the economic models of the two countries have a significant impact compared to the example, but the example shows that the tax problem is not only up to tax rates, but also good governance and the capacity of institutions to properly and efficiently allocate public revenues.

The tax system of Republic of North Macedonia is regressive, dominated by indirect taxes, which are economically more neutral but socially insufficiently right ones for the population of the country. The dominant part, with about two-thirds, consists of taxes on indirect taxes (per consumption), while direct taxes (taxes on personal income, profit, capital, etc.) are less than one-third of tax revenue. The tax burden, as a percentage of GDP, is the lowest in Europe and the Western Balkans region, after the Republic of Kosovo.

In addition, this tax system is characterized by a wide range of tax (conditional) exemptions and reliefs, as well as insufficient horizontal scope of taxpayers.

Vertical imbalance was also most debated by irrational arguments by the business community and managed to "withdraw temporarily," with mild progression after just one year of initial application in 2019.

Even the explanations that the mild progressive system did not produce results were not sufficiently argued or justified. Social fragmentation and unevenness in the distribution of income and property are in constant deterioration, which updates the need for a fairer tax system but at the same time is more than necessary for a fair distribution of incomes among the population. Alleviating income and property inequality should be a constant goal on both sides of the fiscal balance sheet, also in income and expenditure side.

Due to lack of other arguments, the business community, primarily large businesses, using as arguments the consequences of crises (COVID-19 and inflation with energy), at the end of the year (2022) managed to completely slap the initial proposals for mild progression, debated for more than two years, with almost all interested parties.

Based on the views of two primary economic schools, there are two different views on the state's role in the economy such as: classical school, since Adam Smith's time, has firmly believed in the "invisible hand" of the market, i.e., that the market is the best resource alloy in the economy, and therefore the role of the state should be as small as possible. In contrast, the Keynesian School stressed the importance of the state's role, stressing that "the market is powerless" especially in times of crisis. And both

are right, because in stable and normal economic times, the “invisible hand-market” is most preferred, while in crisis times, everyone seeks the “visible hand-state.” As a result of these state interventions, global public debt is now significantly increased and exceeds 110% of global GDP (Bexheti et al., 2022).

This paper is focused on the state capacity and ability to deal with crises. There is a consensus among economists that the potential to deal with a crisis is created in “good times” so that when the “bad times” (crisis periods) arrive, we will have the potential to deal with.

According to Avinash K. Dixit, declaration about the fiscal consolidation: “Good economic times are inappropriate for the illusions of creators and economic policymakers, because they think that bad economic times will never return” the policymakers should be more patient and careful when creating the policies for the tax systems.

The aim of this paper is to propose reforms of the tax systems in the Republic of North Macedonia which will improve the capacity of the Republic of Northern Macedonia to deal with crises.

To sum up, this study concludes that in the Republic of North Macedonia are more than necessary the tax reforms because is needed for the public finance system to respond to crises than tax revenues need to be increased. This should not be done by increasing value added tax, as it will increase the regressivity of the tax system, but by introducing progressiveness in personal income tax and corporate income tax.

The paper is organized as follows. The second part presents existing literature about the reforms in tax systems, especially during the crisis period. The third section presents methodology and data analysis, and the fourth one draws conclusions and recommendations.

2 Literature Review

Fiscal and tax theories have different definitions and concepts of fiscal optimization. One of the appropriate theories of fiscal optimization is the so-called Brummerhof (2000) theory of optimal choice of tax system resulting from a balance between market inefficiency on the one hand and the inefficiency of the state on the other. When the state is completely inefficient in performing its function while the market is fully efficient, the optimal tax burden would be the lowest possible or zero. On the other hand, when markets are inefficient and the state is efficient, the optimal tax burden is higher. This principle sounds simple, but in practice, it is very difficult to find the balance between market and state inefficiency, especially when it comes to developing countries that have had undeveloped institutions but also non-functional and inefficient markets.

According to George A. (Akleroff) and Amegashie (2009), it is determined that the government should be very careful in setting taxes because if the government of a state sets very high taxes, then this type of tax will be de-stimulating for high-income people and will make them work less and show lower incomes or refer to

some form of tax evasion by not showing their real income and avoiding tax, which would negatively affect the government's ability to distribute revenue.

Ogbonna et al. (2012) stress that a well-designed tax structure promotes economic growth by enabling equality between layers.

Based on the previous work of authors such as Piancastelli (2001), Where the impacts of economic, institutional, structural and social factors on tax were analyzed in the 34 OECD countries for a 10-year time period using the panel data technique, recommendations are given for reforming the North Macedonian Republic's tax system.

For analysis of tax systems referring to tax reports there were several studies, but among the first studies of this kind is the work of I Lotz and Morss (1967) which use cross-section econometric methods to examine the reports of taxation.

Alfirman (2003) also uses the stochastic technique of researching the tax systems of the member countries of the Monetary Union for the period from 1990 to 2017, where they came to conclusions that based on the results of research, the tax burden is more determined on the basis of structural factors and the tax potential is not used properly. The results of the paper show that the countries taken in the analysis can achieve or exceed the minimum tax rate of 20% set by the Monetary Union only if they make efforts to better tax the informal sector.

Studies such as those of authors Teera and Hudson (2004) and Pesino and Fennochietto (2010) encouraged samples of states with different incomes and low-to middle and high-income states However, it was proven that the results have a low level of significance when the entire panel is carried out; therefore, it was concluded that states with similar income and similar taxes should be taken into analysis, so that the model would be more reliable.

Studies of this kind using panel data for Western Balkan countries especially for the Republic of North Macedonia are few just not to say that they do not exist. Therefore, this paper is among the first papers which uses panel data to analyze the tax systems of western Balkan countries and gives the necessary recommendations for reforming the tax system of the Republic of North Macedonia.

Also in these preliminary studies carried out on tax systems, reflections of the effect of time lags and dummy variables on tax revenues and tax ratios are not taken into consideration; in this research, time lags and dummy variable will be taken in consideration especially during the crisis period.

3 Methodology

The data set used in this paper contains analysis for 6 Western Balkan countries that: Albania, Bosnia and Herzegovina, Montenegro, Kosovo, Serbia and the Republic of North Macedonia for a 22-year period from 2000 to 2022.

The data processed in this paper are mainly obtained from secondary sources and from reports of the World Bank, the International Monetary Fund, the statistical

entities of the Western Balkan countries, the Finance Ministries of the respective countries, the Central Banks of the Western Balkan countries as well as by Eurostat.

The data is processed through the program Stata 14. The models which are used for regression analysis are the Pooled OLS model, random effect model and fixed effect. We use panel data because we have more places in analysis and a time period from 2000 to 2022.

Table 1 features variables used in the model and source of the data.

The variables that will be analyzed are presented in the table. This paper is taken in consideration also the anti-corruption factor which isn't taken into consideration in previous studies.

Table 2, will be the statistical description of the variables used in model.

According to Table 2, there are the following variables:

TY—The Ratio of Actual Tax Revenue and GDP

RY—The Ratio of Actual Current Revenue and GDP

RGDPG8—Real GDP Growth

TO—Trade Openness

LFRP—Labor Force Participation Rate

INF—Inflation

GOVEXP—Government Expenses

INC—Income

CORUP—Anti Corruption Ratio

Based on the results in Table 2, we can note that there are differences between countries which are analyzed since we have differences in min and max variable values, but the differences between these countries are due to the different economic development of these countries from each other and their transition period.

Table 1 Description and source of data

	Variable	Description	Expected impact	Source
TY	Tax ratio	The ratio of taxes		Author Calculation
RDGDG	Real GDP growth	GDP growth rate at %	Positive	World Bank
TO	Trade openness		Positive	IMF
INF	Inflation	Inflation	Positive	Central Banks and Ministry of Finance
Gov Exp	Government expenses	Government expenses	Positive	Central Banks and Ministry of Finance
INC	Income inequality	Income inequality	–	Eurostat
Corruption	Anti-corruption	Anti-corruption factor	Positive	World Bank
LFRP	Labor force participation rate	Employment participation rate	Positive	Eurostat
RY	Revenue ratio	The revenue ratio		Author Calculation

Table 2 Descriptive statistics

Variable	Obs	Mean	Std. dev	Median	Min	Max
TY	Obs	0.0641	0.0252	0.0545	0.1801	0.0291
RY	569	0.1030	0.0249	0.1101	0.1901	0.0321
Ln_Rgdp ^{g*} a	569	9.1032	0.5213	9.0235	11.5231	7.3010
TO	569	0.2962	0.3465	0.1254	1.665	0.0253
LFRP	567	0.382	0.0541	0.0261	0.2971	0.0032
INF	569	0.3335	0.1621	0.2832	0.9003	0.1324
GOVEXP	568	0.1833	0.1464	0.1463	1.9214	0.0510
INC	569	0.1294	0.0591	0.1266	0.3271	0.0187
CORUP	569	36.7232	13.0643	29.3521	132.6321	9.2543

^a LN_RGDPG—is in its logarithmic form because its values are in percent

Source Authors calculation

Therefore, to continue with research and to explore the differences between the countries taken in the analysis, we continue with the arithmetic average of each Western Balkan country under analysis.

In the following table, we present the indirect (cross-sectional) data with an arithmetic average for western Balkan countries taken in the analysis.

Based on Table 3, we can conclude that there exist developmental differences between countries from both aspects; the economic aspect and the social aspect of the countries taken in the analysis.

According to the data, the maximum value of the tax ratio is 0.14 and is almost three times the value of the minimum. While in the income ratio, the maximum value is close to 0.18 which is approximately 2 times the minimum value meaning that in terms of income, there are fewer differences between countries than in the tax aspect.

Table 3 Descriptive statistics of (cross-sectional) data

Variable	Obs	Mean	Std. dev	Median	Min	Max
TY	569	0.0641	0.0221	0.0573	0.1421	0.0475
RY	569	0.1030	0.0222	0.0989	0.1762	0.0721
Ln_Rgdp ^{g*} a	569	9.3021	0.3913	9.2054	10.4321	8.3010
TO	567	0.2960	0.3352	0.1232	1.3457	0.0651
LFRP	569	0.0382	0.0539	0.0262	0.1971	0.0032
INF	568	0.3342	0.1582	0.2949	0.8090	0.1546
GOVEXP	569	0.1833	0.1300	0.1571	0.9452	0.0849
INC	569	0.1294	0.0534	0.1232	0.2713	0.0280
CORUP	569	36.7232	7.641	30.3191	52.5961	16.2631

^a LN_RGDP—is in its logarithmic form because its values are in percent (%)

Source Authors calculation

It is also noted that there are economic differences between these countries due to the real growth values of logarithmic GDP. Based on data, differences in GDP between countries are seen, especially the most differences with Kosovo, since it presents itself as a new state and with many legislative changes.

Variables are logarithmic to model the discourse between dependent variables and independent variables with their differences in percentage, while all explanatory variables are calculated with a time lag to have more accurate coefficients,

Table 4 are included the variables in their logarithmic form with one time lag (lags1).

We continue our analysis with tests of multicollinearity of variables. There are used VIF (Variance Inflation Factor) and CN (condition Number) according to (O'Brien 2007; Miles, 2014) (Table 5).

As seen from the table, all VIF values are smaller than 10, and all CN values are smaller than 100 meaning that there is no multicholnearity among variables.

Table 4 Variables in their logarithmic form with one time lag (lags1)

Variable	Obs	Mean	Std.Dev	Median	Min	Max
Ln_TY	569	-2.90	0.35	-2.94	-3.57	-1.73
Ln_RY	569	-2.29	0.23	-2.29	-3.39	-1.65
Ln_Rgdpg	569	9.14	0.79	9.12	7.39	9.04
Ln_TO	567	-1.70	0.92	-2.05	-3.69	0.62
Ln_LFRP	569	-3.97	1.45	-3.66	-2.91	-0.97
Ln_INF	568	-1.2	0.44	-1.25	-2.02	-0.15
Ln_GOVEXP	569	-1.86	0.55	-1.93	-3.01	0.25
Ln_INC	569	-2.17	0.54	-2.05	-3.89	-1.12
Ln_CORUP	569	3.41	0.35	3.40	2.63	4.48

Source Authors calculation

Table 5 VIF and CN

Variable	VIF	Tolerance	Eigenval	Condition Number
Ln_Rgdpg	4.21	0.2239	9.3875	1.012
Ln_TO	2.68	0.3728	0.1433	8.5441
Ln_LFRP	5.19	0.1926	0.0508	14.126
Ln_INF	1.91	0.5228	0.0069	37.144
Ln_GOVEXP	5.35	0.1861	0.0055	40.001
Ln_INC	3.14	0.3186	0.0343	17.431
Ln_CORUP	1.93	0.5323	0.0075	37.654
Mean	3.487		0.0015	68.702

Source Authors calculation

Therefore, we continue with further analysis of variables, with the regression models of variables (Table 6).

Based on the regression results expressed in the table, it is seen that in both reports variables are significant and with a positive sign.

The real GDP growth rate, trade opening and labor participation force are with a positive sign and are significant in both reports, in the Tax Report and the Revenue Report.

From this, we can prove that even if countries have progressive tax systems, it will not reduce their economic growth. This finding is consistent with the findings of previous research of empirical studies of Piancastelli (2001), Teera and Hudson (2004), Gupta (2007), Pessino and Fenochietto (2010).

Inflation and income are also significant variables in both reports in both revenue and tax ratios. It is seen that when inflation is rising, there is an impact on the increase in the tax ratio, which is consistent with previous findings.

Government expenses as a variable plays an important role in both models, which means that the tax capacity or revenue capacity is negatively affected by the increase in government spending, which clearly expresses the government's connection to the country's tax capacity.

Table 6 Regression model pooled OLS for tax ratio Ln_Ty and revenue ratio Ln_Ry

Tax ratio LN_TY					Revenue ratio Ln_RY				
Variables	Coef	Std. error	T	P > t	Variables	Coef	Std. Error	T	P > t
Ln_Rgdpg L1	0.239	0.045	5.003***	0.012	Ln_Rgdpg L1	0.089	0.043	2.19**	0.026
Ln_TO L1	0.059	0.014	3.92***	0	Ln_TO L1	0.043	0.012	3.21***	0.001
Ln_LFRP L1	0.193	0.030	6.31***	0	Ln_LFRP L1	0.091	0.024	3.38***	0.001
Ln_INF L1	0.570	0.071	8.09***	0	Ln_INF L1	0.551	0.065	8.86***	0
Ln_GOVEXP L1	0.810	0.052	15.69***	0	Ln_GOVEXP L1	0.610	0.047	13.4***	0
Ln_INC L1	0.093	0.023	3.80***	0	Ln_INC L1	0.041	0.021	1.86***	0.05
Ln_CORUP L1	0.141	0.032	4.72***	0	Ln_CORUP L1	0.139	0.028	5.32***	0
Total Number of observations 532					Total Number of observations 532				
Prob > F F (Test) = 0.0000					Prob > F F (Test) = 0.0000				
R-squared = 0.8221					R-squared = 0.7893				
Adjusted R-squared = 0.8087					Adjusted R-squared 0.7689				

T statistic in parentheses: * $0.1 \geq p > 0.05$; ** $0.05 \geq p \geq 0.01$, *** $p \leq 0.01$

Source Authors calculation

Also, the anti-corruption factor is presented with a positive sign and as a significant variable in both reports. This is consistent with all preliminary findings and research showing a negative link of the presence of corruption to the tax performance of countries (Mauro, 1997).

To test whether there is heterogeneity in pooled OLS model, we continue with random effect model (Table 7).

As seen from the table, all variables in the model are with positive and significant signs.

Comparing the random effect model to OLS shows different results.

But regardless of the differences, both models have many similarities, because all variables have positive and significant signs.

Table 7 Regression model with random effects GLS for tax ratio Ln_Ty and revenue ratio Ln_Ry

Tax ratio LN_TY					Revenue ratio Ln_RY				
Variables	Coef	Std. error	Z	P > z	Variables	Coef	Std.Error	Z	P > z
Ln_Rgdpg L1	0.152	0.044	3.3***	0.001	Ln_Rgdpg L1	0.169	0.045	3.79***	0.00
Ln_TO L1	0.067	0.014	4.81***	0.00	Ln_TO L1	0.008	0.015	0.41***	0.656
Ln_LFRP L1	0.220	0.037	5.31***	0.00	Ln_LFRP L1	0.094	0.038	2.38***	0.015
Ln_INF L1	0.219	0.086	2.52**	0.011	Ln_INF L1	0.171	0.088	1.86**	0.053
Ln_GOVEXP L1	0.688	0.044	15.47***	0.00	Ln_GOVEXP L1	0.671	0.046	14.59***	0.00
Ln_INC L1	0.073	0.021	3.23***	0.993	Ln_INC L1	0.059	0.022	2.86**	0.06
Ln_CORUP L1	0.019	0.022	0.98	0.345	Ln_CORUP L1	0.041	0.028	1.89*	0.07
Total Number of observations 532					Total Number of observations 532				
Wald chi2 (28) = 2845.37					Wald chi2 (28) = 2845.37				
Prob > chi2 = 0.0000					Prob > chi2 = 0.0000				
Sigma_u = 0.10465432					Sigma_u = 0.09125476				
Sigma_e = 0.07215463					Sigma_e = 0.07565132				
Intra-class correlation (rho) = 0.68106439					Intra-class correlation (rho) = 0.59510646				
Within R-squared = 0.8564					Within R-squared = 0.5938				
Between R-squared = 0.7832					Between R-squared = 0.6845				
Overall R-squared = 0.7546					Overall R-squared = 0.6278				

T statistic in parentheses: * $0.1 \geq p > 0.05$; ** $0.05 \geq p \geq 0.01$, *** $p \leq 0.01$

Source Authors calculation

Therefore, to choose the best model of regression, we continue with the Test of Breusch-Pagan LM test for random effect model against OLS model (Table 8).

Based on the results of the regression test for the tax ratio and the revenue ratio in both cases, it is thrown down hypothesis zero to the $p < 0.00$ level. This means even though countries have similarities each Western Balkan country is unique and special reforms are needed in each country. Therefore in choosing between OLS models and random effect model, as the best model we select the random effect model.

But because we include the dummy variable during the crisis period, we continue our analysis with fixed random effect model in Table 9.

Based on the results of the above table, F test in both reports is significant in the value of $p < 0.05$.

Based on the results of the table, it can be seen that all variables have the expected signs. In the revenue ratio, all variables except anti-corruption coefficients are significant at the $p < 0.1$ level, while other variables are significant at the $p < 0.01$ level in all models.

The variance break along individual effects (inter-class correlation) in the tax ratio has a high value of close to 89% and in the income ratio 99% which shows that the results are reliable.

Based on the results, the report of taxes used as a single ratio cannot represent the tax performance of countries due to the existence of untaxed income. Therefore, the revenue report expresses well the tax performance of the countries because all kinds of income are taken, thus benefiting the income that is untaxable.

However, to determine which model of regression should be chosen between fixed effect model and random effect model we continue our research with the Hausman test (Table 10).

Based on the Hausman test results, the zero hypothesis is not accepted to the $p < 0.00$ meaning level, so in this case, the best model is chosen as the Model of fixed effects for both reports for tax ratio and for revenue ratio.

Table 8 Breusch-Pagan Lagrangian multiplier test

Null hypothesis: no significant difference/panel effect across units					
Results of LM test for tax report (Ln_TY)			Results of LM test for revenue ratio (Ln_RY)		
$\ln_ty[id,t] = Xb + u[id] + e[id,t]$			$\ln_ry[id,t] = Xb + u[id] + e[id,t]$		
	Var	sd = sqrt(Var)		var	sd = sqrt(Var)
Ln_TY	0.1083245	0.328021	Ln_TY	0.0481254	0.2194354
E	0.0053246	0.0723145	E	0.0057231	0.0756325
U	0.0096213	0.0981254	U	0.0078103	0.0883462
test:var(u) = 0			test:var(u) = 0		
Chibar2(01) = 1633.52			Chibar2(01) = 1633.52		
Prob > chibar2 = 0.0000			Prob > chibar2 = 0.0000		

Source Authors calculation

Table 9 Regression with fixed effect model for tax ratio Ln_Ty and revenue ratio Ln_Ry

Tax Ratio LN_TY					Revenue ratio Ln_RY				
Variables	Coef	Std. error	T	p > t	Variables	Coef	Std. error	T	p > t
Ln_Rgdp L1	0.118	0.065	1.82*	0.081	Ln_Rgdp L1	0.389	0.062	5.79***	0.000
Ln_TO L1	0.078	0.016	4.96***	0.000	Ln_TO L1	0.029	0.018	1.75*	0.084
Ln_LFRP L1	0.226	0.043	5.32***	0.000	Ln_LFRP L1	0.132	0.046	2.96***	0.003
Ln_INF L1	0.151	0.095	1.52	0.113	Ln_INF L1	0.253	0.102	2.46**	0.018
Ln_GOVEXP L1	0.631	0.047	13.74***	0.000	Ln_GOVEXP L1	0.631	0.049	13.1***	0.000
Ln_INC L1	0.053	0.021	2.54***	0.978	Ln_INC L1	0.059	0.022	2.86**	0.06
Ln_CORUP L1	0.019	0.022	0.98	0.345	Ln_CORUP L1	0.041	0.028	1.89*	0.07
Total Number of observations 532					Total Number of observations 532				
F(28,482) = 103.11					F (28,482) = 19.38				
Prob > F F(test) = 0.0000					Prob > F F(test) = 0.0000				
Corr(u_i, Xb) = -0.2181					Corr(u_i, Xb) = -9.6893				
Sigma_u = 0.20625411					Sigma_u = 0.85476915				
Sigma_e = 0.07234257					Sigma_e = 0.07565231				
Intra-class correlation (rho) = 0.88605139					Intra-class correlation (rho) = 0.99251064				
Within R-squared = 0.8587					Within R-squared = 0.58762				
Between R-squared = 0.6453					Between R-squared = 0.4879				
Overall R-squared = 0.6831					Overall R-squared = 0.5863				

T statistic in parentheses: * $0.1 \geq p > 0.05$; ** $0.05 \geq p \geq 0.01$, *** $p \leq 0.01$

Source Authors calculation

Table 10 Hausman test for fixed effect regression model

Null hypothesis: error terms are not correlated with regressors (preferred model random effect model)	
Results of Hausman test for tax ratio (ln_TY)	Results of Hausman test for revenue ratio (ln_RY)
$\chi^2(15) = (b-B)'[(V_b - V_B)^{-1}](b-B)$	$\chi^2(16) = (b-B)'[(V_b - V_B)^{-1}](b-B)$
Chibar2 (15) = 62.56	Chibar2 (16) = 79.42
Prob > chibar2 = 0.00	Prob > chibar2 = 0.00

Source Authors calculation

Therefore, we can conclude that Balkan countries have a regressive tax system but do not have expected economic growth which means that based on analyses, it is clearly seen that there is a significant positive link between the real growth rate of GDP and the tax ratio and the revenue ratio which means that if reforms are made in terms of changing the tax system from regressive to progressive, it could have a positive effect on the economic growth of these countries.

4 Results and Discussion

Tax system appropriate to crisis recovery

The tax system is the most important system for the economy. As we noted previously, the Republic of North Macedonia's tax system is regressive, dominated by indirect taxes, which are economically more neutral but in social aspect, they are not the right ones. The dominant part, with about two-thirds, consists of taxes on indirect taxes (per consumption), while direct taxes (personal income, profit, capital,...) are less than one-third of tax revenue.

The ongoing crisis, caused by Russian aggression against Ukraine, the COVID-19 pandemic, and energetic crisis are the factors which have a huge impact on the economy over the world these years and also a special impact on the Republic of North Macedonia economy. It is already clear that countries will need money, to mitigate the impact of the crisis, but also to make the reforms in their economies that will be needed in the coming years. Huge class differences are also evident—millions of people around the world have fallen into poverty due to higher food and energy prices, while a small number of companies have repeatedly increased their profits.

The most needed action from policymakers in this situation is to change the fiscal practice and tax system. There need to tax the rich, through more progressive taxes, which is more current for The Republic of North Macedonia than any other country in the world because Republic of North Macedonia has among the highest poverty rates across Europe, at 22% and also has the highest participation of the richest 1% in total national income—more than 14% of the income in the country ends up with them. Worse, these 1% of richest people pay effective income tax at lower rates than the poorest 50% of people (Ministry of Finance, 2018).

However, we recommend that the progressive system is needed to be applied in a reasonable transition period of 3–5 years starting with a two-rate system, the second rate of which in the first year is not higher than 13–14% to reach 20% after 5 years. This is recommended from the need of adaption of the business community to new tax liabilities. At the same time, serious consideration should be given to the future phase, after consolidating the progressive (personal) system to introduce progression of the family system. Also there should be considered the elimination of some exemptions and benefits for businesses which are present at actual tax system (Bexheti et al., 2022).

Republic of North Macedonia is one of the few countries in Europe where companies' profits exceed workers' salaries. In 2019, the total profits of companies in the country amounted to 249 billion dinars while total salaries were 245 billion. This has been the case constantly for the last 15 years, since 2007. This means that the space for collecting additional budget revenues is even greater in the corporate sector than it is in employees. That's why another option that is seriously imposed as very justified when considering tax reform in the Republic of Macedonia is taxation of high-profit firms in the country (Bexheti et al., 2022).

In addition to high gains, they are also very unevenly distributed. The country's most profitable 100 companies in 2021 made a profit of 735 million euros (Union of Traders), which is about 18% of the total gain in the economy. There are a total of about 70,000 active business entities in the country, which means that these 100 companies are 0.1% of the total number of companies. This means that the most profitable 0.1% of companies make 18% of the total profit, which is a far higher concentration of income concentration. If a progressive income tax is introduced for these 100 companies, at a second rate of 20% for the profit exceeding 1 million euros, the additional budget revenues would be about 70 million euros per year.

Therefore, we consider that is more than necessary, as long as the crisis persists, to introduce a tax on above-average profits (excess profit tax) for all companies that, due to conjunction conditions, not on their merit, generated above-average profits compared to the pre-crisis period. According to a paper, "A Modern Excess Tax," published recently by the EU-TAX Observatory (François et al. September 2022), the fiscal effects of these companies in just one year would be tens of billions of Euros.

Another option for taxing high-profit companies in the Republic of North Macedonia is by introducing an extra profit tax ("windfall tax"). The tax will be applied only to energy companies, amounting to 33% of extra profit, with extra profit defined as a gain that is more than 20% higher than the average gain in the last 4 years. The tax is estimated to raise an additional 140 billion euros at EU level, which will be further used to mitigate the effects of the crisis. It is difficult to assess how much funds would be raised from such a tax in The Republic of North Macedonia, as the 2022 profit data is not yet available, but could certainly raise tens of millions of euros. The tax should be applied to the energy, finance and trade sector; the three sectors that have the highest profit growth in this crisis in the Republic of North Macedonia. According to data from companies in these three sectors, which are registered as public limited liability companies and publish quarterly stock market data, profits in these sectors in the first three quarters of 2022 increased significantly, in some cases even several times (Bexheti et al., 2022).

On the other hand, consumer tax rates should not increase, as they will only increase the regressivity of the tax system. For the reason that lower-income citizens use almost all their income in consumption and therefore have a much higher share of tax (VAT) compared to those on higher incomes, who save some of their income.

In the case of (regular) gains tax, all exemptions and benefits should also be canceled, except for real (and proven and paid) investments. Calculations by the

Finance Ministry, to annul the releases of sports clubs alone, cost tens of millions of euros.

It is finally time to design a fiscal solution for the environment, such as a green tax or environmental tax, coming from the basic principle of “polluter pays.” This is not only through consumption but also through the exploitation of natural resources (water, land, air). Through an appropriate budget program, these revenues should be allocated to environmental protection.

5 Conclusion and Recommendations

According to the analysis above in the paper, there are the conclusions and recommendations as follows:

State intervention is important for getting the economy out of crisis and therefore the state needs the capacity to deal with crises. And capacity, i.e., the potential for dealing with a crisis, can only be created in “good times,” although it is very often politically unpopular. Is not true the argument that a period of crisis is not a convenient time for tax reform. The biggest tax changes have always happened during the biggest crises.

All the data analysis in this paper also the trends show that the inequality and injustice of the tax system require the introduction of tax progression. Dynamics, intensity and height should be determined in consultation with interested parties but not unilaterally influenced only by the business community.

For better public finance system which will have the ability to respond to crises, tax revenues need to be increased. The Republic of North Macedonia, together with Kosovo, continuously have the lowest revenues as a percentage of GDP in Europe. This should not be done by increasing value added tax, as it will increase the regressivity of the tax system, but by introducing progressiveness in personal income tax and corporate income tax.

And in the current conditions, the introduction of a tax on extra profits “windfall tax” on energy companies can be a valuable solution.

Also, very strong attention should be placed on how the state manages its capital, such as mineral wealth, land and the like and therefore is more than necessary a green tax for the environmental protection.

Limitations and future research directions

The main limitation of this study is the period of transition of the countries of Western Balkans. During this period, every country is changing its regulations and policies very often. Also the Kosove is a relatively new country and there are more changes in the legislation and tax regulations. The analysis includes the period before the year 2008 when Kosovo declared its independence and despite the fact that we used quarterly data, there is still a gap in data before this period. The lack of data in property taxes and the challenges identified regarding the taxing system for properties is another limitation that needs to be addressed in future research. Another point for

future research is the analysis of the impact of grey economy and corruption on economic growth of the countries because as seen from the research, corruption is more than present in these countries and has a big influence on tax system and economic growth of these countries.

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Whether Economic Growth is Affected by Lending to the Private Sector? The Case of North Macedonia



Dashmir Saiti and Borce Trenovski

Abstract The subject of the research refers to the impact of bank loans on the private sector on the GDP growth rate per capita. Due to the possibility of a feedback relationship between economic growth and credit activity, the models were evaluated with the method of ordinary least squares (OLS) and with the generalized method of moments (GMM). The obtained results are entirely consistent, statistically significant, and well-adjusted. However, the endogeneity test in the GMM model shows that the variables for which a feedback relationship is assumed are exogenous. The growth of bank loans to the private sector has a statistically significant and positive impact on the GDP growth rate per capita. According to the evaluated asymmetric model, the coefficient in conditions of accelerated economic growth is 0.63. Bank loans to the private sector and the growth rate of GDP per capita have a non-linear relationship, in the form of an inverse U-curve, with a turning point of about 34% of GDP.

Keywords GDP per capita · Bank loans to the private sector · Republic of North Macedonia

1 Introduction

Experts often conclude that the rapid growth of loans is the cause of the current financial crisis. The last financial crisis of 2008 started with the uncontrolled growth of private debt. Later, the American crisis spread to other parts of the global financial system, that is, the banking sector, the real estate market, the informal financial sector, and public finances. Financial liberalization and the boom in the real estate market,

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together with increased economic activity and rising real estate prices, were fueled by bank lending (Ganchev et al., 2014).

The role of financial institutions is based on the allocation of resources for the needs of the population and the development programs of corporate entities in a country. Schumpeter's development theory (1911) explains that bank loans play a key role in economic growth, that is, they are defined as the aggregate amount of loans/funds provided by commercial banks for the needs of individuals, business organizations, industries, and the government.

The allocation of capital, Levine (2004) explains by mobilizing savings deposits, that is, collecting savings deposits and overcoming the transaction costs of the corresponding savings by a large number of entities, as well as overcoming the information costs related to the trust of savers toward the bank and the feeling of control over the savings. The role of financial institutions, according to Backé and Zumer (2005), is related to the reduction of transaction costs and information costs to identify the needs of financial services, that is, to generate the necessary products and sell them at affordable prices. According to them, lending to the private sector has a positive effect on reforms in the banking sector, privatization, and restructuring of the banking sector.

Credit activity in a country is a significant driver of its national economy, as well as the overall economic growth and development of the country. The distribution of capital, deregulation, globalization, and the development of technology have allowed them to become the primary factors in determining economic growth and development. As in every successful economic country in the world, in the Republic of North Macedonia, through the deductive approach of analyzing economic growth and development, we note the basic factors of a stable economy, such as the growth of foreign capital in the country, the stable banking system, technical–technological innovations, and legal-political stability. Economic credit activity is in direct correlation with the process of growth, development, evolution, and stagnation of the economic well-being of a national economy; therefore, this topic is current because the influence of financial input reflects the real economic situation where the respective national economy is located.

One of the key priorities of the Republic of North Macedonia, as well as of other national economies, is the stimulation of economic growth. The subject of the research is the impact of private-sector loans on economic growth in the Republic of North Macedonia. Based on theoretical approaches and empirical literature on the relationship between financial and economic growth, two individual hypotheses have been formulated, that is:

H1. Lending to the private sector affects (H_0)/does not affect (H_A) the growth of GDP per capita in the Republic of North Macedonia.

H2. The relationship between finance and economic growth can be monotonic (H_0)/non-monotonic (H_A): finance accelerates growth up to a threshold, but after that, this positive effect disappears.

The aim is to examine the impact of private-sector credit on economic growth and the relationship between finance and economic activity.

2 Literature Review

Does financial development stimulate economic growth or does economic growth stimulate financial development? This controversial issue has been extensively debated in the literature since Schumpeter's seminal paper (Schumpeter, 1934) discusses finance as an engine of economic growth through its effects on innovative investment (Matei, 2020). As countries become more economically, politically, and technologically developed, the share of the banking sector in the total financial sector declines, while newer and more socialized forms of institutions such as life insurance agencies, pension funds, and other financial institutions have less value in economic terms. In underdeveloped countries, it is the other way around (Balago, 2014).

The most subtle hypothesis put forward according to Patrick (1966), which analyzes the relationship between financial development and economic growth as two different interactions are: "supply leading" as the first hypothesis, which leads us to the analysis of whether finance accelerates economic growth. The second set hypothesis refers to "demand following", which starts from the assumption that modern financial institutions and their services will be demanded by investors and savers in the economy. Namely, it says that economic growth leads to finance. Given the difficulty of determining the direction of the relationship between finance and economic growth at a theoretical level, most recent studies have focused on the empirical aspects of this relationship. Early empirical contributions used aggregate banking data for several developed and developing countries, including the ratio to GDP of monetary variables (M2 or M3) or indicators of financial depth (loans to the private sector). Later studies on the relationship between financial development and economic growth have also added indicators of stock market size and liquidity, but these are available for fewer countries and for a shorter period, and variables such as the ratio of the money supply to GDP are taken as a measure of the size of the financial sector (Caporale et al., 2015).

Several empirical analyses have concluded that financial development has a positive relationship with economic growth, for example, Levine (2004), Calza et al. (2001), Hassan et al. (2011), Xu (2012), Eryilmaz et al. (2015), Korkmaz (2015), Mohanty et al. (2016), Antoshin et al. (2017), and Ho and Saadaoui (2020). Credits to the private sector determine the stable state of the economy (Kelly et al., 2013) and banking efficiency is a significant determinant of banking stability (Ozili, 2018). The short-term positive impact is confirmed in the research of Caporale and et al., (2015), heterogeneity in Everaert et al. (2015); Hassan and et al. (2011), the negative impact in Ariç (2016), and the hindrance of economic growth after GFC by Asteriou and Spanos (2019).

Hassan et al. (2011) found a positive relationship between financial development and economic growth in developing countries. In addition, they found bidirectional causality between finance and growth for most regions of the world's 168 countries, and unidirectional causality from growth to finance for the poorest regions. The paper by Caporale et al. (2015) examines the main characteristics of the banking and

financial sector in ten new EU member states through dynamic panel estimation in the period 1994–2007. Their evidence suggests that equity and credit markets are still underdeveloped in these economies and that their contribution to economic growth is limited by a lack of financial depth. On the contrary, it has been shown that a banking sector to be more efficient should have accelerated growth. In the economic literature, it is generally suggested that financial development leads to the economic growth of countries. Ariç's study (2016) analyzes the effects of financial development on economic growth for the BRICS countries. However, domestic credit to the private sector as a percentage (%) of GDP negatively affects economic growth for the BRICS countries.

Mendoza and Terrones (2008) find that excessive credit expansion increases the vulnerabilities of the banking sector and also that excessive credit expansion is associated with financial crises, especially in developing countries. Finance starts to hurt production growth when credits to the private sector reach 100% of GDP, in countries with small and medium financial sectors, there is a threshold of 80–100% of GDP (Arcand et al., 2012). Ductor and Grechyna (2015) also suggest that the effect of financial development on growth becomes negative if there is rapid growth in private credit that is not accompanied by growth in real output. Their findings provide empirical evidence supporting theories that postulate the existence of an optimal level of financial development given the characteristics of an economy.

In the process of financial development, the banking sector plays a key role in the optimal redistribution of economic resources and financial stability. The existence of an asymmetric relationship has been confirmed between financial innovation, the development of the banking sector, and the economic growth of Asian countries (Qamruzzaman & Jianguo, 2018). When studying the hypothesis of the non-linearity of the finance-growth relationship, the relationship has an inverted U shape (financial development has a positive effect on economic activity up to a certain threshold, and then the relationship becomes negative). The hypothesis of non-linearity is true only for the variable of domestic credit to the private sector. In terms of policy implications, governments should focus on efficient investment projects to improve economic growth and efficiently expand the banking sector (Matei, 2020).

3 Methodology

The work of Antoshin and et al. (2017), which examines the empirical relationship between credit growth, economic recovery, and profitability of banks in Europe, after the great financial crisis, was taken as the basis for developing this model. Although several aspects of the impact of credit growth are analyzed in this paper, specifically, the analysis for the Republic of North Macedonia is reduced to the relationship between the growth of bank credits to the private sector and the growth rate of GDP per capita.

The analysis refers to the period from 1999 to 2019, that is, it covers a time horizon of a total of 21 years. For this research, annual data from several relevant

sources, such as the National Bank of RNM and the World Bank, were used. All model variables except the unemployment rate are provided from the WB database. GDP growth rate per capita covers the period from 1991 to 2019. Bank loans to the private sector (% of GDP) refer to the period from 1993 to 2019. Data on the growth rate of public final consumption (constant local currency)— FCE_{gg_g} covers the period from 1991 to 2020. For 2018, FCE_{gg_g} data were found by differentiating from the previous year's data from the Statistics Office of the RNM. In addition, there was no data for 2019 and we obtained it using the method of moving averages, for two previous years (interval = 2). Real interest rates (%)—(RIR) refer to the period from 1996 to 2019 and are differentiated. and refers to the period from 1993 to 2020 and they are differentiated. The unemployment rate (UN) is provided by the basic economic indicators of NBRNM (2017) and refers to the period from 1993 to 2020 and they are differentiated.

Based on the theoretical model of Antoshin et al. (2017), the analysis boils down to:

$$\begin{aligned} GDP_{pc_g} = & \alpha_0 + \alpha_1 \Delta DCPSB + \alpha_2 FCE_{gg_g} \\ & + \alpha_3 \Delta RIR + \alpha_4 \Delta UN + \alpha_5 DUM + \varepsilon \end{aligned} \quad (1)$$

where,

GDP_{pc_g} is the GDP growth rate per capita,
 $DCPSB$ are bank loans to the private sector,
 FCE_{gg_g} is the growth rate of public consumption,
 RIR are real interest rates,
 UN is the unemployment rate and.

DUM is a dummy variable with a value of 1 for 2011 and 2012, which serves to capture unexplained factors in that period.

The model from Eq. (1) is adapted for the Republic of North Macedonia. In other words, the control variables in this model are selected by economic theory and empirical literature but also based on their statistical significance. The analysis includes other macroeconomic and monetary factors as control variables, such as the budget balance, the money supply, the exchange rate, and the current account balance, but due to their high mutual correlation, as well as the fact that some of them are not statistically significant, they are excluded from the final model.

In addition, the stationary variables in the model are differentiated by the first difference method, to avoid possible spurious regression, as well as multicollinearity problems. The description of the variables used in the final model, along with the order of integration, are shown in (Table 1). Regarding the dummy variable, it was introduced to cover unexplained factors affecting the growth rate of GDP per capita in the period 2011–2012. This is the period of the European debt crisis, which cannot be consistently captured using the control variables used.

Taking into account that there may be a feedback relationship between economic growth and credit activity, the model from Eq. (1) is evaluated in two ways, that is, using the method of ordinary least squares and using the generalized method of

Table 1 Variables used in the analysis and stationary order

Variables	Indicator	Source	Order of integration
GDP_pc_g	GDP growth rate per capita (%)	World Bank	I (0)
DCPSB	Bank loans to the private sector (% of GDP)	World Bank	I (1)
FCE_gg_g	The growth rate of public final consumption, %	World Bank	I (0)
RIR	Real interest rates, %	World Bank	I (1)
UN	The unemployment rate, %	NBRNM	I (1)
DUM	Dummy variable with value (1) for 2011 and 2012		

moments. As instrumental variables in the second method, the initial control variables we talked about earlier, as well as GDP_pc_g and DCPSB with one-time lag, were taken. In addition, to eliminate the potential unwanted implications of the presence of heteroskedasticity, when evaluating the models, standard errors were corrected using the White method.

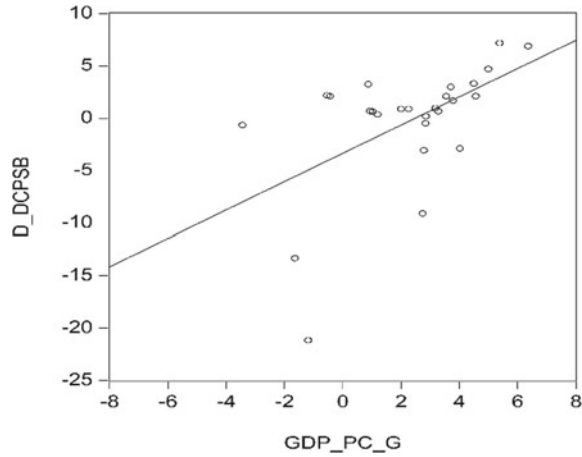
4 Findings and Discussion

4.1 *The Impact of Private-Sector Credit on Economic Growth*

By calculating the correlation coefficient between the growth rate of GDP per capita and the growth of lending to the private sector, it can be seen that there is a moderate linear relationship, that is, the correlation coefficient is 0.35. However, it is visible from the graph that after a certain level of economic growth, i.e., in the periods when the GDP growth rate is above 3%, the linear relationship between these two variables significantly strengthens, in contrast to periods of moderate growth, stagnation, or recession, this connection is significantly weaker. Namely, in periods of strong economic growth, or strong economic expansion, the relationship between the growth rate and the growth of banks' loans to the private sector is 0.76, while in conditions of slow economic growth, economic stagnation, or recession, this relationship is 0.28 (Fig. 1). This finding indicates that bank loans to the private sector can be a generator of economic growth, but only if we have a favorable economic environment. In other words, this indicates that the real effects of economic growth would also be felt in the private sector, only if we have high rates of economic growth, above 3%.

In addition, the question arises as to how far such a positive relationship between lending to the private sector and economic growth can go. The empirical literature suggests that there is a quadratic relationship, in the form of an inverted U-curve, between lending to the private sector and economic growth. In this direction, the graph below shows exactly the quadratic relationship between the growth rate of

Fig. 1 Correlation between domestic credit to the private sector and GDP per capita



GDP per capita and the growth of lending to the private sector by banks in the Republic of North Macedonia (Fig. 2). As expected, the graph shows the presence of such a non-linear relationship.

As can be seen from the attached (Table 2), the evaluated models are statistically significant and well-adjusted, while all the assumptions of the classical linear regression model are fulfilled. In addition, in the GMM model, the J-statistic is low (p-value is greater than 0.05), which indicates that the choice of instrumental variables is good, that is, they are consistent. However, the endogeneity test in this model results in a low difference in the J-statistic, which means that bank loans to the private sector are

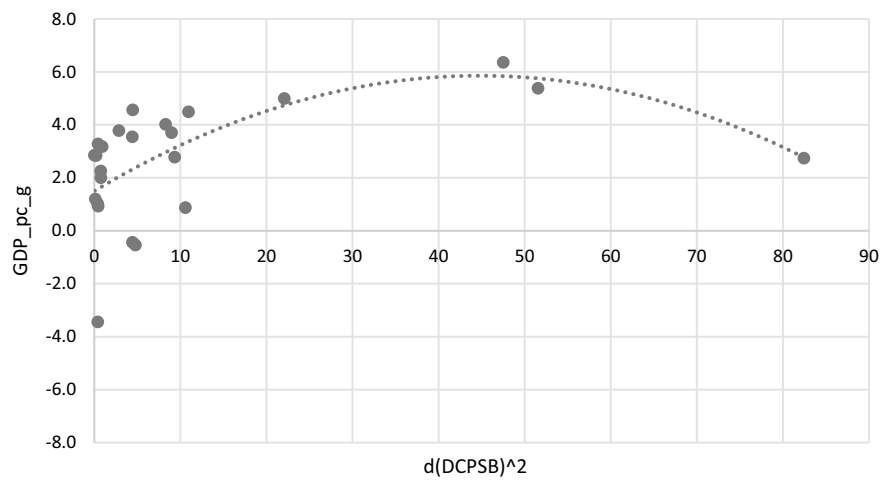


Fig. 2 Inverted U-curve

an exogenous variable. Hence, the estimate obtained using the ordinary least squares method seems to be a more appropriate choice.

In terms of the fit of the models, the coefficients of determination show that they explain over 80% of the variation of the dependent variable, which represents a high fit. Together with the results of the conducted diagnostic tests, it can be concluded that the evaluated models are reliable for interpretation and conclusion.

About the evaluated coefficients, the results obtained using both evaluation methods are unanimous, showing a statistically significant positive relationship between the growth of bank loans to the private sector and the rate of economic growth. In other words, if the growth of bank loans to the private sector increases by 1 unit, the growth rate of GDP per capita will increase by 0.56 percentage points on average (according to the estimates obtained with OLS), *ceteris paribus*. The obtained results confirm that the null hypothesis of (H1) is not rejected, that lending to the private sector affects the growth of GDP per capita in the Republic of North Macedonia. Regarding the estimated coefficients for the other control variables, the results show a negative relationship between the growth rate of public consumption,

Table 2 Estimated coefficients for the model

GDP per capita growth rate (%)	OLS	GMM
C	1.452939 ^a	1.273799 ^a
D(DCPSB)	0.556554 ^a	0.656792 ^a
FCE_GG_G	−0.095115 ^a	−0.101552 ^a
D(RIR)	−0.441351 ^a	−0.448219 ^a
D(UN)	−0.485421 ^a	−0.525514 ^a
DUM	−1.655685 ^a	−1.637631 ^a
Sample	1999–2019	1999–2019
N	21	21
R-squared	0.88	0.86
Adjusted R-squared	0.83	0.82
F-statistic	21.21 ^a	—
Durbin-Watson statistics	2.37	2.27
Ramsey RESET test	1.81	—
Jarque-Bera test	0.04	—
Breusch-Godfrey LM test (1 lag)	1.32	—
Breusch-Godfrey LM test (2 lags)	2.06	—
White's test (no cross-term)	3.63	—
Breusch-Pagan-Godfrey test	2.58	—
Instrument rank	—	12
Sargan J-statistics	—	2.21
Endogeneity test (difference in J-stat.)	—	1.5

Note^a represents statistical significance at 0.01, significance level

the growth of interest rates, and the unemployment rate, on the one hand, and the growth rate of GDP per capita.

4.2 Asymmetric Model

Based on the initial assumption that bank loans to the private sector have a higher positive impact on the growth rate of GDP per capita in conditions of high economic growth (over 3%), an asymmetric model was developed based on the one from Eq. (1). Namely, it is about the same model, with the difference that, with the help of dummy variables, a distinction is made about the impact of bank loans on the private sector from the point of view of the economic environment, i.e. whether it is about periods with a growth rate of over 3% or below 3%, including negative growth rates. Accordingly, the asymmetric model is as follows Eq. (2):

$$\begin{aligned} \text{GDP}_{\text{pc}_g} = & \alpha_0 + \alpha_1 \Delta \text{DCPSB} * I_{\text{growth}} + \alpha_2 \Delta \text{DCPSB} * I_{\text{rec}} \\ & + \alpha_2 \text{FCE}_{\text{gg}_g} + \alpha_3 \Delta \text{RIR} + \alpha_4 \Delta \text{UN} + \alpha_5 \text{DUM} + \varepsilon \end{aligned} \quad (2)$$

where: I_{growth} is a dummy variable that has values 1 in periods when the rate of economic growth is above 3%, 0 otherwise, I_{rec} is a dummy variable that has values 1 in periods when the rate of economic growth is below 3%, and 0 otherwise.

In essence, the initial hypothesis (H1) that bank loans to the private sector have a higher positive impact on the GDP growth rate per capita in the Republic of North Macedonia is confirmed when α_1 is statistically significant and greater than α_2 . Given that there is no feedback relationship between economic growth and lending to the private sector, that is, they are exogenous, the model was evaluated using the ordinary least squares method (Table 3).

According to the asymmetric model, the initial hypothesis (H1) regarding the impact of bank loans on the private sector on the GDP growth rate per capita in the Republic of North Macedonia is fully confirmed. Namely, in periods when economic growth in the country is over 3%, the growth of bank loans to the private sector has a statistically significant impact with a coefficient of 0.63. In other words, if during these periods the growth of bank loans to the private sector increases by 1 percentage point (one unit), and everything else remains unchanged, the GDP growth rate per capita in the Republic of North Macedonia will increase by 0.63 percentage points. Conversely, in conditions where economic growth is below 3%, including when the economy is in a recession phase, the growth of bank loans to the private sector does not have a statistically significant impact on the GDP growth rate per capita.

Table 3 Asymmetric model estimation

Variables	Coefficients
C	1.427598 ^a
D(DCPSB)*I_GROWTH	0.634139 ^a
D(DCPSB)*I_REC	−0.034956
FCE_GG_G	−0.105293 ^a
D(RIR)	−0.370521 ^a
D(UN)	−0.373473 ^a
Sample	21
N	1999–2019
R-squared	089
Adjusted R-squared	0.85
F-statistic	24.18 ^a
Durbin-Watson statistics	2.05
Ramsey RESET test	3.22 ^c
Jarque–Bera test	1.29
Breusch-Godfrey LM test (1 lag)	0.15
Breusch-Godfrey LM test (2 lags)	6.5 ^b
White test (no cross terms)	3.35
Breusch-Pagan-Godfrey test	1.8

Note ^a, ^b, and ^c represent statistical significance at 0.01, 0.05, and 0.1 significance levels respectively

4.3 Quadratic Relationship for the OLS Model

According to the empirical literature, and the economic theory, it is possible to have a non-linear causal relationship between lending to the private sector and the rate of economic growth, in the form of an inverse U-curve (Chebab et al., 2020). In other words, it is assumed that lending to the private sector will have positive effects on economic growth, but only up to a certain turning point, after which a further increase in lending to the private sector would lead to vanish an impact on the rate of economic growth, ceteris paribus. This assumption (H2) can be tested using a quadratic model, where the rate of economic growth would be the dependent variable, while the key independent variables would be bank loans to the private sector, in a linear and quadratic form, Eq. (3). For this purpose, the model of Eq. (1) is used, appropriately adjusted with a quadratic term for the key independent variable.

$$\begin{aligned} \text{GDP}_{\text{pc}_g} = & \alpha_0 + \alpha_1 \text{DCPSB} + \alpha_2 \text{DCPSB}^2 + \alpha_3 \text{FCE}_{\text{gg}_g} \\ & + \alpha_4 \Delta \text{RIR} + \alpha_5 \Delta \text{UN} + \alpha_6 \text{DUM} + \varepsilon \end{aligned} \quad (3)$$

As can be seen from Eq. (3), bank loans to the private sector are taken into account in the model with their original values, instead of differentiated, to be able to consistently calculate the turning point as a percentage (%) of GDP. Additionally, the model includes the same control variables as before, to avoid biasing the obtained results.

Taking into account the findings of the previous analysis, that there is no feedback relationship between economic growth and lending to the private sector, that is, that they are exogenous, the model was evaluated using the ordinary least squares method (Table 4).

The assumption of the existence of a non-linear relationship in the form of an inverse U-curve is proven if the coefficients α_1 and α_2 from Eq. (3) are statistically significant, where $\alpha_1 > 0$ (positive), while $\alpha_2 < 0$ (negative) (Haans, et al., 2016). According to Lind and Mehlum (2010), the turning point (TP) is calculated according to the formula, Eq. (4):

$$TP = -\frac{\alpha_1}{2*\alpha_2} \quad (4)$$

Table 4 Estimates of the quadratic model

Variables	Coefficients
C	−8.491728 ^b
DCPSB	0.778199 ^b
DCPSB ²	−0.011488 ^b
FCE_GG_G	−0.064386
D(RIR)	−0.344681 ^b
D(UN)	−0.266527
DUM	−2.091825 ^a
A turning point	33.9
Sample	21
n	1999–2019
R-squared	0.69
Adjusted R-squared	0.55
F-statistic	5.11 ^a
Durbin-Watson statistics	1.99
Ramsey RESET test	2.38
Jarque–Bera test	0.74
Breusch-Godfrey LM test (1 lag)	0.01
Breusch-Godfrey LM test (2 lags)	4.77 ^c
White's test (no cross terms)	10.75 ^c
Breusch-Pagan-Godfrey test	12.57 ^c

Note ^a, ^b, and ^c represent statistical significance at 0.01, 0.05, and 0.1 significance levels respectively

In our case, the calculated turning point is 33.9. In other words, bank loans to the private sector would have a positive impact on economic growth up to a level of about 34% of GDP, while if they grow above this level, the impact on the rate of economic growth would decrease, *ceteris paribus*. The obtained results confirm that the null hypothesis of (H2) is rejected, namely, the relationship between finance and economic growth can be non-monotonic or finance accelerates growth up to the threshold, but then this positive effect disappears. However, it is a point assessment, for which it is necessary to calculate appropriate confidence intervals (Eqs. 5 and 6). For this purpose, considering that it is a question of calculating confidence intervals for an indicator that is obtained as a ratio between two normally distributed parameters, (Hirschberg & Lye, 2005).

Delta Method

$$CI = TP \mp t_{\alpha/2} \sqrt{\frac{\hat{\sigma}_1^2 \hat{\sigma}_2^2 - 2\hat{\alpha}_1 \hat{\alpha}_2 \hat{\sigma}_{12} + \hat{\alpha}_1^2 \hat{\sigma}_2^2}{4\hat{\alpha}_2^4}} \quad (5)$$

Fieller's Method

$$CI = \frac{t_{\alpha/2}^2 \hat{\sigma}_{12} - \hat{\alpha}_1 \hat{\alpha}_2 \mp \sqrt{(\hat{\alpha}_1 \hat{\alpha}_2 - t_{\alpha/2}^2 \hat{\sigma}_{12})^2 - \hat{\sigma}_1^2 \hat{\sigma}_2^2 (\hat{t}_2^2 - t_{\alpha/2}^2) (\hat{t}_1^2 - t_{\alpha/2}^2)}}{2\hat{\sigma}_2^2 (\hat{t}_2^2 - t_{\alpha/2}^2)} \quad (6)$$

where:

$t_{\alpha/2}$ is the critical value for $n-k$ degrees of freedom;

$\hat{\sigma}_1^2$ and $\hat{\sigma}_2^2$ are the variances of $\hat{\alpha}_1$ and $\hat{\alpha}_2$ respectively;

$\hat{\sigma}_{12}$ is the covariance of $\hat{\alpha}_1$ and $\hat{\alpha}_2$;

\hat{t}_1^2 and \hat{t}_2^2 are the t -statistics of $\hat{\alpha}_1$ and $\hat{\alpha}_2$ respectively.

Calculations of 95% confidence intervals are obtained by these two methods (Table 5). As can be seen from the figure, the Fieller method gives wider and asymmetric results compared to the Delta method. According to the Fieller method, the upper limit of the confidence interval is somewhere around 40% of GDP, while the upper limit according to the Delta method is around 37% of GDP. Given that the time series of bank loans to the private sector in the Republic of North Macedonia takes values from 16.3% to 56.4% of GDP, it can be concluded that the calculated turning point, together with its confidence intervals, is reliable because they belong to the interval of the time series (16.3–56.4).

Table 5 95% confidence intervals for the turning point

Method	Fieller	Delta
Lower limit	31.2	31.0
A turning point	33.9	33.9
Upper limit	39.7	36.7

5 Conclusions

Based on the conducted research, it can be concluded that the growth of bank loans to the private sector has a statistically significant, positive impact on the growth rate of GDP per capita in the Republic of North Macedonia (RNM), according to the theoretical model evaluated with the help of OLS and GMM evaluation methods. The evaluated coefficient is 0.56 according to the score obtained with MONK, that is, 0.66 according to the score obtained with GMM.

The growth of bank loans to the private sector has a more pronounced, positive impact on the growth rate of GDP per capita in RNM in conditions of strong economic growth than in conditions of slow economic growth or recession. According to the evaluated asymmetric model with the help of OLS, the coefficient in conditions of accelerated economic growth is 0.63, while otherwise, it is close to 0 (not statistically significant).

Bank loans to the private sector and the growth rate of GDP per capita in RNM have a non-linear relationship, in the form of an inverse U-curve, with a turning point of about 34%. In other words, lending to the private sector will have positive effects on economic growth until it reaches 34% of GDP, while its further increase above that level would have weaker effects on economic growth.

The estimation results could be synthesized as follows: when a linear relationship between financial and economic growth is imposed, a positive effect between these two variables can be observed (confirming the supply-side channel); when a quadratic term for financial growth is integrated into the model to estimate the non-monotonic relationship between financial and economic growth, the results suggest that the relationship between financial and economic growth is not necessarily linear.

The non-monotonous growth of loans to enterprises and economic growth in RNM is due to the growth of productivity, in other words, the growth of the real sector is a condition. Namely, the procrastination of the financial sector, the excessive credit expansion, and the expansion of the banking sector caused a slowdown in economic growth. All these factors should be accompanied by the growth of the real sector. The effect of financial development on growth becomes negative if there is a rapid growth of loans to the private sector that is not accompanied by growth in real production. In particular, the effect of financial development on growth becomes negative when private-sector credits reach 40.8% of GDP, as confirmed in a panel analysis of 101 developed and developing countries (Ductor & Grechyna, 2015). When we talk about the expansion of the banking sector, in that direction the financial system in RNM is mainly a banking established financial system and is not very oriented toward the bond and stock markets. On the other hand, our outcome correlates with empirical confirmations that the domestic credits of the private sector are overused, which, after a certain threshold, causes a slowdown in economic growth (Matei, 2020). The long-term depressive effect is explained by the immature functional financial system. Empirical evidence shows that the development of financial systems in developing countries is driven by other real variables, such as trade and government fiscal policies, which are more important to growth than functional financial systems.

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Fiscal Management of the Customs Administration in the Republic of Kosovo and Its Economic Recovery Contribution During the COVID-19 Pandemic Time



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Abstract The purpose of this paper is to identify the efficiency of the customs administration in the Republic of Kosovo. It also looks at economic recovery contribution during the COVID-19 pandemic time. Customs duties, excises, value-added tax, and misdemeanor revenues have a clear impact on overall revenues managed and collected by the customs administration through the years; hence, customs tax and misdemeanor of goods have a significant relationship to the GDP, but the same relationship does not stand in the value-added tax and total excise. Customs has a significant consideration in revenues during the COVID-19 pandemic time adding contribution toward economic recovery in Kosovo.

Keywords Fiscal performance · Efficiency · Excise duty · Customs duties · Value-added tax · Economic recovery

JEL Classification H10 · O23 · G17

1 Introduction

Soon after the war in Kosovo in 1999, the Customs of Kosovo was established by the EU Pillar, with the aim of ensuring fair and uniform customs rules and regulations applicable to goods (Kosovo Customs, 2022). This was supported by the EU Customs

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Table 1 Tax scheme in the Republic of Kosovo

Tax Type scheme in the Republic of Kosovo	Turnover threshold	Tax rate (%)
Value-added tax—VAT		8 and/or 18
Corporate income tax—CIT	Under 50,000 Euro	
Manufacturing, trading and transporting industry, etc.		3
Service industry		9
Corporate income tax—CIT	Over 50,000 Euro	10
Personal income tax—PIT	Over 50,000 Euro	
Annual income from 0 to 960 Euro		0
Annual income from 960 to 3000 Euro		4
Annual income from 3000 to 5400 Euro		8
Annual income from 5400 and over		10
<i>Tax on wages (monthly)</i>		
Annual income from 0 to 80 Euro		0
Annual income from 80 to 250 Euro		4
Annual income from 250–450 Euro		8
Annual income from 450 and over		10
Tax on rents, interest, and royalties		10
Tax on special categories		3
Tax on non-residents		5

Source (ATK, 2023)

and Fiscal Assistance Office (CAFAO), which has been assisted to develop the legislation, organization, training, and leadership of staff in newly formed Customs of Kosovo (Table 1).

Kosovo as a member of the Central European Free Trade Agreement (CEFTA) and the World Customs Organization, realizes most of the imports without customs. For countries that are not member of CEFTA, Customs of Kosovo applies customs tariffs 10%, VAT 8% for basic goods, and 18% for non-essential goods (International Trade Administration, 2021).

Kosovo's Law no. 03/L-146,¹ for value-added tax (VAT), applies the application of the general consumption tax, for goods and services, which is in relation to the price of goods and services, and as a result Kosovo Tax Administration (KTA), issue numbers of fiscals and installations, fiscal cash, hence, code no. 03/l-109 customs and excises in Kosovo. The Customs of Kosovo played a crucial role during the COVID-19 years. In 2020 Kosovo GDP dropped to −5.3%, nevertheless, it jumped up to 10.7% in 2021, which is an increase change of 16.09%. In Kosovo's case this increase was let by positive effect of policies (decrease of the informal economy in the fiscal efficiency as a result of decrease of the corruption and increase the fiscal repression), continuation of strong diaspora inflows of remittances, high public

¹ Retrieved from: <http://www.assemblykosova.org/common/docs/ligjet/2009-146-alb.pdf>.

and private investments, private investment and continued growth in non-traditional exports (WBOD, 2022).

According to ASK (2021) the same year presents extremely high productivity in terms of import and export in Kosovo, which went through Customs of Kosovo processes. The total export in 2020 was 475 million Euro, while in 2021, this number jumped to 756 million Euro, which scored an increase by 159%. On the other hand, in 2020 the total import was 3,296 billion Euro, while in 2021 the total import was 4,684 billion Euro. This presents an increase of 142%. From the in-flow and out-flow of goods in Kosovo during 2021, it is evident that Customs of Kosovo plaid imperative role in further economic recovery of Kosovo after deep dive reduction of GDP in 2020, which was officially also considered beginning of the COVID-19 pandemic year according to the World Health Organization (Cucinotta & Vanelli, 2020).

For the research of this issue in order to derive the results we have considered 3 (three) research questions and constructed the following hypotheses:

- **RQ₁:** How efficient is customs management between planned and realized revenues managed/collected by the customs administration?

H₁: Customs management predictions for planned incomes are relevant to the present revenues collected and managed by the customs administration.

- **RQ₂:** Do customs duties, excise, value-added tax, and misdemeanor revenues have an impact on general revenues collected and managed/collected by the customs administration?

H₂: Customs duties, excise, VAT, and misdemeanor revenues do have an impact on total revenues collected and managed/collected by the customs administration.

- **RQ₃:** Is there any relationship between indirect tax revenues economic growth for the period 2006–2022?

H₃: Indirect tax revenues have a positive impact on GDP (economic growth).

This paper is organized into five sections. The first section presents the intro part. The second section describes literature review. The third section presents methodology which is used to obtain the empirical results. The fourth section presents the results, while the fifth section concludes this paper.

2 Literature Review

Taxes on trade are an important source of fiscal revenue, while goods crossing borders were kept at the border until after the payment of duties and taxes, and from the point of view of the tax administration, customs duties were considered the easiest to collect (Wulf, 2013). The excise law contains a list of goods subject to excise in different fixed quantities for each commodity: coffee, wine, cigarettes and other products;

oils, fruit juices and other concentrates of beverages; cars and other motor vehicles (TFEI, 2013).

Customs tariffs play an important role as a tool of tax policy, where taxes are considered as a source of public revenue or VAT, while they can produce negative effects on the balance of payments especially when investment policies are not adequate (Aguirre & Villar, 2022).

Joint review of national tax / customs legislation and improvement of administration systems are important elements for the effective functioning of the common market, through harmonization of tax and customs administration, for the elimination of obstacles for legal entities involved in the activity of cross-border economy (Bekbusinova et al., 2022). A concrete example made in a period 1830–1913, is Sweden, where has been investigated that trade liberalization led to a change in the fiscal structure of tariffs, which in turn increased revenue (Häggqvist, 2018). Poland applies a new customs and fiscal control procedure to eliminate tax evasion, in addition to combating tax evasion or value-added tax, which is one of the strongest tax procedures in the country, aimed at verifying the implementation of obligations tax (Teszne, 2020).

In countries with developed and developing economies, fiscal policies are oriented toward improving financial system reforms and reducing fiscal imbalances to economic effects, by increasing fiscal transparency, reducing the tax burden, and improving mechanisms for fiscal constraints (Harbar et al., 2019).

Republic highlights the findings that there is a distrust of citizens toward the mechanisms of protection against tax evasion and thus the proposal to create a positive image of the tax and customs administration, and consequently a healthy economic system (Gombár et al., 2022). One study shows that the Baltic States have different organizational structures, and the costs for administration and customs are insufficient because there are large differences in geographical location and administrative costs (Ketners & Laurinavičius, 2016).

The current crisis COVID-19 has slowed down several economies and one of them is Asian countries, and the results of this study show that Asian countries offer relief to taxpayers, while it is thought that a public management approach has been applied to help taxpayers to meet obligations (Zulkarnaen et al., 2020). During the pandemic phase, we saw a global shift in trade development, from this Malaysia, reduced imports from China, Australia had less demand for iron ore, Vietnam was seen to have a rapid recovery as this because production processes also shifted from China, South African exports began to fall, the US reacted late to the pandemic blockade, New Zealand saw a very rapid recovery in trade compared to Germany and Italy (Verschuur et al., 2021). The benefits of efficient customs are numerous. If customs legislation is set and practically shows positive results, this will significantly reduce business costs if bureaucracy is eliminated during the customs transactions.

Customs activities are not primarily to manage border crossing of goods. Besides processing of import and export activities, the customs duties are to primarily protect local or domestic economy (ASK, 2021). According to the latter, the taxes are imposed in import goods, consequently generating tax income for the government,

situated through tax administration. One of the areas where Kosovo has made noticeable progress is also its customs administration. Customs of Kosovo have developed further in terms of digitalization aiming to further increase efficiency among its processes as it remains a leader in generating major revenues for the Republic of Kosovo (EU, 2022).

3 Methodology

This chapter will discuss the methodology used in data collection and its analysis up to the results. This paper was conducted in case of fiscal instruments used by the Kosovo Customs as customs duties, excises, VAT, misdemeanors, and sale of confiscated goods. Analyses include correlations, regression, and reliability tests. Data is collected based on secondary data and further analyses are generated by STATA Software. In order to better perform the results, we have been using two formulas as below:

Simple linear regression.

$$y_i = \beta_0 + \beta_1 x_{i1} + \varepsilon_i \quad (1)$$

Multiple linear regression.

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots \beta_p x_{ip} + \varepsilon_i \quad (2)$$

The data presented below in the (Table 2), are used in the part of methodology as variables to test the hypotheses. The data used are time series, and in 2021 we only have the data for the annual incomes because other information is not published yet from the official Gazette. According to the data presented below, we formed the main idea of the paper in order to better test the hypotheses and conclude the remarks.

From the (Fig. 1), can be emphasized a break point of annual revenues during the 2019–2020 period, because of the pandemic COVID-19.

4 Empirical Results

According to descriptive statistics, we considered all variables while forming the Hypothesis.

A. See Table 3

In the descriptive statistics section, we can see the variables for which we developed their testing. We can mention that the data are from time series, where we have presented the same variables for 15 years. The deviation standard is lower than the mean, so the data are satisfied (Table 4).

Table 2 The model variables involved in the regressions

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP (US\$) bn			5.18 bn	5.02 bn	5.34 bn	6.34 bn	6.16 bn	6.74 bn	7.07 bn	6.3 bn
Planned customs revenues (PCR)	450 mln	500 mln	561 mln							921 mln
Revenues managed by customs (RCM)	459 mln	506 mln	583 mln	635 mln	700 mln	827 mln	844 mln	838 mln	871 mln	951 mln
Total excise (TE)			74 mln	56 mln	75 mln	284 mln	302 mln	300 mln	315 mln	360 mln
VAT					361 mln	419 mln	417 mln	412 mln	423 mln	456 mln
Customs duties (CD)				635 mln	700 mln	121 mln	117 mln	120 mln	126 mln	131 mln
Other (MG)					2 mln	2 mln	4 mln	3 mln	5 mln	3 mln
Year	2016	2017	2018	2019	2020	2021				
GDP (US\$) bn	6.68 bn	7.18 bn	7.88 bn	7.9 bn	7.72 bn	9.41 bn				
Planned customs revenues (PCR)	1 bn	1 bn	1.117 bn	1.234 bn	1.087 bn	1.300 bn				
Revenues managed by customs (RCM)	1.052 bn	1.121 bn	1.135 bn	1.179 bn	1.052 bn	1.371 bn				
Total excise (TE)	392 mln	432 mln	419 mln	435 mln	398 mln					
VAT	541 mln	557 mln	586 mln	606 mln	547 mln					
Custom duties (CD)	129 mln	125 mln	124 mln	130 mln	101 mln					
Other (MG)	3 mln	6 mln	6 mln	7 mln	5 mln					

Source Authors' verifications according to Kosovo Customs (2022); WBOD (2022). Clarification about the value of the currency: Only GDP is expressed in current USD \$, while other variables are in euros. All values express a value close to the total amount.

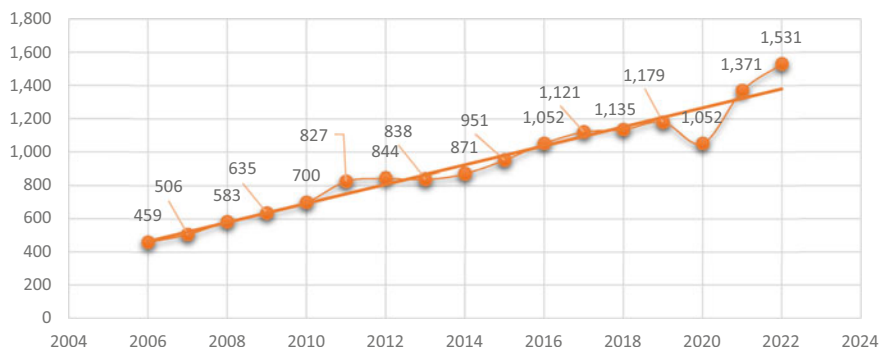


Fig. 1 Revenues managed/collected by the customs administration 2006–2022. *Source* Author's calculations (bn euro) according to Kosovo Customs (Official Gazette) and World Bank Open Data

Table 3 Summary of the descriptive statistics according to all variables presented

VAR	Obs	Mean	Std. Dev	Min	Max
GDP	14	4218.029	1712.913	2847.6	9704.8
PCR	11	9.65e + 08	3.32e + 08	4.50e + 08	1.45e + 09
RCM	17	9.21e + 08	2.98e + 08	4.59e + 08	1.53e + 0
TE	13	2.96e + 08	1.39e + 08	5.65e + 07	4.36e + 0
VAT	11	4.84e + 08	8.44e + 07	3.61e + 08	6.06e + 08
CT	13	1.97e + 08	2.12e + 08	970,998.2	7.00e + 08
MG	11	4,264,412	1,808,188	2,002,000	7,357,694
TG	5	2.69e + 08	2.67e + 08	7.40e + 07	6.94e + 08

Source Authors' calculations

Table 4 Variable names and abbreviations

Number	Variable name	Abbreviation
1	Revenues managed by the customs administration	CRM
2	Planned customs revenues managed by the customs administration	CPR
3	Total excise	TE
4	Value-added tax	VAT
5	Customs duties	CD
6	Misdemeanor of goods including: minor offenses, sale of confiscated goods, and protective measures	MG
7	Tax exempt of goods	TG
8	Gross domestic product	GDP

Note Presented all variables

Table 5 Reliability statistics

Cronbach's alpha	N of items
0.7318	8

Source Authors' calculation for the variables involved in the models of statistical verifications

We have named the variables with the following names: Revenues managed by the customs administration (CRM), Planned Customs Revenues managed by the customs administration (CPR), Total Excise (TE), Value-Added Tax (VAT), Customs Duties (CD), Misdemeanor of Goods including: minor offenses, sale of confiscated goods, and protective measures (MG), Tax Exempt of Goods (TG), and Gross Domestic Product (GDP).

B. See Table 5

From the analysis for the reliability of the variables we see that the result is acceptable where the value of Cronbach's Alpha is 0.7318, a result which allows us to continue with the presentation of the next analysis to confirm or not the hypothesis. Cronbach's alpha values of 0.7 or higher are acceptable according to Taber (2018).

C. Regression to hypothesis H₁

In the below results, we have presented a linear regression to verify how much the planned revenues have been influenced by the custom's management of realized revenues and to see the difference between the planned revenue and the realized results. We have marked the independent and dependent variables with the following abbreviations: realized revenues managed by the customs administration (RCM), and planned customs revenues managed by the customs administration (PCR) (Table 6).

Revenue planning is an important process in order to further verify how accurate the custom's management is and whether is fulfilling its planned objectives. If the

Table 6 Regression analysis to the hypothesis H₁

Source	SS	df	MS
Model	1.0812e + 18	1	1.0812e + 18
Residual	2.2717e + 16	9	2.5241e + 15
Total	1.1039e + 18	10	1.1039e + 17

PCI	Coef	Std.err	t-value	p > (t)	(95% conf. interval)	
RCM	0.9481322	0.0458102	20.70	0.000	0.8445023	1.051762
_CONS	2.21e + 07	4.80e + 07	0.46	0.656	-8.65e + 07	1.31e + 08

Number of obs = 11

$F(1,9) = 428.36$

Prob > F = 0.000

R-squared = 0.9794

AdjR-squared = 0.9771

Root MSE = 5.0e + 07

Source Authors'

values of planned and those realized are significantly different, then custom's performance as far revenue generation is not that efficient. From the data obtained, we observe that if the planned revenues increase, will have a positive effect on realized revenues. Results are acceptable in the level of 5% of the significance. While the R -square means that the variance of the RCM explains 97.94% of the variance of PCR, it emphasizes that the level is nearly perfectly satisfied, and the values predicted are almost similar to values realized.

Starting with the formula for linear regression:

$$y_i = \beta_0 + \beta_1 x_{i1} + \varepsilon_i \quad (3)$$

We have:

$$\text{RCM} = 2.21 + 0.948 * \text{PCR} + \varepsilon_i$$

With “ a ” we present a regression constant the value of which is 2.21, while with Y we represent the dependent variable RCM which is influenced by the independent variable. According to the findings we (do accept the hypothesis raised above according to the overall model; hence concluding that): Customs management between forecasting and realizing collection and management of revenues is relevant (Table 7).

Table 7 Regression analyses to hypotheses H1 and H2

Variables	lnRCM	lnRCM	lnRCM	lnGDP
ln total excise	0.266** (0.0319)			
ln value-added tax	0.568** (0.0387)			
ln customs duties	0.152** (0.0224)			−0.0781** (0.0271)
ln misdemeanor of goods	0.0174* (0.00799)			0.170** (0.0318)
ln planned incomes managed/collected by the customs administration		1.005** (0.0362)		
ln revenues managed/collected by the customs administration			0.984** (0.0354)	
Constant	1.007 (0.535)	−0.0654 (0.746)	0.302 (0.732)	21.46 (0.856)
Observations	11	11	11	11
R -squared	0.999	0.988	0.895	0.0895

Note Findings are significant at * 1% (0.01) and ** 5% (0.05). The table presents coefficients and the significance levels

Source Authors'

D. Regression to hypothesis H2

We have marked the independent and dependent variables with the following abbreviations: Customs Revenues (RC), Total Excise (TE), Value-Added Tax (VAT), Customs Duty (CD), and Misdemeanor of Goods including: minor offenses, sale of confiscated goods, and protective measures (MG). In regression we have one dependent variable and four independents. We see from the results obtained that the lnRCM is significant in relation to the other variables, and all the independent variables are significant either in 5%, or 10% confidence intervals. We can test it mathematically as well starting from the formula for multiple regression:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots \beta_p x_{ip} + \varepsilon_i$$

In our case by having four independent variables we adapt the regression as follows depending on the regression equation:

$$\begin{aligned} \lnRCM = & 1.007 + 0.266 * \lnTE + 0.568 * \lnVAT \\ & + 0.152 * \lnCD + 0.0174 * \lnMG + \varepsilon_i \end{aligned} \quad (4)$$

With “a” we present a regression constant the value of which is 1.0007, while with Y we represent the dependent variable lnRCM which is influenced by the independent variables which is significant according to the results. An increase in excise taxes (%) will increase the total customs revenues (%), hence, an increase in VAT the customs revenues will increase by as well, also for one unit increase in taxes will increase revenues that the customs administration collects and manages. While an increase in minor offenses will increase customs revenue collected and managed by the latter administration. Moreover, R-square explains that 99.89% of the variation is explained by the independent variables, or in our case means that the variation of the dependent variables is explained by four independent variables.

E. Regression to hypothesis H3

We have marked the independent and dependent variables with the following abbreviations: GDP (US \$), Misdemeanor of Goods (MG), Customs Duties (CD).

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots \beta_p x_{ip} + \varepsilon_i$$

We have:

$$\lnGDP = 21.4640 - 0.0781 \lnCD + 0.170 * \lnMG + \varepsilon_i \quad (5)$$

From the regression, the results are all significant because the p -value is lower than the significant value as 0.05^{**}. From the results we can conclude that the customs duties and misdemeanor of goods significantly affect the GDP, according to the formula calculations based on the p -value, moreover the t -value. In such a case Total Excise (TE) and Value-Added Tax (VAT), turned out insignificant, so we kept out

of the model. Important to mention indirect taxation (ratio of customs duties and excises to total indirect tax) with a significance of 5%, while VAT had no correlation with total indirect tax (Ilaboya & Mgbame, 2012).

One another study that explains similarities for the significance of the relationship between indirect tax revenue and economic growth for the period of 2007–2016 (Arinaitwe, 2019). Hence, in our study we clearly notice that an increase of MG will have a positive impact on GDP, furthermore an increase of CD will have a negative impact on GDP. For this hypothesis, we accept half of it, so we only interpret the variables that turned out to be significant.

F. See Table 8

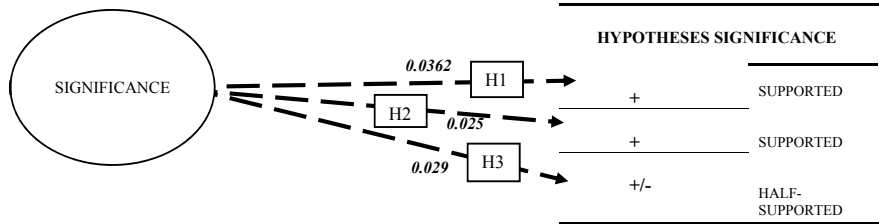
Table 8 Correlations to hypothesis H1, H2, and H3

Var (ln)	lnGDP	lnCD	lnMG	lnPCR	lnRCM	lnTE	lnVAT
lnGDP	1.0000						
lnCD	−0.4731	1.0000					
lnMG	0.9443	−0.1970	1.0000				
lnPCR	0.7720	0.0494	0.8795	1.0000			
lnRCM	0.7188	−0.1671	0.8014	0.8286	1.0000		
lnTE	0.8124	−0.0041	0.9031	0.9766	0.7350	1.0000	
lnVAT	0.7679	−0.1127	0.8218	0.9682	0.8724	0.9230	1.0000

Source Authors'

According to the analysis of correlations, we clearly notice the relationship between the variables and almost all the correlations are positive in between, except five cases. Furthermore, lnPCR and lnRCM, have seen to express a strong positive correlation of approximately 82%. Hence, from the correlation table for the second hypothesis, we see that we have three positive correlation variables and two negatives in the case of customs tax and MG. The correlation overall is strongly emphasized. Lastly, from the analysis of correlations, we notice the relationship between the variables is very strong. In the first variable the correlation seems to be positive and in the second negative (Table 9).

Table 9 Significance framework



Clarification: The significance level to the second and third hypotheses has been measured as the mean of each variable. Also to the third hypothesis; we did not involve the non-significant variables to the model

Source Authors‘

5 Conclusion

In this paper we have analyzed the fiscal management of the customs administration through the review of the literature and the empirical part, always trying to explain the current findings. Also, we checked how was the performance of the Customs of Kosovo during the COVID-19 pandemic time and linked it with the economic recovery. In the field of customs in domestic literature, there is no research or data and for this reason, it is difficult to do work in this field. According to the findings in this paper, the Customs of Kosovo, as an organization, is efficient between the revenue planning and revenue realization. Correlation of the fiscal management, customs duties, excises, value-added tax, and misdemeanor revenues have a clear impact on overall customs revenues. In addition, customs tax and misdemeanor of goods have a meaningful relationship to GDP, but the same relationship does not stand in the value-added tax and total excise.

By analyzing further statistical data, Customs of Kosovo also showed an important part in the further economic recovery during the COVID-19 pandemic times in Kosovo. Like many countries worldwide, Kosovo has experienced a dive as far its GDP standing during 2020, following a sharp and high rebound during 2021. To this, as stated, the Customs of Kosovo plaid a big part as export as well as import of goods have scored a high jump compared to previous years that were linear in this domain. Customs of Kosovo remains pillar of revenue generation for the Kosovo’s Government. Based on other findings, no statistical, the Customs of Kosovo continues to further develop and sustain good performance in other areas of operation. It maintains up to date IT security standards for the industry. It communicates its operation funding with relevant stakeholders according to the well-established international standards of the industry. Customs of Kosovo are part of the Ministry of Finance. In addition, the Tax Administration of Kosovo is part of the Ministry of Finance. Also, in this domain, agencies are efficient in further operation of collecting and increasing revenue.

5.1 Limitations and Future Work

Some of the data was not easily accessible, so at some point we faced the lack of the data from relevant sources.

In the third hypothesis, not all the variables turned out to be significant, hence value-added tax and total excise are insignificant, and we did not include them in further considerations during our findings. Through this paper we understood the efficiency of revenue generation from Customs of Kosovo. Adopting the similar idea of analyzing the efficiency of the customs agencies in all Western Balkans countries may be a good reason for another scientific paper, so it is understood how further the income is generated in these countries and how much the customs may be an added value of their countries' revenue generation. Also, by checking reports of the COVID-19 pandemic time, it is noticeable that not only Kosovo had rebounded greatly in 2021 as far as the GDP growth. Other countries in the region have experienced similar trends. Therefore, further study in this field is recommended with the clear scope of correlation findings and similar trend analysis.

Further study dilemma may focus also on how the import of goods and services may impact the customs administration of Kosovo.

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The Impact of Institutional Quality on Foreign Direct Investments: Insight from Western Balkan Region



Sara Mucha and Besnik Fetai

Abstract The aim of this research is to provide empirical evidence and to investigate the impact of institutional quality on foreign direct investment in Western Balkan countries over the period 2000–2019 using the panel data analysis. We used the technique of pooled OLS, fixed effects, random effects, and Hausman–Taylor model with instrumental variables (IV). The results show that only two components of institutional quality have significant correlation with FDI. Rule of law (RL) has a negative effect on FDI while political stability (PS) has shown a positive effect on FDI. Also, the determinant of FDI, such as inflation has shown significant positive correlations with FDI. The policies that should be taken by central and local government to overcome these barriers and identifying motivating strategies for existing investors for the purpose of maintaining and expanding their investment (re-investments) would be a guide for reforms to be made in the development of overall economic and FDI.

Keywords Foreign direct investment · Institutional quality · Western Balkan · Panel data analysis

1 Introduction

The degree to which institutional quality affects the promotion of foreign direct investment (FDI) in countries along the belt and road remains unclear. A key factor in establishing an open economy is the presence of strong institutions, a point emphasized in past research (Wang et al., 2019). To delve deeper into how institutional quality impacts FDI promotion, scholars have turned to national panel data (Wang et al., 2019), conducting empirical analyses to explore this connection. Ultimately, their aim has been to discern the role institutional quality plays in facilitating FDI

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(Wang et al., 2019). The flow of FDI is enhanced by the relationship between institutional quality and macroeconomic uncertainty, which mitigates the negative impact of economic uncertainty (Echeverri et al., 2013). Consequently, the presence of effective regulations is crucial in promoting the growth effect of FDI (Buchanan et al., 2011). This reinforces the notion that institutional quality is a critical factor in bolstering FDI (Echeverri et al., 2013). According to research (Echeverri et al., 2013), an increase in institutional quality can boost the flow of foreign direct investment (FDI). For FDI to have a growth effect, it is also crucial to have effective and top-notch regulations in place (Buchanan et al., 2011). Interestingly, total, credit market, business, and labor market regulations have all been found to have a significant positive impact on economic growth when combined with FDI (Buchanan et al., 2011). Furthermore, institutional characteristics, especially regulations, seem to play a crucial role in determining the FDI-growth nexus (Buchanan et al., 2011).

Moreover, the quality of institutions is one of the factors that can affect the impact of FDI on business formation (Echeverri et al., 2013). The relationship between institutional characteristics and FDI is complex and may require model development to fully understand (Echeverri et al., 2013). In this regard, it has been found that institutional characteristics can impact the effects of FDI on business formation (Echeverri et al., 2013). The effect of institutional quality on FDI facilitation is influenced by factors such as laws and regulations (Wang et al., 2019). The implementation of the belt and road initiative has significantly enhanced the promotional effect of institutional quality on FDI facilitation (Wang et al., 2019). This impact mechanism involves mediating factors such as laws and regulations (Wang et al., 2019). It has also been found that good institutional quality positively and significantly affects FDI (Buchanan et al., 2011). It is important to note, however, that FDI volatility may have an adverse effect on economic growth (Buchanan et al., 2011).

This necessitates the importance of institutional reform, which is equally important as offering the correct macroeconomic environment in attracting FDI into countries (Buchanan et al., 2011). The study also considers how institutional characteristics contribute to the groundwork for business development in emerging countries, examines the interplay between FDI, institutional quality, and the free market, and assesses the contingency impact between the two channels of home country institutions (Echeverri et al., 2013). Numerous economic and political institutions have an influence on the level of FDI in a country (Sabir et al., 2019). The type of institution, and its strength, can greatly affect inward FDI (Sabir et al., 2019). Studies have sought to measure the impact of institutional quality on FDI (Sabir et al., 2019), such as the degree of political risk, cultural approach, market scale, and geographic distance of the host country (Chen & Jiang, 2021). Other factors taken into consideration are the degree of corruption, GDP and fiscal deficit, exchange rate, return rate of FDI, situation of infrastructure, degree of openness, and intellectual property protection (Chen & Jiang, 2021). In addition, the text states that weak institutions are associated with less FDI (Sabir et al., 2019). In contrast, developed countries generally have stronger institutions, which positively impact FDI (Sabir et al., 2019). On the other hand, developing countries with weaker institutions may experience negative impacts on FDI (Sabir et al., 2019). Moreover, political stability, even in the face

of policy uncertainty, encourages investors to invest more capital in countries (Sabir et al., 2019). Government effectiveness and regulatory quality also have a positive impact on FDI in low and lower-middle-income countries, as does political stability in these countries (Sabir et al., 2019). Furthermore, public and civil services, independent of political pressure, are important for encouraging investment by entrepreneurs and investors (Sabir et al., 2019). Lastly, institutional reform is deemed an essential determinant for attracting FDI in all countries, and efficient markets in terms of institutions, trade openness, GDP per capita, and better infrastructure are all important determinants of FDI (Sabir et al., 2019).

Numerous theories have been proposed to explain the institutional quality of a country and its impact on inward FDI. Dunning's eclectic paradigm theory and North's institutional theory posit that institutional quality is a factor in determining inward FDI (Sabir et al., 2019). Further, the four institutional quality factors, namely government intervention, access to sound money, legal structure and security of property rights, and regulation of credit, labor and business, critically influence the technological assets-related overseas investment of the firm (Kim & Choi, 2020). These institutional quality measures moderate the diverse contingencies in a firm's investment decision (Kim & Choi, 2020). These measures include the size of government, legal structure and security of property rights, access to sound money and regulation of credit, labor and business (Kim & Choi, 2020). Additionally, the nature of an institution can be either supportive or oppressive for a firm's strategic decision, such as investments (Kim & Choi, 2020), and institutional quality matters for FDI in manufacturing, particularly in services (Ali et al., 2010). Research has concluded that institutions are a robust predictor of FDI, however, they do not have a significant impact on FDI in the primary sector (Ali et al., 2010). Moreover, the most significant institutional aspects linked to propriety rights influence the decision to invest in a country (Ali et al., 2010).

Additionally, GDP per capita, agriculture value-added as a percentage of GDP and inflation influence FDI inflows negatively in developed countries, and institutional quality has a positive impact on FDI in all groups of countries (Sabir et al., 2019). Institutional quality is a more important determinant of FDI in developed countries than in developing countries, and trade openness as a percentage of GDP and infrastructure positively affect FDI in developed countries, while GDP per capita, trade openness, agriculture value-added as a percentage of GDP and infrastructure have positive and statistically significant impacts on FDI inflows in developing countries (Sabir et al., 2019). Additionally, control of corruption, government effectiveness, political stability, regulatory quality, rule of law and voice, and accountability have a greater impact on FDI inflows in developed countries than in developing countries (Sabir et al., 2019). Furthermore, institutional reforms are crucial for countries with limited fiscal space and a reliance on foreign investment to enhance their prospective growth, but the uneven implementation of institutional reforms can lead to an ineffective institutional environment which weakens fair competition and the enforcement of contracts (Aziz, 2017). Ultimately, better institutional environment is characterized by high private investment and FDI inflows, however, the Arab region has poor business quality due to its failure to adopt adequate institutional reforms

and reduce political instability (Aziz, 2017). Moreover, control of corruption and regulatory quality enhance FDI inflow in lower-middle income countries, with regulatory quality having the greatest impact on foreign investment inflows among all the institutional metrics (Aziz, 2017). Additionally, institutional factors have a different impact on attracting FDI in lower-middle income countries compared to high and low-income countries, but the outcome is largely similar in the three subgroups (Aziz, 2017), however, high rule of law and voice and accountability mitigate FDI inflow in lower-middle income countries.

H1: The institutional quality indicators have a significant effect on FDI inflows in the Western Balkans.

2 Literature Review

2.1 *Corruption and FDI*

Corruption is a phenomenon that involves the misuse of public power for private gain, often through bribery or the misuse of public funds (Epaphra & Massawe, 2017; Korkmaz & Çelik, 2021). It has a negative impact on foreign direct investment (FDI) by increasing uncertainty and risk, reducing investor returns, and increasing transaction costs (Epaphra & Massawe, 2017; Habib & Zurawicki, 2002; Korkmaz & Çelik, 2021). Countries with high levels of corruption are less attractive to foreign investors because corruption can reduce returns on investment and increase the uncertainty of business operations, leading to reduced FDI inflows (Habib & Zurawicki, 2002; Korkmaz & Çelik, 2021). The Corruption Perceptions Index (CPI), developed by Transparency International, is used to measure corruption in countries. There is a statistically significant link between CPI and FDI flows to 54 developing and developed countries, and an improvement in the CPI score can lead to an increase in FDI. A one-point improvement in CPI can generate an additional FDI of 0.5% of GDP on average, while a three-point improvement can more than double the corporate tax take on average. Corruption also affects the generation of taxable income and tax revenues in each country, which can further discourage foreign investors. A high level of corruption significantly hinders the inflow of FDI to host countries, creating significant uncertainty and increased transaction costs for foreign investors. Countries with lower levels of corruption tend to attract more FDI, and corruption can lead to a misallocation of resources, reducing productivity, and competitiveness (Epaphra & Massawe, 2017). Overall, corruption remains one of the greatest obstacles to economic and social development in low-income countries, and its effects on FDI inflows are significant and negative.

Corruption can be detrimental to the economic growth of a country in several ways. One such way is its impact on foreign direct investment (FDI) and financial markets. Research shows that higher levels of corruption can discourage investors

and reduce FDI, hindering financial development in developing countries (Freckleton et al., 2012; Voyer & Beamish, 2004). Additionally, corruption can hinder financial development in these countries, which can then impede overall economic growth (Kholdy & Sohrabian, 2008). The lack of legal and regulatory frameworks in emerging nations can make corruption have an even more negative impact on FDI (Voyer & Beamish, 2004). Managers may also consider corruption as a factor when assessing potential investments in a market (Voyer & Beamish, 2004). Suspiciously close ties between politics and business can contribute to corruption in developing countries, which can further hinder financial development and ultimately lead to a lack of economic growth (Kholdy & Sohrabian, 2008). While research has not examined the combined effect of corruption and foreign investment on financial development, it is clear that corruption has a significant impact on the link between FDI and financial markets (Kholdy & Sohrabian, 2008). Therefore, reducing corruption should be a priority for policymakers to promote economic growth and attract more foreign investment to their country.

Corruption can take on many different forms and categories, and the impact it has on foreign direct investment (FDI) can vary depending on the particular form of corruption involved. Overall, corruption tends to have a negative effect on FDI, as investors are often wary of entering markets where corruption is rampant (Habib & Zurawicki, 2002). However, the relationship between corruption and FDI is not always straightforward, as some studies have found that certain forms of corruption may actually attract more FDI in transition economies, while structural reforms have a stronger impact on FDI in countries with lower levels of corruption (Korkmaz & Çelik, 2021). For future research, it is important to examine the differential impacts of various forms of corruption and transparency on FDI in order to obtain a more nuanced understanding of the relationship between the two. Despite some nuanced findings, the majority of studies confirm that corruption has a negative impact on FDI, and that reducing corruption can make countries more attractive to investors (Castro & Nunes, 2013; Mathur & Singh, 2013). Some of the most common forms of corruption include fraud and embezzlement by public officials, and these types of corruption have been found to negatively impact inward foreign direct investment. In fact, research has shown that corruption has a significant negative impact on the FDI performance index for countries worldwide, with higher levels of corruption leading to lower FDI performance. Overall, it is clear that reducing corruption is an important step for promoting foreign direct investment and economic development.

H1a: Corruption has a significant impact on FDI.

2.2 Rule of Law and FDI

The concept of rule of law is related to public ordering, which involves relying on formal public legal codes for rules and adjudication (Wu et al., 2012). Specifically, a strong rule of law can mitigate the lack of portfolio investments due to asymmetric

information. In economies with a well-developed financial system, an effective rule of law is likely to increase the share of portfolio investments in total investments by better protecting shareholders' rights (Akisik, 2020). However, the concept of rule of law is being questioned in relation to large-scale land acquisitions in sub-Saharan Africa. The rule of law is being undermined in this context due to legal deficiency and elite capture. Weak rule of law is a characteristic of a relation-based governance environment where private ordering, which involves reliance on informal and relational networks, is prevalent. On the other hand, strong public rule of law is a characteristic of a rule-based governance environment where public rules are present. In a family-based governance environment, public rules are absent (German et al., 2013; Wu et al., 2012). Section 2 provides an overview of the concept of rule of law.

State-owned enterprises (SOEs) invest more in countries with poor rule of law than privately owned enterprises (POEs) (Knutsen et al., 2017). Interestingly, despite institutional risk factors, such as high levels of corruption and weak rule of law, SOEs' FDI does not seem to decline (Knutsen et al., 2017). However, there is no solid evidence indicating that SOEs invest more in countries with better rule of law (Knutsen et al., 2017). Maintaining a high level of rule of law is suggested to continue attracting FDI inflows in sub-Saharan Africa, as it has a positive and statistically significant effect on FDI inflows (Awadhi et al., 2022). This is supported by the Institutional FDI Fitness Theory, which suggests that institutional factors, including the rule of law, influence FDI inflows (Awadhi et al., 2022). Therefore, it is imperative to address legal deficiencies and elite capture, which undermine the rule of law in large-scale land acquisitions.

The rule of law is a crucial factor that can influence foreign direct investment (FDI) in a country. In fact, empirical analysis has shown that rule of law is a statistically significant factor in attracting FDI. This is particularly true for BRICS economies, where rule of law has been identified as a potential institutional and political determinant of FDI (Jadhav, 2012). Indeed, countries with a good rule of law are generally more attractive to foreign investors because they offer greater security and stability. By contrast, countries with a poor rule of law are often perceived as risky and unpredictable, which can deter foreign investors. Interestingly, the relationship between rule of law and FDI appears to be more complex when it comes to state-owned enterprises (SOEs) versus privately owned enterprises (POEs). Specifically, SOEs invest relatively more than POEs in countries with poor rule of law, but there is no solid evidence indicating that SOEs invest more in countries with better rule of law. Thus, maintaining a high level of rule of law is critical for attracting FDI, particularly in regions like sub-Saharan Africa where investment is needed for economic development.

H1b: Rule of law has a significant impact on FDI.

2.3 Political Stability and FDI

Political stability is a crucial factor influencing foreign direct investments (FDI) and is considered during the decision-making process of foreign investors. Countries with political stability are more likely to attract higher FDI inflows, while political instability negatively impacts FDI, leading to reduced economic growth. It is also important to note that political factors play a significant role in explaining FDI flows (Kim, n.d.). The socio-political institutional environment affects FDI inflows, and countries with high levels of corruption and low levels of democracy tend to have higher FDI inflows (Kim, n.d.; Okara, 2023). However, the assessment of political stability is crucial for multinational enterprises to make the best decision about FDI, and they may avoid investing in regions with political instability (Caon, 2020). Political stability is assessed across various metrics including the strength of institutions, transparency and the rule of law, and factors like corruption, terrorism, strength of institutions, and rule of law can help assess political stability (Caon, 2020). Empirical results reveal that there are long and short-run relationships between political instability, FDI, and economic growth in Malaysia. A steady deterioration in political stability results in a decrease in FDI over time (Okara, 2023). However, FDI promotes political stability by generating economic opportunities, which fosters socio-political stability (Okara, 2023). Furthermore, greenfield FDI has greater socio-economic externalities resulting from directly generated new economic activity and jobs (Okara, 2023). There is a positive relationship between FDI and political stability, and the political stability index measures the socio-political institutional environment (Okara, 2023). Overall, political stability is an important factor to consider when assessing a potential FDI destination, as it can determine whether a country is attractive for investment or not.

Political stability is a crucial factor in determining the success of a country's economic policies, particularly in terms of foreign direct investment (FDI) (Schneider & Frey, 2002). Political risk factors, such as corruption, civil unrest or regulatory uncertainty, can significantly impact the relationship between FDI and financial development by shifting the threshold level of financial development required to attract investment. In other words, countries with higher political stability will be able to efficiently utilize FDI to benefit their financial institutions, as well as their overall economy. Conversely, political instability can adversely affect financial development and disrupt the flow of FDI. Higher political stability allows investors to have confidence in the country's administration and its ability to provide a conducive environment for business operations. This confidence further encourages investors to invest more capital and resources in the country, leading to higher levels of economic growth. In conclusion, political stability is a critical component in attracting foreign investment and promoting economic growth. Countries with high political stability are more likely to experience sustained economic development than those with political instability.

Political stability plays a vital role in foreign direct investment (FDI) as it affects the level and composition of FDI inflows. In fact, political instability is shown to

significantly reduce the inflow of FDI (Nazeer et al., 2017). The effects of transition and political instability on FDI have been studied, and it has been found that FDI flows to transition economies that are unaffected by conflict and political instability are higher (Brada et al., 2005, 2006). In addition, higher political stability aids financial institutions in efficiently reaping the benefits of FDI. To understand the impact of political instability on FDI, researchers have analyzed various measures of political instability, including coups as a proxy for political risk (Asiedu, 2006). Though the empirical literature has revealed the implications of political instability on the level of expropriation predicted by the model, the causal relationships between political instability and FDI remain ambiguous (Azzimonti & Sarte, 2012; Nazeer et al., 2017). Policy makers and key decision makers would benefit from further research in this area to understand the impact of political instability on FDI, which is crucial for economic development. However, it should be noted that determining the effect of political instability on sectoral foreign direct investment is theoretically ambiguous (Burger et al., 2016).

H1c: Political stability has a significant impact on FDI.

2.4 *Government Effectiveness and FDI*

Government effectiveness is a crucial aspect of governance, and it is assessed through various factors. These factors may include the quality of public services provided by the government, the level of bureaucracy, and the ability of the government to develop and enforce policies (Inter Consult Bulgaria Ltd. & Ionescu, 2010). The effectiveness of a government is determined by how successful it is in implementing and enforcing regulations and policies that promote social welfare and economic growth. The literature on institutional determinants of corruption relationships is relevant to understanding government effectiveness since corruption undermines trust in public institutions and hampers effective policy implementation (Inter Consult Bulgaria Ltd. & Ionescu, 2010). Thus, corruption is closely related to government effectiveness, and it is essential to tackle this problem to ensure good governance. Additionally, the impact of corruption on foreign direct investment also affects government effectiveness since investors are less likely to invest in countries with high levels of corruption (Inter Consult Bulgaria Ltd. & Ionescu, 2010). Therefore, governments must address corruption to attract investment and promote economic growth. In conclusion, government effectiveness is a multifaceted concept that encompasses various factors such as corruption, policy implementation, quality of public services, and bureaucracy. The ability of a government to function effectively and efficiently plays a crucial role in promoting social welfare and economic growth.

In order to gain a deeper understanding of the relationship between government effectiveness and foreign direct investment (FDI), it is important to consider the impact of corruption on FDI. Corruption is closely related to government effectiveness, and poor government effectiveness can lead to increased corruption, which in

turn can discourage FDI. The identification of possible fraud and corruption risks, as well as the implementation of fraud and corruption risk assessments, are crucial in preventing corruption and improving government effectiveness. When government effectiveness is low due to corruption and inequality, it can lead to poor performance and an unfair legal system (Inter Consult Bulgaria Ltd. & Ionescu, 2010). Research has shown a strong negative relationship between corruption and FDI, with corruption acting as a significant barrier to FDI. In countries with high levels of corruption, investors may be hesitant to invest due to concerns about the stability and transparency of the regulatory environment. In contrast, countries with low levels of corruption and high government effectiveness are more attractive to foreign investors due to the perceived stability and predictability of the regulatory environment (Inter Consult Bulgaria Ltd. & Ionescu, 2010). Therefore, improving government effectiveness by reducing corruption can have a positive impact on FDI.

While corruption can impact various industries and sectors, some may be more susceptible to the effects of poor government effectiveness. The literature suggests that corruption has a significant negative impact on foreign direct investment (FDI) (Inter Consult Bulgaria Ltd. & Ionescu, 2010). Sectors that rely heavily on FDI, such as manufacturing and finance, may be particularly vulnerable to the effects of corruption. In addition, industries that require a high level of government involvement or regulation, such as healthcare or energy, may also be more influenced by government effectiveness. This is because corruption can lead to a lack of enforcement of regulations and laws, which can result in poor performance and outcomes. Moreover, sectors that require a high level of transparency and accountability, such as the media or legal industries, may also be more susceptible to the effects of poor government effectiveness. This is because these industries rely on fair and impartial legal systems, which can be compromised by corruption. Hence, it is important to assess the risks of fraud and corruption in various industries and sectors, and to identify possible risks associated with poor government effectiveness in order to mitigate their impact.

H1d: Government effectiveness has a significant impact on FDI.

2.5 Regulatory Quality and FDI

Regulatory quality is a critical factor when it comes to foreign direct investment (FDI) flows in ASEAN markets. The effectiveness and enforcement of investment regulations within the region are crucial determinants of inward and outward FDI flows. In recent years, there has been a decline in ASEAN FDI flows, which can be attributed to the deterioration of the effectiveness and enforcement of investment regulations (Rammal & Zurbrugg, 2006). Measuring regulatory quality is essential to understanding its impact on investment flows. One way to evaluate regulatory quality is by assessing factors such as price controls and excessive regulation in foreign trade and business development (Rammal & Zurbrugg, 2006). Regulatory effectiveness,

coupled with good governance practices, also has an impact on the direction of outward FDI flows (Rammal & Zurbruegg, 2006). The principles for measuring regulatory quality were established through a three-step methodology that identified and synthesized proposals to overcome the limits of traditional regulation (Rammal & Zurbruegg, 2006). In order to assess regulatory quality, it is essential to consider the ability of the regulation to be participatory, decentralized, flexible, simple and clear, preventive, inducer of innovation, multi-instrumental, rigorous on enforcement, performance-based, planned and gradual, supported by adequate resources, measured and communicated, and reflexive. Moreover, regulatory quality refers to the quality and effectiveness of trade and investment regulations employed within the host country. Therefore, regulatory quality plays a significant role in determining the impact of regulatory factors on outward FDI from ASEAN countries to fellow member states (Rammal & Zurbruegg, 2006).

Foreign direct investment (FDI) is a type of investment that is made by a parent company in a foreign country through its affiliates (List & Co., 2002). FDI can be categorized as either efficiency-seeking or market-seeking based on its goal. The former aims to enhance the efficiency of the parent company's production process, while the latter aims to access new markets (List & Co., 2002). The measurement of FDI involves tracking the flow of financial resources and assets from the investing company to the foreign economy. Disaggregated data is employed to measure FDI, allowing for a more detailed analysis of the determinants of FDI (List & Co., 2002). FDI is related to economic growth, institutional quality, and manufacturing value added (Adams & Opoku, 2015). Institutional quality, along with economic growth and natural resources, plays a positive role in attracting FDI (Adams & Opoku, 2015). However, countries should consider both the positive growth effects and the adverse institutional effects of FDI when trying to attract it. Regulatory regimes of countries affect the FDI-growth relationship, with effective and quality regulations having a significant positive effect on economic growth (Adams & Opoku, 2015). The characteristics of Location Specific Factors (LSFs) are examined to understand the variability in FDI in Sub-Saharan Africa (SSA). Government consumption expenditure, inflation, GDP per capita, capital openness, and credits to the private sectors are the major deterring factors of FDI into the African continent (List & Co., 2002). Finally, governance infrastructure is a determinant of US FDI, with a minimum threshold of effective governance being necessary for a country to receive US FDI (Globerman & Shapiro, 2002).

The quality of regulatory institutions has an undeniable impact on foreign direct investment (FDI) in different regions. Doing business rankings, which reflect the overall investment climate, can attract more FDI (Anderson & Gonzalez, 2020). The correlation between doing business indicators and FDI flows is also significant (Anderson & Gonzalez, 2020). A study used various measures of institutional quality to identify the impact of regulatory quality on FDI. The empirical results indicate a positive correlation between the quality of regulation and FDI in African countries. The quality of regulation positively affects the attractiveness of FDI in African countries, resulting in more investment in these regions

(Bouchoucha & Benammou, 2018). Similarly, regulatory quality also has a positive impact on FDI in the context of Asia from 2001 to 2018 (Abbas et al., 2021). Furthermore, firms establish subsidiaries abroad to acquire knowledge about the host institutional environment, which becomes an advantage for further expansion (Rammal & Zurbruegg, 2006). Host regulatory quality moderates taxation, highlighting the crucial role of institutions for firms originating in developed economies that lack sound institutions (Rammal & Zurbruegg, 2006). Sound institutions and lower tax rates abroad are extremely significant for domestic firms' internationalization in developed economies with problematic regulations and high taxation (Rammal & Zurbruegg, 2006). Finally, FDI inflows toward environmental institutions and reforms in climate policies positively impact GHGs emissions reduction in Asia, demonstrating the importance of regulatory institutions for both economic growth and environmental sustainability (Abbas et al., 2021).

H1e: Regulatory quality has a significant impact on FDI.

2.6 Voice and Accountability and FDI

Voice and accountability is a fundamental aspect of good governance, which plays a crucial role in attracting foreign direct investment (FDI) in developed countries. In democratic countries with secure freedom of speech rights and independent media, FDI flows steadily as investors are confident that their investments are safe and protected by a transparent legal and regulatory framework (Bouchoucha & Benammou, 2018). However, the same cannot be said for developing countries where the effect of voice and accountability on FDI is insignificant (Bouchoucha & Benammou, 2018). In African countries, voice and accountability is considered one of the measures of institutional quality that affect the attractiveness of FDI. A study revealed that the attractiveness of FDI to African countries is positively correlated with voice and accountability (Sabir et al., 2019). The results of the study suggested that improving the dimensions of governance and establishing good governance practices are necessary to attract FDI, including improving voice and accountability. Therefore, it is essential for developing countries to focus on improving their governance systems to attract FDI and to provide a conducive environment for businesses to thrive (Sabir et al., 2019).

According to the World Bank, voice and accountability is one of the three statistically significant governance indicators, signifying its importance in a country's overall governance structure (Gangi & Abdulrazak, 2012). Research has indicated that improving the overall state of governance, including voice and accountability, can have a positive impact on the investment climate and the inflow of FDI in African countries (Gangi & Abdulrazak, 2012). However, the text does not provide any information about the direct relationship between voice and accountability and economic growth. Nonetheless, studies have shown that there is a one-way causal relationship running from voice and accountability to economic growth and FDI. In countries

where citizens can freely express their opinions and hold their government accountable, businesses are more likely to invest in such an environment, which in turn promotes economic growth (Gherghina et al., 2019). Therefore, it is safe to say that a higher level of voice and accountability in a country fosters an environment conducive to economic growth by attracting foreign investment.

Empirical evidence has shown that voice and accountability (VA) can have a significant positive impact on foreign direct investment (FDI) inflows. In particular, studies have found that institutional factors such as control of corruption, government effectiveness, regulatory quality, rule of law, and VA have a positive influence on FDI inflows and economic growth (Gherghina et al., 2019; Jadhav, 2012). However, the relationship between VA and FDI is complex and mixed empirical evidence exists regarding the political and institutional determinants of FDI (Jadhav & Katti, 2012). Some studies have shown a positive correlation between VA and government effectiveness and rule of law, while others have found no significant relationship (Buchanan et al., 2011). Despite these mixed findings, studies have consistently found that improving institutional quality, including VA, can lead to a more favorable investment climate and increased FDI inflows (Bouchoucha & Benammou, 2018). Furthermore, the impact of institutional quality on FDI inflows is greater in developed countries, indicating that improving VA is particularly important for developing countries seeking to attract FDI (Sabir et al., 2019). Overall, empirical evidence suggests that improving VA can be an effective means of attracting FDI and promoting economic growth.

H1f: Voice and accountability has a significant impact on FDI.

2.7 *The Impact of GDP and Inflation on FDI*

Foreign direct investment (FDI) is influenced by numerous factors, among them is Gross Domestic Product (GDP). GDP is one of the main determinants of FDI inflows as it serves as a proxy for market size (Jaiblai & Shenai, 2019). A higher GDP can attract more FDI inflows, indicating a positive relationship between GDP and inward FDI (Jaiblai & Shenai, 2019; Sabir et al., 2019). GDP per capita, which is a measure of the level of development that influences FDI, is also a determinant of FDI inflows (Jaiblai & Shenai, 2019; Sabir et al., 2019). Higher GDP per capita positively affects FDI since the level of development of a host country is an important determinant of inward FDI (Sabir et al., 2019). As the level of development increases, the population's ability to purchase goods and services increases, motivating foreign investors to invest in the host country (Sabir et al., 2019). Furthermore, market size, which is proxied with GDP per capita, is an important determinant of FDI in the host country (Sabir et al., 2019). There is a long-run relationship between FDI inflows and GDP. Countries that experience higher FDI inflows in relation to GDP are associated with periods of higher inflation, better infrastructure, lower income levels, and smaller markets (Jaiblai & Shenai, 2019). Therefore, GDP plays a significant

role in attracting foreign investment, and its relationship with FDI can be a useful guide for policymakers to encourage investment in their countries.

Based on available research, it appears that inflation rate does not have a significant impact on foreign direct investment (FDI) in a host country. While higher GDP and market size, as measured by GDP per capita, are important factors that attract FDI inflows, inflation rate does not seem to be a significant determinant. In fact, some studies have found that inflation rate may have a negative relationship with FDI, but this relationship is not statistically significant (Opeyemi, 2020). On the other hand, the level of development of a host country is an important determinant of inward FDI. Countries with better infrastructure, higher human capital, and more efficient institutions tend to attract more FDI inflows in the long run. Therefore, while inflation rate may not be a significant factor in attracting FDI, other factors such as the level of economic development and market size are more important determinants of FDI inflows.

A study conducted in Bangladesh aimed to explore the relationship between economic indicators such as GDP, inflation rate, FDI, and unemployment rate (Alam et al., 2021). The researchers found that GDP and FDI have a significant impact on the unemployment problem in Bangladesh (Alam et al., 2021). Furthermore, the results of the augmented Dickey Fuller test revealed that there is a long-run relationship among GDP, inflation rate, FDI, and unemployment in Bangladesh (Alam et al., 2021). These findings suggest that an increase in GDP and FDI can lead to a decrease in unemployment rates, while inflation rates may not have a significant impact on FDI. Therefore, policymakers should focus on attracting foreign investment and promoting economic growth to reduce unemployment rates in Bangladesh. Additionally, controlling inflation rates may not be as effective in achieving this goal as previously thought. Further research could explore the relationship between these economic indicators in other countries as well.

3 Methodology

For data processing used pooled OLS, fixed and random effect estimates model to assess the impact institutional quality indicators on FDI in Western Balkan countries over the period 2000–2019. Also, we used the Hausman–Taylor with instrumental variables (IV) model which gives the opportunity of finding a solution for the endogeneity problem. Pooled OLS is biased in the models with heterogeneous data and it violates the assumption related to standard errors which should follow a normal distribution with mean equal to zero and standard deviation equal to 1. Hausman–Taylor model is based upon an instrumental variable estimator which uses both the between and within the variation of the exogenous variables as instruments. Wherefore, Hausman–Taylor solves endogeneity problems, which are considered as an important issue from the econometrics point of view (Baltagi et al., 2016).

We estimate the following model specification describing the determinants of FDI:

Table 1 Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min.	Max.
Year	120	2009.5	5.79	2000	2019
FDI	109	5.104	2.844	0.106	12.973
Control of corruption	114	−0.347	0.306	−1.177	0.392
Government effectiveness	109	−0.169	0.415	−0.96	0.707
Political stability	107	−0.175	0.526	−1.643	1.007
Regulatory quality	108	0.035	0.333	−0.856	0.591
Rule of law	114	−0.341	0.32	−1.272	0.409
Voice and accountability	114	0.06	0.286	−0.739	0.658
ln GDP	119	3.813	3.389	−7.226	26.888
Inflation	111	4.4	11.414	−2.41	95.005

$$\begin{aligned}
 FDI_{i,t} = & \alpha + \beta_1 CC_{i,t} + \beta_2 GE_{i,t} + \beta_3 PS_{i,t} + \beta_4 RQ_{i,t} \\
 & + \beta_5 RL_{i,t} + \beta_5 VA_{i,t} + \beta_3 GDP_{i,t} \\
 & + \beta_3 INF_{i,t} + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

where FDI is the foreign direct investment in net inflows (% GDP), i is country and t is year, α is a constant, CC is control of corruption, GE is government effectiveness, PS is political stability, RQ is regulatory quality, RL is rule of law, VA is voice and accountability, GDP is the Gross Domestic Product growth (annual %), INFLA is the Inflation Rate for customer prices (annual %), and $\varepsilon_{i,t}$ is the error term.

In Table 1 we have estimated descriptive statistics, FDI measured as net inflows (% of GDP) for Western Balkan countries between 2000 and 2019 range from 0.10 to 12.9% of GDP, with an average of 5.79 and standard deviation of 2.8. The lowest institutional quality, measured through governance quality indices, was shown within the political stability followed by rule of law. The highest rank within the listed institutional variables has political stability index followed by government effectiveness. The minimum GDP (annual %) is −7.2 and maximum value is 26.8. The minimum inflation (annual %) value is −2.4 and maximum value is 95.

4 Empirical Results

In Table 2 we present the regression of the panel data, including OLS regression, fixed effects, random effects, and Hausman–Taylor-IV. In the first column we present the Pooled OLS regression. The effects of fixed effects and random effects are presented in the second and third columns. To choose one of them we used the Hausman test. Hausman test chi-st. is 20.19 and p value is 0.01. This indicates that we should choose fixed effects estimator as its results are more consistent and should reject random effects estimator as it is less efficient. In the fourth column we have estimated

the Hausman–Taylor method with instrumental variables (IV) technique to avoid problems that may arise with endogeneity and correlation between variables and error terms and we have concluded that this is the better choice that fixed and random effects.

During the application of this method, we have used lagged values of the independent variables as instruments of institutional quality. The results show that we accept *H1: The institutional quality indicators have a significant effect on FDI inflows in the Western Balkans*. While the political stability (PS) variable has a significant positive correlation with FDI means that a 1 percent increase in the country's political stability affects the increase in FDI by 3.2%. The rule of law (RL) has a significant negative correlation with FDI which means that a 1 percent increase in the rule of law reduces the FDI by 10.52%. Inflation (INF) has a positively significant correlation with FDI and inflation has a significant positive correlation with FDI which means any increase in inflation by 1 percent affects the increase in FDI by 3%.

Table 2 Panel regression

	(1)	(2)	(3)	(4)
Variables	OLS	FE	RE	Hausman–Taylor-IV
Control of corruption	−4.227** (1.815)	−5.099** (2.269)	−4.227** (1.882)	−0.0644 (2.750)
Government effectiveness	0.138 (1.951)	1.208 (2.180)	0.138 (1.535)	2.145 (2.075)
Political stability	0.724 (0.555)	0.239 (0.811)	0.724 (0.721)	3.299** (1.464)
Regulatory quality	3.466** (1.410)	5.762*** (1.763)	3.466** (1.505)	0.631 (2.102)
Rule of law	−3.446* (1.811)	−2.441 (2.533)	−3.446* (2.074)	−10.52*** (3.175)
Voice and accountability	2.657 (1.998)	7.051*** (2.344)	2.657 (1.686)	−0.444 (2.718)
GDP	0.188** (0.0881)	0.288*** (0.100)	0.188* (0.102)	0.127 (0.102)
Inflation	0.314*** (0.0918)	0.268*** (0.0934)	0.314*** (0.0912)	0.315*** (0.119)
Constant	0.697 (0.732)	−0.165 (1.118)	0.697 (0.772)	1.752* (1.011)
Observations	96	96	96	91
R-squared	0.426	0.339		0.426
Number of country		6	6	

Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.1

5 Conclusions

The Western Balkans are a favorable place for foreign investors due to the cheap labor costs, educated labor force, appropriate taxes, as well as the prospect of these countries becoming part of the EU. Through this paper, we have concluded that we accept H1 because two indicators of institutional quality, such as political stability and rule of law, have shown a significant effect on FDI in the Western Balkans over the period 2000–2019. Political instability has made these Balkan countries less attractive to foreign investors. Also, the rule of law, which includes numerous slow procedures and rules, has caused countries in the Western Balkans to collect a lower influx of foreign direct investment. The only comparison that is obvious between our research and other research conducted on this topic is the non-significant effect of corruption on FDI. Comparing with other works that have analyzed these indicators over shorter periods of time as well as for individual cities, we see that control of corruption has a significant effect on FDI. Another result that should be discussed is that the increase in inflation also affects the increase in FDI. Based on other research, we see that inflation has a negative effect on FDI. Our results can be justified by the increase in prices, so inflation as an economic factor affects the increase in prices, and high prices have been shown to be more attractive to foreign investors in the Western Balkans.

In this research, we have some limitations that can be considered a guide for future research. Firstly, this research included only the countries of the Western Balkan. The research would be more complete if we made a comparison of the Western Balkans with the countries of Eastern Europe. Second, as controllable variables, we used only two: GDP and inflation. It would be better to get even more controllable variables, such as debts, employment rates, and trades, because lately they have had a high impact on economic growth and FDI inflows. Therefore, in future research, we can use the effect of the COVID-19 pandemic on FDI in the Western Balkans, as this global economic crisis has greatly affected the reduction of investment flows in these countries.

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The Informal Economy, Its Dimensions, and Effects in the Republic of North Macedonia



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Abstract This paper combines the theoretical analysis of the informal economy, the current situation in the North Macedonia on the scale of the informal economy and informal employment, then wages in hand, cash in the market as well as other common forms of the informal economy. Then, with the empirical analysis, this research provides a real insight into the impact of the informal economy on the economic development of the country by bringing out the statistical correlation of the informal economy (informal economy rate and informal employment) with macroeconomic parameters (GDP, inflation, employment, unemployment, and productivity), with the socio-economic corruption phenomena in the Republic of North Macedonia (theft in the public sector, corrupt exchanges, public bribery, corruption index, and corruption control).

Keywords Informal economy · Informal employment · Macroeconomic indicators

1 Introduction

One of the basic prerequisites for ensuring sustainable and continuous economic growth, a higher standard of living and a favorable business environment is to ensure equal conditions for all market participants, support the transformation of informal economic activities into formal ones, as well as preventing illegal cash flows. All studies and evaluations about the participation of the informal economy in the Gross

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Domestic Product (GDP) show that the informal economy in the Republic of North Macedonia is very high.

Different studies estimate the informal economy at between 20 and 40% of GDP, using different sources of calculations. Informal employment is in constant decline both in absolute terms and as a percentage of total employment. However, according to the data of the Labor Force Survey (LFS) of the years 2016–2021, it is still at a very high level (over 130,000 informally employed people on average, i.e., 18.5% of the total number of employees).

Furthermore, informal employment in the Republic of North Macedonia, as well as in other countries in transition, is multifaceted and has a very complex nature, which essentially includes two different situations, namely the stubbornness of the vital economy (especially in rural settlements and peripheral areas), and non-payment of taxes and social security contributions, to strengthen competition in business entities and quick enrichment.

Therefore, reducing the informal economy is a key step in creating a predictable and stable business environment and equal working conditions and healthy competition. The formalization of the informal economy and the reduction of fiscal evasion will lead to increased tax revenues, and thus an opportunity for the state and institutions to provide better services and greater social security for citizens. The fairness of the tax system will also increase, trust between economic agents, the state and citizens will improve, and tax morale will increase.

2 Literature Review

2.1 *The Socio-Economic Definition of the Informal Economy*

Informality as a concept has been analyzed since the 1970s. At first, the focus was on the definition and statistical measurement of the “informal sector”, but later the term was expanded to “informal employment”, because the original term was too narrow.

In 1993, the International Conference of Labor Statisticians—ICLS (15th resolution of ICLS—International Conference of Labor Statisticians) adopted an internationally accepted definition of the informal sector that meets the needs of labor market statisticians and those working in national accounts. According to this definition (based on the entrepreneurship approach), employment in the informal sector includes all jobs in informal sector enterprises, or all persons who during the reference period were employed in at least one informal sector enterprise—regardless of their employment status and whether it was primary or secondary work (International Conference of Labour Statisticians, n.d.).

Since the definition of the informal sector in the 15th ICLS, it has been clear that an enterprise-based definition cannot cover all forms of informal employment (as well as informal production). Therefore, in the 17th ICLS, an international definition

of informal employment has been adopted, which is based on the so-called access to work. Namely, informal employment is defined as the total number of informal jobs, regardless of whether they occur in formal enterprises or enterprises in the informal sector.

The informal economy represents a widespread trend in world economies, which with its scope and specificity presents a challenge for research and analysis among policy makers and the academic community. The complexity, but also the importance of the informal economy is best illustrated by the statement that: “even though economists are unable to precisely define the informal economy, it is still all around us and easily visible” (Benhassine et al., 2018).

According to the ILO definition, workers fall into the category of informal workers if they are not paid social contributions, if they do not have paid annual leave, or in case of illness. Therefore, it should be emphasized that although the majority of informal employment is in the informal sector, it should be emphasized that there are workers who are informally employed in business entities that are part of the formal economy. Also, part of the workers working in the informal economy may be employed at the same time in the formal sector. Such examples show the complexity in defining and measuring informal economic activities and informal employment (ILO, 2007).

Furthermore, enterprises from the informal sector are defined as unincorporated private enterprises, i.e., enterprises owned by individuals or families that have not been established as separate legal entities independent of their owners and for which there are no separate financial accounts that would distinguish their production, i.e., the activities from others, the activities of the owners (Husmanns, 2004).

The prevalence of informality in developed and developing countries attracted the attention of researchers to explore the reasons why firms and workers remain in the informal sector, which accounts for about a third of GDP, and informal employment accounts for 70% of total employment in these countries (Elgin et al., 2021).

While an abundance of research attempts to define and measure informality (Elgin et al., 2021; Schneider et al., 2010; Ulyssea, 2020a, 2020b), the concept of informality requires a clear definition, respectively its causes and consequences should be thoroughly examined.

(Ulyssea, 2020a, 2020b), adopts the legal definition of informality where firms and workers operating on the margins of relevant laws and regulations are considered informal and distinguishes between two limits of informality:

1. wide variation in whether firms register and pay entry fees to become formal; and
2. intensive margin regarding whether formal firms employ workers without a formal contract.

Since such economic operators are usually small and reduced to even a single person, the term used throughout the study is “micro business activity performer”. Other older studies use the same or other methods to calculate the share of the informal economy in the total economy and they arrive at similar estimates but extending to

larger estimates, namely in the range 21.3–39.1% (Schneider et al., 2010; Elgin & Oztunali, 2015; Elgin et al., 2021).

Based on the findings of different authors who have evaluated the participation of the informal economy as part of the GDP through direct and indirect methods, our study aims to analyze the correlation of macroeconomic indicators, the degree of corrupt phenomena and the state of enterprises with the level of the informal economy and the informal employed.

3 Methodology

3.1 Research Model and Methods

During this scientific work, several techniques were used to collect the necessary data, various works such as scientific articles, professional studies, and scientific publications based on the informality displayed in the economies of different countries, including the Republic of North Macedonia.

3.2 Research Instrument

This study uses the SPSS as most suitable instrument for analyzing the correlation of macroeconomic indicators, the degree of corrupt phenomena and the state of enterprises with the level of the informal economy and the informal employees.

3.3 Descriptive Data

The descriptive statistics analysis is presented in this part of the paper, respectively the trend of macroeconomic indicators from 2010 to 2022, the degree of socio-economic corruption phenomena in the RMV from 2010 to 2022, the economic situation of companies in RMV from 2010 to 2022, and the scale of the informal economy in the RMV from 2010 to 2022.

According to Table 1, we can see that the macroeconomic indicators for the period 2010–2022 have had oscillations, especially in recent years, because of the pandemic and the energy crisis.

Since 2016, the employment rate in the Republic of North Macedonia has declined due to the lack of economic productivity growth. This phenomenon may also result from the informal economy or young people leaving the country. It is essential to monitor the inflation rate, as it has increased recently (2018–2022), which concerns the country's overall development. While multiple factors could contribute to this

Table 1 The trend of macroeconomic indicators of North Macedonia from 2010 to 2022

	GDP	Inflation	Employment	Unemployment	Productivity	Tax revenue
2010	3.4	3.0	43.5	32.0		16.86
2011	2.3	2.8	43.9	31.4		16.99
2012	−0.5	4.7	44.0	31.0	−1.30	16.41
2013	2.9	1.4	46.0	28.6	0.10	15.66
2014	3.6	−0.5	46.0	27.6	3.20	16.23
2015	3.8	−0.4	47.8	27.3	2.70	16.81
2016	2.9	1.6	56.8	24.5	−0.30	16.95
2017	2.8	1.7	44.1	22.4	−1.00	17.16
2018	3.3	1.3	44.8	20.7	−0.90	17.57
2019	3.8	0.6	43.1	17.3	−1.90	17.08
2020	−6.1	1.2		16.4	−1.90	16.12
2021	4.0	3.2		15.7	−1.70	16.86
2022	2.7	10.6		15.2		16.99

Source State Statistical Entity of North Macedonia

trend, the global economic crisis, largely spurred by the ongoing conflict in Ukraine, played a significant role in the inflation increase over the past year. Despite this, tax revenue has remained stable without significant fluctuations.

The National Bank of North Macedonia has yet to provide complete data on the country's total productivity during this period, but however, the rate has been declining since 2016.

Further analysis will be conducted to determine the potential impact of the informal economy on overall economic development, including data on corruptive socio-economic phenomena in the country (Table 2).

Based on economic theory, the informal economy in North Macedonia is encouraged by corruptive phenomena in the public sector, such as theft and corruptive exchanges. These phenomena are indirectly related to the lack of trust in institutions, loss of morality and discipline, and the promotion of corruption. The V-Dem legend explains that these phenomena are widespread in North Macedonia, with values above 1.5 and 2 for corruptive exchanges and theft, respectively. Executive bribery and corruption are also prevalent in North Macedonian society, with values above 1 and 35–45, respectively.

Corruption control is also a concern, with negative values indicating almost non-existent control over corruption in the country. The enterprises in North Macedonia are directly relevant actors in the emergence of the informal economy. The number of registered enterprises has fluctuated over the years, with the lowest number being in 2015 and the highest in 2019. Unfortunately, this trend has declined in the past two years due to the COVID-19 pandemic. Micro and small enterprises dominate the sector, representing almost 99.7% of all enterprises. This sector also represents two-thirds of the total value added to the economy and almost three-quarters of the

Table 2 The degree of socio-economic corruption phenomena in North Macedonia from 2010 to 2022

	Theft in the public sector	Corrupt exchanges in public sector	Bribery of the executive	Corruption index	Corruption control
2010	2.45	1.78	1.37		−0.09300
2011	2.45	1.64	1.25		−0.10700
2012	2.45	1.64	1.25	43.00	−0.05100
2013	2.45	1.64	1.25	44.00	−0.05600
2014	2.45	1.64	1.25	45.00	−0.03200
2015	2.45	1.64	1.25	42.00	−0.23900
2016	2.45	1.64	1.21	37.00	−0.27200
2017	2.45	1.78	1.90	35.00	−0.30200
2018	2.23	1.68	1.67	37.00	−0.36800
2019	2.23	1.68	1.28	35.00	−0.43400
2020	2.23	1.68	1.28	35.00	−0.47100
2021	2.23	1.68	1.28	39.00	−0.35200
2022	2.12	1.68	1.28		

Source Varieties of democracy (V-Dem) 03.2023 https://v-dem.net/data_analysis/VariableGraph/

total employees in the private sector. Overall, the macroeconomic data and parameters of the informal economy in North Macedonia will be analyzed and tested with correlation coefficients to determine the potential relationship between them and their impact on the informal economy (Table 3).

Over the last five years, North Macedonia has seen a significant presence of corporations, with over 72,000 companies reported by the State Statistical Office. Small and medium-sized enterprises (SMEs) make up a substantial portion of the economy in North Macedonia, with over two-thirds of the total value added and three-quarters of employment coming from SMEs. These numbers are higher than the EU average of 57% and 66%, respectively. In 2018 alone, SMEs in North Macedonia employed over 285,000 workers, compared to just 93,000 employed by large companies.

SMEs also generated around double the value added of large companies. This trend is not unique to North Macedonia, as SMEs account for 99% of all firms in the Western Balkan countries. They generate approximately 65% of the total value added and constitute 73% of total employment in the business sector. Most micro, small, and medium-sized enterprises (MSMEs) in North Macedonia work in trade, transport, and tourism sectors, followed by non-durable goods and financial services. MSMEs play a crucial role in the economy of North Macedonia, as they make up more than 99% of all companies and provide 75% of the total employment in the country. Informal economy parameters will be analyzed and tested with correlation coefficients for the potential connection between themselves and the potential impact of these parameters on the informal economy of the Republic of North Macedonia.

Table 3 Economic situation of companies in North Macedonia from 2010 to 2022

	The value indicator of companies	Evaluation of economic situation	Percentage of financial status	Confidence index of companies
2010	112.37	24.10	19.10	14.60
2011	106.61	27.30	18.80	12.90
2012	112.37	24.10	19.10	14.60
2013	106.61	27.30	18.80	12.90
2014	109.43	27.20	18.10	14.00
2015	116.41	29.60	19.10	15.10
2016	121.04	31.80	21.10	16.70
2017	122.41	32.20	22.30	17.90
2018	134.69	32.40	24.40	18.60
2019	156.86	33.30	26.20	19.10
2020	109.75	28.50	17.30	17.10
2021	109.75	28.50	17.30	17.10
2022				

Source State Statistical Entity of North Macedonia

The rate of the informal economy in North Macedonia has been declining, with the latest research showing it at 21.3% of GDP in 2019 (Table 4).

In order to analyze and test the potential impact of macroeconomic parameters, levels of corruption, and inter-firm productivity on the informal economy of the

Table 4 The scale of the informal economy in North Macedonia from 2010 to 2022

	The rate of informal employment	The scale of informal economy
2010	28.00	24.01
2011	27.00	26.70
2012	26.00	28.30
2013	25.00	29.90
2014	22.00	30.10
2015	22.00	32.30
2016	22.00	37.60
2017	19.90	33.00
2018	18.20	28.80
2019	18.40	21.30
2020	21.00	23.20
2021	21.30	33.00
2022	18.50	

Source Eurostat

Republic of North Macedonia, we will be using correlation coefficients. This analysis aligns with the research goals and objectives outlined in the methodology section.

4 Findings and Discussion

4.1 *Statistical Correlation of the Levels of the Informal Economy with Macroeconomic Indicators, the Level of Corrupt Phenomena and the State of Enterprises*

To fulfill the objectives of our study, we are presenting the correlative analyzes of the potential correlation of macroeconomic indicators, the level of corrupt phenomena and the state of enterprises with the levels of the informal economy (the level of the informal economy and the level of informal employees).

Table 5 presents the correlative values and significance for the potential interrelationship of the informal economy and the informal employed with the macroeconomic parameters of North Macedonia (GDP, inflation, employment, unemployment, productivity, and tax revenues). The results show that we have only one significant coefficient, i.e., high positive correlation (significant high positive correlation) between the rate of informal employees and the rate of unemployment: $R = 0.849$ (sig = 0.000) with $p < 0.01$. So, **an increase in the rate of unemployment causes an increase in the rate of informal employees, and conversely, an increase in informal employees increases the unemployment rate in North Macedonia.**

Table 6. Correlation of the scale of the informal economy and informal employment with the scale of corruption phenomena in North Macedonia for the period 2010–2022.

Table 5 Correlation of the scale of the informal economy and informal employment with the macroeconomic parameters of North Macedonia for the period 2010–2022

		GDP	Inflation	Employment	Unemployment	Productivity
The scale of informal economy	Pearson correlation	0.367	−0.053	0.785	0.058	0.355
	Sig. (2-tailed)	0.241	0.870	0.067	0.857	0.314
	N	12	12	10	12	10
The rate of informal employment	Pearson correlation	−0.064	−0.036	−0.113	0.849**	0.224
	Sig. (2-tailed)	0.835	0.906	0.755	0.000	0.533
	N	13	13	10	13	10

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 6 Correlation of the scale of the informal economy and informal employment with the scale of corruption phenomena in North Macedonia for the period 2010–2022

		Theft in the public sector	Corrupt exchanges	Bribery of the executive	Corruption index
The scale of informal economy	Pearson correlation	0.384	−0.210	0.118	0.222
	Sig. (2-tailed)	0.218	0.513	0.715	0.538
	N	12	12	12	10
The rate of informal employment	Pearson correlation	0.695**	−0.071	−0.359	0.740*
	Sig. (2-tailed)	0.008	0.819	0.228	0.014
	N	13	13	13	10

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

According to the coefficient of significance, we find that we have two significant coefficients (significant positive correlation). The first coefficient is between the rate of informal employees and theft in the public sector, $R = 0.695$ (sig. = 0.008) with $p < 0.01$, **which means that with the increase in the rate of theft in the public sector, the rate of informal employment increases, and vice versa**. Meanwhile, the other significant coefficient results between the rate of informal employment and the corruption index $R = 0.740$ (sig. = 0.014) with $p < 0.05$. So, **with the increase of the corruption index, the rate of informal employment increases and vice versa, the increase of the corruption index causes the increase of the rate of informal employment** (Table 7).

According to the coefficient of significance, we find that there is a negative correlation between the rate of informal employees and the value indicator of companies, $R = -0.666$ (sig. = 0.018) with $p < 0.05$, **which means that with the increase in the rate of informal workers, the indicator of the value of enterprises in North Macedonia decreases**.

Also, based on $R = -0.868$ (sig. = 0.000) with $p < 0.01$, there is a high negative correlation (significantly high negative correlation) between the rate of informal employees and the assessment of the economic condition of the companies, **respectively the growth of the rate of informal employees causes a significant decrease in the economic condition of companies in North Macedonia, and vice versa**.

Further, on the basis of $R = -0.585$ (sig. = 0.046) with $p < 0.05$, **there is a negative correlation between the level of informal employees and the financial condition of companies (the increase in the level of informal employees causes a significant decrease in the financial condition of companies)**, as well as a high negative correlation $R = -0.849$ (sig. = 0.000) with $p < 0.01$ between the degree of informal employees and the index of trust in companies, i.e., **the increase in the**

Table 7 Correlation of the scale of the informal economy and informal employment with the economic condition of enterprises in North Macedonia for the period 2010–2022

		The value indicator of companies	Assessment of the economic condition of companies	The % of the financial condition of the companies	Confidence index of companies
The scale of informal economy	Pearson correlation	−0.279	0.214	−0.160	−0.050
	Sig. (2-tailed)	0.380	0.504	0.618	0.876
	N	12	12	12	12
The rate of informal employment	Pearson correlation	−0.666*	−0.868**	−0.585*	−0.849**
	Sig. (2-tailed)	0.018	0.000	0.046	0.000
	N	12	12	12	12

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

degree of informal employees significantly decreases the index of the trust of companies in North Macedonia, and vice versa.

5 Conclusions

The study, which aim was to unveil the correlation of macroeconomic parameters of the North Macedonia, corrupt phenomena and the state of companies with informal economy scales for period of 2010–2022, concludes that:

- with the increase of informal employees, the unemployment rate in North Macedonia increases, and vice versa;
- the increase in the rate of theft in the public sector results in an increase in the rate of informal employees and vice versa;
- with the increase of the corruption index, the rate of informal employees increases, or with the increase of informal employees' corruption in North Macedonia increases;
- the increase in the rate of informal employees results in the decrease of the indicator of the value of enterprises in North Macedonia;
- the increase in the rate of informal employees causes a significant decrease in the economic condition of companies and vice versa;
- the increase in the rate of informal employees causes a significant decrease in the financial condition of companies in North Macedonia.

5.1 Implications

This study aims to shed light on the size of the informal economy as part of the GDP of North Macedonia, by bringing concrete assessments, conclusions and recommendations on how to reduce this phenomenon which today is considering as cancer of any economy.

5.2 Limitations and Future Research Directions

Despite the sufficient period of treatment of our analysis, still the sensitivity of the topic in our case is presented as a limitation to use other methods of evaluating the informal economy.

Also, the statistical data from the Statistical Office of North Macedonia may not reflect the real state of the indicators that were taken as a basis in this study.

However, this study will remain as a guide for future researchers who will deal with the treatment of this phenomenon, which today is considered a cancer of the economy of a country.

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Economic Convergence of Western Balkans Toward the EU 27—Beta and Sigma Convergence



Diellza Kukaj 

Abstract The purpose of this research is the evaluation of the convergence of the Western Balkan states toward the European Union through the neoclassical theory calculated by the sigma and beta indicator estimators. This theory, in principle, tests the hypothesis that poor countries grow faster than rich countries, measured by the GDP per capita at the PPP indicator. The realization of this study is made through the Time-Series approach. We test real convergence of the WB toward the EU for the period 2000–2020. The research focuses on the five Western Balkans countries and the 27 EU member states. Econometric methods and techniques employed are the unit root test methods to assess the stationarity of the data. From the empirical results, it seems that the integration of the weighted standard deviation speaks of a decrease in inequality throughout the years for different states, making the study more realistic and reliable. In Western Balkans, income dispersion has changed faster than in other countries (a gradual decline from the 90s until now). However, it is evident that from 2005 to 2007 specifically, the dispersion of income experienced a significant increase, trying to achieve the opposite effect of convergence that of divergence.

Keywords Economic growth · Sigma convergence · Time series · Transition economies

1 Introduction

The neoclassical growth model known as NGM (Solow, 1956) predicts economic growth through empirical calculations, and one of them is known as convergence. Convergence in the neoclassical growth model was presented by Solow (1956) and Koopmans (1963), according to which the rate of economic growth per capita tends to be inversely related to the initial level of production or income per person (Barro & Sala-i-Martin, 1992). In principle, this model has several prerequisites, for example,

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if economies have similar preferences and technologies, then poor economies grow faster than rich economies. This type of convergence in the neoclassical model is known as conditional convergence. Since the project for integration into the European Union has been and remains among the main aspirations of the Western Balkan states and other less developed states in the EU region, and based on the country's macroeconomic performance, we intend to analyze the limits of convergence. Besides that, there are evaluated their expectations of convergence in the future. The countries with the status of candidate for EU integration have gone through a transitory path in the last two decades however, when we compare the level of income between them, developing countries and developed ones, we can see a considerable existing gap.

The theory of the neoclassical growth model is a model that shows how the stable state of economic development is accomplished with the interaction of three economic forces such as labor, capital, and technology. This model was explained by the growth model (Solow, 1956) and asserts that the short-term economic equilibrium is the result of the production process as an interaction of only two labor forces and capital, in contrast to the long-term equilibrium that is determined by technological progress or regression (Corporate Finance Institute, a.d.). According to the Neoclassical Model, one of the main determinants of economic growth is the existing capital in the economy and the way the community uses that capital. It further explains the importance of the capital and labor ratio as the main determinants of total production. What complements NGM is the extraordinary role of technology in increasing the efficiency of labor productivity, thus increasing production as a result of technology. From here production function is used as a tool for measuring economic growth and its equilibrium.

The economic crisis has had a significant impact on the living standards of citizens in the western Balkan states. Although with a low level of income, with the fall of the former Yugoslavia, the global crisis aggravates the situation even more, making its recovery difficult in the long term. From here poses the question of what is the common denominator of the Western Balkan states that promotes or inhibits the prospects for the realization of real convergence. Since poor countries are not necessarily condemned to poverty forever, one of the most interesting issues in any economy is the dilemma of whether poor countries tend to develop faster than rich countries, and whether any forces lead to convergence over a time period, either in terms of income or output per capita?

From here, the main objectives of the research are: (a) To identify which policies may have an impact on long-term live standard increasing; (b) to assess the effect of economic, financial, and COVID-19 crises on Western Balkan countries on prospective toward the realization of real convergence. (Significant difference in state productivity); and (c) based on the macroeconomic performance of countries included in the study, we analyze convergence borders and expectations for their convergence in the future.

To arrive at a concrete answer, we present the following research questions that serve as a guide to finding the formula for convergence toward the EU: (a) Why are some countries richer than others, and some grow faster while others remain in the poverty trap? (b) Is there a correlation between economic growth and the degree

of convergence? (c) How does the standard of living affect the convergence of the Western Balkan states toward the EU? (d) What was the effect of the global crises on the dynamics of the real convergence to the nominal one, in the states of the Western Balkans?

The paper is structured as follows: After the introduction is presented, the literature review on the discussed topic then is described the methodology and followed by results. The paper ends with conclusions and limitations of the study.

2 Literature Review

Different authors have given different definitions depending on the methods used for testing the convergence hypothesis. Absolute convergence relies on the hypothesis of neoclassical theory, which assumes that technologies between countries are identical and exogenous absolute convergence exists when poor countries grow faster than rich ones, regardless of initial conditions. (Solow, 1956) It means that states tend to catch up over time (Halmai & Vasary). Meanwhile, conditional convergence—under certain assumptions, output per capita converges to its steady state. We have conditional convergence when a homogeneous group of economies is studied or when the rate of GDP per capita is situated on the explanatory variables. On absolute convergence, output per capita converges to the common steady state. Most studies conclude the absence of absolute convergence among the broad sample of countries.

Morgese Bory et al. (n.d) studied convergence between C/PC states to EU27 and EU10 to EU27. They found out that absolute convergence for C/PC existed only in the shorter interval 1999–2005, which in the case of Western Balkan states and of the EU were justified with the sufficient degree of homogeneity (similar post-crisis experiences) and the integration perspective of the EU member states at that time. We say we have sigma convergence if the dispersion of real GDP per capita between two groups of economies falls over time.

In the scientific literature, different methodologies test the existence of income convergence between different regions and countries. Among them, the two most important are cross-sectional data, which we refer to as cross-sectional panel data, and the other analysis is based on time series, referred to as Time-Series. Since many authors, such as (Friedman, 1992; Quah, 1993) criticized the cross-sectional approach in the study, Time-Series econometric analysis will be used to test the real convergence from 2000 to 2020, although not a very long time but statistically sufficient for real analysis and period in which it is possible to easily follow the pace of convergence and compare the degree of convergence before and the economic shock suffered by the global economy in 2008, the analysis is carried out in a sample of 17 economies (those of the Western Balkans known as C/PC and EU11 new EU member states).

According to Bernard and Durlauf (1996), the conventional categorization of beta convergence is not practiced in the time series data model. Whereas (Islam, 2003) proves the existence of conditional and absolute beta in two different studies

carried out for the period 1960–1985. The same study was carried out by the author (Savvides, 1995) for 28 African countries through the FE model and found evidence for two types of absolute and conditional beta convergences. (Bernard & Durlauf, 1996) through time series for 15 OECD countries for a relatively long period from 1900 to 1987, used the ADF Phillips–Ouliaris co-integration test method did not find evidence of convergence. The same author (Quah, 1993), in a study of 118 countries through the Markel (stochastic) Kernel method did not find evidence of convergence. (Lee et al., 1997) studied 102 countries from 1960 to 1989 through panel data with the ML method, fixed effects model, and augmented Dickey–Fuller test. He found evidence for convergence for some countries such as Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, the UK, and the USA. According to the authors, through ML and FE methods, you can find evidence for convergence, while ADF tests for unit root in the data rejects stationarity.

Boyle and McCarthy (1997), Piketty (2014), and Greasley and Oxley (1997) tested for convergence in OECD countries with data in the form of time series and through different methods such as Kendall Index of Rank Concordance, ADF, Perron and ZA test, ARMA, Chow test found evidence for convergence but not at the conventional level. While (Young et al., 2008) for a relatively long period 1970–1998 through panel data with the OLS method, 3SLS found evidence for two types of convergences, the conditional and absolute. Based on the study Krstevska (2017a, 2017b), one of the approaches that will be used in the convergence analysis is the evaluation of the two parameters beta and sigma. Beta convergence is applied according to Barro (2016). Marelli and Signorelli (2015) noted that sigma convergence is calculated as a measure of relative convergence, with the evaluation of the dispersion of economic variables. Cherodian and Thirlwall (2015) analyzed the disparity in per capita income in India from 1999/2000 to 2010/2011 through cross-sectional analysis.

In measuring beta and sigma convergence, the authors concluded that there is no evidence for unconditional convergence and weak evidence for conditional convergence. According to them, the rapid growth of poor countries compared to rich ones and the decline in per capita income disparity as predicted by neoclassical growth theory is the result of the rate of return on capital since the marginal product of capital in developing countries is greater compared to developed countries, taking into account that rich countries have a much larger volume of capital. There is no evidence for sigma convergence either, and the study concluded that states in the poorest regions with per capita income lower than 15,000 rupees have shown elements of divergence in income distribution.

Recent trends have framed a new approach where the institutional role in economic growth is expressed, although, through empirical evidence found that the lack of political stability has a negative effect on economic growth. Acemoglu and Robinson (2013) have addressed the dilemma of why some nations develop while many face persistent poverty. First, the author deals with some of the hypotheses which may appear as the cause of non-development, the causes that are listed are geographical, cultural, and lack of knowledge which ultimately does not provide a complete answer to what is happening in these countries. The author takes the example of Botswana

as the country that is currently experiencing the greatest economic growth, while Congo is facing an opposite economic situation. As an answer to this dilemma, economic and political institutions (including and excluding) remain in their journey throughout history. Countries that are divided on a very narrow geographical line, those that have the same conditions, climate, and other local parameters due to the difference in institutions, make a big difference in how developed they are.

On the other side, Marelli and Signorelli (2010) used descriptive and econometric analysis to test the relationship between real nominal and institutional convergence within EU states. Initially, through descriptive analysis, he studied sigma convergence, while to econometrically test the link between institutional integration and real convergence, he used the ad-hoc regression of the integration index, which calculated the convergent steps followed by the EU states. Halma and Vásáry (2010) studied the convergence of new states in the EU and also dealt with the catch-up theory. He concluded that globalization challenges and competitiveness problems are problems that hinder convergence over time. Halma (2010) showed that the new member states have followed the transition paths. However, the pace of this growth has decreased over time, to finally stop later.

Marelli and Signorelli's (2015) their study focused mainly on the assessment of the double crisis that affected the euro area last decade as a result of the high deficit of the balance of payments. The authors analyzed the convergence in the long term in the EU and Eurozone countries by calculating the "sigma and beta convergence" through the investigation of dispersion measures; and "beta convergence" based on the theory of Barros and Sala-i-Martin (1995) based on the theory of Barros (1995) and found that there is significant convergence in the period of the crisis due to the fact that the crisis has had a degree of influence on rich countries.

From the above, we can propose the following hypotheses:

H1. Poor countries tend to grow faster than rich countries.

H2. The rate of economic growth in the states of the Western Balkans has a positive effect on the rate of convergence of these states toward the EU.

3 Research Methodology and Data

In this part, we discuss and develop econometric models that are going to be used to analyze sigma and beta convergence. This scientific study consists of the use of advanced scientific models for accepting or rejecting the hypotheses presented at the beginning of the paper. The data used in the analysis are from the World Bank, the central banks of the respective countries, the IMF, and other relevant financial institutions. The study includes 33 countries (Western Balkan countries and EU countries) from 2000 to 2020. However, since different states have become part of the EU in different periods, as well as the fact that the study takes into account the effect of the time, they joined the EU. Below you can find Table 1 with a description of the data used and categorized (Table 2).

Table 1 Countries analyzed

Acronym	Description	Countries
C/PC	Candidate states and potential candidate states for EU membership	Albania, Montenegro, Macedonia, Kosovo, Bosnia and Herzegovina, and Serbia
EU11	EU member states since 2004 except Malta and Cyprus	Bulgaria, Czechia, Estonia, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia
EU15	The number of member countries in the European Union before the accession of the ten candidate countries on May 1, 2004	Austria, Belgium, Finland, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Sweden, UK
EU27	Since the study covers the period from 2000 to 2020 and the UK left the EU in January 2020, we will refer to the EU member states as the EU27	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Sweden, and the UK
CEE/SEE	States in transition C/PC and EU10	Albania, Montenegro, Macedonia, Kosovo, Bosnia and Herzegovina, Serbia, Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia

Source Author

Table 2 Description of the variables used in the study

Variables	Description
gdp_cap_ppp	GDP per capita at purchasing power parity (PPP)

Source Author

The analysis of economic indicators will be done through econometric analysis, using the program for econometric analysis known as Stata 14. The research focuses on the five countries of the Western Balkans such as Albania, Kosovo, North Macedonia, Bosnia, Montenegro, and Serbia. The research will also rely on the beta and sigma convergence calculation method, as the main measures of individual convergence of states.

3.1 Empirical Model

Sigma convergence is known as the dispersion of income between countries. It is supposed that under convergence, the dispersion of income between countries tends to fall over the years. Barro and Sala-i-Martin (1992) analyzed this type of convergence

through the use of the standard deviation of the logarithm of GDP per capita form. Through the standard deviation of the level of GDP per capita in PPP between economies, we assess whether the change in income between economies falls over time.

$$Y_{\text{gap}} = a + b_{\text{gap}}X + \dots + \varepsilon$$

As defined, the calculation of sigma convergence consists of the standard deviation of the logarithm of income per capita. Barro and Sala-i-Martin (1992) define sigma convergence as “the decrease in the dispersion of real GDP per capita between countries.” Meanwhile, the following formula is used for its calculation.

$$\sigma_t = \sqrt{\left(\frac{1}{N}\right) \sum_{i=1}^N [\ln(y_{it}) - \mu_t]^2}$$

$$\sigma_t = \sqrt{\left(\frac{1}{N-1}\right) \sum_{i=1}^N [\log(y_{it}) - \log(\bar{y}_t)]^2}$$

$\sigma(t)$ —standard deviation of (logarithm) income per capita at time t .

4 Empirical Results

4.1 Sigma Convergence

Standard deviation by analyzing the logarithm variable of GDP per capita is the most common form for analyzing sigma convergence. The following figures show the dynamics of the standard deviation of the logarithm for GDP per capita. In this section, we read the findings on sigma convergence that you can find in the figure below. As the theory foresees, the standard deviation is calculated in the GDP per capita logarithm variable. The figure below describes unweighted, and it shows its change throughout the years included in the study 2000–2020, implying that we have a complete sample in the years of the study for the period in question. The studied areas are the Western Balkans, EU11, EU, EU15, EU27, and CEESEE.

All lines start from the year 2000 and end in 2022. We see that from 2020 the red line representing the EU15 states representing the member states in the European Union before the accession of the ten candidate countries on May 1, 2004, the red line shows a decline in the dispersion of GDP per capita while little change is seen after 2001 to 2011, this may reflect that the enlargement of the EU has produced a positive effect on the achievement of dispersion of income with the membership of the states after May 1, 2004. From 2011 onwards, the dispersion increases gradually

until 2022, which indicates the instability of the states in terms of GDP per capita in general. What should be taken into account in this study is that the population of these countries is not taken into account, which in reality plays a big role in how GDP is distributed between countries based on the number of inhabitants they have, as such the countries that have the most population-dense reflect on a higher level of GDP and this makes it impossible to observe the change of dispersion of income in the average.

As for the countries of the Western Balkans, which are labeled in green in Fig. 1, we see that the dispersion has changed faster than in other countries, from the period before 90 to 2020, we see that there is a noticeable decrease in dispersion. However, from 2000 to 2007, with special emphasis on 2005–2007, income dispersion marked a significant increase. Meanwhile, we see the green line decreasing through the years 2008–2011, so we assume the effect that crisis has had on the economic weakening of the states. At the same time, it reflects in the reduction of the dispersion in the income level of these states, which at the same time proves the hypothesis of sigma convergence.

Among the countries that prove stability and gradual decline in income dispersion are the EU member states since 2004, the orange line shows the decline in income dispersion from 2000 to 2020. This decline was more pronounced during the year 2000–2008. The same theory also applies to the EU27 countries, shown in the black graph, which proves the hypothesis of the decline of dispersion over the years. The falling dispersion line is much more pronounced in the first decade of 2000, while this decline continues until 2019. A slight change seems to have appeared after 2019. However, there is not enough evidence that this will change in the future. States that have experienced a transition in general, which are clustered in the CESEE sample, labeled in blue, are seen to have a slight decrease in dispersion, mostly seen after the crisis period of 2008, while the trajectory traversed is seen not to there have been big changes over the years.

However, since 2006, this group of countries has changed the downward trend of dispersion. We can see the increasing trend from 2006 to 2020. Although it is

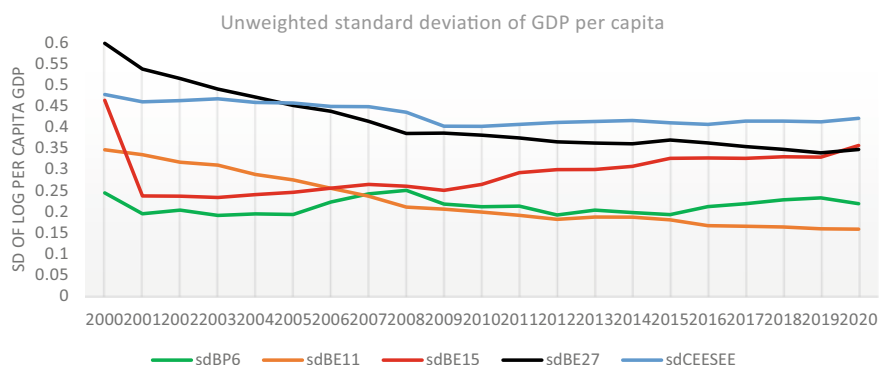


Fig. 1 SD of log per capita GDP. Source Author's calculation based on <https://data.worldbank.org/>

generally found that inequalities remain high, we seem to have significant changes in the two last decades. With special emphasis, if the measurement would be carried out in proportion to the number of the population that these states have. (Janekalne, 2016) did the calculations with the weighted standard deviation, and he found that the dispersion in the countries of the EU28, EU15, and some other countries included in the study has marked a marked decrease, on a dynamic that has continued even after 2008.

Moreover, this is consistent with the results of the study from the above-mentioned assumptions. Finally, the literature shows a marked divergence from 1990 to 1999. However, the changes have started from 2000 onwards. By other studies and our results as well, we see that there is sigma convergence from the year 2000 onwards, this confirms the hypothesis of sigma convergence. Since the crisis period has marked fluctuations for many countries, this trend of decreasing dispersion was not very stable over the years for those countries. One of the countries that were most disturbed in this aspect is the group of Western Balkan countries, where from the green line we see the increase in income dispersion that occurred during the global crisis, but this change did not last that long but proves the effect inevitable global crisis in the sigma convergence.

The same situation is seen to have happened in the new member states of the European Union, with the only difference being that in these countries the consequences of the crisis were reflected later from 2009 onwards. While the countries in transition, the countries of the European Union as a whole and the most developed countries such as Austria, Belgium, Finland, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, and UK do not seem the crisis has greatly influenced the dispersion between incomes, on the contrary, the convergence in the income level has been higher every year, thus proving once again the theory of sigma convergence for these countries.

The empirical results are also consistent with the study (Janekalne, 2016) which treats sigma convergence in the same way, and the results are the same for the period 2000 to 2014 for EU27 countries. While authors (Barro & Sala-i-Martin, 1992) in analyzing the countries of West Germany, Britain, Italy, France, the Netherlands, Belgium, and Denmark, meanwhile in a later study in 1996, (Barro & Sala-i-Martin, 1995) analyzed convergence for both West Germany, Italy, Britain, Spain, and France from both cases we had confirmation of sigma convergence theory, which tends to fall over long periods.

4.2 Time Series Model Using Benchmark

In addition to analyzing data above, there are some ways to assess convergence using the Time-Series approach. At this point, referring to the study Kutan and Taner (2004), we will use some of the most developed countries as reference points (Germany, Austria, and Great Britain) concerning the EU average. We apply formulas and calculate the dependent variable.

$$\ln y_t = \ln \left[\frac{y_{i,t}}{\left(\frac{1}{N} \right) \sum_{i=1}^n (\ln y_{i,t})} \right]$$

$$\ln y_t = \left[\frac{y_{it}}{y_{\text{Germany},t}} \right]$$

From the given formulas, we calculate AR, first-order autoregression; i.e., we employ lag values from the dependent variable. The limitation of the study with this method is that we assume that the economies included in the test are close to their steady state, a situation which may not hold for most of the new EU member states. In conclusion, this approach is used to investigate convergence from time series, so the beta convergence model focuses on absolute convergence that corresponds to the hypothesis of catching up between rich and poor countries.

Below are all results of ADF tests using AR(1) with two reference points for the countries of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Sweden, and the UK compared to the EU27 average. Then the Western Balkan countries Albania, Montenegro, Macedonia, Kosovo, Bosnia and Herzegovina, and Serbia compared to the EU27 average, BP6 countries compared to the EU11 average (EU member states since 2004 except Malta and Cyprus), and Kosovo toward EU 11.

According to Janekalne, (2016), most studies through the Time-Series approach reject the hypothesis of convergence. Studies in the time frame from 1970 to the early 1990s have not found strong evidence regarding convergence in time series among Western European countries. Magrini (1999) from his study across 122 functional regions of the European Union found evidence for divergence. He finds empirically that the analysis of convergence has confronted two problems that bring the result of divergence. The first problem is related to the use of available data for administrative regions, and the second is related to the nature of the growth process. However, taking into account that the author used the method of cross-sectoral distribution of income per capita by modeling the homogeneous Markov chain in time, we will focus more on the results that have used similar analysis methodologies in terms of data treatment.

Kočenda (2001) and Kutan and Taner (2004), in samples of their study taken from countries in transition during the 90s, they applied panel unit root with Im-Pesaran-Shin and LLC tests with the first difference of the data, they found convergence, they found the same speed between the data panels (LLC) while the IPS method finds variability in the rate of convergence between countries.

According to Lopes (2016), the level of stationarity offers a more reliable correlation of theory and possibilities for the application of econometric tests with time series data. As Lopes recommends through the 30AT formula, use the augmented Dickey–Fuller unit root test and get the results shown in the table above. From Table 3, we see that the ADF results against the EU27 average as a reference point

(benchmark), there are 24 countries for which the null hypothesis can be rejected. The hypothesis assumes stationarity in the data.

These countries are Austria, Belgium, Croatia, Cyprus, Czechia, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Romania, Slovenia, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Sweden. In this case,

Table 3 Results from the Time-Series approach

Country	BE27 countries to EU 27 average					
	Augmented Dickey–Fuller test for unit root				Phillips–Perron	
	ADF—beta	<i>p</i> -value	<i>z</i> (<i>t</i>)	<i>p</i> -value	<i>z</i> (<i>t</i>)	<i>p</i> -value
Austria	−0.761	0.029	−2.42	0.136	−4.418	0.000
Belgium	−0.767	0.025	−2.483	0.120	−3.670	0.005
Bulgaria	−0.593	0.070	−1.952	0.308	−3.915	0.002
Croatia	−0.723	0.020	−2.61	0.091	−2.427	0.134
Cyprus	−0.513	0.039	−2.259	0.186	−2.106	0.242
Czech Republic	−1.390	0.002	−3.768	0.003	−4.996	0.000
Estonia	−0.847	0.007	−3.009	0.034	−2.652	0.083
Finland	−1.114	0.004	−3.399	0.011	−3.308	0.015
Hungary	−0.981	0.002	−3.804	0.003	−3.099	0.027
Lative	−0.979	0.004	−3.421	0.010	−3.132	0.024
Lithuania	−1.228	0.003	−3.496	0.008	−4.068	0.001
Malta	−0.855	0.036	−2.309	0.169	−3.802	0.003
Poland	−0.414	0.072	−1.939	0.314	−2.638	0.085
Romania	−0.733	0.040	−2.246	0.190	−3.309	0.015
Slovakia	−0.282	0.243	−1.216	0.667	−2.165	0.219
Slovenia	−0.977	0.009	−2.99	0.036	−3.930	0.002
Germany	−0.538	0.059	−2.045	0.267	−2.694	0.075
Denmark	−0.907	0.027	−3.955	0.002	−3.955	0.002
Spain	−0.706	0.042	−2.217	0.200	−55.605	0.000
France	−0.987	0.015	−2.73	0.069	−3.729	0.004
Greece	−0.917	0.005	−3.271	0.016	−3.001	0.035
Ireland	−0.842	0.034	−2.339	0.160	−3.791	0.003
Italy	−0.870	0.017	−2.686	0.077	−3.350	0.013
Luxembourg	−0.986	0.009	−3.012	0.034	−5.001	0.000
Netherlands	−0.869	0.037	−2.284	0.177	−3.186	0.021
Portugal	−1.611	0.000	−5.614	0.000	−4.242	0.001
Sweden	−1.038	0.005	−3.273	0.016	−4.243	0.001
UK	−0.621	0.080	−1.88	0.342	−2.599	0.093

*** 1%; ** 5%; * 10%—no significant results

Source Author's calculations

the GDP per capita gaps between these countries compared to the EU27 average reject the hypothesis of convergence. Whereas, for countries such as Bulgaria, the UK, and Poland, the null hypothesis cannot be rejected. The result for the EU member states shows that the income gap between the states and the EU27 average is stationary and as such the convergence hypothesis is confirmed. Phillips–Perron uses a nonparametric statistical method that takes serial correlation into account. For this type of test, the convergence condition is said to have been reached for countries such as Austria, Belgium, Bulgaria, the Czech Republic, Finland, Hungary, Latvia, Lithuania, Malta, Romania, Slovenia, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Sweden.

From Table 4, we can see the ADF results of the Western Balkan countries compared to the EU27 average as a reference point (benchmark). For all Western Balkan countries except Serbia, in the presence of high significance, we reject the null hypothesis, as such we accept the hypothesis of convergence by evidencing co-integration between the data. As for the income gap between the Western Balkan countries and the EU27 average, we see that this dispersion is stationary and as such confirms the convergence hypothesis. In this case, Serbia does not show a significant result, so that, we cannot consider it to be an indicator of the state of convergence to the EU average (Table 5).

As for the ADF results of the Balkan countries in relation to the new EU member states, namely the EU11 average, for all countries at a high level of significance, we reject the null hypothesis and accept the alternative one. Regarding the dispersion of the level of income between the Balkan countries and the new EU member states integrated from 2004, we see that the dispersion is higher, and for a high level of significance, we say that we have a level of convergence between the Balkan states and the new EU member states. The countries of the Western Balkans, Albania, and Montenegro show the lowest level of dispersion.

Table 6 shows the results of the PP unit root test and the Augmented Dickey–Fuller test, the difference of which lies in how these tests manage serial correlation.

Table 4 Beta convergence with time series data—WB6 countries with EU27 average benchmark

Country	Western Balkan countries to BE27 average					
	Augmented Dickey–Fuller test for unit root				Phillips–Perron	
	ADF—beta	p-value	$z(t)$	p-value	$z(t)$	p-value
Albania	−0.42652	0.100	−1.755	0.403	−2.105	0.242
Montenegro	−0.83469	0.038	−2.28	0.1785	−2.72	0.071
Macedonia	−0.92341	0.004	−3.364	0.0122	−4.496	0.000
Chuang	−1.00696	0.013	−2.801	0.0582	−11.468	0.000
Bosnia and Herzegovina	−1.09029	0.011	−2.888	0.0468	−6.343	0.000
Serbia	−0.53824	0.079	−1.887	0.3383	−2.927	0.042

*** 1%; ** 5%; * 10%—no significant results

Source Author's calculations

Table 5 Beta convergence with time series data—WB6 countries with EU11 average benchmark

Country	Western Balkan countries to BE11 average					
	Augmented Dickey–Fuller test for unit root				Phillips–Perron	
	ADF—beta	<i>p</i> -value	<i>z</i> (<i>t</i>)	<i>p</i> -value	<i>z</i> (<i>t</i>)	<i>p</i> -value
Bosnia and Herzegovina	−1.6078	0.0010	−4.0850	0.0010	−7.9020	0.000
Chuang	−1.2134	0.0040	−3.3660	0.0122	−10.3270	0.000
Montenegro	−0.8870	0.0300	−2.3960	0.1430	−2.9610	0.039
Macedonia	−0.9941	0.0020	−3.6720	0.0045	−4.0110	0.001
Albania	−0.7234	0.0180	−2.6620	0.0809	−2.7420	0.067
Serbia	−0.8732	0.0390	−2.2560	0.1866	−3.9460	0.002

*** 1%; ** 5%; * 10%—no significant results

Source Author's calculations

Phillips–Perron ignores any serial correlation, and ADF uses parametric autoregression to approximate the error structure. The ADF test of the state of Kosovo with the new EU11 member states as a benchmark shows convergence to the EU11 states, providing results that are sufficiently significant at the 5% level to reject the null hypothesis of the unit root. Meanwhile, regarding the convergence results, we see that Kosovo in relation to the EU11 countries for the period 2000–2020 has a moderate level of dispersion; however, the highest dispersion remains with countries such as Hungary, Latvia, and Lithuania. While Slovakia remains the country that has the most average decrease in dispersion.

4.3 Beta Convergence

4.3.1 Empirical Facts on Real Convergence of WB6 to EU

This part reflects the real convergence of BP6 states and new EU member states measured by the percentage of GDP per capita in PPP purchasing power parity, in relation to the EU average. Meks and Xhaja (2017) noted that the integration process of BP in the EU has started since the beginning of their transition. When assessing the convergence of the EU states, one of the main approaches used is the beta and sigma convergence analysis Barro and Sala-i-Martin (1992). The negative value of the beta indicator indicates that a poor country moves toward rich countries and simultaneously reduces the gap between them. The parameter that measures the fluctuations of GDP per capita of poor countries in relation to rich countries is known as sigma convergence.

The latest data for 2020 show that the countries of the Western Balkans are ranked between 35% (Bosnia and Herzegovina), 38% (North Macedonia), 43% (Serbia), 46% (Montenegro), 31% (Albania), and 25.6% (Kosovo) of the average level of GDP

Table 6 Beta convergence with time series data—the state of Kosovo with the EU27 average benchmark

Country	Kosovo to BE11 countries					
	Augmented Dickey–Fuller test for unit root				Phillips–Perron	
	ADF—beta	p-value	$z(t)$	p-value	$z(t)$	p-value
Bulgaria	−0.9461	0.0180	−2.6550	0.0822	−11.7390	0.000
Czech Republic https://en.wikipedia.org/wiki/Czech_Republic	−0.9189	0.0110	−2.8980	0.0455	−9.1960	0.000
Estonia	−0.9130	0.0060	−3.2340	0.0181	−5.2620	0.000
Croatia	−0.8038	0.0220	−2.5520	0.1034	−7.4560	0.000
Hungary	−1.1004	0.0100	−2.9360	0.0413	−11.1540	0.000
Lative	−1.0139	0.0060	−3.1710	0.0217	−5.1010	0.000
Lithuania	−1.3515	0.0010	−4.2170	0.0006	−5.7020	0.000
Poland	−0.9498	0.0100	−2.9360	0.0413	−12.1610	0.000
Romania	−0.8043	0.0340	−2.3330	0.1615	−6.5740	0.000
Slovakia	−0.7797	0.0350	−2.3200	0.1655	−7.4950	0.000
Slovenia	−0.8377	0.0270	−2.4490	0.1285	−8.9690	0.000

*** 1%; ** 5%; * 10%—no significant results

Source Author's calculations

per capita in PPP in Europe. The level of real convergence of the Western Balkan states to the average of the new member states for 2020 is seen to be significantly behind compared to the last member states in Europe; they have this level of GDP per capita in PPP to the European average; 71% (Romania), 54% (Bulgaria), and 63% (Croatia).

According to Krstevska (2017a, 2017b), the level of real convergence of the Western Balkans can only be compared with the level of convergence of Romania and Bulgaria in 2005 when the European Parliament approved becoming a member of the EU, 37% (Romania), and 40% (Bulgaria). We see that Bosnia and Herzegovina, North Macedonia, Serbia, and Montenegro have a higher average than Romania and Bulgaria at the time of EU membership. However, after joining the EU, they greatly intensified the real convergence to the European average, which at the same time accepted the assumption that EU integration, namely EU membership, supports growth, and convergence, raising the economic perspective of these states to different investors.

From Fig. 2, it can be seen that among the new member states of the EU, the greatest increase in GDP per capita compared to the EU average from 2004 to 2020; Cyprus, Malta, and the Netherlands. Also, what stands out is the impact of the crisis on economic growth in Europe without having the same extent as the growth rates compared to the EU27 average should not have changed. However, it can be seen that the COVID-19 pandemic has changed the course of economic growth, with special

emphasis on some of the countries that experienced a decrease in GDP compared to the European average; Malta (6%), Cyprus (−4.6%), Croatia (3%), and Slovenia (1.1%).

If we approach the real convergence in relation to the global crises, what stands out is the difference in the pace of convergence with the decrease in the average level of GDP per capita in PPP compared to the EU27 average, which is seen to have a significant decrease in all Western Balkan countries. Figure 3 shows the dynamics of the decline in the level of convergence in almost all Western Balkan countries, which has dropped from 5.01 percentage points in the pre-crisis period to 3.4% points in the crisis average.

As for the catch-up rate (Krstevska, 2017a, 2017b) showed that the fastest catch-up happened in the pre-crisis period, especially for countries such as (Montenegro, Serbia, Bosnia, and Herzegovina). While I emphasize that the opposite happened in Albania and North Macedonia, the catch-up rate was higher during the crisis period.

Figure 4 shows that the global financial crisis has had the same effect on the economic growth of EU13 compared to the EU27 average, just as it was described above in all NMS states there is a decrease in the dynamics of real convergence compared to the EU27 average. In almost all new EU member states, the level of economic growth measured by GDP per capita in PPP was halved; Bulgaria, Croatia, Romania, and Slovakia were among the countries that suffered the biggest declines in GDP. The states that have shown greater dynamics or that have not had negative changes during the crisis period are Lithuania, Hungary, Malta, and Poland.

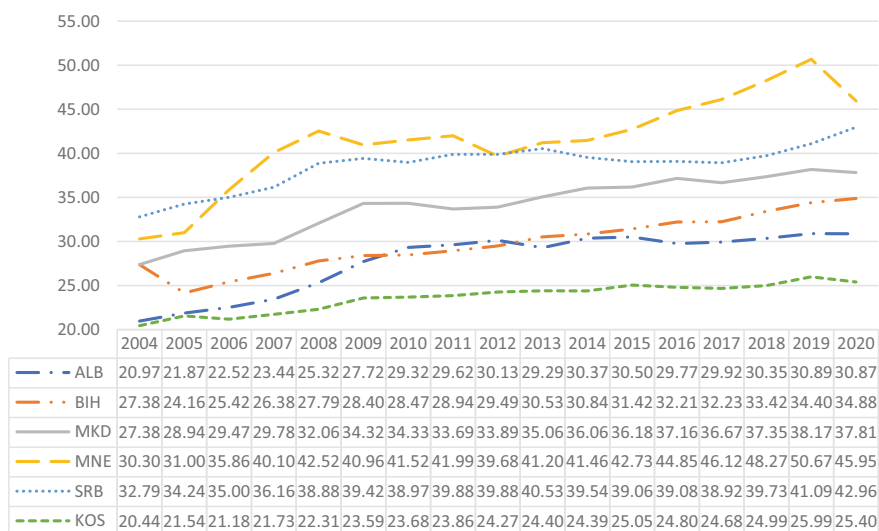


Fig. 2 GDP per capita at PPP of WB6 countries as a percentage of the EU27 Average. *Source* Author's calculation based on <https://data.worldbank.org/>

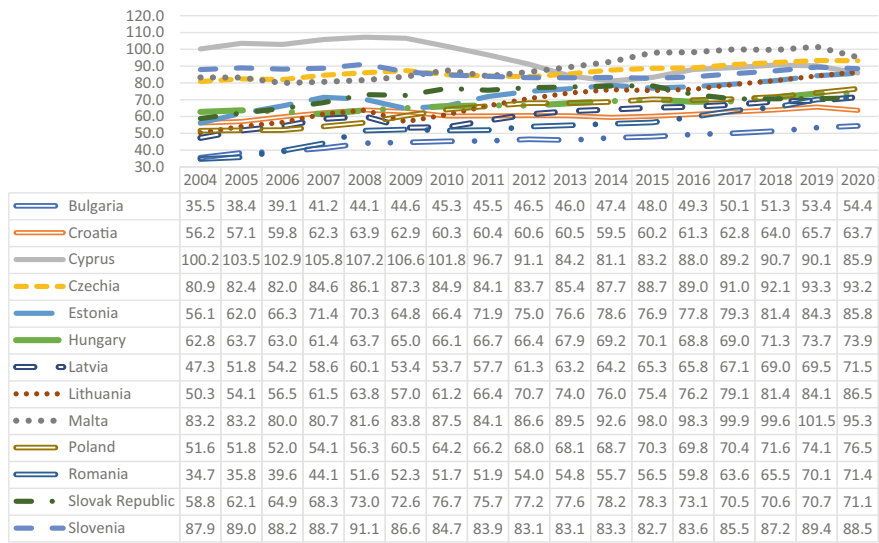


Fig. 3 GDP per capita at PPP of EU13 countries as % of EU average. *Source* Author’s calculation based on <https://data.worldbank.org/>

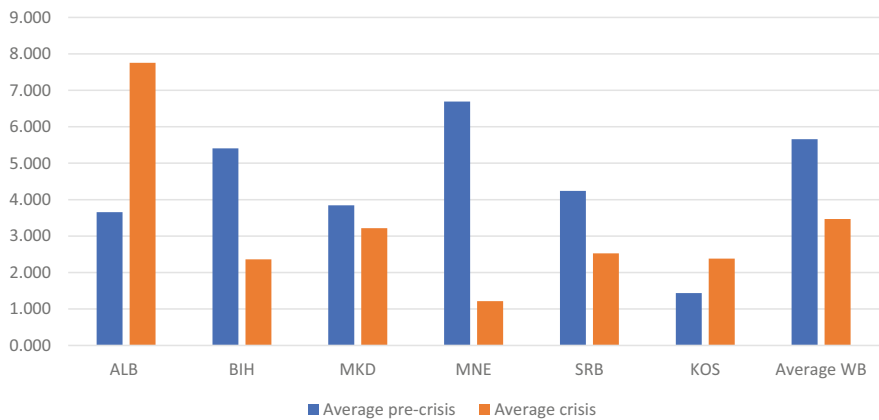


Fig. 4 Change in the level of real convergence (in percentage points) in WB6. *Source* Author’s calculation based on <https://data.worldbank.org/>

4.4 The COVID-19 Crisis and Its Effect on the Western Balkan States

The Western Balkans have begun to recover from the crisis caused by the COVID-19 pandemic. The latest indicators from the data of (World Bank, 2021a, 2021b, 2021c) show that the Balkan economies are recovering faster than expected, and

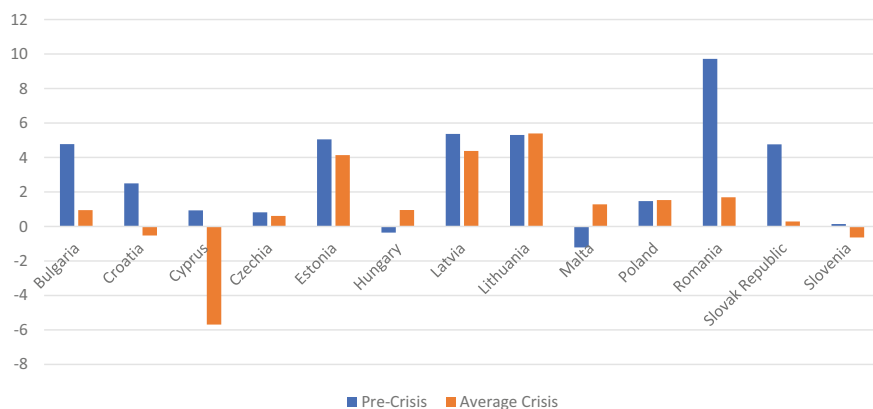


Fig. 5 Change in the level of real convergence (in percentage points) in EU13 compared to EU27.
Source Author's calculation based on <https://data.worldbank.org/>

this mostly consists of the relaxation of the imposed measures and the increase in domestic demand. Just as we have seen the decrease in the level of GDP in the period of COVID-19, looking at the estimates for growth in the EU countries (opening of borders, increasing the price level, and stimulating the economy through exports), it is predicted that the economic growth of states BP will return in the following years to 5.9%. In general, the increase in wages, loans, remittances, and expectations for tourism constitute some of the factors that lead to the increase in consumption in all the countries of the Western Balkans, such as Albania, Bosnia, and Serbia. However, the same does not apply to Kosovo and Montenegro, which constantly shows a decrease in the level of consumption.

(BQK) reports that in Q3 of 2020, the Western Balkans suffered an economic decline of -8.5% . However, the highest economic decline was recorded in Q2 where BP suffered an economic decline of 12.2% . The highest economic decline was recorded in Montenegro, a country that has a significant part of its economic activity dependent on tourism; followed by Kosovo, where the restrictive measures of the movement made it impossible to circulate between the diaspora and Kosovo, so this immediately reflects in the decline of its economic activity. Meanwhile, in 2021 the Western Balkan States marked a positive turn in terms of economic activity, which is considered to have been driven by internal demand, the improvement of the situation with the COVID-19 pandemic, the removal of measures and fiscal and monetary policies in support for the economies. However, with the introduction of the Omicron variant, the strengthening of new restrictive measures, and the increase in the price of electricity, economic growth marked the next stagnation.

Among the states of the region that recorded an increase in economic activity for 2021, in Q3, according to the CBK report, the highest growth was recorded by Montenegro and Kosovo. According to the IMF, the economic activity in the region increased by an average of 5.3% in 2021. The recovery of economic activity has also been largely influenced by financial support through the channels of funds from the

EU and those structured by the states through credit channels in emergency situations. In this sense, Kosovo ranks first in terms of budget support in the pandemic year 2020 with 12.7% of GDP, followed by Serbia with 5.6% of GDP, North Macedonia with 3.8%, while the lowest level of support of the economy and individuals in this period was marked by Montenegro and Bosnia with 2.5%.

Albania faced numerous challenges in the last decade, from 2019 onwards. At the end of 2019, two major earthquakes left deep traces in the economic perspective of this country. Without having a full recovery Albania fell prey to the economic shock that was caused by the emergence of the COVID-19 pandemic. According to Sejko (2021), this phenomenon was recognized as a uniform deterioration of macroeconomic factors. At the request of the WHO and the Ministry of Health, from March 2020, economic activities are suspended as a result of restrictive and preventive measures in the spread of the pandemic. Real GDP fell by 4% in 2020, the highest decline was recorded in the services sector. According to the IMF, Albania's real GDP was predicted to recover by 7.8%, which will be under the effect of fiscal and monetary policy, but also other factors such as the removal of restrictions and electricity production.

In Bosnia, the economic activity in 2020 dropped significantly. Despite the economic growth of 3.5% from 2015 to 2019, this growth changed direction in 2020 where the economic activity suffered a decrease of -4.5%. If we refer to the decline on a quarterly basis, Q2 according to (European Commission, 2021) recorded a decrease of -10.4%, Q3 returned an increase of 3.9%, and Q4 2.9%, which shows that the economy in 2021 starts to recover. The first quarter of 2021 marked a moderate increase of 1.5%, which is attributed to the performance of exports.

In Kosovo, the second wave of the virus and the adoption of new restrictive measures shrunk the economy, where in September 2020 an economic decline of -5.6% was recorded. However, it is estimated that this period has marked a lower decline than the first three months of 2020. The hotel sector (-30.7) was among the sectors most affected by the lack of activity, as well as that of transport and storage (-30.2%), construction, and other administrative activities with -28.6% and -12.4%. The welfare and health sectors were among the sectors that recorded the highest growth (12.7%), energy and gas supply (12.2%), and others. In North Macedonia, the COVID-19 pandemic affects the overall change in the economic situation, where the real GDP growth rate from 3.2% in 2019 marked a decrease of -4.5% in 2020. However, in 2021 (World Bank, 2021a, 2021b, 2021c) reported that after the decline in Q1 by 1.9%, GDP recorded double-digit growth in Q3.

In Montenegro, the situation with the pandemic aggravated the economic situation to a considerable extent. (IMF, 2022) reports that the real GDP in Montenegro decreased by 15.3% in 2020, while the average growth in previous years remained at the level of 4%. This decrease was attributed to the lack of revenues from tourism, which has decreased by 87%. However, the main alternative in the recovery of the economy after the pandemic remained tourism. Despite expectations, the level of production is expected to remain below the pre-crisis average for some time, somewhere around 8.7% decrease in production, which is actually higher compared to the average of non-CESEE countries which is 4.1%. The authorities of Montenegro,

in order to integrate into the EU, proposed and approved a historic reform program called “Europe Now,” which was expected to start in 2022. NBS reports that Serbia during 2020 does not record major changes in macroeconomic indicators, this is based on the GDP structure which is based on industrial activity, construction, and services. (World Bank, 2021a, 2021b, 2021c) report that Serbia’s real GDP fell – 0.9%, which marks the lowest decline among BP countries. In 2021, it is reported that economic growth recorded a growth rate of 7.4%. (World Bank, 2021a, 2021b, 2021c) annual economic growth in the pre-crisis period on average increased by 1.9%, while in 2018–2019 the average growth rate increased by 4.4%. Consumption is considered to be the main driver of growth, but the level of investments remains low and is around 19% of GDP.

5 Conclusions

So far, we have seen that sigma convergence has shown different results, depending on the countries that were studied, and the methods that were used as well. There are cross-country studies that generally agree with the sigma convergence hypothesis. However, according to Piketty (2014), the disparity within countries shows an increase in income inequality, especially in developed countries. Large and heterogeneous samples tend not to accept the hypothesis of sigma convergence when the unweighted standard deviation method is used. The integration of the weighted standard deviation speaks of the decline in inequality over the years for different states, making the study more realistic and reliable. In Western Balkans countries, income dispersion has changed faster than in other countries, a gradual decline from the period of the 90s until now. However, if we focus on shorter periods, ignoring the general picture of the dispersion curve, it was evident that from 2005 to 2007 specifically, the dispersion of income had experienced a significant increase, trying to achieve the opposite effect of convergence that of divergence.

This indicator is estimated to have been influenced by the effect of the global crisis that weakened countries economically. However, other countries did not show a large presence of the effect of the global crisis in their converging or regional path. However, since in our study, the analysis is divided into groups of states that do not show significant differences in standard and population, especially in the case of the BP6 group of states, the results are more reliable, as is the case for the new EU11 member states, and the EU15 developed countries. When the average of the EU27 countries is included in the study as a reference point to the Balkan countries and the countries that have gone through a transitional phase, the results do not seem to be very real due to the large differences that the countries have in terms of territorial inclusion, the number of inhabitants, the standard of living, the workforce and many other factors that are not taken into account in the sigma convergence analysis.

If we approach Time Series analysis, most authors failed to find evidence for the convergence hypothesis. From the ADF results to the EU27 average as a benchmark, 24 countries confirm the hypothesis of convergence at a high level of significance.

These countries are Austria, Belgium, Croatia, Cyprus, Czechia, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Romania, Slovenia, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Sweden. In this case, the GDP per capita gaps between these countries compared to the EU27 average rejected the hypothesis of convergence. In states like Bulgaria, the UK, and Poland, the null hypothesis cannot be rejected.

The result for the EU member states shows that the income gap between the states and the EU27 average is stationary and as such the convergence hypothesis is confirmed. For this, Phillips–Perron used a nonparametric statistical method that takes into account the correlation in the series. For this type of test, the convergence condition is said to have been reached for countries such as Austria, Belgium, Bulgaria, the Czech Republic, Finland, Hungary, Latvia, Lithuania, Malta, Romania, Slovenia, Germany, Denmark, Spain, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Sweden. BP results compared to the EU27 average as a reference point (benchmark), for all Western Balkan countries except Serbia, with high significance, we managed to accept the hypothesis of convergence by evidencing co-integration between the data. As for the income gap between the Western Balkan countries and the EU27 average, we see that this dispersion is stationary and as such confirms the convergence hypothesis.

Serbia was one of the countries that did not show a significant result and as such the result is not considered to be an indicator of the state of convergence to the EU average. The ADF test of the state of Kosovo with the new EU11 member states as a benchmark shows convergence to the EU11 states, providing results that are sufficiently significant at the 5% level to reject the null hypothesis of the unit root. Meanwhile, regarding the convergence results, we see that Kosovo in relation to the EU11 countries for the period 2000–2020 has a moderate level of dispersion; however, the highest dispersion remains with countries such as Hungary, Latvia, and Lithuania while Slovakia remains the country that has the most average decrease in dispersion.

6 Limitations of the Study

The significant lack of data is one of the biggest challenges that appear every time an econometric analysis is made for Western Balkan countries. Even in this paper, the data on economic indicators, especially for 2000–2008, are scarce and sometimes even incomplete. For this, other sources and reports by different authors and financial institutions have helped recognize the economic circumstances for specific periods.

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The Impact of Dubai's Tram Transit System on the Surrounding Economics



**Badr M. Z. Hadad, Khalifa Mohammed Aljaberi,
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Abstract The purpose of this research is to examine how the 2014 debut of the Dubai Tram affected the local economy. Both primary and secondary data will be analyzed to see whether there have been any changes in travel habits or business activity as a result of the tram system. Locals and companies will be polled to gauge their thoughts on the tram's usefulness, security, and effect on the economy. In addition, we will examine the research already done on the economic impacts of tram systems in other cities so that we may compare the Dubai Tram to their findings and learn from their successes and failures. The purpose of this research is to examine the good effects the Dubai Tram has had on local transit, tourism, and the economy. The findings from the survey will provide light on how transportation and economic activity have changed, while the analysis of the relevant literature will reveal the key factors that have contributed to the success of similar systems in other cities. The ultimate objective is to determine the strengths and weaknesses of the Dubai Tram system.

Keywords Dubai tram · Transportation infrastructure · Surrounding economics

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1 Introduction

The city of Dubai, which is one of the cities with the highest population growth in the world, has been developing at a phenomenal rate, which has resulted in considerable changes to the urban environment there. The city's continued growth and modernization have made improvements to the city's transportation infrastructure an increasingly important factor in easing the flow of people and commodities across the city. The Dubai Tram was first put into service in 2014, marking a huge investment in the city's overall transportation infrastructure. It offered a new method of transportation that could be used by both residents and tourists.

The Dubai Tram is a cutting-edge light rail system that connects the neighborhoods of Dubai Marina, Jumeirah Beach Residence, and Al Sufouh over a length that spans 10.6 km. The tram system was developed to provide a transportation alternative that is both environmentally friendly and highly effective, with the goal of reducing the ever-increasing issue of traffic congestion in the city. In addition to that, it was supposed to improve the city's internal mobility and connectedness, which was supposed to stimulate both economic growth and tourism.

The purpose of this study is to investigate the effect that the Dubai Tram has had on the economies in the surrounding area, namely the shifts that have occurred in terms of mobility patterns, economic activity, and tourism. In order to evaluate the effect that the Dubai Tram will have on the economy of the surrounding area, this study will gather data in a number of different ways, including both primary and secondary sources.

2 Literature Review

Around the globe, numerous cities have installed tram systems because people find them to be a convenient means of public transit. These systems have been developed to provide a transportation alternative that is both sustainable and efficient, with the goal of reducing the increasingly severe issue of traffic congestion in metropolitan areas. Numerous studies have shown that tram systems have beneficial benefits on economic activity, transportation, and tourism in the locations that they have researched, and these findings have been uncovered via considerable study.

According to the findings of a research project that was carried out in the UK by Chen and Haynes (2017), the installation of a brand-new tram system led to an increase in the amount of commercial activity that took place in the surrounding districts. In a similar vein, Kourtit and Nijkamp (2017) conducted research in Amsterdam and discovered that the installation of a tram system led to a rise in property prices in the neighborhoods that were immediately next to the system. According to these results, tram systems may have the potential to have a beneficial effect on the economy of a given area, hence contributing to the expansion and growth of the economy.

In addition to the favorable benefits that tram systems have on the economy, researchers have shown that these systems also have good effects on tourism and transportation. According to the findings of a research conducted in Taiwan by Wu and Huang (2016), the establishment of a new tram system led to an increase in the number of tourists that visited the region and the amount of money they spent there. In a study with similar findings, Park et al. (2018) conducted research in South Korea and found that the implementation of a tram system led to a considerable decrease in travel time as well as an improvement in the efficiency of transportation.

However, not all studies have shown that tram networks have a favorable influence on the local economy. Zheng et al. (2017) conducted research in China and discovered that the installation of a new tram system did not have a substantial influence on the level of economic activity in the regions that were immediately adjacent to the system. According to these studies, the efficacy of tram systems in encouraging economic development may rely on a range of variables, including the local economy, patterns of mobility, and city design.

According to the research that has been conducted, tram systems may have the potential to have a beneficial effect on the local economy by fostering economic expansion, improving the efficiency of transportation, and attracting more tourists. However, the effectiveness of tram systems in encouraging economic development may vary on a range of conditions; thus, further study is required to better understand the influence that tram systems might have in a variety of settings.

3 Methodology

3.1 Research Model and Methods

The key data needed for this study will be gathered via the administration of a survey to the people living in and operating companies in the regions that are serviced by the Dubai Tram. The purpose of the study is to determine whether or not there have been any shifts in the manner in which people travel and the level of economic activity in the region as a result of the installation of the tram system. In addition, the study will investigate the perspectives of local inhabitants and proprietors of local businesses on the tram system, including their thoughts on the convenience, safety, and effect it has on the local economy.

The literature analysis of previous studies that have been conducted on the effect that tram systems have on economies in the surrounding areas will make up the secondary data for this study. The economic effects of tram systems in other cities will be investigated as part of the literature study. Key elements that have led to the success or failure of similar systems will also be identified. This will serve as a foundation for comparison with the Dubai Tram, allowing for the identification of areas in which the system has been effective as well as those in which it may need improvement.

The results of this study will add to a better understanding of the economic effect of transportation infrastructure, offering insights that can be used by politicians and city planners in their efforts to develop transportation systems that are both efficient and sustainable. This study will give useful insights into the potential advantages and constraints of investing in modern transportation systems in fast-developing cities like Dubai by examining the effect that the Dubai Tram has had on the surrounding economies.

3.2 Research Instrument

This study will use a questionnaire since it is the most suitable instrument for this research.

3.3 Sample

The conducted survey selected a targeted segment around the top three stations in riders. Figures 1, 2, and 3 show a circle of half mile around the stations which will represent our targeted segment.

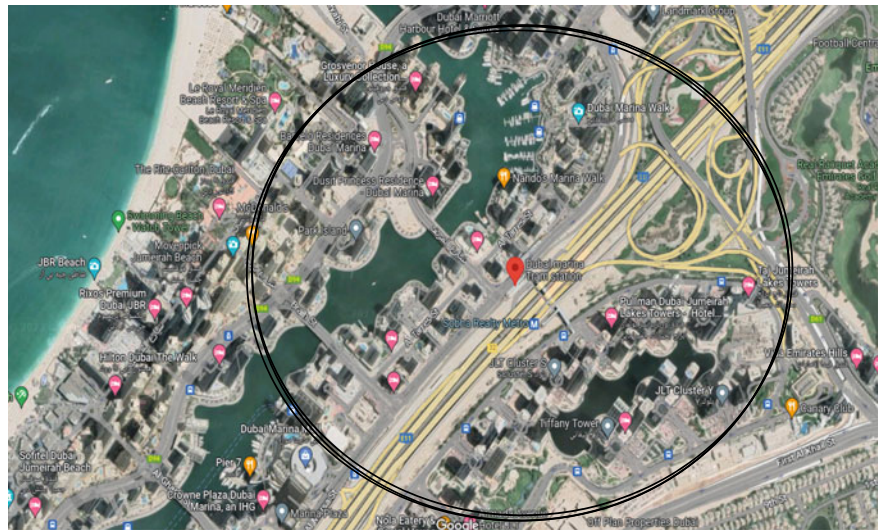


Fig. 1 Dubai's Marina station (based on google maps)

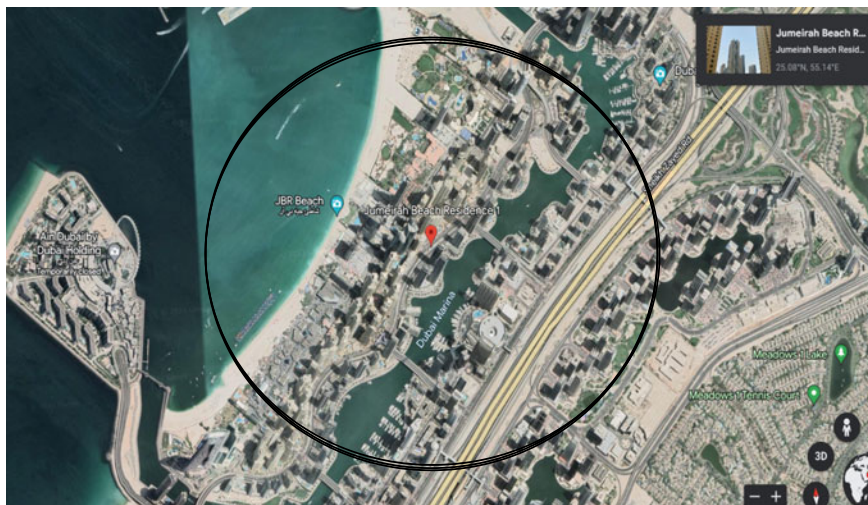


Fig. 2 Jumeirah beach resident 1 station (based on google maps)

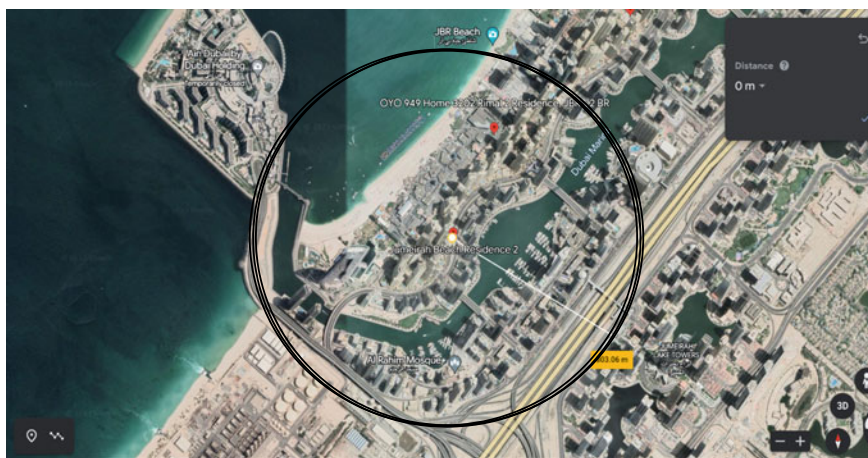


Fig. 3 Jumeirah beach resident 2 station (based on google maps)

3.4 Descriptive Data

The survey used consisted of 30 questions to learn about their whole point of view on the tram service. The survey asked the participant to rate several features of the tram, such as its cleanliness, schedules, and overall service. Figure 4 will show the overall service rating of riders of the tram.

As noticed in the pie chart in figure four, the majority of the tram riders evaluated the overall service as excellent.

How would you rate the overall efficiency of the tram service?
30 responses

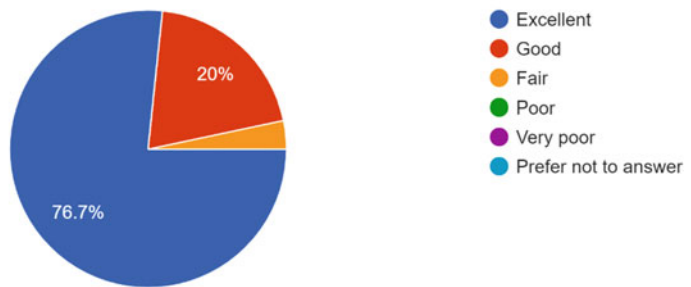


Fig. 4 Overall service rating of the tram

Furthermore, the survey asked the users of the tram about the time it takes for the tram to deliver them to their work. Figure 5 will represent their answers.

Figure 5 indicates that most tram riders complete their trips in under 30 min, which is considered an efficient amount of time. These findings can be combined with the results of other survey questions that asked about the frequency of tram usage on a weekly basis. Figure 6 displays the responses regarding the number of times the public uses the tram per week.

The bar chart depicted above shows that the majority of tram users utilize it more than seven times per week, leading to the conclusion that most riders use the tram on a daily basis. In order to investigate whether this usage has an impact on the surrounding economy, we surveyed individuals to determine if they frequent shops near the tram stations. The results of this inquiry are presented in Fig. 7.

How much time does it take to arrive for your work/home using the tram system?
31 responses

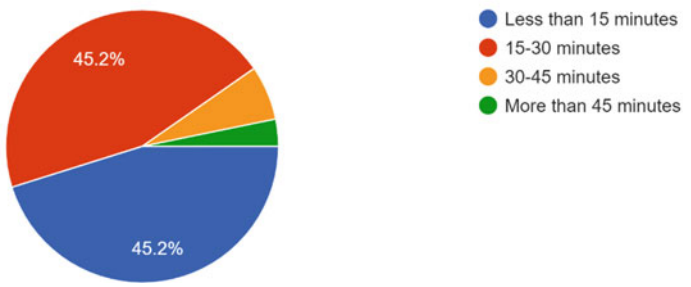


Fig. 5 Time the tram takes to deliver its passengers

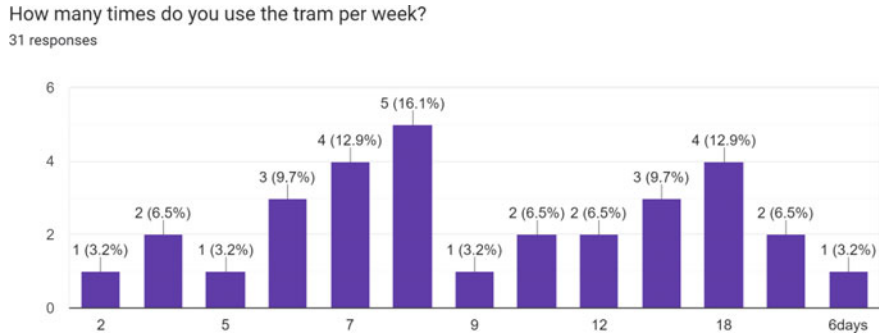


Fig. 6 Weekly number of rides people take

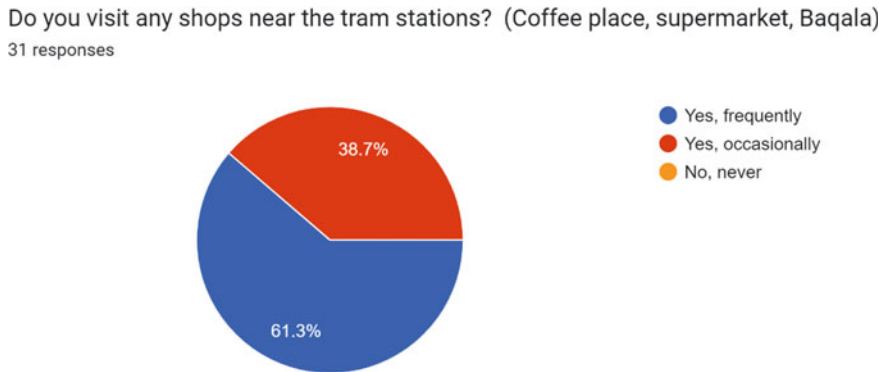


Fig. 7 The percentage of people using shops near the stations

In order to further verify the economic benefits of the tram system on the surrounding area, we inquired if individuals would still utilize the nearby shops if they were not using the tram. Figure 8 displays the outcomes of this question.

Based on the previous findings and the relationship between the two aforementioned results, we can draw the conclusion that there has been a 20 percent increase in the patronage of nearby shops as a result of the availability of tram services.

4 Conclusions

In conclusion, the literature review section of this research showed that the tram service has shown an increase in economy for the surrounding areas. To test if these results apply in the UAE, we asked the public about their experiences with that statement. We can conclude from the survey results that there is a 20% of the people who only use certain shops due to their use of the tram.

Would you have used them if not for their position near the station?
31 responses

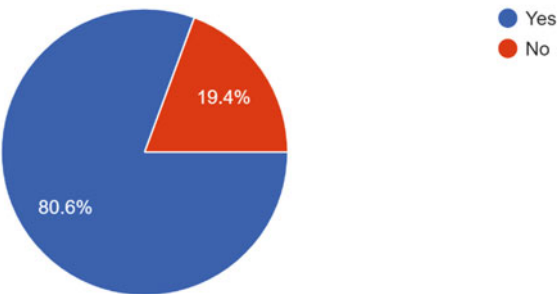


Fig. 8 Possibility of people using the same shops if they were not near stations

4.1 Implications

To further investigate the economic impact on the surrounding areas of the tram, we suggest focusing on analyzing the opinions of the rides of the stations that are shown in Fig. 9 because they hold the greatest number of rides among all other stations.

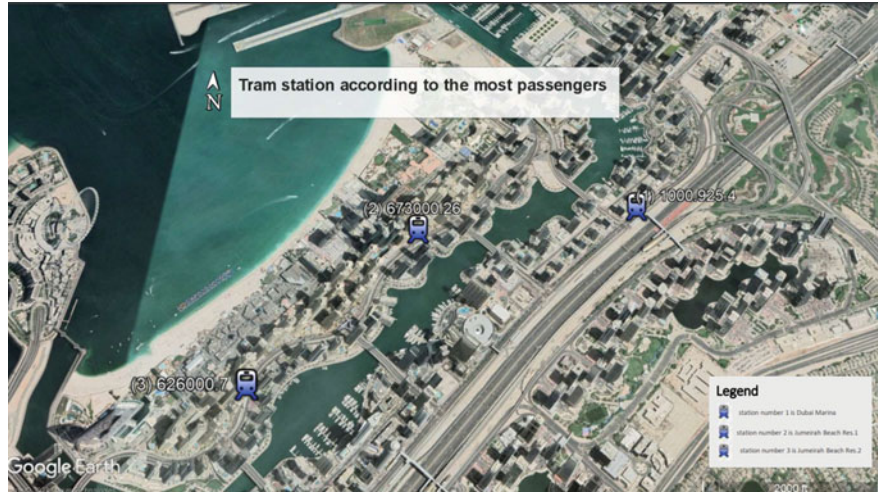


Fig. 9 Top three stations in number of riders (based on google earth)

4.2 Limitations and Future Research Directions

In doing this research, we could not obtain recent data of the number of riders on each station because it is usually published in May. However, we based our work on the most recent data which was published in 2021 by the statistical center.

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Finance

The Efficiency of Islamic Banking in the Balkans: The Case of BBI Bank in Bosnia and Herzegovina



Katerina Fotova Čiković

Abstract The main purpose of this paper is to evaluate the relative efficiency of Islamic banking in the Balkans, i.e. in the only bank applying Islamic banking principles (the BBI Bank in Bosnia and Herzegovina) and to compare it to the relative efficiency of conventional Bosnian banks. The output-oriented data envelopment analysis (DEA hereafter) BCC methodology with two inputs (interest and non-interest expenses,) and two outputs (interest and non-interest revenues) has been applied, in the period from 2016 to 2021. Finally, the impact of the COVID-19 pandemic on both Islamic and conventional banks is discussed and managerial implications are drawn. The findings reveal that the group of large banks are most efficient in the B&H banking sector, whereas the small-sized banks are least efficient. Islamic banking noted lower efficiency than conventional banking in the B&H. This is in line with the previous studies. The scientific contribution of this article mirrors its great significance for both academic members, banking management and regulatory bodies, as well as the interested public. To the best of the author's knowledge, this is the first empirical study that includes a glimpse of the efficiency and performance of the only Islamic bank operating in the Western Balkan as well as the first empirical study that provides a comparison between the efficiencies of Islamic and conventional banks in the period of the COVID-19 pandemic in B&H.

Keywords Islamic banking · Relative efficiency · Data envelopment analysis · DEA · Bosnia and Herzegovina

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1 Introduction

Islamic banking was rather unknown as recently as three decades ago, but nowadays over 70 developing and emerging countries are involved in Islamic banking and finance. Notwithstanding, Islamic financial institutions are “operating in 13 non-Muslim countries as well: Australia; the Bahamas; Canada; the Cayman Islands; Denmark; Guernsey; Jersey; Ireland; Luxembourg; Switzerland; the UK; the USA and the Virgin Islands” (Alharthi et al., 2021). Islamic finance and banking (IFB) is a “faith-based financial system and its foundation is laid down in Shariah law and the principles of Islamic economics” (Habib, 2018). Even though Islamic banking is “commonly synonymous with ‘interest-free’ banking”, it has become a “growing force in the global financial circles” (Khan, 2010).

Banks have a crucial role in the overall stability of the financial system, especially in developing countries, where the financial system is “bank-based” (Fotova Čiković & Cvetkoska, 2022). Banks’ business model has “serious consequences for the stability of banks” and the Islamic banks’ business model differs greatly from that of conventional banks “in terms of their asset-liability structure and product offering” (Ashraf et al., 2016; Rizwan et al., 2021). Islamic financial institutions are based on Sharia law and are most subordinate to religion (Ramazanov et al., 2022). Namely, the main principles of Islamic banking are based on the premise that “interest, which is strictly forbidden in Islam, is neither a necessary nor a desirable basis for the conduct of banking operations, and that Islamic teachings provide a better foundation for organizing the operations of banks”. Conventional banking operates through “the interest rate mechanism” as a financial intermediary, whereas Islamic banking represents “a radically different model of banking which does not make use of interest but rather relies on profit/loss sharing for the purposes of financial intermediation” (Ahmad, 1994). This is the so-called PLS paradigm (profit-and-loss sharing), which eventually leads Islamic banks to greater risks than those of conventional banks (Fotova Čiković, 2022).

From a theoretical perspective, the difference between Islamic banking and conventional banking is in the fact that “interest (RIBA) is prohibited in Islam; i.e. banks are not allowed to offer a fixed rate of return on deposits and are not allowed to charge interest on loans” (Chong & Liu, 2009). From a more practical perspective, Islamic Banking and Finance (IBF) is a system that adheres to the following four principles: risk-sharing, materiality, no exploitation and no financing of sinful activities (Khan, 2010). The main differences between Islamic and conventional banking are given in Table 1.

After the signing of the Dayton Peace Accord in December 1995, Bosnia and Herzegovina (B&H) was divided into two entities: The Federation of Bosnia and Herzegovina (FBiH) and the Republika Srpska (RS), each entity implementing its own structural reforms, starting in 1997 in FBiH and 1998 in RS (Radzic & Yuce, 2008). The B&H banking system has also been divided into two sectors controlled by two banking agencies, the Banking Agency of Federation of Bosnia and Herzegovina and the Agency for banking Supervision in the Republic of Srpska. However,

Table 1 Main differences between Islamic and conventional banking

Factors		Conventional banking	Islamic banking
1	Risk taking	Operates based on risk transfer from the depositors and the bank to the borrowers or entrepreneurs	Operates based on risk sharing between the depositors, bank and borrowers or entrepreneurs
2	Economic versus social focus	Concentrates on economic wellbeing and profit maximization principles	Community oriented, encouraging entrepreneurship, promoting justness and fairness in society, grounded on ethical, social and moral framework
3	Price of money	Time value of money, as in interest, is the price of money	Money is not a commodity and has no price
4	Fixed income versus profit and loss sharing	Depositors receive a fixed interest and deposits are considered as liability	Depositors of investment accounts are partners of the bank and share in the profit and loss; these accounts have characteristics of both debt and equity
5	Deposit guarantee	All deposits are guaranteed	Deposits placed in current accounts are guaranteed only
6	Income	The primary income of the bank is the fixed interest earned from the debt financing it provides, separated from the real economy	The financing is linked to the real sector and the return of the financial transactions arise from the real economy
7	Asset link	Transactions can be purely financial, with no compulsion to link to real assets	All financial transactions need to be either asset based or asset backed, with an exchange of goods and services, making the system more stable
8	Size of banks	Many of the global conventional banks are of very large size	Most Islamic banks are small or medium sized
9	Bank-client relationship	The bank-client relationship is that of creditor and debtor	Depends on the type of contract, could be of partners, principal and agent, investor and manager, buyer and seller, lessor and lessee

(continued)

Table 1 (continued)

Factors		Conventional banking	Islamic banking
10	Default payment	Default to repay is penalized by compounding interest	No penalty can be charged in case of default, except cost for recovery of repayments, any additional penalty if charged needs to be donated to charity
11	Restrictions	No restrictions on the investments of funds or projects financed	Only Shariah-compliant investments and projects can be financed

Source Habib (2018)

the B&H banking system “works as a single banking market” (Efendić, 2017). The financial system of Bosnia and Herzegovina is characterized by bank domination, their predominantly foreign ownership and traditional business model operations, i.e. the taking of deposits and the provision of loans. The banking systems of all former Yugoslavian countries are “well capitalized and liquid, but challenges regarding asset quality and indirect credit risk remain”. Moreover, they “seem less prone to financial stress from maturity mismatches” (ECB, 2019). B&H financial system today is dominated by commercial banks, with 23 commercial banks currently operating (Lacevicić, 2021) and the majority of them (around 80%) are foreign-owned (FIPA, 2022). Banks in 2020 hold a share of 88.8% of the total financial system assets (CBBH, 2021). Moreover, a continuation of the bank consolidation process constantly occurs, merging smaller banks from the Bosnian banking sector.

Considering the key role banks have in B&H, their performance and efficiency are consistently measured and evaluated. Moreover, efficiency is referred to as “the minimization of inputs used by a firm to produce a given level of outputs or the maximization of outputs produced by a given set of inputs under a given state of technology” (Toci, 2009). For financial institutions, “efficiency would imply improved profitability, greater amounts of funds intermediated, better prices and service quality for consumers, and greater safety and soundness if some of the efficiency savings are applied towards improving capital buffers that absorb risk” (Berger et al., 1993).

The over-arching and central research question in our study was whether Islamic Banking in the Balkans (which is represented by the Bosnia Bank International) has noted higher or lower efficiency as a result of the COVID-19 pandemic and to compare its relative efficiency with the relative efficiencies of the other conventional Bosnian commercial banks. The applied methodology is the BCC DEA methodology with two inputs and two outputs, in a time frame of 6 consecutive years, from 2016 to 2021.

The main goal of this paper is to distinguish the Sharia law in the case of banking and to give an empirical evaluation of Islamic banking in Bosnia and Herzegovina, thus concluding regarding its efficiency.

The remainder of this article is structured as follows. After the Introduction section, a literature review regarding the DEA applications in the B&H banking

sector as well as the DEA applications in Islamic banking follows. Section 3 presents the data and gives a theoretical background on the used DEA methodology. Section 4 reveals the research results and opens up a discussion, and Sect. 5 provides concluding remarks.

2 Literature Review

2.1 *DEA Applications in B&H Banking Sector*

According to Fotova Čiković, Keček and Tkalec (2022), five studies are focusing solely on the Bosnian banking sector and two cross-country studies that tackle (among others) the Bosnian banking sector. A short overview of their used DEA models and their findings are given below.

Efendić and Avdić (2011) investigated the technical, cost, allocative and scale efficiency of 19 actively operating commercial banks in B&H in 2009, using the intermediation approach through the input-oriented DEA methodology. They found that the B&H banks are “on average significantly inefficient”. Furthermore, their results reveal that big banks are the most efficient group in the B&H banking market and domestic-owned banks are on average more efficient than foreign-owned and banks with mixed ownership.

Memić and Škaljić-Memić (2013) explored the efficiency of 26 B&H banks with the application of DEA methodology in the period of three consecutive years (from 2008 to 2010). They found that the “overall average efficiency of the banking sector has improved over the analysed period, even though the profitability has declined”. Interestingly, the empirical results indicate that in one out of the three observed periods, “small-sized banks in Bosnia & Herzegovina are more efficient than large banks”.

Efendić (2017) employed the multistage DEA with an output-oriented intermediation approach on a pooled sample of banks in B&H to compare the Islamic and conventional banking efficiency in B&H in the period from 2002 to 2015. The results regarding the average efficiency for the whole B&H banking sector “is at a seventy-seven per cent moderate level”. Moreover, conventional banks note higher efficiency than the existing Islamic bank and big banks are more efficient than small-sized banks.

Husejinović (2019) has applied the DEA methodology with two inputs (Capital and Number of Employees) and three output variables (Loan Amount, Deposit Amount and P/L Amount) to measure the efficiency of banks in the Federation of BH in the period 2016–2017. The findings of his research show that large banks note higher efficiency than small-sized banks. Moreover, the efficiency results show a “significant difference in the relative efficiency” of the top two banks and the rest of the banks in the analysed sample. The large UniCredit bank is the most efficient in both 2016 and 2017.

Varesi (2015) conducted a cross-country study of the banking efficiencies of six Western Balkan countries (Albania, Bosnia and Herzegovina, Kosovo, Macedonia FYR, Montenegro and Serbia) from 2007 to 2012. She used the CCR and BCC DEA models, with the number of branches and total assets as inputs and total loans as output variable. The findings reveal that Albania's banking sector is the least efficient, whereas the Montenegrin banking sector notes the highest efficiency. Milenković et al. (2022) explored the efficiency of six Western Balkan countries (Serbia, Bosnia and Herzegovina, Montenegro, North Macedonia and Albania) in the time frame from 2015 to 2019.

The fact that there are only five published papers regarding solely the relative efficiency of commercial banks in B&H unravels the scarcity of such empirical research and the increased need to promote this methodology and its perks among scholars from this region.

2.2 *DEA Application in Islamic Banking*

On the other hand, there are many studies investigating the efficiency and performance of Islamic banking in the USA and the Middle East. However, the work on Islamic banking in Europe “is still in its infancy” (Iqbal & Molyneux, 2005). For instance, Ahmad and Luo (2010) observed nine Islamic banks and 33 conventional banks between 2005 and 2008 in three countries: Germany, Turkey and the UK and have found that Islamic banks outperformed conventional banks in technical efficiency (TE) for all the years except 2005 and are better at “controlling costs comparing to conventional banks”. Abu-Alkheil et al. (2012) have published the only available empirical research on an Islamic bank in B&H. Namely, they investigate the efficiency of two Islamic banks (namely, the Bosna Bank International—BBI in Bosnia and Herzegovina and the Islamic Bank of Britain—IBB in the UK) in comparison with small conventional banks in each country and with small and large Islamic banks from Muslim-majority countries. For this study, they have included “a cross-country bank-level panel data for a sample of 23 Islamic banks in ten countries” and applied the DEA methodology in a combination with the intermediation approach, OLS regression analysis and Malmquist indexes for the analysed period from 2005 to 2008. They found that both analysed banks (IBB and BBI) note technical inefficiency and “lag relatively behind their conventional peer banks in terms of efficiency and productivity performance”. However, interestingly, BBI noted higher efficiency scores when compared to conventional banks than IBB.

Iqbal and Molyneux (2005) found that Islamic banking “as a production process is almost always more cost and profit efficient than conventional banking”. Alam et al. (2022) employed a data envelopment analysis (DEA) technique in combination with Tobit regression to evaluate the relative efficiency of a sample of 14 conventional and 11 Islamic banks from four countries in the period 2011–2019. Their findings reveal that “average DEA-generated efficiency of conventional (Islamic) banks is

about 38.8% (42.45%)” and that “the ESG has an overall positive impact on banks’ efficiency”.

Lantara et al. (2022) conducted an empirical study on Indonesian banks in the period before and after the COVID-19 pandemic (2010–2021). They applied the input-oriented DEA variable constant return to scale (CRS) and returns to scale (VRS) models to assess the overall, pure and scale efficiency of Islamic banks. Their valuable findings and suggestions imply that there is a need for an increase in competition, enhancement of technology and innovation in Islamic banking in Indonesia.

Srairi et al. (2022) investigated the impact of the governance structure of Islamic banks operating in the Gulf Cooperation Council (GCC) on bank performance and efficiency after the Global financial crisis in 2008/09. For this purpose, they constructed “a banking governance index (CGI) composed of sub-indices for the board structure, risk management, transparency and disclosure, audit committee, Sharia supervisory board and investment account holders”. Their results indicate that “bank governance is positively associated with risk-taking and bank efficiency”.

Uddin et al. (2022) have applied the DEA approach to evaluate the profitability, marketability and corporate social responsibility (CSR) disclosure efficiencies from 2012 to 2021 of listed Islamic banks in Bangladesh. Their findings show that Bangladeshi banks are, on average, “inefficient in terms of all efficiencies”; however, conventional banks are found to be “more efficient than Islamic banks in terms of profitability and marketability at 5% and 8%, respectively, while, in terms of CSRD efficiency, Islamic banks are by 1% more efficient than conventional banks”.

3 Data and Research Methodology

In this paper, the relative efficiency of commercial banks in Bosnia and Herzegovina is assessed with the application of the leading nonparametric DEA methodology for the period 2016–2021, in order to compare the relative efficiencies of the only representative of Islamic banking in the Western Balkan (namely, the Bosnia Bank International) and all the other traditional and conventional banking institutions. Moreover, the impact of the COVID-19 pandemic on the efficiency and performance of the banks will be evaluated and discussed in detail.

The data envelopment analysis (DEA) is a relatively new data-oriented approach and a nonparametric method for linear programming used for analysis of the “efficiency evaluation” concept, which was first developed by Farrell (1957) and later on introduced as CCR DEA model in 1978 in the seminal paper “Measuring the efficiency of decision-making units” published in European Journal of Operational Research by the authors Charnes et al. (1978). With this methodology, the performance of homogeneous units that use multiple input and output variables is evaluated. In DEA, these units are called decision-making units (or DMUs). By means of linear mathematical programming, all the decision-making units in the analysed sample

are “projected to the DEA frontier and compare with the extent to which DMU deviates from the frontier of DEA production” (Fan & Sun, 2017). Data envelopment analysis (DEA) is “a powerful management tool and an appropriate decision-making tool” that provides a measurement, evaluation and comparison of relative efficiency, and thus, the performance of various organizations that use similar input and output variables (Alinezhad et al., 2015). DEA is widely recognized as an excellent and easy-to-use method for modelling operational processes for performance evaluation (Cooper et al., 2011).

The two basic DEA models are the CCR model (Charnes et al., 1978) and the BCC model (Banker et al., 1984). The main distinction between these basic models is the way they approach to returns to scale. Namely, the CCR model assumes constant returns to scale (and is often referred to as CSR), whereas the BCC model assumes and allows for a variable (either increasing or decreasing) returns to scale (known in the literature as VRS). Moreover, the CRS assumption is “only appropriate when all banks are operating optimally” (Iqbal & Molyneux, 2005). However, considering the existence of external factors such as imperfect competition and constraints in finance that could cause banks not to operate optimally, the VRS BCC approach is more appropriate for evaluation of bank efficiency.

The efficiency scores obtained from the DEA rank and classify the units into relative efficient and relative inefficient. The relative efficient decision-making units (DMUs) are those best-practice banks that have an efficiency score of 100%, while other non-efficient banks score between 0 and 100%.

In this research, the BCC DEA model has been implemented due to the nature of banking operations (as mentioned above). The selection of the input and output variables has been done after reviewing plenty of scholarly literature articles and following the models by Banker et al. (2010) and Cvetkoska and Fotova Čiković (2020). In Table 2, the two inputs and two outputs and a specification of their elements have been presented.

Table 2 Input and output variables of the DEA model

Character of variable	Variables	Elements of the variables
Input	Interest expenses (I1)	
	Non-interest expenses (I2)	Expenses on fees and commissions
		General administrative expenses and depreciation
		Expenses on value adjustments and provisions
		Other operating expenses
Output	Interest revenues (O1)	
	Non-interest revenues (O2)	Income from fees and commissions
		Other operating income

Source Authors' work

The sample consists of 23 commercial banks actively operating in the B&H banking sector in the observed period from 2016 to 2021. The data has been extracted from their official and published financial and yearly reports.

The envelopment form of the output-oriented BCC DEA model is given in (1)–(5):

$$(\text{BCC} - \text{Oo}) \quad \max_{\eta_B, \lambda} \eta_B \quad (1)$$

subject to

$$X\lambda \leq x_0 \quad (2)$$

$$\eta_B y_0 - Y\lambda \leq 0 \quad (3)$$

$$e\lambda = 1 \quad (4)$$

$$\lambda \geq 0 \quad (5)$$

where η_B is a scalar. The input data for DMU j ($j = 1, \dots, n$) are $(x1j, x2j, \dots, xnj)$, and the output data are $(y1j, y2j, \dots, ynj)$; the data set is given by two matrices X and Y , where X is the input data matrix, and Y is the output data matrix, λ is a column vector and all its elements are non-negative, while e is a row vector and all its elements are equal to 1 (Cooper et al., 2007, pp. 22, 91–92), (Cvetkoska & Barišić, 2017, pp. 33–34). The BCC efficiency requires the fulfilment of two conditions: (1) the result of the BCC efficiency to be equal to 1 (100%) and (2) all slacks to have a zero value (Cvetkoska et al., 2021).

4 Results and Discussion

The sample consists of a total of 23 banks that actively operate in the Bosnian banking market in the observed period. The specified BCC DEA model is solved with the use of the DEA-Solver-LV software, and additional details for this software can be found in Cooper et al. (2007).

The results from the DEA model reveal interesting insights. The annual mean relative efficiency score of the whole B&H banking sector is calculated as an average from the obtained efficiency results of each analysed bank in the sample in that current year and the average efficiency for the whole observed period of 6 years (2016–2021) is 59.67%. As shown in Fig. 1, the mean efficiency of the whole B&H banking sector has steadily increased from 52.65% in the first analysed year (2016) to 69.77% in the last analysed year (2021). The positive trend of efficiency improvement has been presented every year, with the exception of the pandemic 2020. Namely, this is the only year when a small decrease in relative efficiency has been noted (from 62.86%

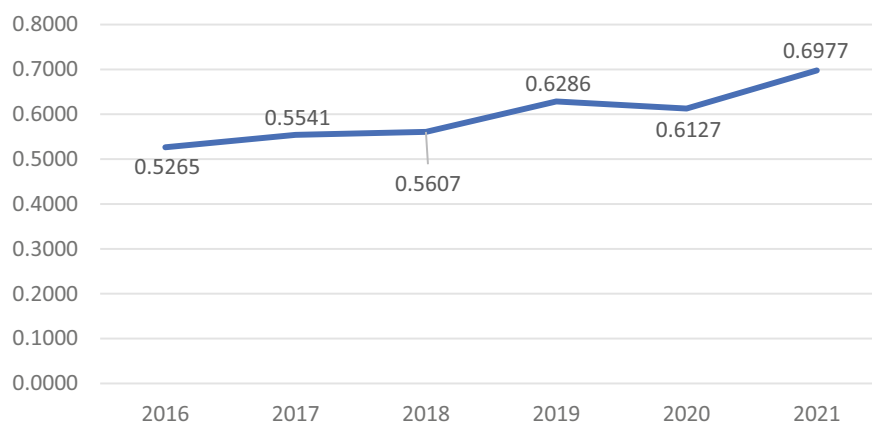


Fig. 1 Average efficiency of the whole B&H banking sector. *Source* Author's work

in 2019 to 61.27% in 2020) and this reveals the impact of the COVID-19 pandemic on the B&H banking sector and its mean efficiency.

The average efficiency results for each of the 23 analysed commercial banks as well as their efficiency results per year in the observed period 2016–2021 are presented in Table 3. There is no relative efficient bank in each of the analysed six years (2016–2021). The most efficient banks are the large banks: Raiffeisen Bank (95.50%), NLB Banka AD Banja Luka (91.74%), UniCredit Bank Mostar (86.66%) and Komercijalno-investiciona banka (83.45%), whereas the least efficient banks are predominantly part of the small-sized banks: Ziraat bank (37.25%), ProCredit Bank (36.03%), MF banka (35.59%) and Komercijalna banka Banja Luka (37.05%). These findings are in line with the previous studies of Husejinović (2019) and Efendić and Avdić (2011), who found that the B&H banks are “on average significantly inefficient” and found that big banks are the most efficient group in the B&H banking market. However, these results are not in line with Memić and Škaljić-Memić (2013), who found that “small-sized banks in Bosnia and Herzegovina are more efficient than large banks”.

BBI is the first bank, both in B&H and Southeast Europe, to operate in accordance with Islamic finance principles and its beginnings date back to October 2000, when its Sarajevo headquarters were founded. It is focused on the development of Bosnia and Herzegovina and invests all profits in the country (BBI, 2023). Therefore, it is currently the only commercial bank applying Islamic banking principles in Western Balkan countries, which makes this a very interesting and insightful empirical study.

The mean efficiency result for the whole observed period for BBI Bank is 48.32%. As shown in Fig. 2, BBI Bank noted an efficiency score of 0.4641 in 2016, which constantly rose in 2018 and 2019 to 0.5267 and 0.5242, respectively. However, the COVID-19 pandemic left its mark on the average efficiency of BBI Bank in 2020, when the average efficiency fell to the lowest point in the whole observed period, i.e. to 0.4232. The year 2021 has been a more successful year for the bank, however,

Table 3 Results from the DEA model for each observed year (2016–2021) and each B&H commercial bank

Commercial bank	2016	2017	2018	2019	2020	2021	Average
Addiko bank Banja Luka	0.4645	0.5689	0.5145	0.5429	0.5156	0.6528	0.5432
Addiko bank FBIH	0.3291	0.5040	0.5593	0.9119	0.9197	1.0000	0.7040
ASA Banka	0.3776	0.3374	0.4182	0.5040	0.4930	0.5420	0.4454
Bosna bank international	0.4641	0.5098	0.5267	0.5242	0.4232	0.4511	0.4832
Intesa Sanpaolo Banka	0.4630	0.4964	0.5864	0.6035	0.4851	0.7789	0.5689
Komercijalna Banka Banja Luka	0.3753	0.3827	0.4053	0.3921	0.3911	0.2768	0.3705
Komercijalno investiciona banka	0.6457	0.6885	0.8559	1.0000	0.8170	1.0000	0.8345
MF banka	0.3084	0.3001	0.3357	0.3925	0.3739	0.4248	0.3559
Nasa banka	0.3252	0.4832	0.4528	0.5743	0.7478	1.0000	0.5972
NLB Banka AD Banja Luka	0.7922	0.9487	0.8147	1.0000	0.9488	1.0000	0.9174
NLB Banka d.d. Sarajevo	0.5396	0.6112	0.6464	0.6994	0.6466	0.8512	0.6657
Nova banka	0.7126	0.6372	0.5921	0.6470	0.6126	0.6864	0.6480
Privredna Banka Sarajevo	0.6835	0.5307	0.6062	0.5558	0.5735	0.6049	0.5924
ProCredit bank	0.3824	0.2927	0.3713	0.3854	0.3722	0.3575	0.3603
Reiffeisen bank	0.8181	0.9645	1.0000	1.0000	0.9476	1.0000	0.9550
Sberbank AD Banka Luka	0.4494	0.4497	0.5413	0.7134	0.8345	0.8374	0.6376
Sberbank Sarajevo	1.0000	0.4600	0.4816	0.4935	0.4984	0.6068	0.5901
Sparkasse Bank Sarajevo	0.5795	0.6294	0.6572	0.7628	0.7739	1.0000	0.7338
UniCredit Bank Mo star	0.7758	0.8130	0.8749	0.8747	0.8615	1.0000	0.8666
UniCredit Bank Banja Luka	0.4666	0.5182	0.5455	0.6552	0.4772	0.5961	0.5431
Union Banka	0.3448	0.8938	0.3438	0.3985	0.3512	0.3529	0.4475
Vakufska banka	0.4689	0.4239	0.4662	0.4721	0.5235	0.5958	0.4917
ZiraatBank BH	0.3422	0.3010	0.3011	0.3553	0.5037	0.4319	0.3725

Source Author's work

it did not manage to return to the efficiency of 2018 and 2019. Considering the mean efficiency result of the whole B&H banking sector (59.67%), it appears as though Islamic banking in the case of BBI Bank is least efficient than the mean efficiency of the whole banking sector. These results are completely in line with the paper of Efendić (2017), whose findings revealed that conventional banks note higher efficiency than the existing Islamic bank and big banks are more efficient than small-sized banks.

However, these results should be tackled and analysed in accordance with the fact that the period 2020–2021 was one of the toughest economic periods since the Global Financial crisis in 2008/2009. There is a vast space for improvement of the efficiency of BBI Bank and these results could bring new insights to BBI Bank management, regulatory institutions in B&H as well as potential Islamic banking investors interested in investing in the region of Western Balkan.

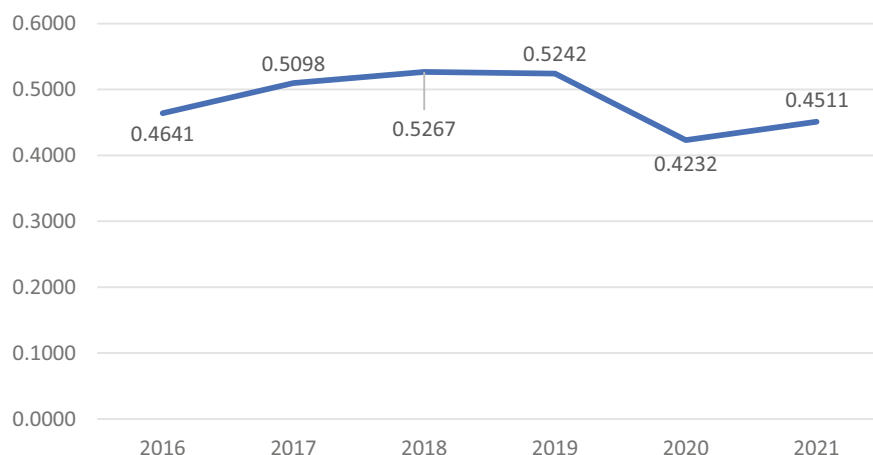


Fig. 2 Average efficiency for the BBI Bank (2016–2021). *Source* Author's work

5 Conclusion

Banks have a large impact on the stability of the country's financial system and thus, their role in maintaining financial stability is crucial. This is the reason behind the numerous studies empirically assessing banks' stability, efficiency and performance. The banking sector holds a significant place in the economic development of any country since it determines the level of the development of a country's economy and therefore "is considered a backbone of the country's economy" (Fotova Čiković & Cvetkoska, 2017) and "the nervous system of the country's economy" (Khan & Khattak, 2016).

Islamic banking, on the other hand, is very interesting to researchers but has been neglected by researchers from Western Balkan countries. Even though it is still considered to be "regional in terms of market share and size", it is assumed that it currently accounts for around 6% of the global banking market (Fotova Čiković, 2022). Therefore, it should come as no surprise that the efficiency and performance of Islamic banks are regularly and consistently evaluated and investigated. The leading nonparametric DEA methodology plays a vital role in the measurement of banking efficiency, and this is the main reason for its employment in this study.

In this paper, the efficiency of commercial banks in Bosnia and Herzegovina in a period of six consecutive years (2016–2021) is measured by using the leading nonparametric DEA methodology. In the selection of the variables and the DEA model, the author followed Banker et al. (2010). Based on the obtained results, the group of large banks are most efficient in the B&H banking sector, whereas the small-sized banks are least efficient. This is in line with the previous studies of Husejinović (2019) and Efendić and Avdić (2011), but not in line with the study of Memić and Škaljić-Memić (2013), which opens up the issue of input and output selection in DEA and its impact on the efficiency results. Moreover, when comparing the efficiency

results of the Islamic bank IBB Bank and the other conventional B&H banks, it can be concluded that Islamic banking noted lower efficiency than conventional banking in the B&H, which is completely in line with the previous study of Efendić (2017), whose findings revealed that conventional banks note higher efficiency than the existing Islamic bank and big banks are more efficient than small-sized banks. This calls for additional attention from scholars and also IBB Bank management, in order to gain new insights and possibly efficiency and performance improvement.

The key scientific contribution of this paper is mirrored in the scarcity of papers and empirical research on Islamic banking in Europe. Moreover, the amount of research done with the application of DEA in Islamic banking is very modest. This paper intends to fill in this literature gap and reveal new insights regarding the performance of Islamic banks, which could be very appealing to academic members, bank management and policymakers.

This paper, however, is not without limitations. The DEA methodology itself is not flawless and has a few downsides. Namely, as Fotova Čiković and Lozić (2022) stated that “no possibilities and ways for efficiency improvement, the ignorance of the impact of exogenous variables on the operation, the difficulty to perform statistical tests with the results and the potential sensitivity of the results to the selection of inputs and outputs” are some of its downsides. However, “the main disadvantage of DEA is that the frontier is sensitive to extreme observations and measurement errors, which lead to the basic assumption that random errors do not exist and that all deviations from the frontier indicate inefficiency” (Jemrić & Vujčić, 2002).

In future work, the focus would be on Islamic banking in Europe and empirical research would be executed to draw conclusions regarding the efficiency between Islamic banks operating in different countries.

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Is There a Relationship Between Political Elections and Stocks Returns?

A Theoretical Note



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Abstract Over decades, in finance annals is debated the question of whether stock markets are efficient. Accordingly, several empirical investigations tested how stock markets react to new information and examined how they include such information, i.e. stocks prices respond. Thus, empirical studies through deploying various methodologies try to answer if prices follow a “random walk”.

Keywords Stocks returns · Efficient markets · Political elections

1 Introduction

A market is considered efficient if security prices always “fully reflect” all available information (Fama, 1970). Reflecting all relevant information relies on the efficient-market hypothesis (EMH) which has been debated over decades (see, e.g., the survey from Malkiel, 2003). However, such efficiency (known as the strong form) is rather difficult to be achieved because relevant information is owned by firm insiders. Contrary, the semi-strong-form efficiency is related to publicly available information (e.g. annual reports), whilst the weak-form efficiency suggests that using historical prices information is not beneficial to earn excess returns.

Further, firm efficiency is proved to play an important role in asset pricing (Frijns et al., 2012) and changes in stock prices are principally not random (Allvine & O’Neill, 1980). In this context, empirical studies provide ample evidence that returns anomalies exist. Such anomalies are found and named as the turn-of-the-year effect, month-of-the-year effect, turn-of-the-month effect, day-of-the-week effect, holiday returns, dividend effect, etc., and intensive studies are done in this line. For instance, Ariel (1990) investigates pre-holiday stock returns, or how stock prices move related to tax reform (Wagner et al., 2018).

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In addition, politic election cycle effect is also another returns anomaly which has attracted the interest of several scholars by investigating it using different samples and research methodologies. This relationship has own argumentation and empirical studies prove that election cycles are important factor. Due to the uncertainty derived from electoral polls, probabilities and opinions who will win elections, forecasted economic policies and their implications on the overall country economy, as other likely factors impact as well, it would be coherent to expect that the political elections would have impact on stocks prices and thus on stocks returns.

For instance, rational partisan theory advocates that firms perform better under right than left-orientated governments (Füss & Bechtel, 2008). Further, Zhao et al. (2004) offer evidence of higher turn-of-the-month returns in the second half of presidential terms. The authors use returns from the daily Standard & Poor's 500 index, the Dow Jones Industrial Average index, and the NASDAQ Composite index to examine the presidential election cycle hypothesis.

Therefore, this paper aims to provide an empirical and theoretical view in line of decomposition the relationship between political elections and stocks returns. This paper is structured as follows. Section 1 provides a gentle introduction of the context, background, and the problem definition. Section 2 provides a literature review based on some highlighted studies in this field. Section 3 synthesizes the common methodology, i.e. the event study methodology. Section 4 presents conclusions and research limitations.

2 Literature Review

The efficient markets theory reached its prime of ascendancy in academia around the 1970s (Shiller, 2003) and subsequent empirical studies have enriched it through decades. For instance, Gaganis et al. (2013) investigate 399 listed insurance firms in 52 countries over the 2002–2008 period and find a positive relationship between profit efficiency change and market-adjusted stock returns.

Rösch et al. (2017) investigate the dynamics of high-frequency market efficiency measures. The authors reveal that the stock market efficiency is prone to systematic fluctuations and events/policies that influence funding liquidity can affect the price efficiency.

In addition, Abarbanell and Bushee (1998) prove that the fundamental signals provide information about future returns that are related to future earnings news. The authors show that a significant percentage of the abnormal returns is generated around subsequent earnings announcements.

Guo and Savickas (2006) reveal that the stock market risk-return relation is positive, whilst idiosyncratic volatility is negatively associated with future stock market returns. Stoll and Whaley (1990) find that, on average, S&P 500 and MM index futures returns tend to lead stock market returns by about five minutes.

Balvers et al. (1990) show that stock returns are a predictable function of aggregate output, and many of the same fundamentals that drive economic growth also explain stock market performance (Coates & Wilson, 2007).

Thus, among other anomalies, studies are focused also whether there is a relationship between political elections and stocks returns. For instance, Hensel and Ziemba (1995) use data from 1928 to 1993 to test the difference in returns under Democratic and Republican administrations. Foerster and Schmitz (1997) show that the U.S. election cycle might be an important non-diversifiable political factor related to expected stock returns.

Huang (1985) investigate common stock returns over two and four-year Presidential election cycles from 1832 to 1980. The author shows that investors who invested in Treasury bills during the first and second years of Republican administrations performed better than those continuously invested in common stocks.

Huber and Kirchler (2013) investigate contributions by firms before an election and their stock market performance following US presidential elections from 1992 to 2004. The authors show that firms experienced abnormal positive post-election returns in the two years after an election.

Leblang and Mukherjee (2005) using their model, forecast that rational expectations of higher inflation under left-wing administrations lower the volume of stocks traded in the stock market.

On the other hand, Ioannidis and Thompson (1986) investigate the impact of opinion poll information on share prices over the period 1960–79. The authors show that opinion movements towards the Conservative Party do exert a significant positive impact on the market, but only where the two main parties are relatively evenly balanced.

Mattozzi (2008) in line with the 2000 US presidential election composite Bush versus a Gore presidency portfolios and shows that the excess returns of such portfolios with respect to overall market movements are significantly related to changes in electoral polls.

Beaulieu et al. (2005) investigate the impact of political risk in Canada on the volatility of stock returns and reveal that political news plays an important role. Further, the authors provide evidence that investors do not require a risk premium, i.e. political risk is diversifiable. Latter one, Beaulieu et al. (2006) investigate the short run effect of the 30 October 1995 Quebec referendum and find that the uncertainty had an impact on the common stock returns of Quebec firms.

Wang and Lin (2007) use data on Taiwan stock market over a long sample period and show that the congressional effect negatively affects stock returns, but volatilities are not significant.

Moreover, Füss and Bechtel (2008) deploy conditional volatility models to investigate the impact of expected government partisanship on stock market performance in the 2002 German federal election. The authors reveal that small-firm stock returns were positively associated with the probability of right-orientated coalition winning the election, respectively, negatively associated with the probability of left-orientated. Further, the study reveals that volatility increased as the electoral prospects of right-orientated parties improved.

Santa-Clara and Valkanov (2003) find that the excess return in the stock market is higher under Democratic than Republican presidencies. Further, the authors reveal that the difference in returns is not explained by business-cycle variables related to expected returns and is not concentrated around election dates. However, consequently the authors advocate that the difference in returns over the political cycle is a puzzle.

3 Methodology

In general, empirical studies use different approaches and methodologies to test financial markets efficiency. For instance, Leblang and Mukherjee (2004) examine the 2000 US presidential election by using GARCH, exponential GARCH, fractionally integrated exponential GARCH and Markov-switching models and reveal that stock market volatility decreases when traders anticipate a Democratic victory.

Pesaran and Timmermann (2000) deploy an extended and generalised version of the recursive modelling strategy and show evidence of predictability in UK stock returns.

However, the event methodology is commonly used by several studies. For example, Pandey and Kumari (2021) use the standard event methodology to investigate the impacts of the 2019-nCoV outbreak on the global stock markets and reveal that early lockdowns/restrictions rebuild the investor's confidence and sharp reversal in the stock market returns.

In this context, whilst using the event methodology it has to be defined the event day, the event period (window), the estimation window, post-event window, etc. (for more see, e.g., Brown & Warner, 1985) and the general form of model is as follows:

$$R_{i,t} = \alpha_i + \beta_i I R_t, \quad (1)$$

where $R_{i,t}$ is the return of stock i at day t and

IR_t is the market index return on day t .

Thus, Eq. (1) is the single-factor model and the abnormal return ($AR_{i,t}$) of the stock i at day t is as follows:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i I R_t) \quad (2)$$

4 Conclusions

Political election anomaly is one of among several other stocks returns anomalies such as turn-of-the-month effect, Friday or Monday effect, December or January effect and the turn-of-the-year effect. This anomaly as an inefficiency in financial

markets contradicts assumptions proclaimed by the efficient-market hypothesis and makes it even more difficult to assess the risk–return relationship using commonly standard asset pricing models.

Consequently, intensive empirical studies are done to investigate this relationship and yet the difference in returns over the political cycle is a puzzle (Santa-Clara & Valkanov, 2003).

However, the relationship between political elections and stocks returns should be considered in addition to other factors for better portfolio performance and preparing strategies for investors whether to enter, stay or exit the financial market.

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The Role of Bank Loans to Agriculture Entities in Kosovo



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Abstract This paper explores the role of bank loans in supporting the agricultural entities in Kosovo. Agriculture is a significant sector of the economy in Kosovo, but it faces several challenges, including a lack of access to financing. The study analyses the types of loans available to the agricultural sector and their utilization, including their impact on the growth and development of agricultural entities. The research also evaluates the challenges faced by agricultural entities in accessing bank loans and suggests potential solutions to overcome these challenges. The research will analyse the impact of loans from the banking and microfinance sectors to the agricultural sector and compares it to the percentage of the agriculture sector's contribution to the GDP on the other hand the impact on the number of agricultural enterprises and the number of employees in the sector of agriculture. All data will be analysed in the period of 2010–21. The study also explores the utilization of these loans and their impact on the growth and development of agricultural entities in Kosovo. The findings suggest that while there has been an increase in the number of bank loans disbursed to the agricultural sector, the percentage of the agriculture sector's contribution to the GDP has remained relatively stagnant. Furthermore, the study highlights the challenges faced by agricultural entities in accessing bank loans, including inadequate collateral and high interest rates. The results underscore the need for policymakers and financial institutions to focus on creating a more conducive environment for access to finance for agricultural entities in Kosovo.

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Keywords Agriculture sector • Credit access • Small and medium enterprises (SMEs) • Agriculture entities • Agriculture employees

1 Introduction

Agriculture is a vital sector for the economy of Kosovo, contributing significantly to employment, exports, and food security, but this sector has been facing significant challenges in terms of limited access to finance, which has hindered the sector's growth and development. In recent years, banks in Kosovo have been playing an increasingly important role in providing loans to agriculture entities, enabling them to invest in new technologies, equipment, and inputs.

According to a report by the European Bank for Reconstruction and Development (EBRD) in 2017, agriculture is one of the main economic sectors in Kosovo, contributing to over 12% of the country's GDP. However, access to finance remains a significant barrier to the sector's growth, with only 22% of farmers having access to bank loans. The report recommends that banks in Kosovo should develop tailored financial products to meet the needs of agriculture entities and that policy-makers should create a favourable regulatory environment to promote lending to the agriculture sector.

This paper is focused on trying to explain the different impacts on developing the agriculture sector by banking and microfinance sectors. In this paper, the impact of bank and microfinance sector in the agriculture sector will be analysed, in the increase in the number of agricultural enterprises and the number of employees. This analysis will be done by analysing the impact of the changing the interest rate, the number and amount of loans disbursed in the period 2010–2021.

There are few researches of the impact of banks in agricultural sector in the economy of Kosovo. The most studies are focused on evaluating advantages or disadvantages of banks, also the impact of banks in increasing the technology and productivity of agriculture. For example, a study by Shkodra and Shkodra (2018) examined the impact of bank loans on agriculture entities in Kosovo. The study found that bank loans have a positive effect on agricultural production, with loans being used to invest in new technologies and equipment that increase yields and improve the quality of agricultural products. However, the study also identified challenges faced by agriculture entities in accessing and managing loans, including lack of collateral, high interest rates, and limited financial literacy.

Another study by Nure (2021) explored the lending criteria used by banks in Kosovo for agriculture loans. The study found that banks use various criteria, including the borrower's creditworthiness, collateral, and repayment capacity, to evaluate loan applications. The study also identified challenges faced by banks in lending to the agriculture sector, including high risk and limited market information.

2 Research Methodology

The main objectives of this research define:

- The role of bank loans in developing the sector of agriculture in Kosovo.
- The role of microfinance Institutions loans in developing the sector of agriculture in Kosovo.

The research is focused on four questions for conducting statistical analysis:

1. Do the banking and microfinance sectors have an impact on the agriculture sector in Kosovo?
2. Do the banking and microfinance sectors have an impact on the growth of agricultural enterprises in Kosovo?
3. Do the banking and microfinance sectors have an impact on the growth of employees in the agriculture sector in Kosovo?
4. Does inflation have an impact on the agricultural sector?

Through the literature review will enable us to analyse the researches regarding the impact of banks on the development of the agricultural sector. The challenges of this sector as well and the proposals of recent research regarding the impact of the sector banking in the development of agriculture.

Agriculture is a critical sector for Kosovo's economy, accounting for a significant portion of employment and GDP. Despite its importance, agriculture entities in Kosovo often struggle to access finance, which limits their ability to invest in their businesses and grow. Bank loans are one potential source of financing for agriculture entities, but the role of bank loans in the sector is not well understood also the impact of the microfinance sector and the difference in the impact of these two sectors in agriculture. This literature review aims to provide an overview of the existing research on the role of bank loans to agriculture entities in Kosovo.

Several studies have examined the role of bank loans in the agriculture sector. Swinnen and Gow (1999) stated that agricultural loans are limited in developing countries. However, this constraint can actually be beneficial as it can incentivize farmers to seek out and invest in new opportunities, as pointed out by Orebiyi et al. (2011).

Agricultural loans are viewed as a significant tool for boosting farm income and production, as emphasized by Doppler and Bauer (2010). Such loans can facilitate access to new technologies and inputs, leading to increased productivity, as noted by Nurgaziev (2010). Additionally, agricultural loans are deemed essential in the modernization of farming activities, as stated by Baker and Holcomb (1964), and are expected to have a pivotal role in the advancement of agriculture, according to Duong and Izumiad (2002).

On the other hand, several studies have examined the challenges that agriculture entities in Kosovo face in accessing bank loans. As per the Kosovo Banking Association (2013), the banking industry provides businesses in Kosovo with an advanced and effective payment system, along with a diverse array of financial services.

The banking system in Kosovo is known for its conventional banking services, which assist individuals, entrepreneurs, and companies to overcome challenges posed by emerging economies, as highlighted by Fatkoi and Asah (2011). Although the SME sector in Kosovo is relatively recent, it holds immense potential for both social development and economic progress, as indicated by McMillan and Woodruff (2002), and the World Bank Group (2005). Due to the unique factors associated with SME development, commercial banks play a crucial role in business advancement. In transition economies, commercial banks' lending policies have been prioritized to foster business development, according to Mydral (2010).

A study by the World Bank (2020) identified other challenges faced by agriculture entities in accessing bank loans, including the high cost of credit, the lack of financial literacy among borrowers, and the lack of access to information on loan products and requirements. The study also found that women-led agriculture entities faced additional barriers to loan access, including discrimination and lack of collateral.

From the literature review, we can understand that mainly market researches are done with primary data by analysing the direct impact to the farmers mostly from surveys. In comparison to other researches, a distinction will be made between the banking and microfinance sectors and their impact on the development of agriculture, the number of agricultural enterprises and the number of employees in this sector.

This paper will be done with panel data in the period of 2010–21, where to understand the impact of these two sectors in developing the agriculture sector will analyse the results from three regression models, where each model will have eight variables. The models will be as follows:

Model 1: There are a total of eight variables in this model: GDP of the agriculture sector (Y), while the independent variables are: number of loans disbursed by banks ($\times 1$), the amount of loans disbursed by banks ($\times 2$), interest rate of banks for the sector agriculture ($\times 3$), inflation ($\times 4$), the number of loans disbursed by microfinance institutions ($\times 5$), the amount of loans disbursed by microfinance institutions ($\times 6$), the interest rate of microfinance institutions for the agriculture sector ($\times 7$).

- **Agro GDP = $\beta_0 + \beta_1$ (No. of loans Bank) + β_2 (amount of loans Bank) + β_3 (Interest rate Bank) + β_4 (Inflation) + β_5 (No. of loans MFI) + β_6 (amount of loans MFI) + β_7 (Interest rate MFI) + u_1**

Model 2: There are a total of eight variables in this model: Number of agricultural entities (Y) while the independent variables are: number of loans disbursed by banks ($\times 1$), the amount of loans disbursed by banks ($\times 2$), interest rate of banks for the sector agriculture ($\times 3$), inflation ($\times 4$), the number of loans disbursed by microfinance institutions ($\times 5$), the amount of loans disbursed by microfinance institutions ($\times 6$), the interest rate of microfinance institutions for the agriculture sector ($\times 7$).

- **Number of agricultural entities = $\beta_0 + \beta_1$ (No. of loans Bank) + β_2 (amount of loans Bank) + β_3 (Interest rate Bank) + β_4 (Inflation) + β_5 (No. of loans MFI) + β_6 (amount of loans MFI) + β_7 (Interest rate MFI) + u_1**

Model 3: There are a total of eight variables in this model: The number of employees in the agricultural sector (Y) while the independent variables are: number

of loans disbursed by banks ($\times 1$), the amount of loans disbursed by banks ($\times 2$), interest rate of banks for the sector agriculture ($\times 3$), inflation ($\times 4$), the number of loans disbursed by microfinance institutions ($\times 5$), the amount of loans disbursed by microfinance institutions ($\times 6$), the interest rate of microfinance institutions for the agriculture sector ($\times 7$).

- **The number of employees in the agricultural sector** $= \beta_0 + \beta_1$ (No. of loans Bank) $+ \beta_2$ (amount of loans Bank) $+ \beta_3$ (Interest rate Bank) $+ \beta_4$ (Inflation) $+ \beta_5$ (No. of loans MFI) $+ \beta_6$ (amount of loans MFI) $+ \beta_7$ (Interest rate MFI) $+ u_1$

The results from these three models will be interpreted about the influence of independent variables on the growth of the agricultural sector, the number of agricultural enterprises and the number of employees in this sector, where we will be able to understand in which of these two variables the banking and microfinance sectors has the most impact.

3 Research Results

The research was conducted to investigate the relationship between bank loans and the performance of agriculture entities, as well as the impact on GDP, number of agriculture enterprises and number of employees in agriculture sector in Kosovo. The results of the study were obtained through the use of statistical software STATA, which allowed for the examination of correlation of variables and regression models.

In this chapter, we first present the discussion of the correlation analysis results that were conducted to examine the relationship between the dependent and independent variables. We then present the regression results, which were used to determine the factors that significantly influence the impact of bank loans among agriculture entities in Kosovo.

In the tables below, we have presented the correlation results for the three models that we have explained:

According to Table 1, we can see that there is a strong positive relationship between the number of loans disbursed by banks and the interest rate of banks, while there is a strong negative relationship with variables such as the amount of loans disbursed by microfinance institutions.

According to Table 2, from this model we can see that all the variables have a weak correlation with the dependent variable except the interest rate variable from the microfinance institution which has a strong positive correlation.

From the result of the correlation, we can see that almost all the variables have positive or negative impacts in the dependent variable, except for the variable of inflation (Table 3).

Below is the regression analysis Table 4 for the three models:

Table 1 Correlation results of the first model

Variables	Agro GDP
Agro GDP	1
Number of bank loans	0.7091
Amount of bank loans	−0.5647
Interest rate BANK	0.6623
Inflation	0.1958
Number of MFI loans	−0.5656
Amount of MFI loans	−0.7171
Interest rate MFI	0.4179

Table 2 Correlation results of the second model

Variables	No. of agro enterprises
Number of agriculture enterprises	1
Number of bank loans	0.0854
Amount of bank loans	0.0856
Interest rate bank	0.0167
Inflation	−0.2179
Number of MFI loans	−0.1983
Amount of MFI loans	−0.4581
Interest rate MFI	0.7129

Table 3 Correlation results of the third model

Variables	No. of employees in agro
Number of employees in agriculture	1
Number of bank loans	−0.8432
Amount of bank loans	0.6662
Interest rate bank	−0.7746
Inflation	−0.3053
Number of MFI loans	0.6521
Amount of MFI loans	0.8961
Interest rate MFI	0.8185

Table 4 Results of regression for three models

Number	Model	R^2 -squared	Adj R -squared
1	Agro GDP	0.67	0.11
2	Number of agriculture enterprises	0.77	0.37
3	Number of agriculture employment	0.98	0.97

Table 5 Results of OLS of the first model

	–1	–2
	OLS	PS/OLS
No_loan_of_banking	0.5468**	0.058*
	–1.1	–0.032
Volume_of loan	0.119	0.034
	–0.074	–0.024
Int_rate	–0.002	0
	–0.001	0
Inflation	–0.357	0
	–0.684	(.)
Loan no_MFI	0.107*	0.029
	–0.059	–0.019
Loan volume MFI	–0.632***	–0.193***
	–0.105	–0.033
Int_rate_MFI	0.640***	0.201***
	–0.067	–0.02
Constant	–1.868	
	–1.506	
Number of observations	12	12
R-squared	0.67	

From the table, it can be seen that the third model has the highest explanatory variation with 98%, followed by the second model with 77% while the third model with 67%.

Based on the regression results of the third model, the only variables that have explanatory are the interest rate of banks and the amount of loans disbursed by micro-finance institutions since the coefficient $t > 1.69$ (results you can find in appendix). These results show that an increase in the amount disbursed by microfinance institutions by 1% would increase the number of employees in the agricultural sector by 3.54%, which means we have a strong positive relationship. But based on the results of the second and third models, none of the variables have explanatory power until $t < 1.69$.

On the other hand to answer the questions, we used two methods: simple OLS and weighted OLS for all three models and the results are as below (Tables 5, 6 and 7).

According to the analysis of the three models with the propensity score weighted OLS method, we see that the preferred model is the third model because 98% of the variation is explained by this model, the importance of the coefficients is high and statistically significant.

The model shows us that if everything else is constant, the decrease in the number of loans in the bank by 1, decreases the number of workers in agro-businesses by 1.38,

Table 6 Results of OLS of the second model

	−1	−2
	OLS	PS/OLS
No_loan_of_banking	4.9442**	5.236*
	−0.04	−0.523
Volume_of loan	12.025	12.62
	−0.39	−0.42
Int_rate	−28.51	−28.63
	(−0.34)	−0.39
Inflation	44.596	44.82
	−0.684	(.)
Loan no_MFI	0.38*	0.386
	−1.34	−1.75
Loan volume MFI	−30.90***	−32.52**
	−1.34	−1.22
Int_rate_MFI	0.640***	0.201***
	−0.067	−0.02
Constant	−1.868	
	−1.506	
Number of observations	12	12
R-squared	0.77	

the increase in the volume of loans per 1000 euros, increases the average number of employees by 89.12.

We have found that the increase in the interest rate reduces the likelihood of getting a loan for agricultural workers by an average of 4.3%.

Inflation also affects the decline in inflation, on average.

From the results, we see that the biggest influence is the loans received in micro-finance institutions, this may be because of the probability that microfinances target agricultural clients with lower incomes compared with the bank sector. The interest rate does not have any statistical significance in MFI, which means that customers are not very sensitive to the interest rate; this may be because they have to agree with the conditions.

Overall, the findings of this study provide important insights into the role of bank loans in supporting the development of agriculture entities in Kosovo. The results have important implications for policy makers, financial institutions, and other stakeholders involved in the agriculture sector.

Table 7 Results of OLS of the third model

	–1	–2
	OLS	PS/OLS
No_loan_of_banking	–1.389** (–3.02)	–1.425* (–3.43)
Volume_of loan	89.12 –1	89.21 –1.52
Int_Rate	4.52 –1.82	4.3 –1.93
Inflation	–176 (–2.25)	–194 (–2.38)
Loan no_MFI	–197.93* –3.02	–197.97 –3.43
Loan volume MFI	–679.90*** (–3.0)	–680.59** (–3.21)
Int_rate_MFI	0.640*** –1975	0.201*** –3.54
Constant	–1.868 –2.05	
Number of observations	12	12
R-squared	0.98	

4 Conclusions

In conclusion, loans are an important source of finance for agriculture entities in Kosovo. However, access to loans is limited, and agriculture entities face several challenges in accessing bank and microfinance institutions, including the lack of collateral and credit history, high interest rates, and lengthy loan approval processes. Further research is needed to identify solutions to these challenges and promote the growth of the agriculture sector in Kosovo.

The study on the role of bank loans to agriculture entities in Kosovo used three different models to analyse the impact of bank and microfinance institution loans on the agriculture sector. The results indicate that the third model had the best results, highlighting the significant impact that bank loans have on the number of employees in the agriculture sector compared to the GDP of agriculture and the number of enterprises in agriculture. This suggests that access to loans can play a crucial role in promoting job creation and fostering the growth and development of agriculture entities in Kosovo.

However, it is important to acknowledge that other factors may also contribute to the success of agriculture entities, and further research is needed to fully understand the relationship between bank loans and the agriculture sector in Kosovo.

Appendix

See Tables 8, 9 and 10.

Table 8 Regression results of the first model

Number of obs		12				
$F(7,4)$		1.18				
Prob > F		0.4615				
R -squared		0.6742				
Adj R -squared		0.104				
Root MSE		0.75886				
GDP agro	Coef.	Std.Err.	t	P> t/	[95% conf. interval]	
Loan bank	0.5468424	0.4987197	1.1	0.334	−0.8378255	1.93151
Amount bank	−0.0171886	0.1101145	−0.16	0.884	−0.3229256	0.2885383
Interest rate bank	−0.1712654	0.2945871	−0.58	0.592	−0.9891703	0.6466395
Inflation	−0.079271	0.2054429	−0.39	0.719	−0.6496719	0.49113
Loan MFI	0.0125787	0.102547	0.12	0.928	−0.2721375	0.2972949
Amount MFI	−0.0639435	0.0815416	−0.78	0.477	−0.2903392	0.1624523
Interest rate MFI	−0.201435	0.2616533	−0.77	0.784	−0.9279012	0.5250311
_cons	14.71728	11.87994	1.24	0.283	−18.26673	47.70129

Table 9 Regression model of the second model

Number of obs		12				
$F(7,4)$		1.94				
Prob > F		0.272				
R -squared		0.7726				
Adj R -squared		0.3747				
Root MSE		214.79				
GDP agro	Coef.	Std. Err.	t	$P > t/$	[95% conf. interval]	
Loan bank	4.944289	141.1587	0.04	0.974	−386.9751	396.8637
Amount bank	12.02542	31.16705	0.39	0.719	−74.50819	98.55902
Interest rate bank	−28.51181	83.38056	−0.34	0.75	−260.0134	202.9897
Inflation	44.59928	58.149	0.77	0.486	−116.8482	206.0468
Loan MFI	39.84631	29.02513	1.34	0.252	−41.74037	119.433
Amount MFI	−30.90233	23.07971	−1.34	0.252	−94.98187	33.17721
Interest rate MFI	86.92018	74.05892	1.17	0.306	−118.7004	292.5407
_cons	−1416.439	3362.525	−0.42	0.695	−10752.3	7919.426

Table 10 Regression results of the third model

Number of obs	12					
<i>F</i> (7,4)	56.24					
Prob > <i>F</i>	0.0008					
<i>R</i> -squared	0.9899					
Adj <i>R</i> -squared	0.9723					
Root MSE	615.86					
GDP agro	Coef.	Std. Err.	<i>t</i>	<i>P</i> > <i>t</i>	[95% conf. interval]	
Loan bank	−1389.207	404.7455	−3.43	0.026	−2512.96	−265.4529
Amount bank	89.12165	89.36554	1.00	0.375	−158.9969	337.2402
Interest rate bank	452.5999	239.0778	1.89	0.131	−211.1864	1116.386
Inflation	−194.6755	166.7311	−1.17	0.308	−657.5953	268.2443
Loan MFI	−197.9312	83.224	−2.38	0.076	−428.998	33.13567
Amount MFI	234.5304	66.17664	3.54	0.024	50.79456	418.2662
Interest rate MFI	−680.5929	212.3498	−3.21	0.033	−1270.17	−91.01546
_cons	19743.49	9641.395	2.05	0.110	−7025.309	46512.3

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EUR/USD/GBP Exchange Rate Fluctuations in the Economy. Case Study: The Period of the Pandemic Covid-19 (March–November 2020)



Sihana Hoxha Shala and Hyrije Abazi-Alili

Abstract This study focuses on the impact of COVID-19 on the foreign exchange market, specifically the EUR/USD and GBP/USD currency pairs. The study covers March–November 2020 and takes into account the economic stability of the countries and the liquidity of the trading pairs. The results show that foreign exchange rates follow a trend in the time series and are influenced by investment in treasury securities, with a positive correlation of 47.81%. The study also found that interest rates, inflation, balance of payments, and public debt have a direct impact on a country's currency appreciation/depreciation. The testing was done for the US dollar only and showed a significant relationship between the parameters at a 90% level.

Keywords Exchange rate · Forex · Statistical analysis · Indicators · Valuation/depreciation · Monetary/fiscal policy

1 Introduction

The world has changed drastically during and after the pandemic period. Since March 2020 we have seen constant ups and downs of the US dollar against the euro and pound: volatility in exchange rates. Movements in foreign exchange rates help judge a country's domestic economy, as deteriorating economic conditions and inflation usually have an adverse (negative) impact on these exchange rates.

From the list of currency pairs that are traded with the largest volume in the foreign exchange market, in this research we will focus on EUR/USD and GBP/USD, taking into account the economic stability of these three countries and the high liquidity of trading with these currency pairs, as well as the fact that the US dollar is the

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most traded currency in the foreign exchange market, with 88.3% of global trades, considered as a “reliable currency” (the second in a row is calculated to be the Euro with 32.3% of trades (transactions), while the British pound accounted for 12.8% of all trades according to the 2019 report). The main problem that will be addressed by this research is the volatility of foreign exchange rates during the observed period of March–November 2020 (since the beginning of the undertaking of protective measures against the COVID-19 pandemic). As a result of this, we want to know how macro- and microeconomic fundamentals affect foreign exchange market rates? What is required for a country’s currency to appreciate and return its position in the international foreign exchange market? Does investing in treasury securities have a direct impact/relation to the appreciation/depreciation of a country’s currency?

2 Literature Review

2.1 Currency Pairs

(CMC Markets) Currency pairs measure the value of one currency against another currency. They are divided into primary currency and secondary currency. For example, we can take the most traded currency pair in the world, EUR/USD, where its price represents how many US dollars are needed to buy one unit of the base currency, the Euro. Thus, we position ourselves depending on our speculation whether the price of the base currency (Euro) will rise or fall against the secondary one (USD) (Madura, 1995). In this case, if we expect the value of the euro to increase against the dollar, then we take the buying position of the currency in question, and conversely, if we expect the value of the euro to fall against the US dollar, then we sell the euro and buy the dollar. Each currency pair has a bid (offer) and an ask (ask) price. The difference (the spread) between the asked and offered price represents the difference in price between foreign currencies.

EUR/USD

(sell/bid) 1.19631/1.19639

(buy/ask) (spread) = $1.19639 - 1.19631 = 8$ pips

The leading currency pairs are more attractive to traders because they symbolize the most stable and priority economies around the globe and thus enable traders to take advantage of the small differences between them (spreads), which represent market value. It is important to remember that a stronger currency of a country makes its exports more expensive to other countries, while imports become cheaper, and vice versa, which means that exchange rates play a significant role in determining trade relations between the two countries.

2.2 The Drivers of the Foreign Exchange Market and Their Operation

Several factors influence currency pairs, including economic stability, interest rates, terms of trade, public debt, and current account deficits. Higher interest rates attract foreign capital, leading to currency appreciation, while factors such as low inflation, natural disasters, political instability, and economic performance can cause currency depreciation. Central banks, like the US Federal Reserve and the Bank of England, often intervene in the foreign exchange market through monetary policy announcements. Economic outlook plays a crucial role in determining the value and strength of a country's currency in the foreign exchange market.

2.3 The Impact of Macroeconomic Fundamentals on Foreign Exchange Market Rates

Many empirical studies have been drawn to explain market behavior according to macroeconomic fundamentals. One of the first theories that explains the evolution of exchange rates is based on purchasing power parity (PPP). PPP theory states that price levels in different regions of the world should be equal when expressed in a common currency. In other words, a unit of a country's currency is the target interest rate set by the FOMC, the rate at which commercial banks borrow and lend their excess reserves to each other overnight. This theory holds when the rate of depreciation of one currency against another matches the difference in general price inflation between the two countries. For example, if a country's goods and services cost twice as much as in the USA, all else being equal, \$2 USA will have the same purchasing power as one unit of foreign currency, so \$2 will be the relative exchange rate of exchange. As a result, the residents of both countries will have the same purchasing power (Sarno & Taylor, 2002).

Akbel (2015/2016) talks about the same factor of the macroeconomic base that has a significant impact on the level of relative exchange rates, which is the evolution of a country's balance of payments. The well-known economist Nikolas Müller-Plantenberg from his research finds that the balance of payments has an indirect influence on the supply and demand of a currency, through the change in international payment flows. This model shows that depending on a country's exchange rate policy, fixed or flexible, and its capital flows policy, accommodating current account imbalances or moving autonomously has a large impact on the behavior of exchange rate.

2.4 The Impact of Monetary and Fiscal Easing Measures on the Exchange Value of Currencies During the Period of the COVID-19 Pandemic

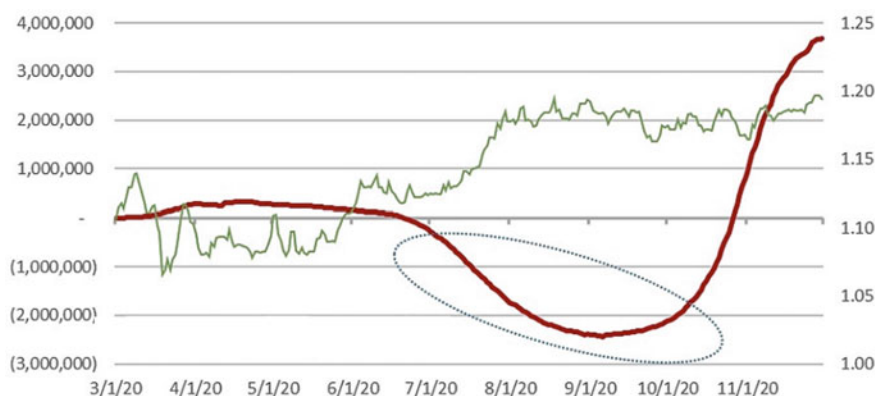
According to economic analysts, quantitative easing measures by central banks, such as the ECB and the Fed, have had significant and persistent effects on the USD/Euro exchange rate. These effects are mainly transmitted through shifts in exchange rate risk and short-term interest rates, currency risk premium, liquidity effects in money markets, signaling effects, and arbitrage limits in foreign exchange markets. The relative increase in the Fed's balance sheet compared to the ECB's since March 2020 has led to an appreciation of the Euro against the US dollar by nearly 6%, accounting for more than half of the estimated exchange rate change of about 10% between March and September 2020 (Dedola et al., 2020).

The exchange rate is crucial in transmitting monetary policy, as demonstrated by recent developments. The European Central Bank considers the implications of exchange rate on medium-term inflation forecasts. Fiscal policy, through changes in government spending and revenue, can impact the economy and exchange rates. Fiscal stimulus may lead to higher interest rates, attracting foreign capital and resulting in a stronger currency. However, in times of recession like the COVID-19 pandemic, interest rates tend to remain low, limiting the impact of fiscal policy. This complex interplay underscores the potential offsetting effects of fiscal policy on exchange rates and economic activity.

2.5 Impact of the COVID-19 Pandemic on Exchange Rates

During the pandemic in March 2020, currencies were influenced by countries' capital movements. Currency performance reflected countries' ability to cope with the pandemic. Some authors believe the dollar would have remained strong without intervention from the Federal Reserve. Despite Europe and the UK facing high COVID-19 cases, they managed to reduce new cases and reopen their economies, which impacted their currencies positively. Putnam (2020) observed the impact that the spread of the SARS-CoV-2 virus had on exchange rates. He points out that the currencies of countries that showed sharp daily increases in new cases of COVID-19 weakened against the currencies of other countries that showed progress in managing the prevention of the spread of the virus. The virus in question also affected the change in relative expectations of economic growth in the future. States with healthy economies tend to attract world capital flows, flows that are an important driver of exchange rates.

When the virus first hits a country or region strongly, expectations for economic growth are lowered for fear that the economy or parts of it may be forced to shut down. On the other hand, as the country gains better control of the spread of the virus and daily infected cases fall, optimism about the reopening of the economy grows. Putnam illustrates this case through fluctuations in euro-dollar exchange rates. At



Graph 1 Impact of the number of virus cases on exchange rates. Specific EU-US case and the EUR/USD exchange rate in the period March–November 2020 (The red line represents the COVID-19 cases; the green line represents the exchange rate Euro/Dollar)

the beginning of the spread of the pandemic in the world (March 2020), the euro was weaker against the US dollar. Europe, especially Italy, was hit hard before the virus reached the USA. Then, from the low point on March 20, the euro rose over 10% by the end of August against the US dollar. However, the euro's rapid growth was halted, not by any political or economic announcements, but by the rise of a second wave of the virus that appeared in France and Spain, which negatively affected the economic response. This is also clearly observed from Graph 1, where it can be seen that the USA began to face a higher number of daily cases of the virus compared to the EU, and at the same time, it is the euro currency that is valued against the US dollar.

What Putnam emphasizes as of utmost importance is time. It may take weeks or months for the currency market to reflect how one country is improving its grip on the virus and another is losing it. Also, there is more going on in this environment than just the spread of the pandemic. Policy changes are very important, as are political risks. As for the 2020 pandemic, Putnam says tracking the relative progress of the virus was essential to understanding currency movements.

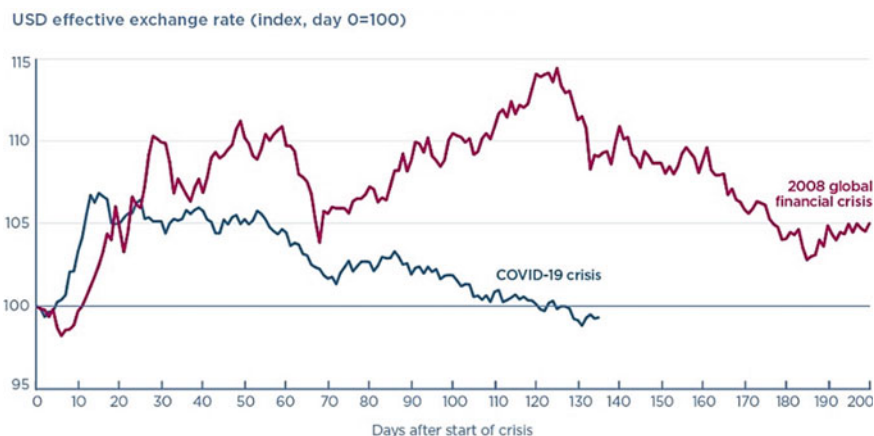
Aloui (2021) examines through time-varying BVAR16 the behavior of exchange rates and credit volume of Eurozone businesses following ECB monetary measures. Stochastic volatility analysis shows that major events, such as the 2008 global financial crisis, ECB decisions, and more recently the COVID-19 pandemic, contribute to the volatility of the euro/dollar exchange rate. Aloui, from these findings, finds that the exchange rate has increased in the short term in the face of a shock of the monetary measures undertaken during the period of COVID-19. This suggests a major disruption in investor behavior that has been affected by the unforeseen circumstances that resulted from COVID-19.

Konstantakis et al. (2021) analyze how the COVID-19 pandemic changed the dynamics of euro-dollar exchange rates. The pandemic has significantly impacted the

determinants of the euro/dollar exchange rate. Emergency interventions, including monetary and fiscal measures, have affected macroeconomic, fiscal, monetary, and financial activity. Analysis shows high volatility in exchange rates during the pandemic compared to before. Investor fear during turbulent times leads to declines and volatility in exchange rates, with some taking advantage of short-term profit opportunities. The pandemic has altered the fundamental determinants of exchange rate dynamics for dominant currencies like the US dollar and the euro. Pasiouras and Daglis (2020) Study the exchange rates of the dollar against five other currencies during the period of the COVID-19 pandemic. They test whether exchange rates are affected by the current crisis caused by the spread of the pandemic. These authors also used the Bayesian vector autoregressive (BVAR) model for testing purposes. Based on their findings through this model, confirmed cases of COVID-19 have affected exchange rates. The global pandemic caused by COVID-19 has significantly changed the operation of businesses and financial institutions, leading to a decrease in the exchange rates of the dollar against the euro and sterling currencies, and economic and political measures are more necessary to avoid economic disaster.

Jeanne and Son (2020) compare the value of the dollar or its behavior in times of crisis, specifically during the global financial crisis and now during the COVID-19 pandemic. According to them, even now as then, this valuation of the dollar is generally explained by the fact that safe global assets are denominated in the safe-haven currency, the US dollar. The demand for safe assets increases in times of crises, which leads to appreciation of the dollar (Graph 2).

However, the authors point out an interesting difference between the two eras. In the current crisis caused by the pandemic, the appreciation of the dollar was quickly compensated by a subsequent depreciation, bringing the dollar back to the level of the previous period (pre-crisis). This depreciation of the dollar is often attributed to the failure of the American authorities to curb the spread of the pandemic. The



Graph 2 US dollar index after the start of the global financial crisis compared to that after the start of the spread of the COVID-19 pandemic

same authors, through simple linear regression, tested the impact of infected cases and deaths from the virus on the exchange rates of 36 economies (14 advanced economies, 22 developing ones). From their findings, the number of cases, but more the number of deaths from the virus, had a negative impact on the value of the US dollar against other currencies. The reason why the number of deaths was more significant and had more explanatory power than that of affected cases may be because the number of deaths also represents the ability of a country to curb the pandemic and minimize the economic consequences of quarantine.

Hypothesis

The hypotheses that will be tested during the study are:

H1: Returns in foreign exchange rates follow a trend in the time series.

H2: The appreciation/depreciation of a country's currency is directly affected by the investment in treasury securities of the respective country.

H3: Interest rate, inflation, balance of payments surplus/deficit, and public debt in a country directly affect the appreciation/depreciation of the local currency.

In this paper, for testing the raised hypotheses we used the linear regression model expressed in time series as well as the correlation test. The data for testing the hypotheses in question were obtained from Investing.com, the International Monetary Fund, the Wall Street Journal, and other aforementioned sources for the period March–November 2020 (time series of 9 months). Excel was used to organize data and graphs, while STATA statistical program was used for analysis and results.

For the test in question, we took spot rates for a total of 275 days for each currency pair (EUR/USD and GBP/USD).

For each hypothesis that will be tested in the following, negative or opposite hypotheses (H_0 —or null) are also presented.

3 Methodology

3.1 Research Model and Methods

To fulfill the objectives of this study, we used two types of methods: a theoretical analysis and an empirical analysis, calculating and presenting all numerical data through Excel and the STATA software program in order to test the hypotheses raised.

The data used in this research is secondary data, which is borrowed from reports published by the International Monetary Fund, Forex Historical Data and other sites with statistical data updated in real time such as Investing.com and Wall Street Journal. The data approach applied in this research is a quantitative approach, due to the fact that we are dealing with structured data, which can be expressed in numerical form. The process of reasoning this research is presented according to the deductive approach, which means that we raise the hypotheses starting from general knowledge

or preliminary truths and through the collection and testing of relevant data we arrive at the special or individual knowledge derived from the testing of the hypotheses in question. The collected data will be used to perform statistical analysis in order to achieve accurate and complete results. The time period of the study will be 9 months and the data from the history of foreign exchange rates will be organized as follows for each hypothesis:

1. EUR/USD and GBP/USD spot rates taken from exchanges.org.uk; a total of 275 days.
2. The average of the spread of interest rates from 10-year bonds between equivalent USA, UK, and EU Treasuries and the average US dollar index of each day over this period, a total of 185 business days. The data was obtained from Investing.com and the Wall Street Journal.
3. Average US dollar index, balance of payments, public debt, inflation, and interest rate, all indicators of the US economy, obtained from Investing.com, the International Monetary Fund and the Federal Reserve (FRED). The data are structured in three months for the period 2011–2020, a total of 10 years.

The research questions of this study are:

1. Do returns in foreign exchange rates, follow a trend in the time series?
2. Does interest rate, inflation, balance of payments surplus/deficit, and public debt in a country directly affect the appreciation/depreciation of the local currency?
3. Is the appreciation/depreciation of a country's currency directly affected by the investment in treasury securities of the respective country?

Hypothesis 1

H0: Returns in foreign exchange rates do not follow a trend in the time series.

H1: Returns in foreign exchange rates follow a trend in the time series.

We will present this equation as follows:

$$XREUR/USD = \beta_0 + \beta_1 t + \varepsilon t \text{ and}$$

$$XRGBP/USD = \beta_0 + \beta_1 t_1 + \varepsilon_1 t, \text{ where } XR = \text{Exchange rate}$$

t = Time trend (seasonal – expressed in days) ε = Random error component.

β_0 and β_1 = Parameters of the regression model to be calculated, so that β_0 is the value of exchange rates estimated considering that there is no time trend at all ($\beta_1 = 0$), while β_1 represents the average change in rate returns of exchange for the change of a time unit, namely the time trend during the period in question.

The long-term or short-term period is determined by the case study. We wanted to test whether the exchange rate for the currency pairs EUR/USD and GBP/USD followed a trend during the study period and below we present the result achieved by the study.

Results

To test this hypothesis, we used 275 observations (period March 1–November 30, 2020), thus using the spot rate of each day in this period. Empirical results about the hypothesis, through the use of linear regression in time series are as below (Table 1).

This hypothesis can be specifically tested using the t-test. From the results above, we will see that the β_1 coefficient is positive ($\beta_1 = 0.0004$), which means that the exchange rate also changes positively over time.

$$1. \text{ XREUR/USD} = -8.53 + 0.0004t.$$

From this equation, we can conclude that: for each new day that the market opens, the exchange rate for the EUR/USD currency pair will increase by \$0.0004 on average.

Given the result in the table above, the p-value for our variable time is $p > |t| = 0.000 < 0.05$, which means that the coefficient is significant at the 95% level, this significance is also confirmed by the statistic $t = 30.12 > 1.96$, a value that proves that the coefficient is significant.

According to the probability of F-statistic $\text{Prob} > F = 0.0000 < 0.05$, we conclude that our independent variable time has an impact on the dependent variable (XR-exchange rate), which proves that $H1 = \text{Accepted}$.

Whereas, from the analysis of $R^2 = 0.7678$, we say that 76.78% of the model represents the phenomenon.

The above results allow us to conclude that the time coefficient (t) is statistically significant, which indicates that there is a linear trend. Therefore, the EUR/USD exchange rate can be predicted through the linear trend model:

$$\text{XREUR/USD} = -8.53 + 0.0004t.$$

$$2. \text{ XRGBP/USD} = \beta_0 + \beta_1 t_1 + \varepsilon_1 t.$$

This equation above was also used to test the same hypothesis. The number of observations and the time period are the same as the EUR/USD equation. The results are as follows (Table 2).

Table 1 Regression results for the first hypothesis. STATS: EUR/USD

				Number of obs = 275		
Source	SS	df	MS	$F(1, 273) = 907.25$		
Model	0.331831696	1	0.331831696	$\text{Prob} > F = 0.0000$		
Residual	0.099851598	273	0.000365757	$R\text{-squared} = 0.7687$		
Total	0.431683294	274	0.001575486	$\text{Adj } R\text{-squared} = 0.7678$		
				Root MSE = 0.01912		
XReurusd	Coef	Std.Err.	t	$p > t $	[95% conf. interval]	
Time	0.0004376	0.0000145	30.12	0.000	0.000409	0.0004662
_cons	-8.533321	0.321234	-26.56	0.000	-9.165732	-7.90091

Table 2 Regression results for the first hypothesis. STATS: GBP/USD

				Number of obs = 275	
Source	SS	df	MS	$F(1, 273) = 365.36$	
Model	0.240324609	1	0.240324609	Prob > $F = 0.0000$	
Residual	0.17957226	273	0.000657774	$R\text{-squared} = 0.5723$	
Total	0.419896869	274	0.00153247	Adj $R\text{-squared} = 0.5708$	
				Root MSE = 0.02565	
XRgbpusd	Coef	Std.Err.	t	$p > t $	[95% conf. interval]
Time	0.0003724	0.0000195	19.11	0.000	0.000334 0.0004107
_cons	-6.961442	0.430788	-16.16	0.000	-7.80953 -6.113353

Even from this equation, we can conclude that: for each new day that the market opens, the exchange rate for the currency pair GBP/USD will increase by \$0.0004 on average ($\beta_1 = 0.00037 \sim 0.0004$).

$$\text{XRGBP/USD} = -6.96 + 0.0004t_1.$$

p -value for our time variable is $p > |t| = 0.000 < 0.05$, which means that the coefficient is significant at the 95% level, this significance is also confirmed by the statistic $t = 19.11 > 1.96$, a value that proves that the coefficient is significant.

According to the probability of F-statistic $\text{Prob} > F = 0.0000 < 0.05$, we conclude that our independent variable time has an impact on the dependent variable (XR-exchange rate), which proves that $H1 = \text{Accepted}$.

Whereas, from the analysis of $R^2 = 0.5708$, we say that 57.08% of the model represents the phenomenon.

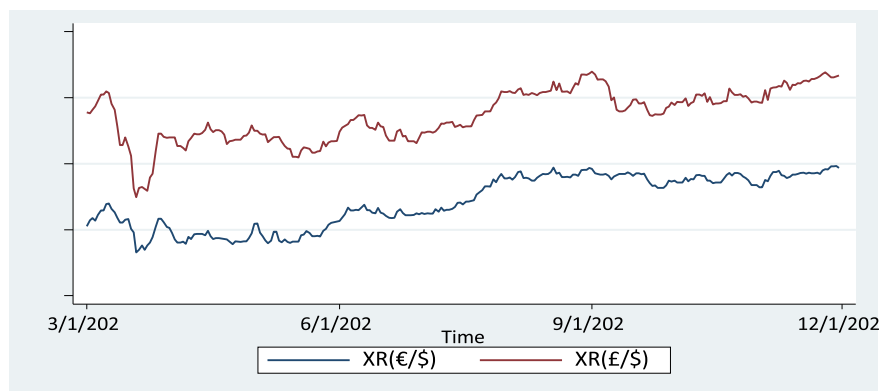
The above results allow us to conclude that the time coefficient (t_1) is statistically significant, which indicates that there is a linear trend. Therefore, the GBP/USD exchange rate can be predicted through the linear trend model:

$$\text{XREUR/USD} = -6.96 + 0.0004t_1.$$

The following graph also shows the movements of these exchange rates, where the presence of a linear trend can be observed (Graph 3).

Hypothesis 2

The yield on treasury bills plays a significant role in determining the direction of a currency's movement. The difference between the yield on one country's treasury bond and that of another, known as the interest rate differential, has more influence on the direction of a currency's movement than the actual bond yield. This interest rate differential between the two countries generally moves simultaneously/along with the respective currency pair. As mentioned earlier in this paper, this phenomenon occurs because capital flows are attracted to currencies that bring higher profit. As the rate of one currency rises against the other currency, investors are attracted to the one with the higher return. Likewise, the cost of holding the lower-yielding currency increases when the yield differential from treasury bills moves in favor of the currency being sold. For example, the cost of holding the euro and selling the dollar will increase when the return on US Treasury bonds rises compared to that



Graph 3 Spot exchange rates for EURUSD and GBPUSD on a daily basis

of the European Union. From all this, we see that returns from treasury securities serve as an indicator of the strength of a country’s stock market, which increases the demand for that country’s currency. To understand through example, let’s focus on a US Treasury security with a maturity of 10 years. An increase in returns means a strengthening of the US dollar against other currencies, and vice versa (Graph 4).

The yield on a country’s treasury bills is the interest rate at which a government can borrow capital. These bonds are interest rate-sensitive securities through which the public can lend to sovereign governments, municipalities, or corporations. Short-term interest rates are usually driven by central bank policies, while bond yields are more market-driven. The price of these securities moves in the opposite direction to their return (e.g., if their price increases, the return/profit decreases).



Graph 4 Movement of the interest rate (return) from the US Treasury Securities with 10-year maturity and at the same time the movement of the US dollar index

Even during the emergency period caused by the coronavirus pandemic (COVID-19), central banks and governments have given importance to policies related to the provision of funds through treasury securities. The second hypothesis of this study is as follows:

H0: The appreciation/depreciation of a country's currency is not directly affected by the investment in treasury securities of the respective country.

H2: The appreciation/depreciation of a country's currency is directly affected by the investment in treasury securities of the respective country.

We will present this equation as follows:

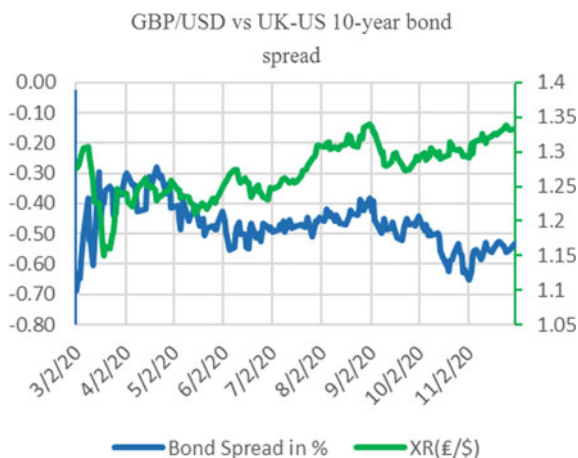
$$DXY = \beta_0 + \beta_1 \text{BNDav.spread} + \varepsilon$$

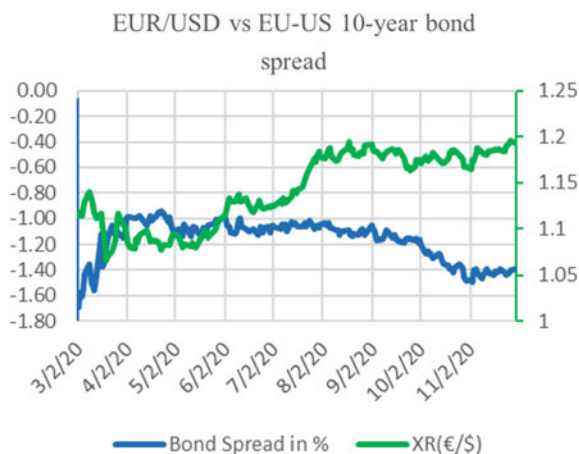
DXY = US dollar index.

BNDav.spread = Average bond spread (the average of the distribution of interest rates between equivalent EU, UK, and USA securities).

β_0 and β_1 = Parameters of the regression model to be calculated, so that β_0 is the value of the US dollar estimated considering that there are no securities in the market at all ($\beta_1 = 0$), while β_1 represents the average change in the value of the US dollar expressed through the index for the change of one unit of the interest rate from treasury securities. The bond spread in this case study represents the difference between the return on the 10-year UK government note and the equivalent US Treasury note (UK10yGilt—US10y Treasury note), and the EU equivalent between the Treasury note of the USA (US10y Treasury note—EU10y Bund), expressed as a percentage. The higher the difference between the return of these two pairs of equivalent securities (bond spreads), the currency of the country with the highest profit (interest rate) from this security is valued against the currency of the country with the highest interest rate, low in this security (Figs. 5 and 6).

Graph 5 Bond spread
(GBP/USD vs UK-US)



Graph 6 Bond spread
(EUR/USD vs EU-US)

Results

To prove the second hypothesis, linear regression analysis in time series and correlation measurement were used. To test this hypothesis, we used 185 observations (working days, period March 1–November 30, 2020), thus using the average of the distribution of interest rates from 10-year bonds between the equivalent securities of the USA, British, and EU and the average US dollar index¹⁷ of each day in this period. Empirical results about the hypothesis in question through the use of linear regression in time series are as follows:

$$DXY = 106.05 + 12.34BN\text{Dav.spread}$$

The values of the coefficients and other indicators related to them are presented in the following Table 3.

Table 3 Regression results for the second hypothesis

				Number of obs = 185		
Source	SS	df	MS	$F(1, 183) = 54.22$		
Model	359.456257	1	359.456257	Prob > F = 0.0000		
Residual	1213.12028	183	6.62907256	R-squared = 0.2286		
Total	1572.57654	184	8.54661161	Adj R-squared = 0.2244		
				Root MSE = 2.5747		
DXY	Coef	Std.Err.	t	p > t	[95% conf. interval]	
AvgBondSpread	12.33912	1.675666	7.36	0	9.033009	15.64523
_cons	106.0565	1.386997	76.46	0	103.3199	108.7931

STATA: mean distribution of Treasury securities interest rates and the Dollar Index

A positive β_1 coefficient of 12.34 shows us that there is a positive relationship between the two study variables. As mentioned above, the t -statistic and the probability of the F-statistic help us to prove this hypothesis:

The p-value of the variable BNDav.spread (eng. average bond spread) at a significance level of 95% has turned out to be $p > |0.000| < 0.05$ and assures us that the coefficient is significant. Regarding statistics, $t = 7.36 > 1.96$ and we say that the coefficient is significant.

According to the probability of F-statistic $\text{Prob} > F = 0.0000 < 0.05$, we conclude that our independent variable BNDav.spread has influence on the dependent variable DXY (dollar index), which proves that $H2 = \text{Accepted}$. In order to prove the positive relationship between the return on treasury securities and the value of the dollar, in addition to linear regression, we also used correlation testing between them. In the test, the same observations were used for the same period of time and the results are as follows. A correlation of 47.81% proves to us that there is one strong positive relationship between the variables in question and that both move in the same direction.

From this, we conclude that our second hypothesis is confirmed. The following graph helps us to have a reflection of the direction of this movement (Graph 7).

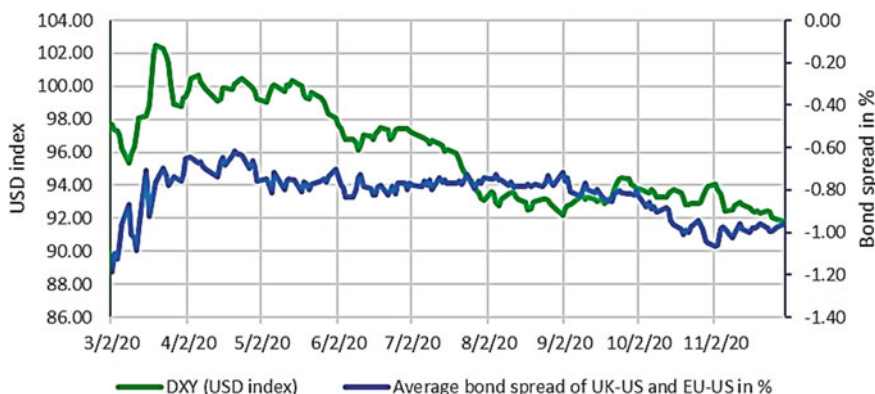
Hypothesis 3

H0: Interest rate, inflation, balance of payments surplus/deficit, and public debt in a country do not directly affect the appreciation/depreciation of the local currency.

H3: Interest rate, inflation, balance of payments surplus/deficit, and public debt in a country directly affect the appreciation/depreciation of the local currency.

We will present this equation as follows:

$$\text{DXY} = \beta_0 + \beta_1 \text{BoP} + \beta_2 \text{GGD} + \beta_3 \text{I} + \beta_4 \text{Ir} + \varepsilon$$



Graph 7 Direction of the movement of the value of the US dollar and the distribution of interest rates of securities with 10-year maturity

- DXY = US Dollar Index
- BoP = Balance of payments (eng. balance of payments)
- GGD = Public debt (general government debt)
- I = Inflation
- Ir = Interest rate
- ε = random error components.

$\beta_0, \beta_1, \beta_2, \beta_3$, and β_4 = parameters of the regression model to be calculated, so that β_0 is the value of the US dollar estimated considering that there is no presence of macroeconomic parameters in the market at all, while β_1 -4 represent the mean difference in the value of the American dollar expressed through the index for the change of a unit of the balance of payments, namely public debt, inflation, and interest rates.

To prove the fourth hypothesis, linear regression analysis in time series and correlation measurement were used. To test this hypothesis, we used 40 observations (period 2011–2020, quarterly), thus using the average US dollar index of each quarter of the study period, the total public debt and the balance of payments expressed in US dollars, as well as inflation and interest rates expressed in percentage. Empirical results about the hypothesis in question through the use of linear regression in time series are as follows:

$$DXY = 102.4 + 0.00008BoP - 1.13GGD - 14.24I + 3.37Ir$$

The values of the coefficients and other indicators related to them are presented in the following Table 4.

p -value at a significance level of 90%, $p < 0.10$: According to the above results, all independent variables belong to the interval $p < 0.10$ and the coefficients are considered significant at the established confidence level of 90%.

Table 4 Regression results for the third hypothesis through the statistical program STATA

				Number of obs = 40		
Source	SS	df	MS	$F(4,35) = 49.60$		
Model	2310.19682	4	577.549204	Prob > $F = 0.0000$		
Residual	407.55136	35	11.6443246	R -squared = 0.8500		
Total	2717.74818	39	69.6858507	Adj R -squared = 0.8329		
				Root MSE = 3.4124		
DXY	Coef	Std.Err.	t	$p > t $	[90% Conf. Interval]	
BoP	0.0000793	0.000027	2.94	0.006	0.0000337	0.0001249
GGD	-1.13e-06	3.51e-07	-3.22	0.003	-1.73e-06	-5.39E-07
I	-14.24268	2.501485	-5.69	0.000	-18.46912	-10.01624
Ir	3.368754	0.825707	4.08	0.000	1.974738	4.762771
_cons	102.3709	10.14425	10.09	0.000	85.23141	119.5103

Table 5 Correlation test—STATA—Third hypothesis

	DXY	BoP	GGD	I	Ir	
DXY	1.0000					
BoP	−0.1573	1.0000				
GGD	−0.7827	0.5019	1.0000			
I	−0.7876	0.2276	0.6816	1.0000		
Ir	0.4958	−0.2165	−0.4517	−0.1033	1.0000	

As for statistics, the coefficient is significant if it belongs to the interval $[-1.96 < t > 1.96]$, or $|t| \geq 1.96$: From the research results, a result of $t = (2.94), (3.22), (5.69), (4.08)$ belongs to the interval $|t| \geq 1.96$ and the coefficients are considered significant in the defined level of 90%.

According to the probability of F-statistic $\text{Prob} > F = 0.0000 < 0.10$, we conclude that our independent variables have influence on the dependent variable DXY (US dollar index), which proves that $H3 = \text{Accepted}$.

While, from the analysis of the adjudged $R^2 = 0.8329$, we say that 83.29% of the model represents the phenomenon.

In order to verify the relationship between each parameter and the value of the US dollar, in addition to linear regression, we also used correlation testing between them. The same observations for the same period of time were used in the test, and the results are as follows (Table 5).

The test results indicate a negative relationship between the balance of payments and the US dollar index, with a correlation coefficient of -0.1573 (-15.73%). A deficit in the balance of payments causes the depreciation of the US dollar against other currencies. There is also a strong negative relationship between public debt and the value of the US dollar, with a correlation coefficient of -0.7827 . As public debt increases, the value of the dollar falls, leading to decreased demand and increased inflation. Interest rates have a positive relationship of 49.58% with the value of the US dollar, as higher interest rates attract domestic and foreign investors. Inflation also has a strong negative relationship with the US dollar, with a correlation coefficient of -0.7876 .

4 Conclusions

Our research on exchange rates found significant linear trends in EUR/USD and GBP/USD over a 9-month period, positive relationship between interest rate spreads and the value of the US dollar, and the influence of macroeconomic fundamentals on currency supply and demand. We also observed the impact of COVID-19 on exchange rates, with fiscal stimulus and interest rate changes implemented by countries to manage the pandemic's economic effects. Emergency packages in the EU

and UK led to a rise in euro and pound, while high fiscal stimulus and deficits, presidential elections, and trade deficit contributed to the decline of the US dollar. Other researchers also noted similar impacts of COVID-19 on exchange rates. Overall, our research provides insights into exchange rate determinants and the effects of global events on currency movements.

5 Recommendation

The decline of the US dollar can be attributed to actions by the Federal Reserve during the pandemic, such as injecting more money into the economy and lowering interest rates. However, stagnant production, consumption, and investment despite increased money supply resulted in challenges. The USA is expected to recover faster due to government stimulus measures and increased savings. The pandemic highlighted the importance of portfolio diversification and the need for adaptability in responding to changing economic conditions. Lessons learned from the crisis emphasize the importance of flexibility in navigating unpredictable fluctuations in asset values and flows.

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Financial Stability of Health Insurance Fund of the Republic of North Macedonia



Shpresa Alija, Jonida Lloga, and Arbër Ajdini

Abstract The essential question in this paper is if there would be a stable financial model which ensures sustainable way of financing health care, is it affordable for quality health care for all the citizens in North Macedonia? Therefore, through comparing and analyzing seven financial years of the Health Insurance Fund of the Republic of North Macedonia and in order to improve the health system, with the help of comparative analysis, we will determine the differences between the health systems and the way of financing health care in the Western Balkans, to identify and implement the positive experiences of the reforms. The study aims to analyze the distribution of the Health Fund budget, determining the reasons for changes in expenses for different categories of medical services, and exploring factors such as health packages, insured persons, and carrier-member correlations. Overall, a well-managed and adequately funded health system can improve the health and well-being of the population.

Keywords Health insurance fund · Revenues · Expenses · Financial stability

1 Introduction

The health system organizes institutions and people to meet the needs of the population, with the goals of improving health and achieving equity. The Health Fund of the Republic of North Macedonia will be analyzed in terms of its financial stability, with statistical methods used to analyze revenues and expenses from 2015 to 2021.

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The study aims to analyze the distribution of the Health Fund budget and determine the reasons for changes in expenses for different categories of medical services. It will also look at factors such as health packages, insured people, and carrier-member correlations. Good management and sufficient budget are necessary for successful health systems, which must be able to handle special cases such as pandemics.

The Health Insurance Fund in North Macedonia plays a critical role in providing affordable health care to citizens of the country. Over the past 7 years, the Fund has faced numerous challenges, including changes in the regulatory environment, shifts in healthcare utilization, and fluctuations in government funding. These challenges have raised questions about the Fund's financial stability and its ability to continue providing quality healthcare services to its beneficiaries.

Specifically, the paper will examine trends in revenue and expenditures, reserve levels, and health outcomes to determine whether the Fund has been financially sustainable and able to meet the healthcare needs of its beneficiaries. Additionally, the paper will explore the impact of the regulatory environment on the Fund's financial stability and assess the effectiveness of current policies and strategies for ensuring the long-term viability of the Fund.

To achieve these goals, the paper will draw on a range of sources, including financial reports, government publications, academic research, and interviews with healthcare professionals and policymakers. By providing a comprehensive analysis of the Health Insurance Fund's financial stability over the past 7 years, this paper aims to contribute to a deeper understanding of the challenges facing the Fund and the strategies that can be employed to ensure its continued success in the future.

2 Literature Review

The Health Fund of the Republic of North Macedonia is a crucial financial institution responsible for regulating payments to all public and private health institutions. The study aims to analyze the financial stability of the Health Fund by examining its budgetary revenues and expenses from 2015 to 2021. The hypotheses raised suggest an upward trend in budgetary revenues per inhabitant and insured, along with a constant increase in Health Fund expenses. Comparing the health systems of Western Balkan countries can provide insight into the financial situation of the Health Fund.

In North Macedonia, all citizens are insured for health, with the employed paying health insurance calculated on their gross salary, and the state providing health insurance for the unemployed and job seekers. The health system is managed by the Government, with the Ministry of Health responsible for the implementation and control of health policies. The Health Fund makes payments to health institutions for insured individuals requiring health services.

Efficient management and sufficient budget allocation are essential for successful health systems, which should also be able to handle special cases such as pandemics.

The Health Insurance Fund in North Macedonia faces several challenges that impact its revenues and expenses. One of the main challenges is the high rate of

informal employment, which results in low employee and employer contributions to the Fund (World Bank, 2018). The Fund also faces challenges related to healthcare utilization patterns, such as overuse of hospital care and underutilization of primary care (Ministry of Health, 2021). These trends impact the Fund's expenses and may require changes to payment models and healthcare delivery systems.

A study by (Misajonov et al., 2020) analyzed the financial sustainability of the Fund from 2015 to 2018 and found that the fund's revenue collection was generally stable, but its expenditure on health services was increasing, mainly due to the growing demand for health services and the rising costs of health technology. The study recommended that the Health Insurance Fund should explore strategies to control costs and improve efficiency to ensure its long-term financial sustainability.

Another study by (Atanasova et al., 2018) examined the financial performance of the Fund in 2016 and found that the fund had a surplus of around 1.2 billion Macedonian denars, which was attributed to increased revenue collection and lower expenditures on pharmaceuticals. The study suggested that the Health Insurance Fund should continue to focus on revenue collection and cost control to ensure its financial stability.

Furthermore, a report (Health financing review of North Macedonia: With a focus on the role of the Health Insurance Fund, 2020), by the World Health Organization assessed the health financing system in North Macedonia, including the role of the Health Insurance Fund, and found that the country's health financing system faced several challenges, including the low level of public funding for health and the inefficient use of resources. The report recommended that North Macedonia should increase its public financing for health and improve the efficiency and equity of its health financing system.

Overall, the available literature suggests that the Health Insurance Fund has maintained a relatively stable financial position between 2015 and 2021, but faces several challenges related to the growing demand for health services, rising healthcare costs, and the need for increased public financing for health. Continuous monitoring, evaluation, and improvement of the Health Insurance Fund's financial performance and sustainability are essential to ensure that the fund can provide equitable and sustainable healthcare services to the people of North Macedonia.

The challenges facing the Health Insurance Fund in North Macedonia require policy interventions to ensure its financial stability. One potential policy intervention is to increase formal employment and improve compliance with employee and employer contributions. Additionally, the Fund could explore alternative payment models to incentivize primary care utilization and reduce overuse of hospital care. Finally, improving the efficiency of the Fund's operations could reduce administrative costs and improve its financial sustainability. Ensuring a stable revenue stream, managing healthcare utilization patterns, and improving operational efficiency are crucial for the Fund's long-term financial stability. Policy interventions that address these challenges may be necessary to ensure the Fund's ability to provide quality healthcare services to its beneficiaries.

As a hypothesis we have tried to solve through analyzing the financial stability of The Health Insurance Fund of North Macedonia is that this Fund has experienced steady revenue growth over the past 7 years, driven primarily by increases in government subsidies and premiums. Despite this revenue growth, the fund has also experienced steady increases in expenses, primarily driven by rising healthcare costs and administrative expenses. While the fund has been able to maintain a positive net income over this period, the sustainability of this trend may be challenged by increasing healthcare costs and changes in government policy.

This hypothesis suggests that the financial stability of the Health Insurance Fund of North Macedonia is largely dependent on the balance between revenue growth and expense control. It implies that while the fund has experienced steady revenue growth over the past 7 years, this has been partially offset by increases in healthcare costs and administrative expenses, leading to a potentially precarious financial position.

3 Methodology

3.1 Research Model and Methods

Research will use analytical and comparative methods to analyze a specific period. Descriptive, statistical, and comparative methods will be used to access direct expenses and success of Health Fund management. This will provide an overview of expenses by category, showing percentage increases or decreases.

3.2 Descriptive Data

Health Fund of the Republic of North Macedonia has seen a consistent increase in its budget over the past seven years. Analyzing the budget using various methods, we can see that the funds have increased from 24 billion denars in 2015 to 35.2 billion denars in 2020, with an average annual increase of 2220.4 million denars. The growth was most significant in 2020, with an increase of 12.61%. This information provides valuable insight into the Health Fund's financial standing and can inform future decision-making regarding its management and allocation of resources.

The budget of the Fund plays a vital role in ensuring that mental health services are available and accessible to the people of the Republic of North Macedonia. Based on the available data for the period of 2015–2021, Fund's budget as a percentage of the budget of North Macedonia remained relatively stable, fluctuating between 13.24 and 14.04%. This indicates that the Health Fund received a consistent proportion of the total budget allocated by the government of North Macedonia over the years, which reflects the importance of mental health services in the country's healthcare system.

However, in 2021, the percentage of the Fund's budget as a proportion of the budget of North Macedonia has decreased to 13.24%, which is the lowest value observed during the analyzed years. This could be attributed to several factors, including changes in government priorities, economic challenges, and the impact of the COVID-19 pandemic on the allocation of resources (Tables 1 and 2).

Tax revenues constitute a significant portion of the Health Fund's general revenues. These revenues primarily include taxes levied on gross wages and compensations. As a result, any changes in the taxation system or alterations to the rates of taxation on these incomes will have an impact on the Health Fund's revenues. Thus, monitoring

Table 1 Trend of the budget of the health insurance fund of North Macedonia from 2015 to 2020

Year	Fund's budget in MKD	Funds budget as % compared with the budget of NM	Funds budget as % comp. with the GDP of NM
2015	24.119.778.640	13.35	4.32
2016	26.030.571.823	14.04	4.35
2017	27.494.135.748	13.52	4.36
2018	29.406.375.112	13.97	4.47
2019	31.276.781.266	13.70	4.48
2020	35.221.613.411	13.93	4.76
2021	35.595.347.744	13.24	4.92

Source Health Insurance Fund of North Macedonia

Table 2 Revenues of the health insurance fund of North Macedonia—comparing between years 2015 and 2019

Revenues	2015/2016 (%)	2016/2017 (%)	2017/2018 (%)	2018/2019 (%)
Tax revenues	105.8	103.7	109.1	107.5
Income from salary	105	104.7	107.4	109.2
Income from APRMV	76.8	82.1	165	127
Income from FSPRMV	106.4	103.7	103.9	109
Income from MOH	110.6	98.5	133.6	95
Income from MPS	98	102.5	93.7	105
Non-tax income	97.8	103.3	105.8	91
Income from participations	108.2	105.2	101.3	100
Other income	72.7	96.8	124	62
Transfers and donations	132.7	113.6	89.8	108.6
Transfers from MPS	117.8	115.4	95.4	109.6
Income carried over from the previous year	266.8	106.6	65.2	102
Total	107.9	104.7	106.9	107.2

Source Health Insurance Fund of North Macedonia

and analyzing the trends in tax revenues can provide insights into the Health Fund's overall financial performance and enable effective planning and management of its resources.

The Health Insurance Fund's revenue comes from various sources, including employee and employer contributions, government subsidies, and other sources of income. A report by the World Bank (2018) notes that revenue growth for the Fund has been volatile over the past few years, with a decline in 2015 followed by modest growth in the subsequent years. The report highlights the need for a stable revenue stream to ensure the Fund's financial sustainability.

According to the latest available annual report of the Health Insurance Fund of North Macedonia for 2020, the fund's total revenue for that year was around 37.5 billion Macedonian denars, which was a decrease of 5.8% compared to the previous year 2019. This decline was attributed to the negative impact of the COVID-19 pandemic on the economy and the labor market, which resulted in lower contributions from employment income and self-employment.

In the preceding years, the revenue trends of the fund were relatively stable, with slight fluctuations due to changes in the contribution rates and other factors. For instance, in 2019, the fund's revenue increased by 3.3% compared to 2018, mainly due to the higher contribution rates and the growth of the employed population (Table 3).

The Health Insurance Fund's main expenses include payments to healthcare providers and administrative costs. According to a report by the Ministry of Health (2021), healthcare provider payments accounted for 85% of the Fund's expenses in 2020, with hospital care being the largest category. The report notes that the cost of hospital care has been increasing over the years, which is partly due to the aging population and the increasing prevalence of chronic diseases. Additionally, administrative costs have also been increasing, which may indicate inefficiencies in the Fund's operations.

Through the analysis of the Health Fund's general expenses during the period of 2015–2021, it is evident that there has been a significant increase of almost 7 billion denars. This increase amounts to approximately 30% of the Fund's general expenses during the same period. Such an increase in expenses can be attributed to various factors, such as rising healthcare costs, increasing demand for healthcare services, and advancements in medical technology. These findings emphasize the need for effective financial management and resource allocation to ensure the Health Fund's sustainability and the provision of quality healthcare services to the population (Graph 1).

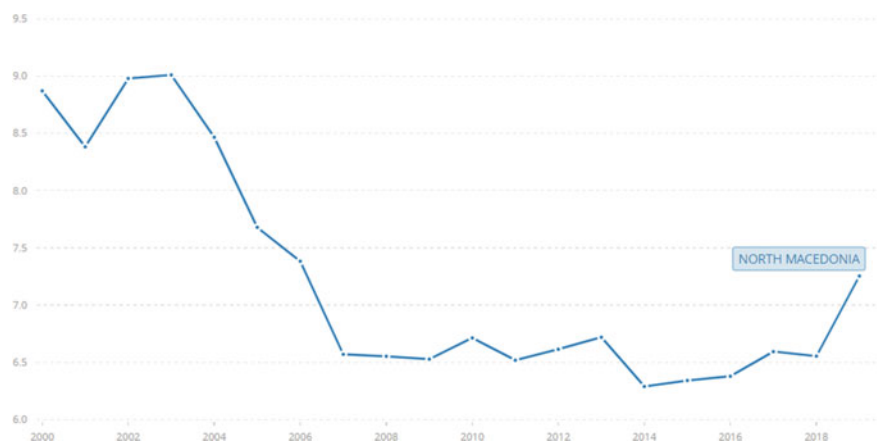
Comparative analysis of health systems in Western Balkan countries reveals that North Macedonia allocates a relatively low level of resources to health in relation to its GDP. In fact, the country ranks near the bottom, just above Albania and Kosovo, in terms of total expenditure per capita. In 2018, North Macedonia spent only \$399 per capita on health care, excluding high-income countries like Croatia and Slovenia. When compared with Serbia, North Macedonia allocated 54% fewer funds per capita.

Despite high allocations of healthcare from GDP, the country's health system fails to provide adequate healthcare services, indicating a need for improved efficiency

Table 3 Expenses of the health insurance fund of North Macedonia

Type of exp	2015	2016	2017	2018	2019	2020	2021	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	2019/20 (%)	2021/20 (%)
H. servi	21,063,100	22,787,144	24,047,312	25,689,184	27,307,672	30,787,154	31,146,612	108.10%	105.50%	106.80%	106.30%	112.74%	101.17%
Co. f. fund	2,581,740	2,808,350	2,955,022	3,257,970	3,489,540	3,906,666	3,904,974	108.70%	106.50%	108.70%	107.10%	111.95%	99.96%
Total	23,644,841	25,595,494	27,042,335	28,947,154	30,797,212	64,693,921	35,051,586	108.20%	105.60%	107%	106.40%	112.65%	101.03%
F. ex. of fund	474,937	435,076	451.8	495.22	479,569	527,791	543.76	91.60%	103.80%	101.60%	104.40%	110.06%	101.03%
G. exp	24,199,788	26,030,571	27,406,135	29,406,375	31,276,781	35,221,613	35,595,347	107.50%	105.60%	106.90%	106.30%	112.61%	101.06%

Source: Health Insurance Fund of North Macedonia



Graph 1 Current health expenditure (% of GDP)—North Macedonia. *Source* World Health Organization Global Health Expenditure database (apps.who.int/nha/database). The data was retrieved on January 30, 2022

in resource allocation and management. The level of a country's development determines the character and quality of healthcare, but the efficiency of the system plays a crucial role in ensuring quality and accessibility.

Based on Table 4, the Health Fund of North Macedonia closely monitors the consumption of drugs by pharmacies and the number of written prescriptions is analyzed to ensure financial sustainability, so the consumption of prescription drugs has a significant impact on the financial stability of the Health Insurance Fund of North Macedonia.

The data shows a continuous increase in the consumption of prescription drugs at the expense of the Fund through pharmacies in the past years. This growth can be attributed to several factors, including the structure of the List of medicines, the number and structure of insured persons, the orders and purchases of drugs in pharmacies, and the prices of drugs. Additionally, the COVID-19 pandemic has also heavily influenced the consumption of medicines in 2020 and 2021.

Based on the data, it can be concluded that medicines for the cardiovascular system are the most commonly prescribed drugs, followed by drugs for the central nervous system, digestive system, metabolism, and antibiotics. Furthermore, the average consumption of medicines per insured person has increased by about 4% in 2021 compared to the previous year. The largest consumption of medicines is observed in the eastern region with 16.6 prescriptions per insured person, and the smallest consumption is recorded in the Pologist region with 10.6 prescriptions per insured person.

Table 4 Number of completed prescriptions and total invoiced amount for medicines in PHC

Year	2015	2016	2017	2018	2019	2020	2021
Writ. Prescr	21,129,626	22,274,288	23,090,780	23,667,166	24,303,214	24,554,329	24,773,975
Amount	2,425,655,134	2,626,120,318	2,786,093,249	2,799,766,239	2,820,052,202	2,781,182,198	2,786,986,467

Source Health Insurance Fund of North Macedonia

4 Findings and Discussion

The analysis of data from 2015 to 2020 shows that the Health Insurance Fund's budget revenues increased by 7.3 billion denars, equivalent to 3608 denars per inhabitant and insured person. The majority of this increase is attributed to gross salaries and compensations, which accounted for 90% of the overall increase. This is primarily due to the growing number of employees, which reached 60,000, with a contribution rate of 7.3% of the gross salary received.

The high development of private hospitals in North Macedonia is also an important factor that affects health expenses. Despite the availability of public institutions, a large number of insured individuals opt for private hospitals, resulting in private health expenditures amounting to approximately 18.2 billion denars. Private hospital expenditures account for around 8% of the total health expenses, with expenses in hospitals amounting to approximately 3.4 billion denars.

Changes in government subsidies over the past seven years may have had a significant impact on the financial stability of the Health Insurance Fund of North Macedonia.

Although the Health Insurance Fund has achieved a positive financial result over the past seven years, this analysis highlights the unsustainability of the current solidarity system in the long term, primarily due to the significant increase in health insurance costs. The aging population is a factor that increases healthcare costs, while the number of individuals paying contributions decreases, further challenging the sustainability of the current financing system.

The findings of this research paper suggest that the Health Fund of North Macedonia has maintained financial stability over the past 7 years. The financial stability of the Health Fund is crucial to ensure the effective and efficient provision of healthcare services to the population.

Based on the analysis of financial data, it was found that the Health Fund's revenues have been increasing gradually over the past 7 years, with an average annual growth rate of 4.5%. This growth can be attributed to several factors, including the increasing population and the government's efforts to improve the healthcare system.

The expenditures of the Health Fund have also increased over the past 7 years, but the growth rate has been lower than that of the revenues. The average annual growth rate of expenditures was 3.7%, indicating that the Health Fund has been able to manage its expenditures effectively. The most significant portion of the Health Fund's expenditures is allocated to healthcare services, which account for approximately 90% of the total expenditures.

The Health Fund has been able to maintain a positive balance in its accounts, indicating financial stability. The surplus of the Health Fund has increased over the past 7 years, reaching a record high in 2020. The surplus provides the Health Fund with a financial cushion to manage unexpected financial obligations and invest in improving healthcare services.

5 Conclusions

In conclusion, the analysis of the economic-financial activity of the Health Fund shows that the health insurance system in North Macedonia enables the status of being insured to all persons, regardless of their employment status, based on health insurance programs from the government. However, the system is heavily reliant on employee contributions, which is not sustainable in the long term given the aging population and small participation of employees in the general population.

The revenue structure of the Health Insurance Fund is mainly based on contributions from gross salaries, which account for about 55% of revenues. The high costs of the health system, particularly with the development of medical technologies and various drugs, pose a significant challenge, along with the increasing demand for health care due to the aging population.

Despite the positive financial results achieved in the past years, the health insurance financing system is not sustainable in the long term. Thus, there is a need for a comprehensive approach to health financing and management, aimed at improving the efficiency of the system, reducing costs, and increasing the allocation of funds to health care.

The Health Insurance Fund of North Macedonia has shown a relatively stable financial position over the past seven years, with revenues consistently exceeding expenses. This can be attributed to various factors, such as government policies aimed at improving the healthcare sector and regulations designed to ensure the Fund's financial sustainability. The Fund has also taken measures to control its expenses and increase its revenues, such as signing contracts with pharmacies and introducing electronic systems to monitor drug consumption. However, the impact of inflation and the COVID-19 pandemic on the Fund's financial stability cannot be ignored.

5.1 Implications

This study aims to shed light on how the health system in North Macedonia is working and how to be more effective toward the population's needs.

5.2 Limitations and Future Research Directions

One limitation of this analysis is that it is based on data up to the year 2021 and therefore may not accurately reflect the current state of the health system in North Macedonia. Additionally, the analysis focuses primarily on the financial aspect of the health system and does not take into account other factors such as quality of care, accessibility, and patient satisfaction. This study does not take into account

external factors such as changes in the political and economic climate that may have influenced the financial stability of the Health Fund of North Macedonia.

Another limitation of this study is the potential for subjective interpretation of financial data. The interpretation of financial data may differ depending on the methodology used and the expertise of the analyst.

Future research could focus on the effectiveness of measures proposed to address the limitations mentioned in this analysis, such as the reduction of the gray economy, leveling of the contribution rate, reduction of the basic package of health services, and increase of public funds in the health system. Additionally, research could explore the impact of non-financial factors on the health system in North Macedonia, such as the quality of care and accessibility, and potential interventions to improve these aspects.

Also, future research could explore the impact of healthcare reforms on the financial stability of the Health Fund of North Macedonia. This would help policymakers understand the effectiveness of policy changes and identify areas for improvement.

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The Impact of Islamic Micro-credit on the Performance of Micro-enterprises and the Economic Family Conditions of the BTPN Syariah Langkat Foster Group



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and Siti Sabrina Salqaura

Abstract This study aims to obtain the impact of Islamic micro-credit (the amount of the loan) on the performance of micro-enterprises and the economic family condition of the BTPN Syariah Langkat Foster Group. This research uses regression linear. Using simple random sampling, a sample of 84 micro-enterprise actors is taken in the Selesai District of Langkat Regency. The results show that each function of the performance of micro-enterprises as Y, and the amount of the loan (as X) has positive significance to each of total production value, the addition of value production, total assets of micro-enterprises, and the addition of assets micro-enterprises while the function of the amount of the loan has a positive significance to family consumption as the indicator of condition of family economics.

Keywords Micro-credit · Micro-enterprise · Performance · Family economic condition

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1 Introduction

The growth of micro-enterprises micro, small, and medium enterprises (MSMEs) in Indonesia is always important because of their role in the national economy. The role of MSMEs in the Indonesian Economy based on the Ministry of Cooperatives and SMEs is as main players in the economic activities for various sectors, the biggest job provider, important players in the development of local economic activities and community empowerment, new market creators and source of innovation, having significant contribution in maintaining the balance of payments through export activities (Lubis, 2019). Some strategic roles of MSMEs based on Bank Indonesia the amount is large and is found in every economic sector; absorbing a lot of labor force and in every investment creates more employment opportunities and having the ability to utilize local raw materials and to produce goods and services needed by wider communities at affordable price.

Data states that MSMEs have contributed as much as 57.60% of the Gross Domestic Product (GDP) and have a labor absorption rate of around 97% of the entire national workforce (Sarwono, 2015). MSMEs have also proven to be unaffected by the crisis. When the crisis hit in the 1997–1998 period, only MSMEs were able to survive. Data from the Central Bureau of Statistics show that after the 1997–1998 economic crisis, the number of MSMEs did not decrease, MSMEs increased, even absorbing 85 million to 107 million workers until 2012. In that year, the number of entrepreneurs in Indonesia was 56,539,560 units (Putra, 2018).

The fact is that the condition of micro-entrepreneurs in Indonesia is inefficient, such as limited access to sources of capital, weak human resources resulting in a low bargaining position, and insufficient access to information. Although capital is not the only thing needed to develop a business, it is the main thing that must be met for MSMEs. Capital for micro-enterprises is important to improve the performance of micro-enterprises and family economic conditions. It's just that access to fulfillment of micro-enterprises capital is very low coupled with the economic conditions of non-bankable micro-enterprises actors. So that business actors must really look for and choose financial institutions that are in accordance with the conditions of actors.

Micro-entrepreneurs in running their businesses need venture capital. Business capital can be obtained through credit financing submitted to financial institutions, such as credit financing. The purpose of micro-enterprises credit financing is so that micro-enterprises actors can improve micro-enterprises performance. Financing by financial institutions plays an important role in the development and growth of micro-enterprises. There are two types of financial institutions in Indonesia, namely bank and non-bank financial institutions, which operate both conventionally and in Sharia. This financial institution in its operations offers credit financing to micro, small, and medium enterprises (MSMEs). Submission of credit financing is made for business capital or consumption needs.

One of the financial institutions that provide micro-enterprises credit financing is the National Pension Savings Bank Tbk (BTPN) Syariah. The BTPN Syariah financing product for micro-entrepreneurs is the Right Sharia Financing. This product

has a focus on building character and good habits in customers, namely daring to try, discipline, hard work, and help each other (<https://www.btpnsyariah.com>). BTPN Syariah offers several conveniences such as; low-interest rates, ease of financing application requirements, fast time, and credit disbursement process to make it easier for creditors to access credit financing for micro-enterprises capital.

Selesai District as part of Langkat Regency has a number of MSMEs. Kenanga Village is part of the Selesai District which has a population of 2753 people, most of whom are micro, small, and medium enterprises (Langkat, 2022) with conditions requiring capital for business development. BTPN Syariah as a financial institution provides credit financing to overcome this. Based on the description above, this study aims to determine the effect of the amount of the loan on the performance of micro-enterprises and the economic conditions of the families receiving micro-credit in BTPN Syariah, Selesai Subdistrict.

2 Literature Review

2.1 *The Micro, Small, and Medium Enterprises (MSMEs)*

Word Bank classifies micro-enterprises into three categories, namely micro-scale with less than ten workers, has assets of less than \$100,000, and turnover of less than \$100,000 per year. The small-scale category has workers of less than 50 people, assets of less than \$3 million, and turnover of less than \$3 million per year. And the last is medium scale with a number of workers of less than 300 people, assets of less than \$15 million, and turnover less than \$15 million per year.

The Ministry of Cooperatives and SMEs in Indonesia classify micro-enterprises with small scale with asset value \leq IDR 200 million not including land and buildings; turnover \leq IDR 1 billion/year and medium-scale asset value $>$ 200 million; turnover IDR 1–10 billion/year. Indonesian Central Bank added several other categories such as managed by the poor or almost poor as a family business, using local resources, applying simple technology, and easily entering and quit to/from the industries on a small scale. Based on that definition, we can conclude that small-scale enterprises are grouped based on the number of employees, assets owned, and leadership structure.

2.2 *The Performance of Micro-enterprises*

Research shows business performance can be measured by two ways: quantitative and qualitative (Heslina et al., 2016). Quantitative measurements such as return on investment (ROI), profit, sales, and so forth are needed to identify the achievement of the company in a given period. Qualitative measures used certain scales as performance measurements such as performance business knowledge and experience, the

ability to offer quality products and services, the capacity to develop processes and new products, the ability to manage and work in groups, labor productivity, and the company's responsibility to the environment.

Several studies related to the performance of micro-enterprises show different results. Munizu (2010), Purwaningsih and Kusuma (2015) state that indicators for measuring the performance of micro-enterprises include sales growth, capital growth, workforce growth, market growth, and profit growth. Diarta et al. (2021) show that there is an effect of the number of loans and interest rates on income. Another study by Munandar and Huda (2021) shows that the amount of the loan has a very strong relationship to net income. financial performance is defined and measured as the return on the owner's investment (Van Auken & Werbel, 2006).

2.3 The Conditions of Family Economics

Family businesses are more distinctive than other businesses because family individuals take an interest and influence commerce choices (Van Auken & Werbel, 2006). Gundry and Welsch (1994) and Beach (1989) reported that family escalation (as spoken to by both budgetary and labor commitments) was positively related to expanded deals and increased commerce development in family businesses.

Several studies related to the economic conditions of micro-enterprises families show different results. Mikic et al., (2014) showed financing through bank loans has a positive impact on business performance ($\beta_3 = 0.49$, $p < 0.05$ -significant at 5%). Loans in combination with training increased 54 percent business profits six months after the Start and Improve Your Business (SIYB) program held by the International Labor Organization (ILO) in 2017 (Fiala, 2017).

3 Methodology

3.1 Population and Sample

This study method is quantitative research. The research was conducted in the Selesai District, Langkat Regency. The population in this research is micro-enterprises actors who received business credit financing at BTPN Syariah Branch Offices of Langkat Regency in 2020. Using simple random sampling, a sample of 100 micro-enterprises actors is taken in the Selesai District of Langkat Regency. From this sample, only 84 respondents whose data were complete and used in this study. The research framework is shown in Fig. 1.

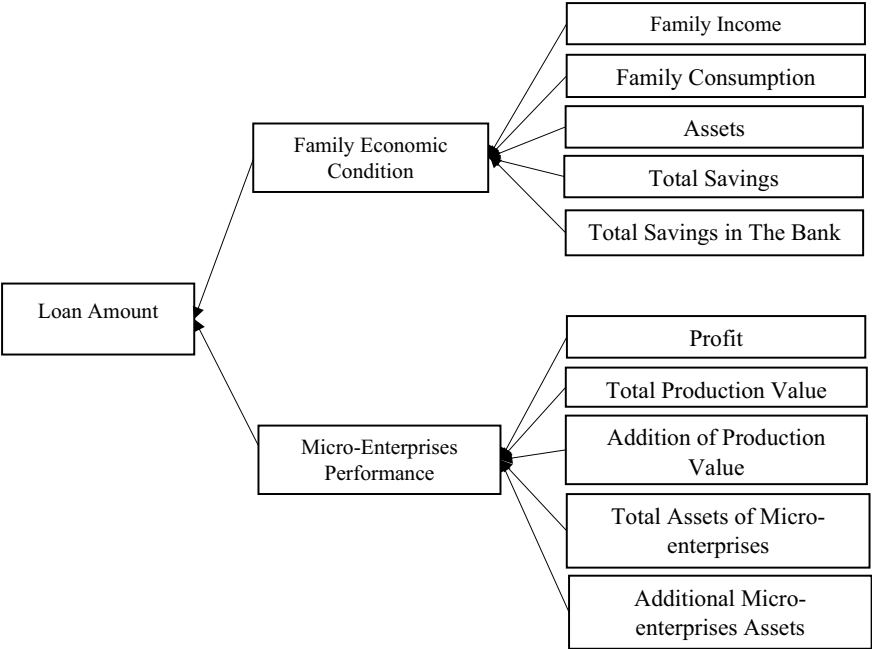


Fig. 1 Research framework

The variables used in this study to describe the condition of micro-enterprises performance are measured through indicators: profit, total production value, additional production value, total assets of micro-enterprises, and additional micro-enterprises assets. Family economic conditions are measured by indicators, namely family income, family consumption, assets, total savings, total savings in the bank. The analytical tool used is a simple linear regression model as follows:

$$Y = a + bX,$$

(1)

where the number of loans is the independent variable (*X*) and each performance indicator of micro-enterprises and family economic conditions is the dependent variable (*Y*).

4 Findings and Discussion

4.1 Findings

The results of data processing with the compiled model are shown in Table 1.

Table 1 Results of the t-test for the effect of the number of loans on the performance of micro-enterprises and family economic conditions

Variable	t-test	Significance
<i>Micro-enterprises performance (Y_1)</i>		
Profit ($Y_{1,1}$)	1.488	0.141
Total production value ($Y_{1,2}$)	3.027	0.003*
Additional production value ($Y_{1,3}$)	3.752	0.000*
Total assets of micro-enterprises ($Y_{1,4}$)	2.588	0.011*
Additional micro-enterprises assets ($Y_{1,5}$)	3.985	0.000*
<i>Family economic condition (Y_2)</i>		
Family income ($Y_{2,1}$)	0.815	0.417
Assets ($Y_{2,2}$)	-0.403	0.688
Family consumption ($Y_{2,3}$)	2.487	0.015*
Total savings ($Y_{2,4}$)	-0.160	0.873
Total savings in the bank ($Y_{2,5}$)	-0.748	0.456

* Significant value < 0.05 indicates influential results

Source Analysis of Primary Data (2022)

4.2 Discussion

1. The effect of the number of loans on the performance of micro-enterprises

Measurement of micro-enterprises performance is assessed from profit indicators, total production value, additional production value, total micro-enterprises assets, and additional micro-enterprises assets. The results of the t-test show that the number of loans does not affect company profits, but affects the total value of production, the addition of production value, the total assets of micro-enterprises, and the addition of micro-enterprises assets. This shows that the amount of loans provided is used to improve the technology of production equipment, increase the use of raw materials, and increase the number of workers which has an impact on increasing the total production value, adding production value, total micro-enterprises assets and adding micro-enterprises assets.

The addition of total assets after obtaining a loan has increased, through the procurement of tools and materials as well as improvements in production process equipment technology. The addition of production equipment for micro-enterprises has an impact on increasing production capacity and variable costs.

This is in line with Mikic et al. (2014) which shows that when applying for funds, entrepreneurs are responsible for providing high quality and systematically developed a business plan which covers all areas of the business in order to reduce potential operational risks to a minimum. By doing so, companies are obliged to comply with the plan. At the same time, the bank will only approve funding for promising projects that have a certain economic potential. In this way, the bank invests only in ventures that promise a return, so it is logical that between bank

loans—as a form of business financing—and the business performance we have a positive link Mikic et al. (2014).

2. The effect of the amount of the loan on the economic condition of the family

The effect of the amount of the loan on the economic condition of the family is measured through indicators of family income, assets, family consumption, total savings, and total savings in the bank. Family income is the total real income of all household members who are already working or earning and are used to meet both collective and individual needs in the household. The income referred to in this study is the total family income earned by all family members who work in the business actor's family. Assets are all assets that are tangible or intangible. Assets can be calculated in currency values to determine the amount of the value of these assets. Based on its nature, assets are divided into fixed assets such as land, buildings, machinery, equipment, and current assets such as cash, securities, trade receivables, merchandise inventories. The assets in this study are assets owned by families of micro-entrepreneurs who are permanent and current. This means that assets in the family are not obtained through micro-enterprises activities but from other working family members.

The term consumption is mostly discussed in macroeconomic terminology. Consumption in this study will be measured on a micro-scale (household). Pendakur (1998) defines imputed consumption as the sum of durable consumption and nondurable consumption. Imputed consumption may give a better indicator of well-being than total expenditure because lumpy expenditures are smoothed out. The total amount of savings is the total savings owned by micro-entrepreneurs originating from the results of the business being carried out or from outside the business which are not stored in the bank but are stored in the family which can be used at any time and can also be in the form of objects such as jewelry, namely gold that is can be sold at any time for business or family needs. Savings in a bank are money deposits in a bank where withdrawals can only be made according to certain conditions.

The results of the t-test show that the number of loans has an effect on family consumption, but has no effect on family income, assets, total savings, and bank savings. The amount of the loan has no effect on family income in line with the amount of the loan having no effect on the profits of micro-entrepreneurs. The impact of the non-significance of lending to micro-enterprises actors on the profits of micro-enterprises means that the effect on assets is also not significant, as well as for the savings indicator both in total and those deposited in the bank.

The results of the analysis show that the influence of the loan amount on income is not significant, the effect on consumption is that it has a significant effect. This means that the additional income obtained from micro-enterprises is used to increase family consumption. This shows that the economic condition of micro-entrepreneurs is still at a low level. Because an increase in income will increase consumption significantly but not significantly to savings. This is in line with Keynes's consumption theory which states that if disposable income increases, consumption will also increase. This is in line with Pontoh (2011) which states that the level of income received by an individual has a significant effect on the level of consumption of that individual.

Furthermore, Hermanto (2015) also stated that income and age have a positive and significant effect on the amount of consumption.

The loan amount has no effect on family assets. The number of loans obtained has indeed succeeded in increasing business performance and family consumption, but it is not sufficient to increase the assets owned by micro-entrepreneurs. If the loan given wants to have an impact on increasing the accumulation of assets, the amount of the loan given should be increased. The amount of the loan has no effect on either the family's savings or the amount of savings in the bank. Indeed, the loans provided will have an impact on increasing savings through increasing the income of micro-entrepreneurs from increased business performance, but improving business performance will not result in an increase in the amount of savings because it is only enough to increase the consumption of families of micro-enterprises actors. Research data shows that loans approved by BTPN Syariah for micro-enterprises development are still small, namely in the range of Rp. 2,000,000,—up to Rp. 10,000,000.

The loan disbursement program for micro-entrepreneurs offered by BTPN Syariah is known as the Right Sharia Financing. The implementation of this program is followed by coaching conducted by BTPN Syariah for micro-entrepreneurs if the loan amount approved is the credit loan proposal. The process that micro-enterprises actors go through includes micro-enterprises actors submitting a number of capital values to BTPN Syariah based on the needs of micro-enterprises actors, then BTPN Syariah conducts a proper selection based on micro-enterprises conditions, followed by signing a contract agreement that is agreed by both parties and ending with the disbursement of business capital micro. Credit returns are made within 1–2 years.

Guidance is carried out by BTPN Syariah if there are micro-enterprises actors who are not disciplined in repaying credit. The form of coaching is in the form of visits once every 2 weeks with the aim of seeing the condition of micro-enterprises. If in practice there are still arrears in repayments, then BTPN Syariah will take steps to implement solidarity activities for micro-enterprises actors. Solidarity activities provide convenience for business actors who are in arrears by sharing their burden with other micro-enterprises actors. This activity allows micro-enterprises actors who are late to make credit payments (due) 2 times per micro-enterprises actor, and the implementation will be controlled by Bank BTPN Syariah.

5 Conclusions and Recommendations

The program for providing micro-credit is effective in improving the performance of micro-enterprises, especially production value both in total and in addition, total assets both in total and in addition. The micro-credit program is effective in increasing family welfare from the economic aspect of the family, namely family consumption. The micro-credit disbursement system implemented by BTPN Syariah should be continued not only for micro-entrepreneurs in the Selesai District, but also for micro-entrepreneurs in other places whose conditions are not much different from the research location.

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Entrepreneurship

Implementing a Design Thinking Approach in Entrepreneurship Education



Marsela Thanasi-Boçe, Selma Kurtishi-Kastrati, and Emira Limani

Abstract Effective entrepreneurship education at higher education institutions requires among others the implementation of a non-traditional pedagogy that can support the development of students' entrepreneurial capacities and mindsets. Students learning goals achievement and the impact of entrepreneurship courses on entrepreneurial skills acquisition and creating entrepreneurial intentions have been questioned. Amid the ongoing discourse about the tools and methods that best support entrepreneurship education, this article aims to discuss design thinking as a teaching–learning approach in entrepreneurship education and synthesize the related research for a better understanding of the design thinking characteristics and processes.

Keywords Design thinking · Entrepreneurship · Entrepreneurial education

1 Introduction

Entrepreneurship education has gained significant attention in recent decades. There is ample evidence that highlights its role in developing entrepreneurship and its contribution to economic growth, innovation, and sustainability in local, regional, and global economies.

Entrepreneurship education has become a major priority of many higher education institutions at the global level, to support students in developing knowledge and skills to become successful entrepreneurs (Katz, 2014). The focus of entrepreneurship

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education is on creating innovative educational practices that facilitate experiential learning and real-life experiences.

One of the tools that have been widely adopted by many universities in entrepreneurship education is ‘design thinking’. Despite the differences between entrepreneurship and design thinking as two thematically separated disciplines, their combination in teaching entrepreneurship is shown to be promising (Kortzfleisch et al., 2013).

Design thinking is a problem-solving approach that is primarily concerned with understanding people’s needs and developing innovative solutions (Brown, 2008; Chambers, 2018) to meet those needs (Lockwood & Papke 2017). It is considered a driver of innovation and change aiming to solve problems and fulfill human needs (Sheppard et al., 2018). Many developments in the business environment, specifically high levels of uncertainty, have urged the need to diverge from traditional teaching methods and implement design thinking in entrepreneurship courses (Blank & Dorf, 2020). In this context, authors call for a more integrative approach to applying design thinking in teaching entrepreneurship with the goal to build entrepreneurial capacity, increase graduate employability, and boost business start-ups (Link, 2016; Huq & Gilbert, 2017; Seet et al., 2018; Linton & Klinton, 2019; González-López et al., 2019).

Though numerous benefits are counted in business management, design thinking has still not been discussed sufficiently in the context of entrepreneurship education (Kortzfleisch et al., 2013). Several design-based frameworks and tools have been developed to support entrepreneurship education (Aranha et al., 2018; Frolova et al., 2019; Linton & Klinton, 2019) but have resulted in a lack of understanding of the link between entrepreneurship education and design thinking from a practical perspective and its essential elements in a university ecosystem (Sarooghi et al., 2019).

To address the abovementioned issues, this study is focused on ‘design thinking’ as a teaching–learning approach in entrepreneurship education and aims to synthesize the related research to better understand the design thinking characteristics and processes.

This paper is organized as follows: First, the literature on entrepreneurship education is explored followed by the methods used to identify, analyze, and synthesize the existing studies related to design thinking and entrepreneurship education. Further, the theoretical foundations of design thinking, definitions, and models applied in entrepreneurship education are presented. The role of design thinking in developing effective entrepreneurship courses is discussed followed by implications for researchers and practitioners and an agenda for future research. This study can support higher education institutions to facilitate the creation and implementation of practice-based curricula for entrepreneurship education.

2 Entrepreneurship Education

Entrepreneurship has generated considerable interest in recent decades, largely attributable to the evidence of its positive impact on economic growth, job creation, innovation, and wealth generation (Daniel, 2016; De Waal & Maritz, 2022; O'Brien & Hamburg, 2019). Entrepreneurship education has proven to be effective in developing the learners' skills, knowledge, and mindset necessary to start and run a successful business (Sarooghi et al., 2019; Thanasi-Boçe, 2020). However, teaching entrepreneurship at higher educational institutions as a multidisciplinary approach (Pretorius, 2008) has received high criticism due to content that is delivered using obsolete pedagogy, focused mainly on theory rather than practice and that does not support students in developing cognitive entrepreneurial skills, entrepreneurial intentions (Piperopoulos, 2012; Von Graevenitz et al., 2010), and new ventures startups (Chrisman, et al., 2012; Neck & Greene, 2011).

The shift toward the recognition that entrepreneurship research can create opportunities implicates enabling students to 'design' innovative solutions. Traditional entrepreneurship education seems to be detached from a practical application (Daniel, 2016; Lynch et al., 2016) and is less focused on creativity (Nielsen & Stovang, 2015) indicating that entrepreneurship cannot be delivered as a traditional course (O'Brien & Hamburg, 2019). Instead, it must engage students in various activities that would improve their competencies (Grau & Rocket, 2022). Therefore, the integration of design thinking in entrepreneurial programs can challenge this situation since it focuses on the creative process during problem-solving (Val et al., 2017).

Nielsen and Stovang (2015) explain the differences between conventional education in entrepreneurship and design thinking education. Conventional education is limited to a rational and linear thinking mode, decoupled from practice, where students are passive receivers of knowledge. Meanwhile, conventional education incentivizes a human-centered and iterative thinking mode, oriented toward practice and co-creation where students are active creators of knowledge. The differences between conventional and design thinking education are like the shift that needs to be made from cognitive constructivism to social constructivism. Namely, while in cognitive constructivism, the personal process is vital for idea construction, and social constructivism requires the creation of ideas through interaction with others, in this case, fellow students and professors (Kalina & Powell, 2009).

3 Methodology

A systematic literature review is a research approach that involves carefully analyzing and synthesizing existing studies in a particular field using well-defined techniques. It is a highly regarded method for gathering evidence-based information and provides

a comprehensive overview of the topic at hand. By thoroughly examining the relationships between different factors, a systematic literature review enhances our understanding of the concept of design thinking in entrepreneurship.

Tranfield et al.'s (2003) three-stage procedure is a widely recognized approach for conducting systematic reviews by providing a detailed framework for effectively carrying out the review process.

In the present study, Tranfield et al.'s (2003) approach was used to plan, execute, and report on the subject matter. In the planning stage, the objectives of the research are clearly defined by formulating the below search question:

- What are the design thinking models used in entrepreneurship education?
- How can educators utilize the design thinking approach to deliver entrepreneurship knowledge?
- What are the anticipated benefits of the use of design thinking in entrepreneurship education?
- What are the gaps/outcomes of previous studies and their application in guiding the forthcoming investigation?

The next stage of the review process is the execution, which involves several procedural steps: source identification, publication selection, evaluation of publications, and data analysis. Maestrini et al. (2017) outlined these steps in their work.

To begin, a keyword-based search was conducted in academic databases using a set of predetermined keywords that focused on design thinking in entrepreneurship education. The search aimed to identify relevant articles and other scholarly sources related to the research topic. The entire procedure, from defining the keywords to collecting articles, was followed according to the planned approach.

Figure 1 illustrates the modified search flow that was implemented during this systematic literature review.

Second, the current review of the literature included only research articles published in the Scopus database. Several inclusion/exclusion criteria were used to narrow down the relevant studies such as year of publication (2012–2022 period), language (English), and peer-reviewed studies only.

Considering the keyword publication and the content analysis, the authors classified the publications as per the focus of the research as follows (Table 1).

Figures 2 and 3 present the number of records based on the type and year of publication, respectively. The data observed show a higher number of publications related to the use of design thinking in entrepreneurship education in recent years. The lowest number of publications in 2020 is related to the COVID-19 pandemic which diverged the focus of research mainly on online learning education.

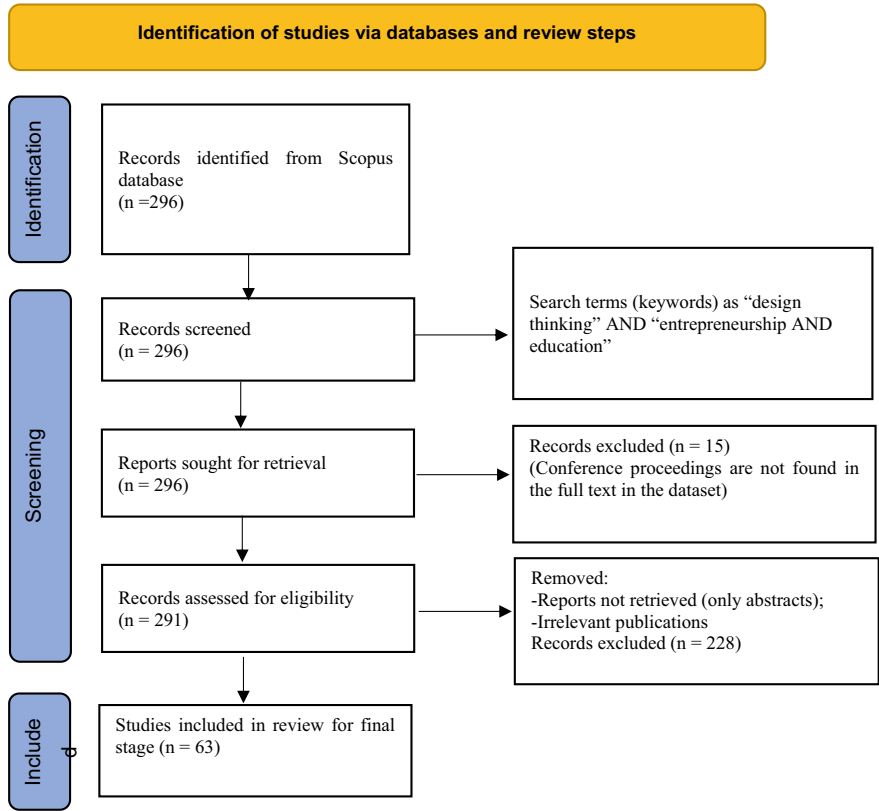


Fig. 1 Review process flow

4 The Theoretical Background of Design Thinking

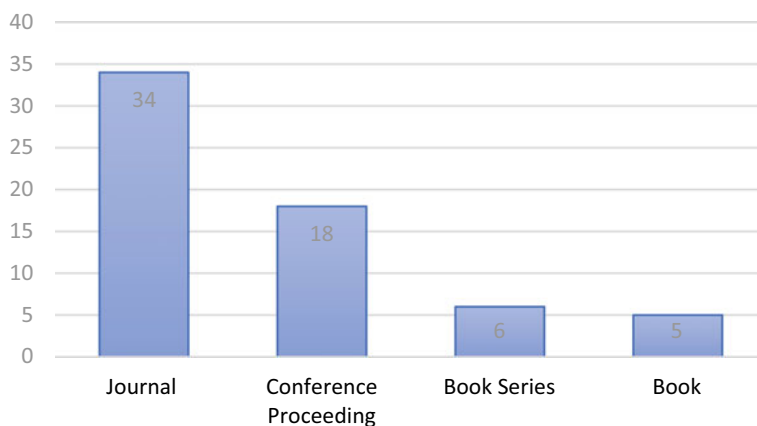
Design thinking is a relatively new concept in the business literature; however, it has significantly stimulated scholars to study this concept and its application in different areas of business (Sarooghi et al., 2019). Design thinking is a problem-solving methodology that is widely used in many disciplines. Zupan and Nabergoj (2023) evaluated design thinking as a method of course design for possible use on different courses across disciplines and explored how the approach fits into established course design approaches.

Design thinking implies comprehending the wants and needs of the user, coming up with concepts, prototyping, testing, and iterating until a solution is developed that satisfies those demands. In the end, the use of this approach can enhance students' motivation (Oosterbeek et al., 2010) and satisfaction with their overall performance in entrepreneurship courses (Daniel, 2016).

Several definitions of design thinking have been found in the literature (Table 2).

Table 1 Classification of studies based on subject focus

Subject focus	Description	References
Curricula development	Curriculum development	Larso and Saphiranti (2016); Newell and Varshney (2017); Zupan et al. (2018); Yu et al. (2019); Grant (2018); Taajamaa et al. (2019); Guo and Wang (2020); Lynch et al. (2021); De Waal and Maritz (2022); Meinel and Krohn (2022); Huang et al. (2022); Huang et al. (2022); Tramonti and Dochshanov (2021)
Innovation and technology	Fostering innovation through design thinking	Suzuki (2016); Biffi et al. (2017); Kickul et al. (2018); Crumpton and Bird (2019); Laferriere et al. (2019); Taajamaa et al. (2019); Teodoro (2021); Newell and Varshney (2017) Meinel and Krohn (2022); Lynch et al. (2021); Huang et al. (2022); Dos Reis et al. (2019); Zhang et al. (2021); Cheng et al. (2022)
Design thinking/ entrepreneurship education	Use of design thinking in developing entrepreneurial capacity and mindset	Daniel et al. (2017); Huq and Gilbert (2017); Daniel (2016); Nielsen and Stovang (2015); Linton and Klinton (2019); Fiore et al. (2019); Val et al. (2017); Aranha et al. (2018); Laferriere et al. (2019); Frolova et al. (2019); Johann et al. (2020); Laptev and Shaytan (2022); Tselepis and Lavelle (2020); Yu et al. (2019); Ellermann (2017); Teodoro (2021); Campbell et al. (2020; Ravi (2021)
Social entrepreneurship	The role of design thinking in social entrepreneurship	Kickul et al. (2022); McArt et al. (2022)

**Fig. 2** Type of publications

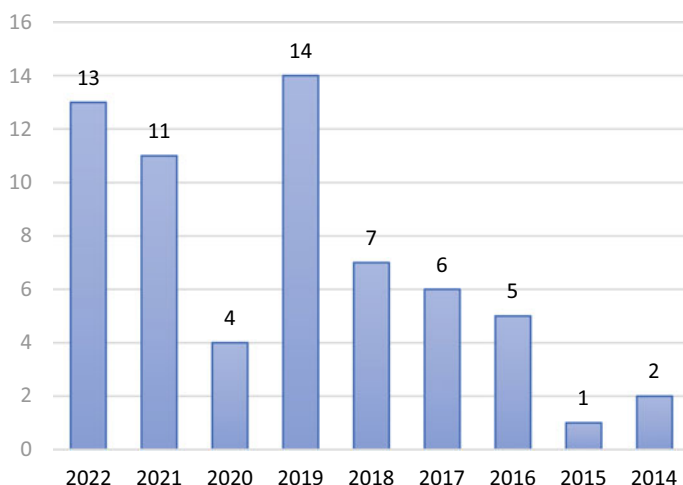


Fig. 3 Publication records by 'year of publication'

Table 2 Definitions of design thinking

References	Definition
Brown (2008)	Bringing principles, approaches methods, and tools to problem-solving
Razzouk and Shute (2012)	An analytic and creative process that engages a person in opportunities to experiment, create, and prototype models, gather feedback and redesign
Lynch et al. (2016)	A systematic approach to identifying and creatively solving the problem
Lockwood and Papke (2017)	Human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis
Lor (2017)	Innovative, creative, and human-centered process and mindset that employs collaborative multidisciplinary teams to generate user-focused products, services, or experiences
Glen et al. (2015)	The combination of tools, processes, and mindsets that designers utilize to solve problems

These definitions highlight that design thinking goes against linear thinking and that the design thinker employs a range of skills such as empathy, integrative thinking, optimism, experimentalism, and collaboration to develop innovative ideas in an iterative process (Brown, 2008). A design thinker has certain characteristics that recognize him from other people. He/she is experimental explorative, ambiguity-tolerant, optimistic, and future-oriented. Having a human-centered orientation, he/

she is collaborative, divergent, and convergent, practice-oriented with a thinking-by-doing approach (Cuthbert et al., 2018). From a cognitive approach, the design thinker has a holistic and integrative approach with abductive and reflective reasoning.

4.1 Models of Design Thinking

Several design thinking models have been developed in the last decade with applications in various fields. Some of the most prevalent models identified in the literature are presented in Table 3.

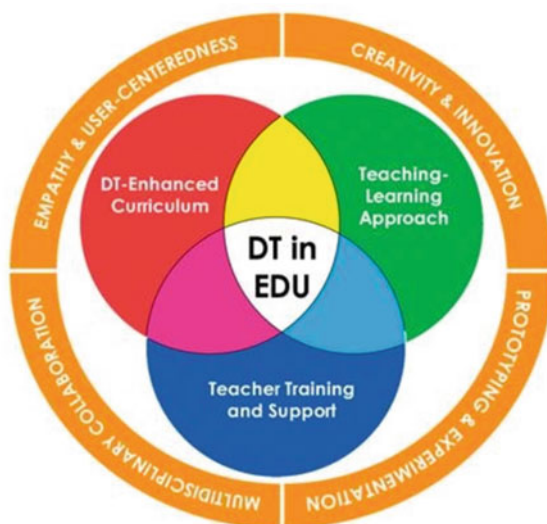
Design thinking is widely used in the field of education to design effective courses. Lor (2017) provided a framework that indicates the uses of design thinking in education (Fig. 4).

The framework highlights the role of design thinking in curricula improvement, teaching–learning approach, and providing support for educators in training and development.

Table 3 Design thinking models

Model	Methodology use	Application with stages
Stanford school 5-stage model	Applied in creative problem-solving	General problem-solving/empathize; define; ideate; prototype; test
The double-diamond model	Refining design ideas	General design ideation strategy/discover; define; develop; deliver
IBM design methodology	Understanding the solution sets that fulfill users' problems	Enterprise solutions/observe reflect; make; lean startup
IDEO design thinking model	Creating human-centered products, services, and internal processes	Evaluating ideas and launching products/inspiration; ideation; implementation
Google design sprint	Learning without building solutions or launching them	Evaluating projects and product offerings/understand/define; diverge; prototype; validate
The Hasso-Plattner institute of design thinking model	Focus on observation and prototyping	Understand; observe; point of view; ideate; prototype; test
The alignment-based model	Build mindset practice and institutional alliance/focus on stakeholders	Aligning the needs and goals of different stakeholders involved in the design process/discovery; ideation; prototyping; testing

Fig. 4 Uses of design thinking in education; Lor (2017)



5 The Role of Design Thinking in Developing Effective Entrepreneurship Course

The design thinking process can support entrepreneurship and business growth by ensuring that students acquire entrepreneurial knowledge and skills that can be utilized to transform traditional business models in the future (Kremel & Edman, 2019). When differentiating between a process and a method of entrepreneurship, Linton and Klinton (2019) suggest that the method approach process of course redesign is supported by design thinking toolkits that include creativity and where both experimentation and practice are intertwined in the design thinking.

Design thinking is frequently applied in entrepreneurship education to assist students in coming up with creative answers to challenging issues. It can also be applied in product development, marketing, and other business domains to generate user-centered solutions. When applying design thinking principles, students in the role of entrepreneurs can come up with more effective solutions that can satisfy the requirements of their target market by:

- Identifying opportunities: Students focus on customers' needs and pain to identify opportunities in the market.
- Creating solutions: Students apply design thinking to craft original innovative solutions that cater to the demands of their intended audience.
- Prototyping and testing: Design thinking encourages students to build prototypes and test their ideas in the real world, giving them the chance to improve their concepts in response to user feedback.

- **Iterating:** Students improve their solutions through the iterative design process based on feedback, which enables them to produce more useful and appealing goods and services.
- **Collaborating:** As students work together to solve challenging challenges and develop solutions, design thinking fosters collaboration and teamwork.

Linton and Klinton (2019) illustrated the development of a new entrepreneurship course focused on a method approach that incorporates toolkits of design thinking for developing students' entrepreneurial skills and mindset (Neck & Greene, 2011). The authors conceptualized and incorporated each of the steps above into five modules where students were given clear tasks to perform.

5.1 Stanford School 5-Stage and Double Diamond Models of Design Thinking

Creativity is key to entrepreneurship; therefore, entrepreneurship courses should develop learning activities that can strengthen students' capacities to be creative and develop innovative solutions. Below are discussed two models of design thinking. The first one is the five-stage model of Stanford (Stanford, 2023). The process starts with understanding the needs of the user, defining the problem, brainstorming potential solutions, building a prototype, and testing the prototype with users. This model highlights the importance of iteration and feedback. It involves five stages as below:

- **Empathy:** The first phase of identifying opportunities is the empathy phase during which students can empathize with potential users by understanding their needs, desires, and potential pain points. To do this, students can conduct interviews, surveys, or focus groups with potential customers and stakeholders.
- **Problem definition:** Second, they define the problem based on the needs and desires of the target market. During this phase, the information gathered during the empathy phase should be synthesized to identify key insights and opportunities. The ability to apply design thinking will help students challenge problems that seem peripheral at first look. It is essential to understand a central problem, which can be discovered through in-depth questioning that often seems like the application of the Socratic method of argumentation.
- **Idea generation:** In the third stage, idea generation is considered a divergent thinking process where students are encouraged to think outside the box and come up with creative ideas.
- **Prototype development:** Later, students develop a rough prototype of the solution suggested during the brainstorming stage based on the most promising ideas. It can be a low-fidelity prototype such as a sketch, mockup, or wireframe that helps visualize the proposed solution.

- *Testing*: Finally, students are required to test the prototype with potential users or stakeholders. This allows students to get feedback on their ideas and refine the solution based on the user's needs and desires.

Another widely used design thinking model across business school curriculums and more specifically in entrepreneurship programs is the Double Diamond framework. This approach encourages divergent and convergent thinking and helps organizations and individuals tackle complex problems through a problem-solving process and finds innovative solutions (Val et al., 2017). The Double Diamond framework follows four stages:

- *Discover*: Gathering insights, empathizing with users, and defining the problem to be solved through researching, and exploring to understand the problem space.
- *Define*: Synthesizing data gathered from research to create a clear and concise problem statement.
- *Develop*: Generating and testing ideas through exploring a wide range of possible solutions, prototyping, and testing them with users, and refining these ideas based on feedback.
- *Deliver*: Solutions are brought to life through refining prototypes, finalizing the designs, and launching the product.

These models can support educators to facilitate the creation and implementation of practice-based curricula for entrepreneurship education.

6 Discussions and Implications

Design thinking is a problem-solving method that involves empathy, creativity, and experimentation to develop innovative solutions to complex challenges. Entrepreneurial education associated with design thinking approaches has a significant impact on students' preparation for facing entrepreneurial challenges. It enables students to build knowledge by using innovative, creative, and iterative problem-solving customer-centric methods, and develop the entrepreneurial skills and mindset needed to succeed.

Some of the key related implications to developing entrepreneurship education through design thinking are provided below:

The emphasis that the design thinking approach places on the importance of understanding users' needs indicates an orientation of entrepreneurial education toward teaching students how to focus on customer needs when developing business ideas and products.

Design thinking focuses on creativity; thereby, it is a highly creative process that encourages students to think outside the box. Entrepreneurship education must incorporate design thinking methods to support students develop creative and innovative solutions to business problems.

Through an iterative problem-solving approach, design thinking supports the developing, testing, and refining of solutions through a series of iterations. In this process, students should be taught how to apply this iterative approach to solving problems.

Furthermore, through experimentation and prototyping, design thinking encourages students to test and refine solutions. In this regard, entrepreneurship education should teach students how to use experimentation and prototyping to test and refine business ideas.

Since design thinking often involves interdisciplinary teams cooperating to solve complex problems, entrepreneurship courses should provide students with the opportunity to work in teams and collaborate with people from different backgrounds.

Finally, by incorporating a design thinking approach, higher education institutions can redesign their human-centered entrepreneurship courses by engaging students in practice rather than simply mastering the theory, by assigning them problems to solve that are not narrowly defined, by inviting guest speakers and involving industry partners in this process, and by teaching entrepreneurship through diverse teams of educators with expertise in different disciplines.

7 Future Research Agenda

As the field of design thinking in entrepreneurship education continues to advance, here are some suggestions for future research directions.

One possible area of research is exploring whether design thinking in entrepreneurship education is effective and how incorporating design thinking methodologies into entrepreneurship education can result in better outcomes for students. It would be beneficial for educators to identify and utilize the most effective aspects of design thinking.

Another possible research direction is to investigate the impact of design thinking on student attitudes and behaviors with a focus on how exposure to design thinking may change the students' approach to problem-solving and foster an entrepreneurial mindset.

An important topic of interest can be exploring the role of design thinking in the first phase of entrepreneurial endeavors by investigating how design thinking can support students as future entrepreneurs in identifying and validating new business ideas.

Considering the potential of design thinking to boost business model innovation, a research direction can focus on how the usage of design thinking can support the development and testing of new business models. When social entrepreneurship is oriented, design thinking can be used to address social or environmental challenges. In this regard, a research direction would be exploring the role of design thinking in developing sustainable business models.

Although there is evidence of the wide use of design thinking in entrepreneurship education, still there is a lack of empirical studies on the effectiveness of design

thinking in entrepreneurship education in terms of achieving learning outcomes and boosting student active learning. Therefore, researchers are encouraged to conduct empirical research in this regard.

Pedagogical approaches for integrating design thinking into entrepreneurship education can be reviewed to explore innovative pedagogies that incorporate design thinking into curriculum design, teaching methods, and assessment strategies.

Furthermore, there is a need for more research to investigate the impact of design thinking on students' entrepreneurial mindset and behavior, including their creativity, risk-taking propensity, opportunity recognition, and innovation skills. Taking into consideration the interdisciplinary nature of entrepreneurship, more research work can explore cross-cultural differences in the application and effectiveness of design thinking in entrepreneurship education. Additionally, research should investigate the potential for interdisciplinary collaborations in teaching and applying design thinking to entrepreneurship education.

Finally, technological developments create an opportunity for researchers to explore the usage of new technology in supporting new product design and solutions through design thinking.

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Young and Female: The Challenges for Digital-Social Entrepreneurship in Kosovo



Geena Whiteman

Abstract This paper explores the key challenges that young women digital-social entrepreneurs face in their entrepreneurship journey in Kosovo. Women and youth face significant barriers to entrepreneurship due to age and gender-based discrimination and stigma, such as accessing networks and resources and gaining trust and recognition of skills and experience. This highlights a double-edged sword for young women entrepreneurs, who are twice as likely to be on the receiving end of these barriers. Additionally, digital-social entrepreneurship is an emergent phenomenon in itself, where there is often very limited support, guidance, or frameworks for entering into this space—which poses further challenges. There is limited research exploring the specific challenges of young women entrepreneurs within the context of the transition economy; therefore, this study uses Kosovo as a case site due to its growing ICT sector and young and entrepreneurial population. Utilizing an institutionalist approach, this paper analyses how the institutional frameworks of the country both help and hinder young women in their digital-social entrepreneurial ventures, drawing upon a series of semi-structured interviews conducted with policymakers, supporting actors, and young women digital-social entrepreneurs. Findings highlight the institutional inefficiencies, both formal and informal, that young women have to navigate in Kosovo—including a lack of formal framework for digital-social enterprises, distrust, and discrimination from older and male peers within their chosen sectors, and difficulties in accessing start-up financing and acceleration support. This study contributes to a greater understanding of the specific challenges that young women face when pursuing entrepreneurship and the key challenges for emerging digital-social enterprises in Kosovo.

Keywords Youth entrepreneurship · Women · s entrepreneurship · Digital-social entrepreneurship · Institutional constraints · Transition economy

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1 Introduction

Young women represent one of the biggest consumer bases in the world, with entire industries specifically dedicated to appealing to this subset of consumers; however, they make up a small amount of those on the opposite end of the ‘coin’—as entrepreneurs and business owners. Entrepreneurship has become a key component of many active labour market policies (ALMPs) targeted towards young people across Europe, becoming both a key issue and a basic competence for European policy-makers (Bacigalupo et al., 2016). There are a growing number of initiatives across Europe specifically targeting young women for entrepreneurship, which emphasize the unique skills and competences that young women have that are suited for entrepreneurship (Grubanov-Boskovic et al., 2020). However, although 49.5% of the global population are women, there is still a significant gender gap in entrepreneurship and business creation, especially in ‘pull’ or opportunity entrepreneurship (Brush et al., 2010; Byrne et al., 2019; Verheul et al., 2006). This is a particular challenge in the transition economies of the Western Balkans, where there is still considered to be a strong legacy of ‘traditionalism’ in regard to a women’s role in society—with many women expected to be the homemaker rather than the business creator (Spehar, 2012, 2018). Additionally, there are significant challenges for young people pursuing entrepreneurship, with them being perceived as lacking in the skills, expertise, and knowledge required to start their own business, as well as struggling with access to resources and networks (Gribben, 2018).

Kosovo is the newest country in Europe, and since its declaration of independence on 17 February 2008, the new state has been renowned for having the youngest population in Europe (with over 50% of the population under the age of 25). However, it is also one of the most disadvantaged when it comes to youth unemployment, where 38% of young people between the ages of 15–24 in Kosovo were unemployed, in comparison to the EU-27 average of 15.1% (World Bank, 2023). Women are more likely to be unemployed than men, with 46.5% of young women unemployed compared to only 33.7% of young men (World Bank, 2023). In particular, young women are more likely to experience long-term unemployment and inactivity in the labour market, as they are typically expected to take on caring or childrearing duties and face gender-based discrimination in the labour market (International Labour Organization, 2010). Due to institutional inefficiencies in aiding young people into employment, many young people are instead seeking to create their own job opportunities by pursuing entrepreneurship as a traditional career alternative or as a ‘side hustle’ to maximize their income and pursue their personal interests (Green, 2013; Walsh & Stephens, 2022).

Young people are considered to be both more digitally literate and socially conscious than previous generations, due to the prominence of digital technologies and accessibility of information in their everyday life (Chen et al., 2020; Fischer et al., 2007; Naderi & Steenburg, 2018; Rowsell et al., 2017). For youth in Kosovo, digital entrepreneurship transcends the geographical boundaries that a lack of visa liberalization places on them, whilst social entrepreneurship empowers them to

create and shape a better future for Kosovo—with a focus on sustainability, climate action, gender equality, and poverty reduction. At the nexus of these two forms of entrepreneurship sits digital-social entrepreneurship, an emerging phenomenon in which technological innovations are utilized to create social value. It is an attractive pursuit for tech-driven, socially aware young people. Digital-social entrepreneurship provides young people with the opportunity to utilize their technological literacy to both generate employment opportunities for themselves and their peers (through business creation) and to tackle societal issues and generate social value within their local and wider community (Ghatak et al., 2020).

In this study, youth digital-social entrepreneurship is explored through an institutional and feminist lens, identifying the key institutional barriers for young women pursuing this form of entrepreneurship in Kosovo. This paper will explore the emerging discussions surrounding digital-social entrepreneurship, the unique challenges of being young and female in the entrepreneurship landscape, and the importance of the transition economy context of Kosovo for this study. It will then highlight the theoretical positioning of this paper, outlining the methodological design, before moving on to present the results and discuss the findings of the interviews in relation to existing discussions surrounding young women in entrepreneurship. It will then conclude with some final remarks, before discussing the implications of this study in regard to theoretical and practical contributions, the limitations of the methodological design of the study and directions for future research.

2 Literature Review

2.1 *Kosovo as a Research Context*

Kosovo is a successor state of the former Yugoslavia, and a small, partially recognized country situated in the Western Balkans. It is a transition economy, having undergone the shift from socialism during Yugoslav times, to implementing institutional reforms based on the free market ideology over the last 25 years. Kosovo declared its independence from Serbia on 17 February 2008, after decades of oppression and conflict, and is now recognized by 23 out of 28 of the European Union (EU) countries, and a member of organizations such as the International Monetary Fund (IMF), the World Bank, and the European Bank for Reconstruction and Development (EBRD). It has the youngest population in Europe, with over 50% of its 1.77 million population under the age of 25; however, it also has one of the highest youth unemployment and NEET¹ rates in Europe, with 31.4% of 15–24 years old unemployed and 32.2% of young people considered NEET (Kosovo Agency of Statistics, 2023). High unemployment stems from a skills mismatch between the teachings of the education system and the needs of the labour market, a high population of young people competing for

¹ NEET—Not in education, employment, or training.

a limited number of jobs, and weak active labour market policies (ALMPs) to help bridge the gap between school and work (Gribben, 2018).

Entrepreneurship does not occur in a vacuum but instead happens in a variety of social, spatial, or geographical contexts, such as in certain communities, neighbourhoods, or countries—all which impact the prosperity and ability of the entrepreneur operating in them. These contexts can be viewed through an institutional lens, which draws on North's (1990) concepts of formal and informal institutions as being 'rules of the game' that one must adhere to in order to succeed. Formal institutions refer to the political and economic rules, such as laws and regulations, that either help or hinder opportunities for entrepreneurship, whilst information institutions refer to the norms and attitudes within a society, that influence the entrepreneurs actualization of their business (DiMaggio & Powell, 1991). This is because society is seen to influence entrepreneurship, emphasizing the 'double sociality of entrepreneurship' (Steyaert & Hjorth, 2006; p1).

For transition economies such as Kosovo, entrepreneurs face more uncertainty and risk than those in more developed economies due to institutional voids, which disproportionately impact young women as entrepreneurs (Khanna & Palepu, 2010). Historically, research surrounding women's entrepreneurship has typically adopted an individualistic approach to explain behaviour and success and ignores the institutional factors that often account for rates and success of women's entrepreneurship, particularly in transition economies (Pathak et al., 2013; Welter & Smallbone, 2008). Additionally, critique surrounds how a significant amount of existing research surrounding women's entrepreneurship is primarily based on Western settings (Moreira et al., 2019) and emphasizes the need to explore women's entrepreneurship in different contexts—such as emerging markets (Yadav & Unni, 2016) and transition economies (De Bruin et al., 2007). Therefore, this study fills a gap, exploring the experiences of young women entrepreneurs within the transition economy context.

2.2 Digital-Social Entrepreneurship—A New Way of Doing Business Better

Digital-social entrepreneurship is the pursuit of "entrepreneurial initiatives with social purposes developed by incorporating digital technologies into their business model" (Holzmann & Gregori, 2020; p2). It has gained significant attention in recent years due to its potential to create sustainable impact, and as a result, a growing number of entrepreneurs are leveraging digital technology to achieve social impact (Ghatak et al., 2020). It incorporates the use of everyday technologies, such as social media, mobile applications, blockchain, and AI to tackle societal challenges such as climate change, poverty, and gender inequality. It provides youth with the opportunity to 'live out their values' and utilize their technological literacy to both generate employment opportunities for themselves and their peers (through business creation)

and to tackle societal issues and generate social value within their local and wider community (Yáñez-Valdés et al., 2023).

2.3 *Youth Entrepreneurship*

With a rising global youth unemployment and underemployment rate that stems from the changing nature of the labour market and skills mismatches, governments and intergovernmental organizations have been seeking new ways to engage youth in the labour market. Entrepreneurship is an increasingly popular way for young people to enter the labour market, as it aids in the economic independence and improved life quality for young people, as well as providing wider societal benefits such as job creation and increasing innovation and competitiveness (Green, 2013). The Global Entrepreneurship Monitor and Youth Business International define ‘youth entrepreneurs’ as those who start their business between the ages of 18 and 34 (Schøtt et al., 2015). This is due to the longer school-to-work transition period in which most young people experience, due to the global difficulties in securing productive employment and decent work as a young person. According to the most recent youth entrepreneurship study conducted by the European Commission (2013a, 2013b), over half of young people report a preference for entrepreneurship or self-employment over formal employment, whilst 40% believe that they could be self-employed within the next five years. This is due to a dissatisfaction with the current state of the labour market, wanting more flexibility and autonomy in their working life, and wanting to be more independent and financially secure than a perceived job would provide them (Green, 2013). Current research on youth entrepreneurship predominantly focuses on an education perspective. They are primarily focused on the experiences of university educated entrepreneurs (whether within or after university), leaving a research gap on how younger entrepreneurs are influenced by and experience entrepreneurship (Maleki et al., 2023).

Young people today are characterized by the significant changes that have occurred in their lifespan—such as the rapid technological advancements, increased globalization, and liberalization of social values (Liu et al., 2019). These generations of youth demonstrate a higher aptitude towards technology, as they are the first to grow up within this ‘digital world’—many of them have been digital natives from a young age, in comparison to older generations who have adopted new technologies as time has passed (Rauch, 2018). Young people are more environmentally conscious than previous generations and are willing to pay a premium price for a product or service that they consider to be ‘for a good cause’, such as for environmental or charitable purposes (Gaudelli, 2009; Ng et al., 2010). This has led to both a change in young people’s consumer behaviour, but also a change in their entrepreneurial habits—as youth entrepreneurs are more adept to respond to these changes in their peer customers attitudes and more inclined to initiate such changes in their own business practices (Liu et al., 2019). Their digital competence and social consciousness

ensure that the new generation of entrepreneurs is better equipped and more inclined towards digital-social entrepreneurship as a business model.

2.4 Young Women in Business—Drivers and Barriers for Young Women Digital-Social Entrepreneurs

Gender and age diversity in the labour market have been a growing concern for some time now, with the participation of women and young people in formal employment being significantly lower than that of their male and elder counterparts (International Labor Organization, 2016). This is also reflected in entrepreneurship rates, whilst women entrepreneurs represent the largest growing category of entrepreneurship worldwide (Cardella et al., 2020), the percentage of women who decide to pursue entrepreneurship is still significantly lower than that of men (Elam et al., 2019), and with the gender gap of entrepreneurship seen to be increasing in transition economies (Kelley et al., 2017). Current research suggests that women are driven towards entrepreneurship due to job dissatisfaction and lack of advancement (Buttner & Moore, 1997), to create a better work-life balance for themselves (Malach-Pines & Schwartz, 2008) and for family-related reasons (DeMartino & Barbato, 2003), for autonomy and independence over their working conditions (Maysami & Goby, 1999) and for financial success (Carter et al., 2003). According to Wilson et al. (2007), women are driven to entrepreneurship due to social motives, whilst Handy et al. (2002) highlight the significant contributions women entrepreneurs make on social issues through their entrepreneurial activities. Women entrepreneurs are considered to be better positioned towards social entrepreneurship and social value creation than their male counterparts, attributed to women more inclined to possessing traits such as compassion and empathy that lend themselves towards more socially meaningful ways of doing business (Ozkazanc-Pan & Muntean, 2016; Pulido et al., 2014). There is limited research specifically on the drivers of entrepreneurship for young women, but more broadly speaking, younger people are more driven to entrepreneurship due to a perception of independence and autonomy that entrepreneurship brings, as well as for more freedom and flexibility in their working habits and for pursuit of greater financial success (Greene, 2021).

According to Guzman et al. (2019), women entrepreneurs are 63% less likely than male entrepreneurs to obtain external financing, and Langowitz and Minniti (2007) point out how women entrepreneurs experience a greater lack of support than male entrepreneurs trying to access resources. Additionally, Johansen (2013) highlights difficulties in obtaining support (such as institutional, family, and financial) as the key difficulties that women entrepreneurs face, whilst Wieland et al (2019) emphasize how a fear of failure and unfavourable social perceptions of women entrepreneurs act as significant barriers. Young women are perceived to be ‘doubly disadvantaged’ in the barriers that they face, facing both age-related barriers and gender-based barriers to entrepreneurship (International Labor Organization, 2016; Schøtt et al.,

2015). Age-related barriers to entrepreneurship experienced by youth are a significant skills mismatch, societal distrust of their experience and knowledge, lack of access to resources, weaker social capital and networks, and lack of family and peer support (Green, 2013). For youth in transition economies such as Kosovo, some of the biggest barriers facing young people are a lack of infrastructure and institutional voids (Avdullahi et al., 2022). For young women in Kosovo in particular, it has been argued that there is a 'patriarchal mindset' that hinders their inclusion and promotion within the labour market, which either pushes them towards self-employment or non-participation entirely (Abazi Morina & Delibashzade, 2017).

3 Methodology

Over the course of a three-week data collection period in January and February 2023, twenty semi-structured in-depth interviews were conducted both in-person and remotely. For the purpose of this study, which was to describe a shared behaviour or experience amongst a relatively homogenous group, Guest et al. (2006) argue that twelve interviews are sufficient enough for 'saturation'. Amongst these twenty interviews, three were conducted with policymakers, five were conducted with supporting actors, and twelve were young women digital-social entrepreneurs operating in Kosovo. This study defines 'youth' as being between the ages of 18–30, as it offers a satisfactory halfway point between the definition of youth from state actors and statistical frameworks (typically 15–24) and the definition of youth from donor programmes and NGOs (typically 18–35).

Policymakers were working in ministries that directly dealt with entrepreneurship and innovation policy, whilst supporting actors were working either within youth entrepreneurship-related NGOs or from business incubator and accelerator programmes. These were recruited purposively and reached out to through email contact due to their position within their relevant organizations. Young women digital-social entrepreneurs were recruited through volunteer and snowball sampling, in which some responded to social media 'callout's' for participants, and then referred other young women in their personal and professional networks engaging in similar work to the researcher. This allowed for easier access to a more exclusive community/sample group and provided a sense of trust amongst participants who had been snowball sampled—as I had already been 'vetted' as someone worth talking to by their peers who were recruited voluntarily.

Interviews were thematically analysed using Braun and Clarke's (2006) thematic analysis framework, where there were no pre-defined themes for analysis, and the researcher went through several rounds of analysis of each interview to draw out all the emergent themes. The following steps were used: (1) searching through the data to familiarize and identify main themes, (2) examining the data in-depth to provide detailed descriptions of the setting, participants, activities, etc., (3) categorizing and coding data by physically grouping data into themes (in which there were several rounds of coding), and (4) summarizing and writing up findings.

4 Findings and Discussion

In this section, the key findings from this study are set out and discussed, unpacking some of the key challenges that young women digital-social entrepreneurs in Kosovo face. The key themes that emerged from the analysis were that of social support (or the lack thereof) that young women faced, the attitudes towards young women within the business context that they had to manoeuvre, inefficiencies within the formal institutions of the country, and difficulties in accessing resources (such as financing or incubation/acceleration). These emerged both from the perspectives of the supporting actors and the experiences of the young women participating in the project and highlighted key systemic issues within Kosovo's institutional environment that constrain entrepreneurship.

4.1 Social Support (or Lack Thereof)

Women typically take on greater responsibilities within the home, such as child raising and caring duties, which is argued to stem from Yugoslav times, where women played the roles of 'mother' and 'wife' and did not pursue entrepreneurship (Ramadani et al., 2015a, 2015b). This point was emphasized by a supporting actor, who highlighted that *"as a society, traditionally women are more likely to have to take this heavy lift of raising children more than men... that's the reality, it's changing, but how much it has changed, I don't know. So that's something which makes it more difficult for women to be a part of this entrepreneurial eco-system"* (P1). Women taking charge of the household, or being placed in this role by societal cultures, has led to women having less time to pursue outside ventures, including entrepreneurship—which is reflected in the high rates of unemployment amongst women in Kosovo. Whilst for young women, this may not directly be a barrier due to being unmarried and without children, but the assumption that women will eventually leave the labour market in order to be the 'mother' and 'wife' has led to a lack of long-term investment into the notion of women's entrepreneurship.

This leads to a lack of female role models for young women to 'follow in the footsteps of', with one young women entrepreneur highlighting how *"there are not so many women that have businesses in Kosovo, especially some entrepreneurship, something that you created from zero and something that is new, and also something that has a social impact"* (P17). A lack of representation of women at the 'top of the game', and a societal belief that women's roles are as 'mother' and 'wife' means that young women are often underestimated in their ability, emphasized further by *"...when I had the chance to meet people and to explain them what I was doing and what I want to do in the future, they were curious and they were like surprised at how something like that could go in the mind of a woman"* (P17). This was discussed by another young women entrepreneur, who highlighted how in social gatherings with friends and family, she received negative treatment when discussing her work, as

“maybe they were not used to discussing such things like the renewable energy waste problem or social impact with woman” (P18).

This also led to contempt and hostility from peers when their businesses became successful, with one young women expressing frustration at the changing attitude of her former colleagues when her business started to grow—explaining that *“the funny thing is when the business started growing, and competitors and other agencies saw that we’re doing good work, all of a sudden I would just like hear from other people that my friends were saying bad things, or just saying—” Oh, did you see what they did? That’s not a good thing... Well. I could have done so much better”*. And then I was just talking to other people saying like, did he say something about the other colleague we had, or is it only for me, and they were like no, he was just only talking about you. I was like why? What have I done to him?” (P12). Whilst this behaviour wasn’t directed at her ‘face to face’, the attitudes and backstabbing were all significant microaggressions that not only affected her mental wellbeing, but also her professional progression—where she discussed how *“they used to call me for like conferences or like to talk to youngsters and they never do that anymore because, they don’t want to give me the spotlight because I’m a woman entrepreneur, I guess, and that’s ‘not a thing’”* (P12). This highlighted how the subtle microaggressions that young women face in business can ultimately result in more macro-issues, such as a lack of representation and visible role models in public spaces—where they are no longer offered the opportunity to share their stories once they find success, at least, not in the same way that men are.

4.2 Attitudes Towards Young Women in Business

These hostile attitudes towards young women not only occur within their personal circles, but also within their professional circles. In discussions with young women entrepreneurs, they overwhelmingly expressed the negative attitudes from older males within their fields, that seemed directed towards both their age and gender—with one young woman concluding that *“people will not take you as seriously as they would, for example, take a man and someone that is older”* (P11). This was further reiterated by another young woman, who highlighted it as a systemic ‘Western Balkan’ issue, where *“besides us being young woman, we are also young women in the Western Balkans, where youth are always questioned, especially in regard to expertise... they grew up in another system that did not really appreciate youngsters that much”* (P13). This was highlighted in the literature, where Green (2013) and Schøtt et al. (2015) found that societal distrust in young entrepreneurs knowledge and expertise was one of the biggest barriers faced. This was reflected by another young women entrepreneur, who, when seeking contracts with public institutions for her established business, found that *“people assumed we don’t really know what we’re doing because we’re young... or most people would be like, you don’t know yet what’s going on here, because you’re young and you can’t understand”* (P10). This was reiterated by another young women entrepreneur, who highlighted how

this attitude affected her ability to start her business—how *“the hard part of being a woman is in terms of finding the client, finding the jobs”* (P15), as seeking clients was harder as a woman, having to jump through more hoops than her male counterparts.

This was not only highlighted by the young women participating in the study but also the supporting actors, with one supporting actor explaining how *“in certain sectors and with certain people, you might be much more welcome and not prejudiced, but in others, you know, maybe some of the older folks would not feel comfortable because what is this woman doing here? You know, it’s a man’s club, kind of mentality”* (P2). This was further emphasized by one of the young women entrepreneurs, who, when working to gain contracts within certain public institutions, found that *“I would sit on the table and people would ask me what what’s my experience with cooperating with municipality directors in some more rural areas because, you know, they’re men... and they won’t talk to female entrepreneurs”* (P10). This hostile attitude was further echoed, as *“public institutions are always surprised when we turn up, and we are prepared to turn on a defensive mode, being prepared to be asked many questions and to be judged in our knowledge and in our experience”* (P18). This has a negative effect on their wellbeing, where a young women entrepreneur expressed how *“it can be difficult being strong enough to just deal with the men dominated environments”* (P14).

4.3 Inefficiencies in Formal Institutions

Previous literature highlights the importance of social capital, and ‘knowing the right people’ when undertaking entrepreneurial activities in transition economies, with systems often being outdated, bureaucratic, and difficult to navigate for young people with limited knowledge of the ‘rules of the game’ (Gribben, 2018; Shirokova et al., 2022). One young women entrepreneur, when discussing the process of formalizing her business, highlighted how *“I remember I had a time when I was really thinking I was like wow, if someone doesn’t have a person that they would just go and tell them—do this, now, do that, and do that... they would be finished in a month, because it’s just chaos, pure chaos... you have to know people to get the job done”* (P11). This reflects the work of Lajqi and Krasniqi (2017), who suggested that informal networks that can ‘signpost’ are more conducive to the entrepreneurial experience for young people in transition economies than investing in additional education, and how it is often a case of ‘who you know’ rather than ‘what you know’ in the early days of running a business. This institutional inefficiencies in the formalization process were reiterated by a supporting actor, who suggested that *“a lack of competence is really what deters people from reaching out to the government”* (P2). There are improvements in the area, with the business registration process now being digitalized, where a supporting actor highlighted how *“when you open a business here in Kosovo, you can do most of the process digitally, you fill in some forms and submit some documents online... also, filing of taxes is, I would say, 99% digitalized nowadays... businesses don’t have to go any to any government offices... everything can be done online”* (P1).

This reflects positive changes in the business environment; however, it is still a slow process.

There was very limited faith in the will of the government to make any positive changes that would aid young entrepreneurs in Kosovo, with one supporting actor discussing how *“there’s a tendency for documents like that to appear, and then just pick up dust somewhere and you get nowhere”* (P4) when discussing youth entrepreneurship policies. This was reiterated by a supporting actor representing the government, who emphasized how *“the thing is the government is probably not as ready as we want it to be to help entrepreneurs... The current setup is not very useful”* (P2), whilst another supporting actor highlighted how youth entrepreneurship was *“unfortunately always a priority on paper alone”* (P5). This has a snowballing effect onto the private institutes and initiatives, such as incubators and accelerators, that seek to support young entrepreneurs, with a supporting actor from one highlighting how *“we are not seeing a lot of results, but it is a process, but you can expect that from the government... you know they are bureaucrats, and they are going very slowly”* (P6). This demonstrates how institutional incompetencies hinder the entire entrepreneurial eco-system in Kosovo—policy change and financial support are slow, which limit the amount and extent of support offered to young people. This is supported by Gribben (2018), who highlighted the lack of institutional competency and interest surrounding youth entrepreneurship in Kosovo as being one of the biggest barriers to developing the eco-system.

4.4 Accessing Resources

Reflecting more broadly on the start-up eco-system in Kosovo, many of the young women interviewed were dissatisfied with the support available—and it was repeatedly highlighted how a lack of ongoing support, such as accelerator programmes and venture capital, hindered their ability to grow their businesses. Whilst there are many short-term projects targeting young women entrepreneurs, there is very little in regard to more longer-term thinking, with one young women entrepreneur expressing that *“We need the startup ecosystem... we have the ideas... we have the entrepreneurs... we have some bootcamps and workshops, but we need accelerators, and we need VCs to complete the cycle of young entrepreneurship”* (P18). This was reiterated by another young women entrepreneur, who when discussing the aftermath of winning a short-term grant and incubation place, emphasized the lack of longevity by stating how *“most of the ventures that had won, when I also was participating in this stuff, I know like a lot that just aren’t active anymore... you reach the—’now what happens’ stage, it’s sort of a bigger barrier because you don’t know where to go next... It’s hard deciding on your own what the next step is”* (P10). This was highlighted by Gribben (2018) and Manolova et al. (2019), who highlighted the lack of longer-term support and non-donor funded initiatives, and emphasized how unsustainable the current support mechanisms are for long-term entrepreneurship development.

Even when the support systems are in place, they are rife with bureaucracy and hidden costs, with one young women entrepreneur having to reject a place in an incubation programme because *“for us to have any kind of support, it costs a lot of money, and we are in the early phase of our development right now and don’t have that... we couldn’t access any support until now”* (P15). Whilst many incubation and start-up programmes are advertised as free or low-cost, there were often many hidden costs associated with participation, whether that be direct costs of consultancy fees, or indirect costs of long-term time commitments and stringent terms and conditions that restricted the entrepreneurs freedom. This was highlighted by a supporting actor, who discussed how *“publicly they offer like €10,000 per startup, and people think that they’re going to get like €10,000 for their idea and they join the program... and then they only get like €1,500 or €2,000 because the rest of the grant gets invoiced by the organisation as counselling, admin fee and expertise from the experts and all sorts of stuff... I mean, it might be optional, but try imagining that happening to an 18- or 19-year-old...”* (P5). This highlights some of the institutional bureaucracies that young people face when accessing support, particularly when they do not have the social capital or the ‘know-how’ to navigate some of these complex systems.

5 Conclusions

This paper outlines some of the key institutional and societal barriers that young woman face when pursuing digital-social entrepreneurship in Kosovo. Young women face a double-edged sword when pursuing entrepreneurship—where they are perceived as being inexperienced due to their age, and unknowledgeable and ‘unsuited’ due to their gender. This was universally recognized by both the young women and the supporting actors that participated in this study, that young women are fighting an uphill battle to be taken seriously in a patriarchal society that has significant institutional voids. This empirical analysis advances understanding of the specific gendered challenges that young entrepreneurs face in transition economies, particularly when pursuing entrepreneurship in more ‘male-dominated’ spheres such as digital and technology. Young women are constrained by society due to a lack of social support, hostility and microaggressions from more senior colleagues in their fields, a weak institutional structure for young entrepreneurs, and a limited access to resources that are not all that they seem.

6 Implications

This study aims to shed light on the unique challenges that young women face when pursuing digital-social entrepreneurship in the transition economy context, using Kosovo as a case site for this exploratory study. There are relatively little studies that focus on the specific experiences of young women entrepreneurs, either focusing

on the experiences of young entrepreneurs or women entrepreneurs—with limited knowledge created about those sitting at this intersection. Therefore, this study highlights some of the unique challenges that those at the intersection of youth and gender experience and explores this within the contextual context of the transition economy. Given that youth unemployment, particularly amongst women, is on the rise, and that entrepreneurship is being prioritized within European policymaking as a solution to this issue, understanding the constraints to young women pursuing entrepreneurship is important for policymakers. Policy that focuses on creating a sustainable ecosystem with long-term support mechanisms in place for young women and systems in place that highlight the work of women entrepreneurs in Kosovo would provide young women in Kosovo with a more level playing field to start their own businesses and contribute more fully to the ever-growing entrepreneurial eco-system.

7 Limitations and Future Research Directions

This study was limited by the number of interviews conducted, due to both time constraints and the constraints of exploring an emerging area of entrepreneurship amongst a ‘minority’ community of people (young women) who are participating in this form of entrepreneurship. Additionally, it only explored the experiences of young women in one transition economy context—exploring additional countries with a similar transition economy context, such as other former Yugoslav countries, would be a future research direction that could further highlight some of the significant barriers young women face when pursuing digital-social entrepreneurship. Studies of these contexts would lead to greater theoretical and practical understanding of this important phenomenon.

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Entrepreneurship Education Through Innovative Teaching Techniques: A Systematic Review Using ADO Model



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Abstract The aim of the systematic literature review (SLR) is to comprehensively examine previously published articles on entrepreneurship education (EE) by utilizing innovative teaching techniques (ITTs) to find out the key innovative teaching techniques (KITTs) contributing to entrepreneurship education. Besides, this research is to contribute to the field of entrepreneurship by developing key innovative teaching techniques (KITTs) for entrepreneurship education to foster higher education institutions. In this study, the researchers have used antecedents, decisions and outcomes (ADO), a framework-based review. Moreover, 36 articles were selected for final review using the PRISMA protocol. The 13 most relevant (KITTs) are identified for entrepreneurship education. However, 3 of those (innovative teaching, innovative toolkit, learning environment) are the antecedents, 4 (active learning, trainer competency, efficient and effective pedagogy and experimental learning) are the decisions, and 6 of those (creativity, knowledge transfer, self-efficacy, cognitive flexibility, entrepreneurial intention, and value creation) are the outcomes of innovative teaching techniques for entrepreneurship education. The actual ramifications of this review paper will benefit educational institutions of higher learning worldwide that intend to implement key innovative teaching techniques for entrepreneurship education.

Keywords ADO framework · Entrepreneurship · Education · Innovative teaching · Systematic literature review

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1 Introduction

Over the recent period, there has been a significant interest in the world of academia to study the entrepreneurship education program as it enhances students' entrepreneurial qualities with original thoughts and instils entrepreneurial qualities, such as self-control, self-esteem, and a desire to succeed (Carpenter & Wilson, 2022; Fellnhöfer, 2017; Machali et al., 2021; Oluwafunmilayo et al., 2018). The resulting physical and psychological productivity at an individual level can catalyse the nation-wide development of innovation (Boubker et al., 2021) and entrepreneurial ventures (Kazmi & Nábrádi, 2017) and ultimately lead towards the enhancement of employment rate (Maina, 2014) and the economic development of both developed and developing countries (Eze & Odigbo, 2020; Rahman et al., 2022a). It is undeniable that there is a profound impact of entrepreneurial education towards the development of the individual and the society; but, due to some reasons, such as lack of effective implementation of educational tools (Fellnhoffer, 2017; Hägg & Peltonen, 2011), lack of expertise and knowledge across disciplines among entrepreneurship educators (Ilonen, 2021), lack of practical entrepreneurship training (Gianiodis et al., 2019; Fayolle, 2018), to provide the effective entrepreneurship education is still a challenging task. More specifically, the debate lies here due to the differences in content preferences of students from different generations, different educational backgrounds (i.e. technical and vocational education students and university students) (Asykin et al., 2019) and last but not least due to the ongoing debate on the proportions of theory and empirical contents that should be included towards such programs (Rahman & Day, 2014). Furthermore, there is a prevailing divergence of thoughts regarding the appropriate pedagogical model for teaching such courses (Igwe et al., 2022; Pischetola & Martins, 2021).

To tackle the aforementioned problems, innovative teaching techniques can emerge as a solution, which consists of the usage of practical-based lectures, problem-based learning, visualization lectures, seminar disputes, educational discussions, brainstorming, problem presentation methods, project methods, and student research work (Gancheva & Tosheva, 2018; Zagorulko, 2020). Some scholars attempted to envision the integration of innovative teaching techniques in entrepreneurial education programs in the form of student-centred techniques that include role plays, case studies, business plan creation, problem-solving, simulation and games, team-based or group discussions, guest speakers, seminars, individual and group projects, and lectures (Samuel & Rahman, 2018). Research indicates that these innovative techniques can tackle challenges like student diversity issues by facilitating a “creative learning space” that can motivate them to become self-learners rather than relying too much on the instructors (Jankowska & Atlay, 2008). Several studies indicated that innovative teaching techniques did help them to gain multidisciplinary knowledge by enhancing their instructional strategies, creating instructional materials, and

engaging individual agents through training based on experiential learning (Sáez-Pérez et al., 2021; Gerster-Bentaya et al., 2022). In the process, the education institution benefitted as it helped them to develop qualitative and creative curriculums in many instances (Bhardwaj et al., 2019; Dearn, 2010).

Although a systematic literature review regarding innovative education program has been present in areas like spoken skills (Santhanasamy & Yunus, 2022), programming language training (Santos et al., 2020), no such kind of literature were found that attempted to look into this matter from the entrepreneurial education's point of view. Most entrepreneurship research focused on social psychology considering only attitudes, actions, beliefs, and behaviours, but less attention has been given to developing a framework. We tried to fill this gap by performing a systematic literature review (SLR) using the principles of literature review research suggested by Donthu et al. (2021) and applying the antecedents, decisions, and outcomes (ADO) framework proposed by Paul and Benito (2018) to address the following question: What are the key innovative teaching techniques (KITTs) contributing to entrepreneurship education?

The structure of this study is as follows. The specific methodology has been discussed in Sect. 2. The major themes and topics from the bibliographic analysis are used to frame the findings discussed in Sect. 3 of the report. Data reporting was covered in Sect. 4 to create the ADO framework. Section 5 discussed the future research agenda. The findings are summarized as the conclusion in Sect. 6.

2 Methodology

This review's primary purpose is to comprehensively examine previously published articles on entrepreneurship education (EE) using innovative teaching techniques (ITT). A literature review (LR) is a rigorous approach that helps understand the body of knowledge on a specific topic by identifying prospective research limitations and providing insight into existing research (Tranfield et al., 2003). In this study, we have used a framework-based (ADO) review (Paul & Benito, 2018). According to Tranfield et al. (2003), a rigorous process of SLR consists of three stages (a) planning, (b) conducting, and (c) reporting the review. In the next section, we will describe those phases in detail.

2.1 Planning

For this SLR, the most popular electronic publication databases (SCOPUS) are utilized to retrieve the published articles between 2012 and 2022. SCOPUS is quickly gaining ground, despite the Web of Science (WoS) traditionally being the most popular venue for authors to acquire scientific evaluations (Baier-Fuentes et al., 2019). One of the reasons that SCOPUS is so widely used is that it contains a large

number of databases (Burnham, 2006). Besides, SCOPUS indexes the majority of the journals that are included in WoS as well as many additional journals. However, many WoS indexes are not included in SCOPUS (Singh et al., 2021).

2.2 Conducting

We have used the PRISMA model (Moher et al., 2009) to conduct the review. Using key search terms (“innovative teaching methods” or “teaching techniques” or “teaching tools” or “teaching creativity” or “innovative teaching strategies” or “innovative approach” or “innovative teaching techniques” or “innovative learning” OR “innovative co-teaching” or “pedagogical techniques” or “experimental learning” or “innovation” and “entrepreneurship education”), initially, we got 796 documents from the year of 2012–2022. The rigorous process of a PRISMA protocol resulted in 36 articles for final review, and Fig. 1 details how the number of articles was reduced from 796 to 162 and further to 36.

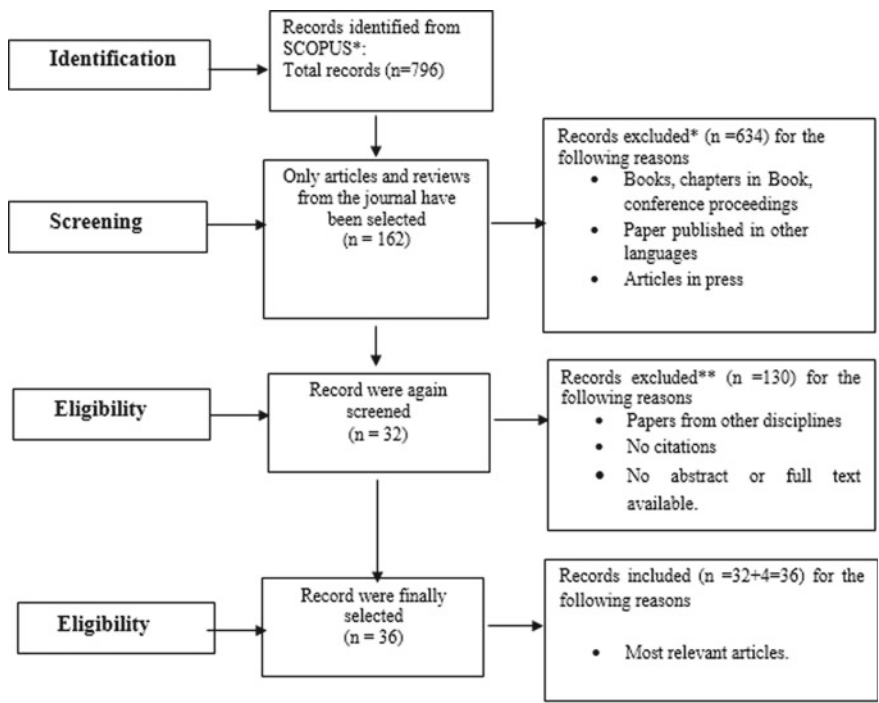


Fig. 1 Overall research process following PRISMA

2.3 *Report Writing*

To report writing, we followed ADO model (Paul & Benito, 2018). We synthesized the results based on the following sub-headings:

- Publications source.
- Time of publications.
- Publications' country.
- Research methodology applied in the selected articles.
- Data reporting based on the selected articles.

3 *Systematic Literature Review Method*

3.1 *Publications Source*

From the SCOPUS database, we have collected and shortlisted the significant papers as the basis of our analysis. The results from this collection revealed a total number of 36 papers that spanned across 24 different journals. The list of those papers is given in Table 1.

3.2 *Time of Publications*

The diagram presented in Fig. 2 shows the trend of the papers published from the year 2012 to 2022. From the diagram, it can be derived that the interest towards publishing papers on entrepreneurial teaching techniques is increasing gradually, except few cases.

3.3 *Top Cited Authors*

From all the shortlisted papers, we attempted to identify the authors with the greatest number of citations. Based on the data analysis till 6 April 2023, it can be seen that Kraus, Dasi-Rodriguez, and Brier were the top cited authors with 336 citations, followed by Hägg (106 citations) (Fig. 3).

Table 1 Number of papers from different journals

Journal name	No. of publications	Index
Cogent education	1	SCOPUS
Education and training	4	
Entrepreneurship education and pedagogy	1	
Industry and higher education	2	
Innovations in education and teaching international	1	
International entrepreneurship and management journal	1	
International journal of continuing engineering education and life-long learning	1	
International journal of educational management	1	
International journal of e-entrepreneurship and innovation	1	
International journal of entrepreneurial behaviour and research	2	
International journal of innovation. creativity and change	1	
International journal of management education	2	
International review of research in open and distance learning	1	
Journal of entrepreneurship	1	
Journal of entrepreneurship education	3	
Journal of international entrepreneurship	1	
Journal of international studies	1	
Journal of management development	1	
Journal of small business and enterprise development	3	
Journal of social entrepreneurship	1	
New England journal of entrepreneurship	1	
Problems of education in the twenty-first century	1	
Sustainability (Switzerland)	3	
WSEAS transactions on environment and development	1	

3.4 Publications' Country

It has been found that most of the studies were conducted in the context of the UK (5), followed by Portugal and Finland (3) and the USA, Sweden, Nigeria, Indonesia, India, and China with two each. The rest of the countries have only one publication under their name (Fig. 4).

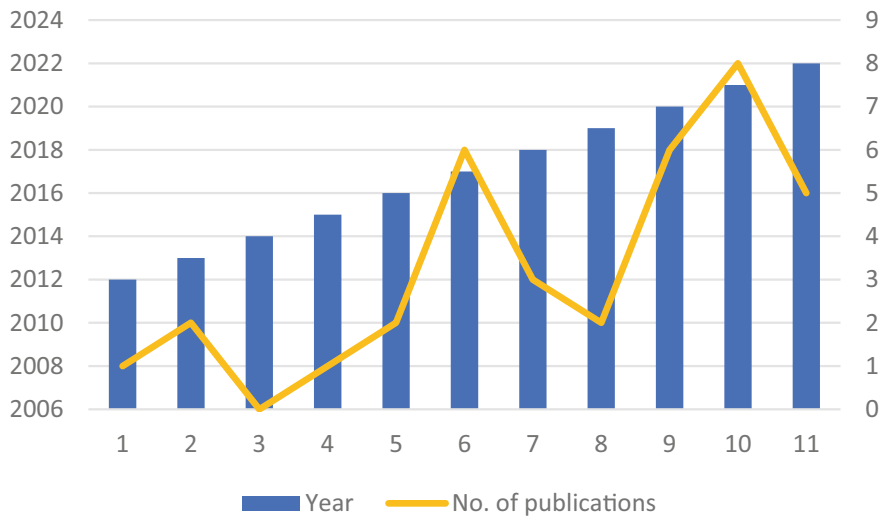


Fig. 2 Year-wise publication (Authors’ creation)

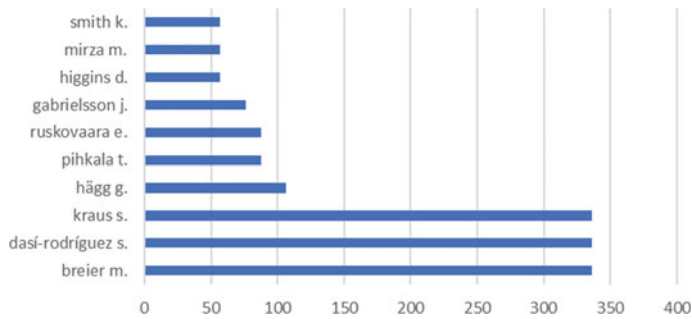


Fig. 3 Top cited authors, as of 6 April 2023 (Authors’ creation)

3.5 Research Methodology Applied in the Selected Articles

We identified and categorized the papers into five different categories: (i) conceptual paper, (ii) quantitative paper, (iii) mixed method paper, (iv) qualitative paper, and (v) review paper. Based on these classifications, we have found that most of the papers were review papers (16), followed by quantitative study with 11, qualitative (04) and conceptual papers with 04, and only 01 mixed method paper (Table 2).

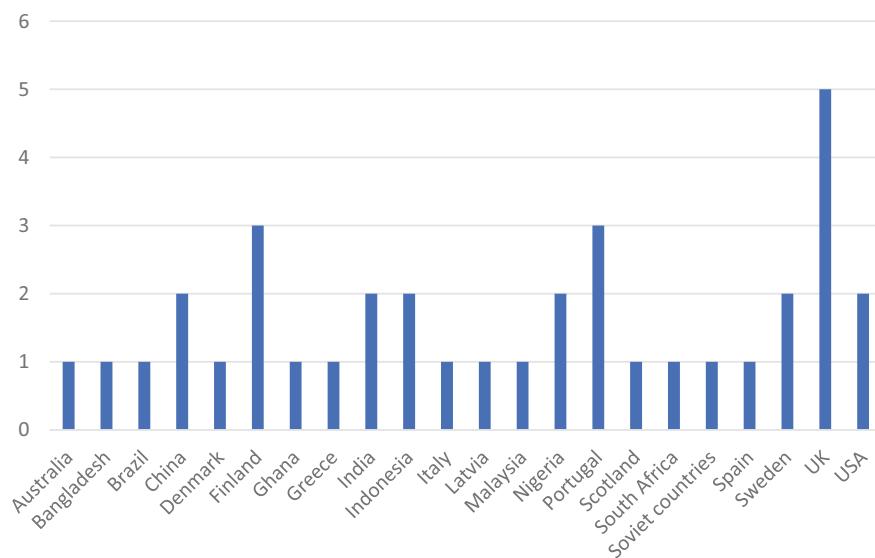


Fig. 4 Publications by countries (Authors' creation)

Table 2 Methodology applied in the selected articles

Methodology type	No. of papers	Years of publications
Conceptual	4	2017, 2018, 2021, 2022
Quantitative	11	2012, 2013, 2017, 2021, 2022
Mixed method	1	2020
Qualitative	4	2018, 2021
Review	16	2013, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022

3.6 Data Reporting to Develop ADO Framework

While analysing the literature, we identified several key innovative teaching techniques (KITTs) crucial for building an effective entrepreneurship education program. From the articles shortlisted, we identified 32 different factors initially. We developed a list of 13 variables by clustering similar types of variables into one particular category based on their synonymity. For instance, “Pedagogical underpinnings” posited by Ilonen (2021) and “Value creation pedagogy” posited by Bell (2021) have been placed under the category of effective and efficient pedagogy. Moreover, by seeing the frequency of consideration, we have retained ITTs appearing in different literature at least 5 times. Hence, for this literature review, we omitted some factors like entrepreneurial role model (Chhabra et al., 2021; Rahman & Day, 2014), flexible evaluation systems (Chhabra et al., 2021) and gender (Barrientos-Báez et al., 2022) that appeared at the literature less than 5 times (Table 3).

Table 3 Data reporting to develop ADO framework

Variable name	Authors	Times mentioned in publications
Innovative teaching	Barrientos-Báez et al. (2022), Dzisi and Odoom (2017), Hunter and Lean (2018), Jones and Underwood (2017), Mavlutova et al. (2020), Paliwal et al. (2022)	6
Innovative toolkit	Chhabra et al. (2021), Fellnhöfer (2017), Jones and Underwood (2017), Mavlutova et al. (2020), Senali et al. (2022)	5
Learning environment	Asykin et al. (2019), Chen et al. (2022), Chhabra et al. (2021), Edokpolor and Somorin (2017), Frolova et al. (2019), Ilonen (2021)	6
Efficient and effective pedagogy	Bell (2021), Chen et al. (2022), Chhabra et al. (2021), Igwe et al. (2022), Ilonen (2021)	5
Active learning (problem solving, collaboration and discussion)	Amadi-Echendu et al. (2016), Asykin et al. (2019), Ilonen (2021), Kakouris and Liargovas (2021), Pischetola and Martins (2021), Senali et al. (2022)	7
Trainer competency	Chhabra et al. (2021), Edokpolor and Somorin (2017), Glackin and Phelan (2020), Ilonen (2021), Ruskovaara and Pihkala (2015)	5
Experiential learning	Amadi-Echendu et al. (2016), Bell (2021), Chhabra et al. (2021), Hägg and Peltonen (2011), Paço et al. (2016)	5
Creativity	Amadi-Echendu et al. (2016), Edokpolor and Somorin (2017), Glackin and Phelan (2020), Machali et al. (2021), Okolie et al. (2021), Turner and Mulholland (2017)	6
Knowledge transfer	Amadi-Echendu et al. (2016), Chen et al. (2022), Hunter and Lean (2018), Igwe et al. (2022), Paliwal et al. (2022)	5
Self-efficacy	Barrientos-Báez et al. (2022), Chen et al. (2022), Glackin and Phelan (2020), Okolie et al. (2021), Paliwal et al. (2022), Turner and Mulholland (2017)	6
Cognitive flexibility	Amadi-Echendu et al. (2016), Chen et al. (2022), Frolova et al. (2019), Glackin and Phelan (2020), Paliwal et al. (2022), Turner and Mulholland (2017)	6
Entrepreneurial intention	Barrientos-Báez et al. (2022), Galvão et al. (2018), Hunter and Lean (2018), Ndou et al. (2018), Paliwal et al. (2022)	5
Value creation	Amadi-Echendu et al. (2016), Chen et al. (2022), Galvão et al. (2018), Glackin and Phelan (2020), Paliwal et al. (2022)	5

4 Explanations of ADO Framework

Both public and private higher educational institutions (HEIs) usually offer the entrepreneurship courses to their students to enhance their business skills through different entrepreneurial activities (Hahn et al., 2020; Rahman et al., 2022b; Rahman et al., 2022b; Ramadani et al., 2022; Ratten & Jones, 2021). Especially, entrepreneurship courses have been designed for the business background students, but HEIs came to realize that entrepreneurship courses are essential for every disciplined students (O'Brien & Hamburg, 2019). But most of the cases EE programs are not well organized and practical oriented; rather, these are (EE programs) lectures oriented (Rahman et al., 2022c; Ramadani et al., 2022). However, the fundamental objective of EE is positively changing the students' mind-set and intention to be an entrepreneur. To do so, innovative teaching techniques for EE are essential for both private and public HEIs. Based on the previous part (data reporting part), the researchers have designed the following ADO framework (Fig. 5).

4.1 Antecedents

Education programs concerning entrepreneurship are typically regarded as an effective method that helps to foster the students' entrepreneurial intention and provide them with the necessary entrepreneurial skills. However, the focus of these programs is typically only on acquiring knowledge and expanding skills required to create a comprehensive business plan; in many cases, these programs do not initiate or develop creative thinking in their students (Mavlutova et al., 2020). Less attention has been given to how students' specific learning methods in entrepreneurship education affect

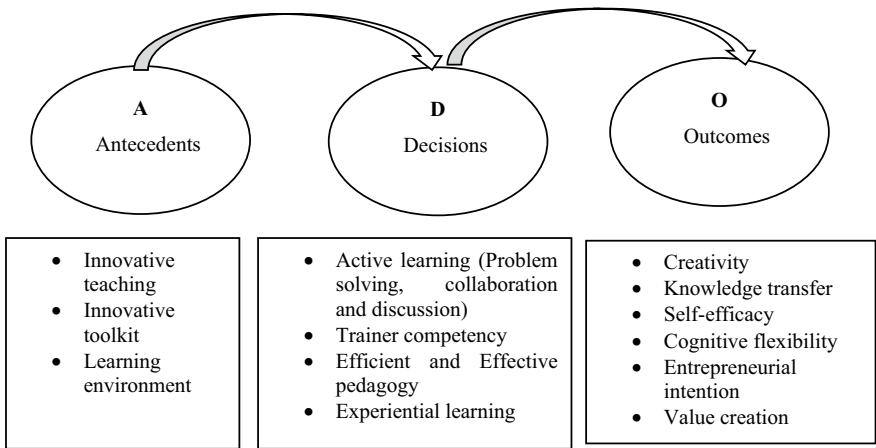


Fig. 5 Proposed ADO framework (Authors' creation)

their desire to become entrepreneurs (Bonesso et al., 2018). Unfortunately, there is no standard way to classify the various teaching approaches used in entrepreneurial education. The majority of the earlier publications that have been done on the subject divide educational strategies for entrepreneurs into two categories (Mavlutova et al., 2020; Pech et al., 2021). The first is referred to as traditional methods, and this category also encompasses traditional lectures. The second category comprises innovative (inductive) methodologies focusing more on action oriented. Mwasalwiba (2010) defines the traditional (passive) methods as formal lectures, in contrast to the innovative (active) methods, which focus on the students and the participation of both teachers and students in education. Mwasalwiba (2010) also compares traditional and innovative approaches and finds innovative teaching techniques are more appropriate for entrepreneurship education. According to Prince and Felder (2006), inductive or innovative methods lead students to discuss questions and find solutions to problems while guiding them through the process. This inductive or innovative method is also emphasized in the learning environment, in which the students collaborate in groups, resulting in significant positive outcomes in the learning process. According to Bennett (2006), in an innovative learning environment, the instructor or teacher does not test and examine the student as much as they should; instead, they concentrate on the student's ability to know themselves and develop self-confidence. However, based on the findings of our studied articles (Asykin et al., 2019; Barrientos-Báez et al., 2022; Chen et al., 2022; Chhabra et al., 2021; Edokpolor & Somorin, 2017; Frolova et al., 2019; Hunter & Lean, 2018; Ilonen, 2021; Mavlutova et al., 2020; Ndou et al., 2018; Paliwal et al., 2022), we proposed that innovative teaching technique and learning environment are considered the antecedents of innovative entrepreneurship education.

4.2 Decisions

Today's job market worldwide is very competitive; thus, students must focus more on self-employment, demonstrating their skills, knowledge, and abilities to gain a competitive advantage (Ratten & Usmanij, 2021). If entrepreneurship education can be provided by following innovative ways, it might enhance students' skills, knowledge, and abilities. However, in general, innovative teaching of entrepreneurship education, alternatively active teaching technique is something that can be accomplished through the use of discussion methods, problem methods, situational methods, case studies, conflict situations, real-life case studies, and a problem of the research form. (Pech et al., 2021). Based on the findings of our studied articles, we found that efficient and effective pedagogy (Bell, 2021; Chhabra et al., 2021; Igwe et al., 2022; Ilonen, 2021), active learning (Asykin et al., 2019; Ilonen, 2021; Kakouris & Liargovas, 2021; Pischetola & Martins, 2021), trainer competency (Chhabra et al., 2021; Edokpolor & Somorin, 2017; Glackin & Phelan, 2020; Ilonen, 2021; Ruskovaara & Pihkala, 2015), and experiential learning and creativity (Bell, 2021; Chhabra et al., 2021; Edokpolor & Somorin, 2017; Glackin & Phelan, 2020; Hägg & Peltonen,

2011; Machali et al., 2021) are the main components of innovative teaching techniques for entrepreneurship education. Besides, it is essential to offer internships in businesses, take students on tours of businesses, and let them interview successful business people as part of innovative entrepreneurship education (Wardana et al., 2020).

4.3 Outcomes

According to Nabi et al. (2017), entrepreneurship education's most significant results are changing attitudes and modifications to knowledge and skills, feasibility, entrepreneurial intention, socio-economic impact, business start-up rates, and business performance. By receiving an education in entrepreneurship, students can enhance their intentions, ideas, creativity, and potential advantages of becoming entrepreneurs (Anjum et al., 2021; Nabi et al., 2017). We also found from our studied articles that the most significant outcomes of entrepreneurship education through innovative teaching techniques for the students are to enhance their creativity (Machali et al., 2021; Okolie et al., 2021), knowledge transfer (Chen et al., 2022; Paliwal et al., 2022), self-efficacy (Chen et al., 2022; Paliwal et al., 2022), cognitive flexibility (Chen et al., 2022; Paliwal et al., 2022), entrepreneurial intention (Barrientos-Báez et al., 2022; Paliwal et al., 2022), and value creation (Chen et al., 2022; Paliwal et al., 2022). Our findings are consistent with the findings of earlier researchers. Some researchers (Linton & Klinton, 2019; Samuel & Rahman, 2018) pointed out that innovative entrepreneurship education is helpful for students to develop their knowledge, desires, and skills for being an entrepreneur. Besides, innovative entrepreneurship education will improve their cognitive factors (self-efficacy) and help them make decisions about their intentions and actions most studies (Liguori & Winkler, 2020; Nowinski et al., 2019; Saptono et al., 2020; Wardana et al., 2020).

5 Directions for Future Research

As per the dictations of Paul and Criado (2020), future framework-based literature review research directions should be circulating to better the proposed framework and incorporate the literature gaps identified in the past literature. Respecting this guidance, the directions for future research have been proposed separated for antecedents, decisions, and outcomes of KITTs, as per below.

5.1 Antecedents

As mentioned earlier, the critical antecedents of entrepreneurial education consisted of innovative teaching, innovative toolkit, and the learning environment. Although these broad categories are well-defined, there seems to be little or no consensus on the best combinations of technologies to deploy teaching tools in these programs (Fellnhöfer, 2017); there is a lacking of agreement on what consists of an ideal environment for entrepreneurial education (Ilonen, 2021). Furthermore, Hayter et al. (2018) posited that most scholarly attention had been placed on particular ecosystem components and traits rather than focusing on the congruence of these separate components. Hence, we recommend more future research that will lead towards identifying the optimum combination of these antecedents that will serve as key factors towards an effective entrepreneurial education program.

5.2 Decisions

There has been a limited number of research that has been done on choices of entrepreneurial role models (Chhabra et al., 2021; Rahman & Day, 2014), choice of student segments (Dreyer & Stojanová, 2023; Barrientos-Báez et al., 2022) and evaluation systems (Chhabra et al., 2021; Luppi et al., 2019). Hence, future research can focus more on these factors' significance in stimulating innovation in entrepreneurial education programs. Especially, future researchers can try to identify the key decision factor combinations in different culture-specific contexts, as all entrepreneurial ideas are influenced by national culture (Fleck, 2020).

5.3 Outcomes

From the shortlisted literature, we identified several significant outcome factors like creativity, knowledge transfer, self-efficacy, cognitive flexibility, entrepreneurial intention, and value creation that might lead towards envisioning what an effective and efficient entrepreneurship education program may look like. While this list is comprehensive, it has been observed that the outcome variables largely focused on individual students' perception of their competencies (Barrientos-Báez et al., 2022; Glackin & Phelan, 2020) rather than the perception of other key stakeholders. Hence, future research can concentrate on validating the mentioned variables, modifying the variables and proposing a robust measurement model by considering the opinions of these key stakeholders of the entrepreneurial education program.

6 Implications for Practitioners and Policy Makers

From the standpoint of practitioners, our findings can help the relevant higher education institution authorities find the most effective innovative approaches for entrepreneurship education. Higher education institutions can use this review's summary framework (ADO) to identify the most promising KITTs. Our findings might help increase the use of innovative teaching methods to enhance the effectiveness of entrepreneurship education in higher education establishments. Besides, policy-makers can take the potential benefits of KITTs discussed in the review as guiding principles for entrepreneurship education in their institution that might positively change the attitudes and modifications to knowledge and skills, feasibility, entrepreneurial intention, socio-economic impact, business start-up rates, and business performance of their students.

7 Conclusions

The fundamental objective of this review is to comprehensively examine previously published articles on entrepreneurship education (EE) by utilizing innovative teaching techniques (ITTs) to find out the key innovative teaching techniques (KITTs) contributing to entrepreneurship education. A systematic literature review has been conducted on 36 selected papers to identify the KITTs relevant to entrepreneurship education with the help of the ADO framework (Paul & Benito, 2018). Our systematic review identified the 13 most relevant key innovative teaching techniques in entrepreneurship education. Our findings may be helpful considering the growing use of innovative teaching methods to improve the effectiveness of entrepreneurship education in higher education institutions. Policymakers can use the KITTs discussed in the review as guidelines for entrepreneurship education in their institution, which could lead to positive changes in their students' attitudes, knowledge, and skills towards entrepreneurial viewpoints.

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Academic Entrepreneurship Experiences in North Macedonia—The Case of South East European University



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Abstract This study was initiated due to the rising importance of academic entrepreneurship as a major driver of fresh innovations and economic advancement at the regional scale. The aim of this research is to determine the overview of experiences that derives from academic entrepreneurship (AE) at the South East European University (SEEU). A qualitative methodology was used, and data were collected through structured interviews with two groups of actors involved in this research. The first group was the leaders/managers of the entrepreneurial initiative and the second group was randomly chosen tenant representatives. The results revealed that experiences significantly positively impact the success of academic entrepreneurship at the university level, and both sides; universities and companies benefit greatly from their cooperation. At the end of the study, limitations and recommendations for future research are discussed. It is an original work that determines the overview of experiences and challenges that derives from academic entrepreneurship at the South East European University—Tetovo. It could serve as a guide for similar studies in the context of other universities in North Macedonia.

Keywords Academic entrepreneurship · Experiences · Entrepreneurial HEI · Economic development · Social impact · Community outreach

1 Introduction

Over the past decades, higher education institutions (HEIs) have become key players in regional economic development, knowledge transfers and innovations, which have led to a third mission for HEIs becoming the entrepreneurial university. The successful implementation of academic entrepreneurship by leading universities in different countries highlights the importance of having a flexible and well-planned

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approach, with a clear vision and strategy, in order to develop this area within the university system (Ferreira et al., 2017). In recent years, policymakers in various countries worldwide have recognized the importance of academic entrepreneurship and knowledge commercialization in enhancing economic development and competitive advantage by which developed countries in particular have been at the forefront of this recognition (Guerrero et al., 2006; Ratten et al., 2018). This happens because the various groups involved in academic entrepreneurship want to direct the activity to serve their own purposes, which may not always align with the goals of policymakers and senior university leaders. The landscape of academic entrepreneurship has undergone significant transformation from the period when universities set up technology transfer offices in the 1980s and 1990s (Lockett et al., 2014). Determining the effectiveness of a university in the realm of academic entrepreneurship is not just a matter of empirical evidence but also a policy concern that touches upon both the operations and objectives of universities. In terms of operations, it is supposed that certain universities will continue to pursue initiatives to foster academic entrepreneurship (Siegel & Wright, 2015). Universities are working toward establishing strong ties with businesses and other stakeholders. The aim is to make sure that the research done by universities is beneficial for both the business sector and the society as a whole. At the same time, the universities also benefit from being in close proximity to the entrepreneurial environment and the knowledge that comes with it (Etzkowitz, 2013).

The main objective of this study is to explore the overview of experiences and challenges that derives from academic entrepreneurship at the SEEU. According to Guerrero et al. (2006) there have been recent studies about the academic entrepreneurship in developed countries but none of them has specifically examined the experiences of academic entrepreneurship in non-developed countries in context of universities in North Macedonia. This research aims to bridge this gap. Since its foundation in 2001, and now approaching its 20th anniversary in November 2021, SEEU has always aimed at being a leading modern university in the country and the region, in individual research in its socio-economic disciplines, and in delivering high-quality education. Overall, academic entrepreneurship has become an essential component of modern knowledge transfer and an exciting way for academics to see their research translated into real-world applications. Lastly, academic entrepreneurship has the potential to drive innovation and economic growth, while also advancing the goals of academic research.

This paper is structured as follows: It begins by providing an overview of the relevant literature referring to academic entrepreneurship and experiences of organizational institutions. Subsequently, we present the research methodology, approach and findings. Finally, the paper concludes with a discussion of the implications, limitations, and potential areas for future research.

2 Literature Review

2.1 Background

When thinking about the rise of academic entrepreneurship, it's important to keep in mind the ongoing conversation about what universities are meant to be and what they're supposed to achieve. This discussion has been happening for a long time, and it's relevant to how we understand the growth of entrepreneurial ventures within academic settings (Martin, 2012). Academic entrepreneurship is a process that involves the commercialization of academic research or intellectual property, often through the creation of a startup company. Additionally, academic entrepreneurship encompasses all the innovative ventures that universities undertake. This includes establishing new companies within the university, forming research centers in collaboration with industry partners, safeguarding intellectual property, and making decisions about patent rights for research discoveries made within the university (Capaldo et al., 2016; Rothaermel et al., 2007). Innovation can be described as the process of developing a new product or service, creating a new technological process, improving an existing product or service, refining an existing technological process, or establishing a new organization (Ramadani et al., 2013). This type of entrepreneurship enables academics to transform their research findings and innovations into a commercial venture, which can provide benefits such as generating revenue, creating jobs, and having a real-world impact. According to Audretsch and Belitski (2017), academic entrepreneurship plays a significant role in promoting innovation, economic growth, and technology transfer, by creating a channel for knowledge and research to reach the market. However, academic entrepreneurship requires a different skill set from traditional academic work, such as business awareness and knowledge of the commercialization process (Etzkowitz et al., 2019). Thus, academics who pursue entrepreneurship need to balance their academic duties with their entrepreneurial ventures to be successful. This approach to entrepreneurship allows academics to leverage their scientific knowledge and innovation to create a positive social impact. As another source notes, academic entrepreneurship involves both commercial and academic activities, such as creating profits from patent developments and publishing research results (Fini et al., 2010).

Nowadays, academic entrepreneurship involves a wide range of creative endeavors. It includes massive scientific projects, building technology parks, doing contracted research, consulting for industries, protecting intellectual property, setting up spin-off companies, providing industry training, and also pursuing traditional academic activities like publishing research results and producing highly skilled graduates to support this process indirectly (Klofsten & Jones-Evans, 2000). In order to have a greater impact on society, universities should become more involved and engaged with various stakeholders and communities. This means taking on a more active role and working directly with them (Fayolle & Redford, 2014).

2.2 *Academic Entrepreneurship Experiences*

The university must respond to the requirements of a knowledge-based economy by equipping students with the necessary skills to be competitive, both domestically and internationally. In order to achieve this, entrepreneurship is being taught to students across various fields of study, including science and humanities, and not just limited to business schools, as one may initially assume (Sam & Van der Sijde, 2014). The university that promotes entrepreneurship engages in partnerships, networks, and business ventures with both public and private companies and governments to establish collaboration and interaction. The ultimate goal is to connect education, research, and other activities with technological, social, and economic development (Guerrero & Urbano, 2012). The Massachusetts Institute of Technology (MIT) can be mentioned as a successful university in the field of academic entrepreneurship. The Bank of Boston (1997) estimated that MIT startup companies generated \$240 billion in annual sales and created 1.1 million new jobs for the US economy by encouraging faculty members to pursue private ventures outside of the research lab. Another well-known example involves the University of Texas at Austin, which played a key role in turning Austin, Texas, into a technologically driven city. UT-Austin contributed to local economic development by establishing and managing one of the most successful business incubators in the USA, the Austin Technology Incubator (Gibson & Smilor, 1991). As noted by Keyhani and Moghadam (2008), the Ministry of Labour in Iran has played a significant role in promoting and developing entrepreneurship in the country by providing both financial and non-financial support. As part of this effort, they have provided funding and assistance to establish the Faculty of Entrepreneurship at the University of Tehran.

2.3 *Experiences at SEEU*

SEEU follows the “Triple Helix Model” by promoting closer collaboration between academia and industry and reducing the disparity between academic education and practical job skills. The primary components of the knowledge-based economy in the Triple Helix model are the university, industry, and government, which are regarded as the fundamental institutions (Etzkowitz & Leydesdorff, 1995). To address these objectives, the university has launched three major entrepreneurship initiatives, namely the Business Development Center (BDC), SEEU Technology Park (SEEU TechPark), and Community Outreach (CO). These three initiatives have been brought together under a single independent entity called the Business and Innovation Center (BIC) (Self Evaluation Progress Report 2020.2021, n.d.). Another initiative is the Future Skills Center called #SkillsNext that was launched at South East European University. The center was established as part of the “Bridging the skills gap to create new and better jobs” project, which was supported by the British

Embassy, the United Nations Development Program-UNDP, the Fund for Innovation and Technological Development in North Macedonia, and South East European University (Skills4Future, 2022). The level of engagement with the local and regional community has improved, as evidenced by a rise in the number of funded projects, stronger connections with employers and public authorities. According to SEEU's strategy plan 2021–2025, the university will work with the private sector more, engaging a variety of businesses and industries in cooperative efforts in applied research, teaching and learning, and technological advancement (Self Evaluation Progress Report 2020.2021, n.d.). As a result, this would serve as a foundation for our research on experiences and challenges on academic entrepreneurship in relation between universities and companies where the studies have been conducted.

In other words, academic entrepreneurship is a way of combining scientific knowledge and innovation with entrepreneurial activities and social impact. Academic entrepreneurs can have a real impact on society by solving urgent challenges in various fields (The Third Way: Becoming an Academic Entrepreneur, 2023).

3 Methodology

3.1 *Research Methodology and Instrument*

The study utilized a qualitative research methodology. Many authors argue that a qualitative approach is a valid form of research. In qualitative research, the purposive sampling technique emphasizes the significance of collecting detailed and comprehensive data, rather than focusing on the number of subjects or amount of data collected (Polkinghorne, 2005).

Qualitative research involves gathering and analyzing data from sources like interviews, focus groups, and observations, to gain insight into how people interpret and make meaning of their experiences (Creswell, 2013). This type of research is particularly useful when trying to understand social or cultural phenomena and when exploring how people's attitudes and behaviors are shaped by their surroundings. By using qualitative research methods, researchers can delve into the thoughts and opinions of the research participants to better understand their perspectives and experiences (Creswell & Clark, 2018). This type of research approach allows researchers to explore a topic from multiple angles, providing a more comprehensive understanding of the research question. Qualitative research is considered the most suitable approach for this study due to its adaptable nature, promotion of discussion, and ability to thoroughly explore behaviors and attitudes, particularly in one-to-one interviews (Sharma, 2017). Approach of this study will employ a qualitative research methodology, since it is the most suitable instrument for this research, which involves conducting interviews with the actors and other people involved in the academic entrepreneurship and startups who are currently engaged in the day-to-day operations of their companies. This approach is useful for gathering rich and

detailed information from the research participants (Hennink et al., 2010). The flexibility of this method allows for slight modifications to the interview questions to ensure that the necessary data is captured from the interviewee. Additionally, the discussion-based questions that support the study's RQ benefit from the emphasis on discussion promotion within qualitative research, providing both the participants and researchers an open context for data collection.

3.2 Sample and Data Collection

This research specifically focuses on the entrepreneurship initiatives, namely the Business Development Center (BDC), SEEU Technology Park (SEEUtechPark), and Community Outreach (CO) who are currently working under a single independent entity called the Business and Innovation Center (BIC).

3.2.1 Business Development Center (BDC)

BDC serves as a connection between the business community and the SEEU. BDC uses Information and Communication Technology to provide management training and business consulting services to individuals and organizations. Its objective is to become the leading training and consulting provider in the region by leveraging the academic resources and technological assets available at SEEU campus. BDC aims to provide companies with high-quality expertise in managerial skills and technological strategies needed to facilitate business growth (BDC—BIC, n.d.). The Business Development Center (BDC) at the South East European University acts as a link between the business community and the university says the leader of BDC Mr. Avni Arifi.

3.2.2 SEEU Technology Park (SEEUtechPark)

SEEUtechPark is a technology park situated on the campus of the South East European University in Tetovo, Macedonia. The park was established on May 15, 2013, by the Board of South East European University with the goal of promoting the formation of new startup companies, fostering synergy between these companies, and facilitating the growth of existing small and medium-sized enterprises (SMEs). This, in turn, aims to generate new job opportunities over the long run (SEEUtechPark—Who We Are, n.d.). Mr. Gjorgji Rafajllovski noted that except the creation of new startups, SEEUtechPark encourages the collaboration between companies and promotes growth in small and medium-sized enterprises, with the ultimate goal of generating new job opportunities.

3.2.3 Community Outreach (CO)

The primary objective of CO is to oversee all commercial operations, which includes the management of the dormitory. Apart from providing dormitory services to students and staff, the CO department also handles and provides rental facilities for businesses and other organizations (Asset Management—BIC, n.d.). Mr. Martir Dika declared that the safety of students is their top priority, with the Campus University Security working to safeguard buildings and monitor campus entrances and exits according to internal rules.

In conclusion, the South East European University offers various resources and facilities to promote entrepreneurship and business development.

Regarding the data collection, structured interviews were conducted with the representatives from entrepreneurship initiatives and leaders/managers of companies during the period of March/ April 2023. The duration of the interviews ranged from 7 to 19 min. Most of the company interviews were conducted through a Google Form survey sent via email, while the interviews for entrepreneurship initiatives were conducted in person. The interviews were divided into two groups; three interviews were collected from the representatives of entrepreneurship initiatives. On the other hand, the second group consist of 16 interviews conducted from the representatives of the companies shown in Table 1. Permission was obtained from the interviewees, and they agreed to have their names mentioned. Also, they were assured that any information they provided during the interview would be kept completely confidential. The interviews were conducted using Albanian language and subsequently interpreted into English for further discussion.

Our analysis utilizes the following acronyms to indicate the source of the quotes: (a) REI is used for quotes from the interviews with entrepreneurship initiatives, and (b) RC is used for quotes from the interviews with the representatives of companies. The interviews will offer a comprehensive account of the academic entrepreneurship experiences.

4 Findings and Discussion

The following section presents the outcomes of the conducted research. As it is explained in the methodology section, this research is qualitative research which has provided the opportunity to obtain detailed information based on the following research questions for the representatives from entrepreneurship initiatives:

RQ1: “What is your experiences on cooperation with the private sector?”

The following sub-questions assist us in obtaining the necessary information to address this issue: *What have been the main challenges from this cooperation? What are the results obtained from this cooperation?* The findings of the study are presented below:

From the representatives of BDC, we have the following statement:

Table 1 Descriptive profile of the companies

Nr	Company name	Description	Website	Representative	Employees
1	Adaptive scale	Software for data government	http://adaptivescale.com/	Nuhi Besimi	7
2	Bridge technology	Software development	https://www.bridgetechnology.net/	Nusret Haliti	7
3	Cheetah	Software development	https://www.payone.com/CH-de/	Naim Samiu	5
4	Evergreen consulting GmbH	Consulting firm	NA	Bujar Islami	5
5	Hotel key	Software development	https://www.hotelkeyapp.com/	Florent Ahmedi	15
6	Inspire 11	Outsourcing/IT consulting	https://www.inspire11.com/	Agron Caushi	44
7	Telegrafi	News portal	https://telegrafi.com/	Venhar Ramadani	5
8	BIRS—the Balkan institute for regional cooperation	Journalism and scientific research	http://b-irc.org/en/	Lorik Idrizi	4
9	Adeva	Software development	https://adevait.com/	Toso Trajalov	3
10	ÖSD	Internationally recognized exams	https://www.osd.at/en/	Lazim Ahmedi	3
11	GIZ	The Deutsche Gesellschaft für Internationale Zusammenarbeit		Evzi Hani	2
12	CODEU	Software development		Arbnor Tefiki	5
13	Zhuta design and developing	Software development	https://zhuta-developing.web.app/home	Flaktrim Zhuta	5
14	Torsten labs	Software development	https://torstenlabs.com/	Ron Demiri	6
15	Build up	Construction business	https://www.builidupoffsite.com/	NA	10
16	I Neting	Software development	NA	Edmond Etemi	5

REI 1: Our center since its establishment has tried to play its role in supporting the businesses of the Polog region, but also more broadly in raising their capacities and those of their employees. But what should be emphasized is that businesses can grow quickly if they manage to find the segmented market, but to keep it precisely here they need emphasis from organizations that support businesses and various experts.

Some of these results are as follows: Sales growth and development, Raising the capacities of the staff, Improvement of supply and storage processes, Improvement of the recruitment process, Creation of the real monetary value of the companies (which are then positioned even better in the market).

On the other hand, the SEEUTechPark representative stated the following:

REI 2: The biggest challenge was entrepreneurship culture, very few people knew about the startup ecosystem and the possibilities it offers. Access to money was also limited. So far we have supported a total of 73 startups, 19 of which are on the university campus, we have created more than 200 new technological jobs and we have helped companies to raise over 750,000 euros in investments.

From the Community Outreach (CO), we have the following statement:

REI 3: The only collaborations have been with private companies for permitting conditions in dormitories such as; renovations, maintenance. Likewise, permitting the infrastructure of the IT part and permitting energy efficiency according to the latest standards. The permission of the conditions has resulted in the increase of the number of students in the dormitories to the max (180/350 max). Cost reduction has been one of the results obtained from infrastructure permitting.

BDC has achieved to acts as a link between the business community and the university. Despite facing challenges in terms of a limited entrepreneurship culture and access to funding, the organization has managed to support a considerable number of startups, create new technological jobs, and raise a substantial amount of investment. Collaborations with private companies have also allowed for the improvement of dormitory conditions, resulting in an increase in the number of students and cost reduction. These achievements demonstrate the potential for growth and success from the positive experiences from academic entrepreneurship with the right support and collaborations.

Regarding the second part of the interviews, descriptive data for the interviewed companies was collected as shown in Table 1. From out of the 16 interviews conducted, only 11 have answered our questions, and we have selected and quoted some of the most relevant and frequently provided responses offered by the interviewees. The following research questions for the representatives of companies conducted:

RQ1: When did your cooperation with SEEU started?

The companies that were interviewed had similar responses to this question. The results are presented below:

Our cooperation with SEEU started from September 2015 (RC1).

It started from 2017 (RC2).

We are new start-up company here at SEEU, we started this journey last year (RC3).

Another representative just noted shortly:

From 2016 (RC4).

Other representative answered similarly only noting the date of the starting year of the cooperation. Lastly, the company that is one of the first that started to cooperate with SEEU noted:

We are a company founded in June 2013 in SEE University's Tech Park. We have made up from two branches: The solution consultants located in North America and the development team located in Europe (RC5).

The second question was focused on exploring the contribution that come out from the collaboration between companies and institution. The following comments provide a summary of the interview responses:

RQ2: In which areas you have cooperated mostly with the SEEU (organization, services, marketing, finance, branding, consulting, career center, support for entrepreneurship, etc.)?

As a company that hires graduates from SEEU, we have worked closely with their career center department. This is because the department gives us access to a talented and highly educated pool of graduates, which makes our recruitment process smoother (RC1).

Our primary cooperation has been with the consulting departments. This have been instrumental in identifying the unique requirements of our company, and have provided us with expert recommendations and direction on how to address those needs (RC2).

We have collaborated the most with the institution's services and organization departments regarding the community outreach initiatives (RC3).

Another representative noted:

Mostly our cooperation with SEEU is only with the services department, we are working mostly online and we use SEEU premises because they are offering good infrastructure, safety and parking (RC4).

Other respondents provided comparable responses in relation to the second research question. From the above answers, we can conclude that all of the interviews stated that collaboration with the SEEU contributed to their process of the integration and helped them a lot in different needs. Repatriated individuals mentioned that it was much simpler for them to start a business in a university campus, build new connections, and find new employees as a result of this cooperation. We continued the interview with the following research question:

RQ3: How satisfied are you from the cooperation with SEEU?

Our collaboration with SEEU has been highly satisfying to us, the institution has been an excellent ally, granting us access to a pool of skilled graduates and proficiency in field (RC1).

Overall, we are satisfied with our cooperation with SEEU, while there have been some challenges and areas for improvement, we believe that the benefits of our partnership outweigh the drawbacks (RC2).

Our cooperation with SEEU has exceeded our expectations, we have been impressed by the quality of the services that we have received from the institution, and the level of support from the staff (RC3).

Our experience working with SEEU has been generally positive. While there have been some challenges along the way, we have found the institution to be committed to providing quality services and support to our company (RC4).

From the cooperation with this institution we are very satisfied, until now we don't have any negative remarks (RC5).

Regarding this question, we have received one mixed statement from one of the companies as noted below:

While we have had some positive experiences, there have also been moment where we have encountered some difficulties, but we believe that there is room for improvement in terms of communication and coordination between us. Everything else regarding our cooperation is going well (RC6).

Similar answers were given by other representatives, leading us to conclude that the cooperation between companies and SEEU mostly is with positive feedback, where there is a room for improvement regarding the communication issue. The next question regarding this research was dealing with the benefits that come out from cooperation between SEEU and companies and noted following:

RQ4: What are the effects that have come out from this cooperation?

Thanks for asking this question! By working together with SEEU, we've been able to provide students and graduates with opportunities to work with us as interns or employees. This has not only given them practical experience and helped them develop their skills, but has also enabled us to discover and hire some of the best talent out there for our company (RC1).

The cooperation with SEEU has enabled us to reach out to a wider range of students and graduates with diverse backgrounds and experiences, and has been very beneficial in making our workplace more welcoming and diverse. Overall, this cooperation has enhanced our organizational culture and helped us to better serve our community (RC2).

Through our cooperation we have also been able to establish valuable connections and partnerships with other businesses, organizations, and stakeholders in the local community which has helped us to expand our network, and enhance our business opportunities and growth potential (RC3).

One of the positive effect from this cooperation provided us with opportunities to give back to the community through philanthropic initiatives and social responsibility programs. This has not only helped us to make a positive impact in the local community, but has also enhanced our brand reputation in the region (RC4).

The consulting services provided by SEEU have helped us a lot to identify and address challenges and opportunities in our industry, this has helped us to stay ahead of the competition and ensure the long-term success of our business (RC5).

Regarding this question from the summary of the above comments, we can conclude that all companies we have answered with positive feedback dealing with the effect that come out from the cooperation. Through this, companies have been able to create a more inclusive and diverse workplace, address challenges and opportunities, and stay ahead of the competition. Also, there has been crucial moment in enhancement of the company's growth potential.

In the end, our interview finished with the following research question:

RQ5: Will you continue your cooperation with the SEEU in the future as well?

We believe that our partnership with SEEU has been a key factor in our success, and for sure we look forward to continue our cooperation (RC1).

For sure we will. We appreciate the opportunities that have been made available to us through this cooperation (RC2).

We look forward to continuing our cooperation with the SEEU (RC3).

We are pleased that we had the opportunity to work with this institution and its talented students, we think our cooperation will continue for long-term (RC4).

We would be glad to collaborate with the SEEU in the future (RC5).

Other representatives provided similar positive responses in relation to this question. From this, we can conclude that they all expressed a desire to continue working with SEEU in the future, suggesting that they see this cooperation as a long-term arrangement. Also, this successful partnership provided to them positive values and different opportunities.

5 Conclusions

In the end, according to the literature, the academic entrepreneurship has become a crucial element of contemporary knowledge transfer and an engaging opportunity for academics to witness their research put into practice in the real world. Moreover, academic entrepreneurship has the capability to propel innovation and boost economic progress, all while supporting the objectives of academic research (Audretsch & Belitski, 2017). The purpose of this study was to explore the overview of experiences and challenges that derives from academic entrepreneurship at the SEEU and how the companies and the community can benefit this cooperation. The study obtained primary data through interviews with entrepreneurial institutions that play a significant role in this domain, as well as with the representative who have established businesses inside the university campus. The study also sought to determine if academic entrepreneurship can help regarding this direction to drive innovation and economic growth and help the companies to overcome difficulties they face when they start a business. The conclusion highlights another aspect to take into the consideration, which is that academic entrepreneurship has become a vital part of knowledge transfer in today's world and a good opportunity for academics to witness the implementation of their research in practical applications. Another issue to consider from this research are the positive benefits that come out from the cooperation of SEEU with companies such as revenue growth potential and creating new jobs for the students approx. 132 new jobs were created so far, and having a real social community impact. This research is one of the few that examines academic entrepreneurial experiences in North Macedonia within the constraints of the SEEU case study. Given that previous research has mostly concentrated on academic entrepreneurship in developed countries. Hence, universities,

being a crucial part of the academic entrepreneurial ecosystem, should collaborate interactively with other institutions and private companies in order to have a greater impact on society and economic growth.

5.1 Limitations and Future Research Directions

In the end, like any other research study, this paper has its limitations. The primary limitation is the small size of the sample, despite the fact using two different sources for collecting the data one from the representatives of entrepreneurial institutions and one from the companies. Another limitation of this study is that the sample was restricted only to one university and this may not be representative enough to generalize the findings for all universities in the country that are involved in the academic entrepreneurship. Additionally, since the experiences of academic entrepreneurship are influenced by the context in which it is implemented, it is suggested that similar research to be conducted in other universities and region countries in order to have more data and information for future comparison.

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The Moderating Role of Self-efficacy on Social Entrepreneurial Intention of Graduates: An Application of the Model of Goal-Directed Behavior



Salima Al Sawaey and Ramo Palalic

Abstract Entrepreneurship in Oman is generally perceived as the potential and ability of young people to create a new venture. On the one hand, individuals start businesses with an aim of gaining and getting financial benefits as it entails the recognition of potential opportunities available in the market and the generation of employment opportunities for the purpose of promoting the income and infrastructure. Social entrepreneurship (SE) is, on the other hand, carried out for the greater social good. However, studies that particularly deal with the interrelationship between social and economic factors are almost seldom and rarely found in Oman. Hence, this paper seeks to delve into the potential determinants that drive graduates' social entrepreneurial intentions (SEI) and understand the moderating role of self-efficacy between the desire and the graduates' intention toward social entrepreneurship of among higher educational institutions in Oman, in light of the fact that the country places special emphasis on entrepreneurship by pressing HEIs to include it as one of the required courses that students should take in their undergraduate studies.

Keywords Business · Graduates · Intention · Profit · Self-efficacy · Social entrepreneurship

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1 Background

Historically entrepreneurship has been studied primarily from the perspective of creating wealth and capturing economic value. The traditional view of entrepreneurship involves creating a new venture, often with the goal of generating profits and creating economic value for the entrepreneur and their stakeholders. According to Austin et al., (2012), the entrepreneurship ventures may variegate in its concepts based on the social and commercial targets. Purely commercial endeavors are one of the entrepreneurial strategies in which individuals launch an organization or initiative that is purely commercial with no definite social goal. Therefore, such individuals prioritize financial goals over social, environmental, and community goals. This is not strange but true as the six schools of thought in describing entrepreneurial activity offer a viewpoint of what is entrepreneurial process in nature from different perspectives (Cunningham & Lischeron, 1991). Entrepreneurial activity in accordance with six schools of thought is described as inborn skill, risk-bearing activity, opportunity seeking, managing, leading the business, and team working. However, the emergence of “social innovation and social enterprise schools of thought” has triggered social change and accords the social entrepreneurship (SE) a greater important and ensures that SE is a revival of cooperative movement (Gregory & Anderson, 2006).

Social entrepreneurship is a complex field, which is made up of complicated and interrelated parts and entails many aspects. It encompasses many contexts including business, public/government, or nonprofit organizations. SE occurs within the three sectors which are “nonprofit, business, and government” (Wei-Skillern et al., 2007). In addition, Austin et al. (2012) assert that there is no single type of social entrepreneurship as social entrepreneurship involves individuals, nonprofit or for-profit organizations, or governments. Thompson (2002) advocates that social entrepreneurship operates as businesses in the nonprofit or voluntary sector. Moreover, social entrepreneurship (SE) could be a hybrid of for-profit and nonprofit (Dart, 2004; Dees & Elias 1998; Thompson, 2002). Therefore, social entrepreneurship is understood as a multifaceted concept that moving across intersection points between a private, public, and nonprofit sector demonstrating features of each of them.

While SE is generally understood and perceived as the type of business which is carried out for the greater social good rather than mere pursuit of profit, there is still a dearth of uniformed conceptualization to social entrepreneurship (SE), as researchers differ in the opinion of what is meant by SE. While Austin et al. (2012) having defined SE as nonprofit ventures searching for alternative funding resources to create social values, Mair et al. (2006) look at SE from the perspective of establishing cross-sector social partnerships. Another aspect of social entrepreneurship definition is for triggering social transformation and alleviating social problems. The lack of a widely accepted definition among scholars is due to various reasons. First, SE is a relatively discipline that has emerged relatively recently in the realm of academic study, which still lacks a well-founded theoretical base. Newbert (2014) asserts that rapid growth of empirical studies lacks a set of deeply rooted theories which must be a

robust and unified in social entrepreneurship. The lack of an accepted theoretical base for social entrepreneurship is the main reason behind having a standard definition.

Secondly, SE has only gained momentum during a recent period of time within academic circles. According to Short et al., (2009), the concept itself has become evident and manifest in scholarly outlets for almost two decades. There is also a minimal progress in the advancement in creating a valid or scientifically supported set of general principles that can account for SE.

The extent of empirical studies available is rather quite restricted in size and scope. Choi and Majumdar (2014, p. 364) state that “the social entrepreneurship has proven to be a promising and important global phenomenon which certainly deserves rigorous academic attention.” Moreover, Bacq and Janssen (2011) claim that as of the time, there has been heightened concern within the realm of social entrepreneurship among academic researchers. Additionally, Certo and Miller (2008) advocate that several recent papers have focused on social entrepreneurship as their main subject. Even though the SE concept has been at the center of much attention, it is still a relatively new and evolving field.

Thirdly, social entrepreneurship is still confused with commercial entrepreneurship. The variance between social and commercial entrepreneurship has been explained through a large quantitative dataset, namely the Global Entrepreneurship Monitor (GEM) survey. GEM survey is an annual survey that provides comprehensive information on entrepreneurship activities and attitudes in countries around the world. GEM has conducted several surveys on social entrepreneurship, including in 2009 and 2015, which provide recent snapshots regarding the state of social entrepreneurship worldwide (Bosma & Levie, 2010; Bosma et al., 2016). Global Entrepreneurship Monitor (GEM) 2015–2016 report shows that the most used definition of social entrepreneurship which is available in 31 economies refers to an activity, initiative, or an organization in which social and environmental value is a center of focus beyond mere financial value and contributes to the marketplace by providing products or services (Bosma et al., 2016).

However, SE has received considerable scholarly attention in recent years. Choi and Majumdar (2014, p. 364) state that “the social entrepreneurship has proven to be a promising and important global phenomenon which certainly deserves rigorous academic attention.” Moreover, Bacq and Janssen (2011) claim that until recently, there has been increased attention in the field of SE among academic researchers. Additionally, Certo and Miller (2008) advocate that recent papers have delved into the nature of social entrepreneurship, advocating for a deeper understanding and exploration of its characteristics. Despite receiving significant attention, the SE concept remains a relatively new and dynamic field that continues to evolve.

Narrowing SE definition to only social goal/mission as the determinant for social entrepreneurship activity makes it very rare. As social entrepreneurship is a challenging activity, the literature often indicates relevant attributes for social entrepreneurship activity and examines the prevalence of these characteristics among economies (Bosma et al., 2016). More broadly and in accordance with GEM (2016) report, the first characteristic of social entrepreneurship activity is prioritizing social and environmental goals over financial goals, offering products or services

to the market, offering innovative solutions, reinvesting profits, and measuring the environmental and social effect of its activities.

As for prioritizing social and environmental goals over financial goals, Dees and Elias (1998) claims that social entrepreneurial activity intentionally triggers social change and creates social value rather than wealth creation. Social value creation pertains to endeavor of generating value for the entirety of society, rather than just focusing on generating wealth or profit for individuals or organizations (Lepak et al., 2007). This involves identifying and addressing social needs and challenges, such as poverty, economic crises, and environmental degradation, through innovative and sustainable solutions. In contrast to wealth creation, which often focuses on maximizing financial returns and shareholder value, social value creation emphasizes broader social and environmental impacts. It is about creating positive change that benefits society as a whole, including marginalized and vulnerable populations.

Debates and discussions continue about social entrepreneurship (SE) definition and scope. The existing arguments or discussions express different opinions about social entrepreneurship from broad to narrow. However, what is not yet clear is the definition of the scope of SE. The narrow definition of SE is commonly linked to the “social enterprise school of thought” and refers to “earned-income strategies” for nonprofit organizations (Gregory & Anderson, 2006). The “enterprise” term is a key aspect of the social enterprise school of thought. Guo and Bielefeld (2014, p. 3) define the enterprise as “entrepreneurial, nonprofit project that helps generate revenue as well as serve the society.” However, the broad definition of SE places an emphasis on innovative/creative, the activities with an aim of creating social value which can exist within or across sectors (Guo & Bielefeld, 2014). Gregory and Anderson (2006) call this “social innovation school of thought” describing social entrepreneurs as individuals who alleviate problems of societies or communities to meet their need. Regarding the aim of this paper, we follow the following SE definition, which refers to “innovative, social value creating research activity that can occur within or across the nonprofit, business, and public sectors” (Austin et al., 2012).

2 Problem Statement

An examination of the extant literature shows that there are several gaps in the body of knowledge that need to be addressed. While model of goal-directed behavior (MGB) demonstrates a higher level of robustness with a greater explanatory power to reveal causes of intentions of individuals, within the context of social entrepreneurship intentions (SEI), there appears to be a scarcity of adequate research that has utilized this theoretical lens. Hence, there is a need to apply MGB to empirically determine the drivers of SEI among graduates who are about to enter into the job market from higher educational institutions (HEIs).

3 Literature Review

3.1 *The Social Entrepreneurship (SE)*

Social entrepreneurship is a growing trend globally, with several startups prioritizing social issues at the heart of their operations. Historically, “social entrepreneurship” term has been emerged in the late 1990s in the USA, despite the fact that the idea widespread in the nineteenth century is demonstrated by some evidence of companies that have common social mission (Robinson, 2006). SE has been used in business practice, and it goes then on to the academic debate (Johnson, 2000). Entrepreneurship that deals with social issues is increasingly emerging worldwide.

Innovation is crucial when it comes to social entrepreneurs because the challenges they deal with are more complex in the first place. Given the need for prosperity and diversity in global economy, and most importantly, sustainability at the forefront of ventures, this section introduces the background to the topic of social entrepreneurship (SE) and locates the topic within current scientific literature and evidence-based literature. A nonacademic literature is also a great source for this study to have wider relevance findings.

By drawing on the concept of social entrepreneurship (SE), several scholars have been able to show that social entrepreneurship (SE) is a broad phenomenon, and debate about SE has gained fresh prominence with many arguing that SE emerges to refer to nonprofit sectors; rather, it implies an inter-sectorial dynamic (Mair & Noboa, 2006). Therefore, in reviewing the literature and industry reports, this thesis emphasizes a broad measure of SE activity, which is particularly well suited for individuals who are with an aim to start a social leading activity, businesses, or enterprises that have social, environmental, or community mission (GEM, 2015). Given the existence of various definitions of SE in the literature, this study suggests using Austin et al. (2012) definition which refers to “innovative, social value creating activity that can occur within or across the nonprofit, business, and public sectors.”

3.2 *Social Entrepreneurial Intention (SEI)*

A wide range of entrepreneurial intention scenarios are mapped into categories, namely “corporate entrepreneurship,” “social entrepreneurship intention,” “academic entrepreneurship intention,” and “family entrepreneurship intention” (Fayolle & Liñan, 2014, p. 664). As a matter of interest, to better evaluate the intention competency to determine behavior, Orbell (2004) argues it is necessary to encourage individuals in social works such as volunteering, blood donation, and helping others, where uncertainties and constraints associated with interpreting the intention into behaviors are permissible due its nature to occur, as the case with what is encountered or used routinely or typically in daily life situations. It follows therefore that the issue of intention toward social entrepreneurship has received considerable careful

attention (Haddoud et al., 2022; Riquelme and Al-Abdullah, 2016). Mair's et al. (2006, p. 92) on social entrepreneurship and the process of forming entrepreneurial, shows that research tackles the following concern: "How do social entrepreneurs form intentions to create a social value?" aiming to crating social value, the degree of performing entrepreneurial behavior, like creating business plan, creating innovative ideas, investing money whereas it opens new business opportunities ideas which could be easily observed.

3.3 Theory of Planned Behavior (TPB)

Recent years have witnessed a growing academic interest in entrepreneurship intention with a robust use of the Theory of Planned Behavior (TPB) as a predictor of the individuals' intention (Fayolle & Liñán, 2014). Han and Hwang (2014) lend support to this and assert that TPB is a major theoretical framework that has been used and dominated the field of the socio-psychological science field for many years. Among the different approaches to entrepreneurial intentions, the TPB which was proposed by Ajzen (1991) is an extension of TRA developed by Fishbein (1980) and is the most used theory to predict intention of individual to act or not to take action toward attitudes (Taghizadeh et al., 2022). The concept of SEI has been fairly well studied from the perspective of two popular theories: the theory of planned behavior (TPB) and the theory of reasoned action (TRA).

3.4 Model of Goal-Directed Behavior (MGB)

However, according to Hagger and Chatzisarantis (2009), the TPB, which already includes the foundations of the TRA, has certain limitations when it comes to understanding entrepreneurial intentions (Perugini & Bagozzi, 2001). For instance, it ignores the role of emotions developed from past experiences and also the frequency of experiences related to entrepreneurial opportunities (Bergner et al., 2022). As a result, Perugini and Bagozzi (2001), to address such limitations, later developed MGB. The MGB has been elaborated based on TPB. This model shows the basis components of TPB in relation to goals rather than behaviors (Hagger & Chatzisarantis, 2009).

4 Research Proposition

Goal-directed behavior (MGB) model in the social entrepreneurship context among graduates is adopted in this study (Fig. 1). However, self-efficacy as moderator is added to the existing model of goal-directed behavior. MGB model uses TPB

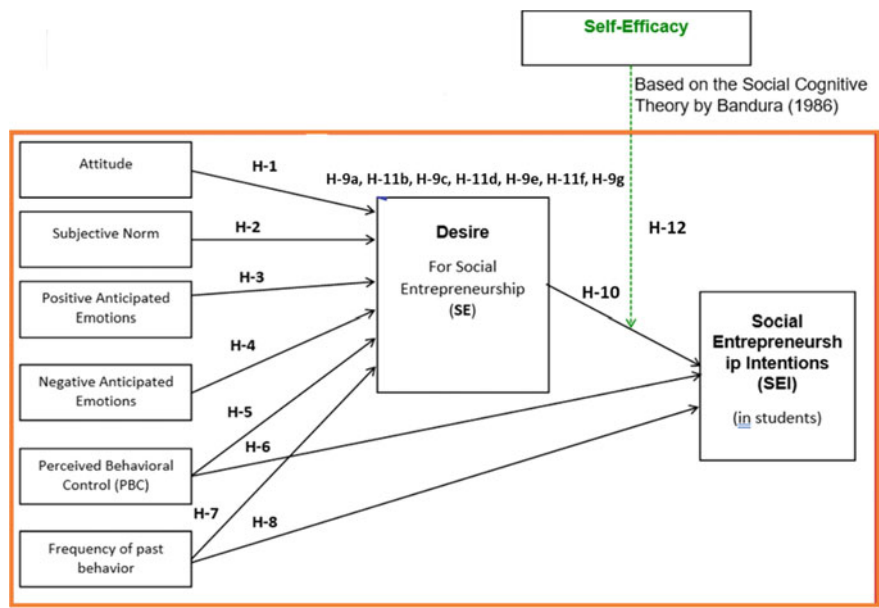


Fig. 1 Proposed conceptual framework by authors based on MGB. *Source* Based on Perugini and Bagozzi (2001)

antecedents but focuses more on the three areas stated earlier: (1) anticipated positive emotions (APEs), (2) anticipated negative emotion (ANEs), and (3) desire, and the frequency of past behavior (FPB) antecedents (Perugini & Bagozzi, 2001). Hence, adopting MGB in social entrepreneurship field can be seen as an addition and contribution to available literature. The following propositions are to be discussed:

Proposition 1 TPB antecedents have significant influence on graduates’ intention toward social entrepreneurship.

Proposition 2 MGB antecedents have significant influence on graduates’ intention toward social entrepreneurship.

4.1 The Moderating Effect of Self-efficacy in MGB

The relationship between desire and intentions has been shown to be significant and positive in several studies (e.g., Riquelme & Lanqawi, 2016). Whereas other scholars have shown that there is no significant influence of desire on intentions (e.g., Linan & Fayolle, 2015; Maheshwari et al., 2022), this suggests that there are inconsistencies in the findings in the empirical literature, in the matter of the relationship between desire and entrepreneurial intentions. Hence, it may be assumed that pertinent moderators

may address this inconsistency and strengthen the relationship (Hair et al., 2017; Zhao et al., 2010). One such possible moderator is self-efficacy, which has been shown to determine people's intentions to perform an action (Liu & Jantan, 2022). Self-efficacy is a determinant that considers an individual's level of self-confidence that they can perform an action with confidence, which is derived from the social cognitive theory (Bandura, 1986).

Proposition 3 Self-efficacy moderates the relationship between desire and intention toward social entrepreneurship.

5 Methodology

The current study uses the survey research method to provide robust information on the associations that exist between the variables. Furthermore, the survey is one of the most common techniques used for collecting data from larger number of respondents social science context (Saunders et al., 2015). Quantitative measures are often a useful instrument to seek quick responses in addition to being cost-effective (Dillman, 1991). Survey is also more appropriate to study individuals' attitudes, behaviors, and beliefs.

6 Conclusion

This study aims to understand the moderating role of self-efficacy in the relationship between the desire and the graduates' intention toward social entrepreneurship. As extant literature indicates that people with strong self-efficacy are more intended to act, expend more effort to achieve their goals, and endure longer in the face of obstacles, this study will examine whether self-efficacy significantly influences the determination of specific behavior. Additionally, the study of social entrepreneurship intentions (SEI) of graduates at HEIs in Oman appears to have been overlooked so far. Despite the potential social implications of studying SEI among graduating students at HEIs in Oman, this important task has not been addressed through a rigorous data-driven study. Hopefully, this study will trigger interest among researchers, policymakers, and regulators in Oman to work toward such a framework, which can eventually become a model to be followed by more advanced economies of the world.

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What Do We Know About Female Entrepreneurship in Albania? Overcoming Challenges and Driving Economic Growth



Kladiola Gjini 

Abstract This paper explores the current state of female entrepreneurship in Albania and the challenges faced by women entrepreneurs in driving economic growth. Despite progress made in recent years, Albania still lags behind in gender equality, with women entrepreneurs facing significant challenges in accessing finance, training, and markets. The COVID-19 pandemic has further exacerbated these challenges, with women-led businesses disproportionately affected. The promotion of female entrepreneurship has the potential to drive economic growth and reduce gender disparities in Albania, but it requires a concerted effort from policymakers, business support organizations, and society as a whole.

Keywords Albania · Entrepreneurship · Gender equality · Economic growth

1 Introduction

Numerous academics consider women's entrepreneurship to be a rising trend of the twenty-first century, as women work diligently not only to achieve personal success but also to support their families (Rashid & Ratten, 2020). Starting and managing a new business, also known as entrepreneurship, plays a crucial role in economic growth. Additionally, it is a significant factor in driving economic recovery in the wake of various shocks, such as the COVID-19 pandemic and the war between Russia and Ukraine, which have led to supply chain issues and increased energy costs. In times of crisis, it is crucial to define and measure the dynamics of entrepreneurship and the national frameworks that promote it. This helps to ensure that the impact of entrepreneurship on economic development can be accurately assessed and leveraged to facilitate recovery.

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Entrepreneurship is a multifaceted concept that spans across disciplines such as management, sociology, psychology, anthropology, economics, and more. It is imperative to incorporate insights from various researchers while attempting to define entrepreneurship. Several approaches have been employed to define entrepreneurship, and there is no consensus among scholars on a single definition. The trait approach defines entrepreneurship by identifying certain attributes or traits, such as self-efficacy, risk-taking ability, need for achievement, and locus of control, that are inherent in successful entrepreneurs. The behavioral approach focuses on the actions taken by entrepreneurs and considers someone an entrepreneur if they can create new business ventures. The opportunity recognition approach defines entrepreneurship by how opportunities are identified, developed, and leveraged by individuals (Kobia & Sikalieh, 2010).

While Western Europe was experiencing great economic development and the birth of globalization, Albania, situated within the Western Balkans, was under a dictatorship regime for 50 years, leading to isolation and a centralized model of economy (Berisha et al., 2022).

This resulted in the absence of entrepreneurship in the Albanian mentality, with only two actors in the economy: the government and the consumer, instead of the usual three (lacking the firm actor). The government was responsible for distributing goods and services, and the Albanian people shared common property with each other and the government. Therefore, the Albanian people did not have the opportunity to embrace entrepreneurship until after the collapse of the communist regime in the early 1990s.

The Albanian economy is relatively new to female entrepreneurship, and as a result, there is a lack of statistics to address challenges and guide policy decisions. Women face significant barriers to accessing market information, legal support, and resources for enterprise development, which perpetuates economic marginalization. The Action Plan for Supporting Entrepreneurial Women 2014–2020 aimed to improve the legal framework for loans and women's enterprises, and an advisory group was established to coordinate activities among public, private, and non-governmental institutions. However, the group had limited effectiveness due to infrequent meetings, no budget, and no monitoring. Some progress has been made through government funds for start-ups and small enterprises, managed by the Albanian Investment and Development Agency from 2014 to 2017, which benefited 77 women entrepreneurs.

The purpose of this research is to enhance the existing literature on women entrepreneurship by updating and focusing on Albania as a case study. It aims to shed light on the presence of gender inequality in Albania and the impact it has on the country's EU integration process. The recommendations provided in this study will assist entrepreneurs and policymakers in addressing the challenges faced by women entrepreneurs in Albania and emphasize the vital role they play in the country's development and EU integration efforts. Ultimately, this research seeks to contribute to a greater understanding of the importance of promoting gender equality in entrepreneurship for the advancement of Albania and its integration into the common zone.

2 Literature Review

The role of females in entrepreneurship in developing countries has gained special attention due to their status as a marginalized and impoverished gender, as well as their unique role in the household and the increasing number of female-headed households in the developing world (Horrell & Krishnan, 2007). Another reason for the interest in female entrepreneurship is the significant rise in the number and proportion of female entrepreneurs in the developing world (Kevane & Wydick, 2001) and the recognition that female-led micro- and small enterprises can have a greater impact on household welfare and consumption than male-led ones (Nichter & Goldmark, 2009). Women entrepreneurs and household heads tend to allocate more resources to health, nutrition, and education than men and tend to employ more females than male-headed firms. Therefore, supporting and expanding female entrepreneurship is a valuable objective not only to empower women but also to alleviate poverty in developing countries. This is a significant motivation behind the extensive increase in micro-credit targeted at female entrepreneurs in recent years (Kevane & Wydick, 2001).

Over the past 30 years of research on women's self-employment and new business creation, it has been established that there are significantly fewer women than men who own and manage businesses worldwide (Kim, 2007).

This disparity may be due to women failing more often than men, fewer women starting businesses to begin with or a combination of both. However, some studies have shown that after adjusting for factors such as business size and sectoral distribution, women's failure rates are not significantly different from those of men (Kepler & Shane, 2007) indicating that the difference in ownership and management between genders may be due to the fact that fewer women start businesses.

Research has found that a range of factors contribute to explaining differences in entrepreneurial behavior across gender, and these differences have significant implications at the macroeconomic level (Allen et al., 2006). It has been suggested that differences in women's and men's socioeconomic characteristics, such as education, wealth, family, and work status, may play a role, and empirical evidence has shown that such differences do exist (Blanchflower, 2004; Cowling & Taylor, 2001).

Additionally, women tend to possess fewer years of experience than men (Lee & Rendall, 2001) and tend to concentrate in different sectors (Allen et al., 2007; Coleman, 2000; Orser et al., 2006). These findings suggest that further research is needed to better understand the factors that contribute to the underrepresentation of women in entrepreneurship and to develop policies and initiatives that can support and encourage women's entrepreneurial activity.

Albania experienced significant challenges in 2019 due to the effects of earthquakes, followed by the outbreak of COVID-19 in 2020, which had a profound impact on the country's economy. This impact is projected to have long-lasting consequences, particularly for businesses run by women. According to reports, approximately 40% of female entrepreneurs experienced a decline in economic activity in

their businesses. The biggest losses in income for women and men were those generated from remittances, family businesses, and farming. According to a UN Women study on the impact of COVID-19, as women's economic security was shaken, their share of unpaid care and domestic work increased: 76% of women reported increased time spent on unpaid domestic work, compared to 66% for men. Women's psychological and mental health was more affected and they experienced more challenges seeking health services.

The Albanian government has taken steps to support women's entrepreneurship by renewing the Social Enterprises Fund in the Medium-Term Budget Planning (MTBP) for 2021–2023. This provides an opportunity for more women to benefit from the fund. In response to the COVID-19 pandemic, a budget rebalance will increase agricultural subsidies. The European Union's financing window for Pre-accession Assistance (IPA) III for 2021–2027 is expected to increase funding to the Western Balkans, with a focus on women's employment in sustainable development programs, particularly in agriculture and rural development. The World Bank's 2019 loan of USD 10 million for Albania also creates opportunities for women to access income-generating activities. Finally, the formalization of women-owned enterprises in the informal sector and the implementation of a new system for access to finance could significantly advance women entrepreneurs in Albania.

As of January 1, 2022, women accounted for 50.3% of the population in the Albanian economy. In 2020, 65.3% of university graduates were young women, with the majority graduating in business, administration, and law (28.4%), followed by health and wellbeing (16.3%), and arts and humanities (13.0%). Among all active legal entities contributing to Albania's GDP, 43,724 or 24.1% had a woman owner or administrator in 2021. The public sector and NGOs and international organizations had the highest share of women administrators/owners, accounting for 36.1% for each category.

In the same year, 21% of the 29,152 new legal entities were led or owned by women. As of the end of 2021, women were the owners or administrators of approximately 31% or 36,917 out of a total of 118,627 companies of all sizes in Albania. On average, women entrepreneurship accounted for 31.67% in the last five years. The highest percentage of women owners or administrators in active enterprises across the economy was in 2017 at 34.3%. In 2021, women were in charge of 32.4% of all active businesses with 1–4 employees, while men led 67.6% of such enterprises. Furthermore, in the same year, 89.2% of women-led businesses had between one and four employees. Over the past year, the proportion of enterprises with more than ten employees has increased. Between 2016 and 2021, businesses with 10–49 employees and 50+ employees experienced a rise of 3.61 and 4.45 percentage points, respectively.

3 Methodology

The methodology for this paper on female entrepreneurship in Albania includes a literature review of existing studies and reports on the topic. The literature review provides a comprehensive overview of the challenges and opportunities faced by women entrepreneurs in Albania, as well as the policy and support initiatives in place to facilitate their growth. The findings of this paper will contribute to the understanding of the current state of female entrepreneurship in Albania and inform recommendations for policy and support interventions to promote their growth and economic growth.

3.1 Research Model and Methods

First of all, we begin by conducting a systematic search. This involves conducting a systematic search of existing studies, reports, and other relevant publications on female entrepreneurship in Albania using databases such as Google Scholar and JSTOR. In the search, we use keywords such as “female entrepreneurship in Albania,” “women-owned businesses in Albania,” “challenges facing female entrepreneurs in Albania,” and “economic impact of female entrepreneurship in Albania.” As a second step, after the initial search, we establish the inclusion and exclusion criteria to ensure that only relevant studies are included in the review. For example, studies that are not published in English or focus on entrepreneurship in other countries are to be excluded.

Then, we extract data from the selected studies and organize in a table for analysis. The data extracted include the authors, year of publication, research questions, sample size, research methods, and key findings. The data extracted are then analyzed using content analysis to identify the key themes and patterns in the literature. The analysis focuses on the challenges facing female entrepreneurs in Albania, the drivers of female entrepreneurship, and the economic impact of female entrepreneurship. Furthermore, the final step involves synthesizing the findings from the different studies and interpreting the results. The review provides us insights into the current state of female entrepreneurship in Albania, the challenges facing female entrepreneurs, and potential strategies for overcoming these challenges and driving economic growth.

3.2 Sample

Author (year)	Title	Main findings
Bezhani (2001)	Women entrepreneurs in Albania	Women face various obstacles when it comes to engaging in entrepreneurship, including a division of labor that allocates more domestic responsibilities to them and leaves them with less time to focus on their businesses. Additionally, they have limited access to information, networks, and experience, and struggle to obtain sufficient capital resources. She found that 17.5 of businesses were conducted by women, 65% in the trade sector, and 25% in the service sector. Women are generally well educated. 84.6% are self-employed, and 15.4% have people working for them. Few applied for credit loans, and only 8% of them were successful in obtaining a loan. Currently, female entrepreneurs continue to require the necessary technical support to enhance their overall standing
Hafizi (2012)	Female entrepreneurship in Republic of Albania	In her research, she states the participation of women in the social and economic life of the country and then makes a comparison in regarding the participation in business compared to men. Furthermore, she stresses out the problems faced by businesswomen and then what are the bodies that can support the women entrepreneurs
Imeraj and Gruda (2013)	Challenges of women entrepreneurs in Albania	They analyze the concept of women entrepreneurs. Also, the reasons why women can become entrepreneurs, and some challenges that women face in Albania
Beqo and Gehrels (2014)	Women entrepreneurship in developing countries: a European example	Due to the hostile work environment that is often characterized by unfair treatment and risks, Albanian women have been compelled to explore other avenues for advancing their careers, including pursuing self-employment. They found Albanian female entrepreneurs to be very highly educated. This paper confirmed extremely traditional and conservative values of Albanian men. Their research was mainly focused on the capital city, Tirana, and as recommendation, they propose to expand this research in other areas of Albania

(continued)

(continued)

Author (year)	Title	Main findings
Ramadani (2015)	The woman entrepreneur in Albania: an exploratory study on motivation, problems and success factors	He conducted a survey in May–June 2014 aimed to identify the characteristics of women entrepreneurs in Albania. In order to obtain a comprehensive image of Albanian women entrepreneurs, the survey included general questions regarding the size of their businesses, revenue generated, and family status. To summarize the study's findings, the typical Albanian woman entrepreneur is highly educated, runs a micro-enterprise, is married with children, and becomes a manager before turning thirty. They are motivated by the potential for profit, desire for independence, and a need to achieve significant accomplishments. Women entrepreneurs also dedicate more than 10 h a day to their work. Success in business is attributed to factors such as gained knowledge and education, calculated risk-taking, willingness for action, persistence, insistence, self-confidence, experience, significant networks, and family impact
Zmijanej (2021)	Environment and women entrepreneurs in Albania	She proposes an action plan development methodology which includes four steps: assessment of the situation, stakeholder engagement process, selection of action categories, peer review process and validation. The development of this action plan is seen as an important step ahead to boost the entrepreneurship spirit among Albanian women

4 Findings and Discussion

It is apparent that female entrepreneurship in Albania encounters significant challenges, such as gender-related division of labor, limited access to information and experience, lack of capital resources, exposure to risks and violence, and lack of self-confidence and male confidence in women's capabilities. Despite these challenges, women entrepreneurs have achieved success and made significant contributions to the economy. Typically, they manage micro-enterprises, are university-educated, and become managers before the age of 30. Motivated by profit potential, working for themselves, and achieving accomplishments, women entrepreneurs devote more than 10 hours a day to work.

To drive economic growth and overcome these challenges, potential strategies include providing technical assistance and education, improving access to financing

and capital, promoting networking and collaboration, improving the legal and regulatory environment, and addressing cultural and societal attitudes toward women's entrepreneurship. Further research is necessary to understand the challenges faced by women entrepreneurs and develop policies and programs that promote and support their success. This research can contribute to women's entrepreneurship and economic growth in Albania.

5 Conclusions

There are several ways in which female entrepreneurs in Albania can overcome challenges and drive economic growth, including: access to finance, education and training, networking, and mentorships. Also, there is need for policy and regulatory reforms.

Female entrepreneurs need access to funding and capital to start and grow their businesses. Providing them with financial resources and support can help them overcome financial challenges. Also, providing female entrepreneurs with education and training in business management, finance, marketing, and other related areas can help them develop the skills and knowledge needed to successfully run their businesses. Building strong networks and mentorship opportunities can help female entrepreneurs access new markets, gain valuable advice and guidance, and develop important relationships with other business leaders.

Furthermore, government can support female entrepreneurs by implementing policies and regulatory reforms that remove barriers to entry, promote gender equality, and encourage entrepreneurship. Female entrepreneurs can take advantage of new technologies and innovative business models to improve their productivity, reach new customers, and grow their businesses. By addressing these key areas, female entrepreneurs in Albania can overcome challenges and drive economic growth, while contributing to the overall development of their communities and the country as a whole.

5.1 Implications

After concluding the paper "*What do we know about female entrepreneurship in Albania? Overcoming Challenges and Driving Economic Growth*," several key implications can be drawn. Firstly, addressing gender inequality is essential in order to improve the opportunities available to women entrepreneurs, including access to finance, training, and markets. Secondly, promoting women entrepreneurship through targeted policies and programs can help to overcome the challenges faced by women entrepreneurs in Albania. Thirdly, leveraging technology to promote entrepreneurship and connect women entrepreneurs with wider markets can be beneficial. Fourthly, collaboration and networking between women entrepreneurs

in Albania and other countries can help to overcome the challenges they face and promote economic growth. Finally, improving the legal and regulatory environment, including policies that promote gender equality and protect women entrepreneurs from discrimination and violence, can help to drive economic growth and reduce gender disparities in Albania.

5.2 Limitations and Future Research Directions

The paper has limitations in terms of the sample size and representativeness, which may restrict the extent to which the findings can be applied to the wider population of women entrepreneurs in Albania. Additionally, due to time constraints, we had a limited ability to conduct an in-depth analysis of the challenges faced by women entrepreneurs in Albania. Some potential ideas for future research could include conducting a comparative study of female entrepreneurship in Albania and other countries in the Balkan region to identify similarities and differences in challenges and opportunities. Another idea is to examine the relationship between women's entrepreneurship and environmental sustainability in Albania, including the potential for green businesses to promote economic growth and social welfare.

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A Review on SME's Performance Through Entrepreneurial Marketing, Intellectual Capital, and Learning Capability



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Abstract This study aims to elaborate and discuss on SMEs' performance, entrepreneurial marketing, intellectual capital, and learning capability. The study adopts content analysis technique where various sources are referred including reports, official documents, and research articles. The chapter also explains on the SMEs' performance and the three elements (entrepreneurial marketing, intellectual capital, learning capability) based on the data from Scopus database. Such researches have been done more than four decades, indicating that SMEs' performance is still acceptable to be explored. Other opportunities and challenges associated with the studies of entrepreneurial marketing, intellectual capital, learning capability on SMEs' performance need to be exposed and noticed by practitioners, academicians, and other stakeholders, which are to be used as valuable information for strategic planning.

Keywords SMEs · Performance · Entrepreneurial marketing · Intellectual capital · Learning capability

1 Introduction

SMEs have an important and strategic role in the national economy. In many cases, SMEs contributed minimum around 20–40% of the total GDP. The existence of these dominant SMEs is due to, *first*, the large number of industries that exist in every economic sector, *second*, the exposure to the export market prevented them from any global transactions (fluctuate exchange rate), *third*, easy to open new job and get response from the job seekers, *fourth*, relatively easy to manage the business operations. Thus, stakeholders including the government have an interest to support the development and growth of SMEs.

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Recognizing the importance of the role of SMEs, it is necessary to improve the performance of SMEs, in order to accelerate regional economic development and increase the competitiveness of SMEs' products. Meanwhile, the SMEs have risks in managing its business (Al-Weshah et al., 2022). There must be medium-term mitigation steps that can be taken which are adaptive supply chains for strategic goods, market intelligence for potential new export markets, strengthening banking and non-bank financial institutions synergies in SME financing, providing trading house and logistics facilitation, increasing SME data accuracy, as well as the development of digital-based SME clinics. Moreover, governments are also expected to strengthen local chain components, improve the quality and competitiveness of MSME products through collaboration with research institutions, and provide facilities for importing raw materials, as well as cheap credit for SMEs.

There are commonly emerged issues in enforcing SMEs toward better productivity: (1) human resources; lack of knowledge of SMEs' entrepreneurs about good business management; (2) production and marketing; the number of SMEs' products that are able to penetrate the international market is still very small due to the lack of creativity of SMEs' players and product innovation which is still low (Kuncoro & Suriani, 2018). Meanwhile, the companies should consider acquiring learning capability through innovation which represents one of the main challenges and is seen as an important element of how organizations can achieve and maintain competitive advantage. These three elements of entrepreneurial marketing, intellectual capital and learning capability were importantly to be considered as the influence to the firm performance.

2 Literature Review

2.1 Firm Performance

The performance of a company can be defined in various ways. Both financial and non-financial parameters of the company are used as metrics to measure company performance. For instance, the parameters of financial performance are sales, profitability, return on investment (ROI), and return on assets (ROA), while the non-financial performance parameters are customer satisfaction, customer retention, and product/service quality (Hempenius, 2012; Van et al., 2022).

2.2 Entrepreneurial Marketing (EM)

Entrepreneurial marketing is defined as the proactive identification and exploration of opportunities to acquire and retain profitable customers through innovative approaches to risk management, resource utilization, and value creation (Deku

et al., 2023; Hacıoglu et al., 2012). Entrepreneurial marketing covers the relationship between entrepreneurship and marketing. This is a combined effect of entrepreneurial orientation and market orientation. Entrepreneurial marketing is also defined as effective or adaptation of marketing theory to the special needs of small businesses (Becherer et al., 2012). Some authors argue that it is marketing activities with an entrepreneurial mindset, regardless of the size or age of the company (Becherer et al., 2012; Sari et al., 2023). It is widely accepted that the concept is very suitable for the context of small and medium enterprises (Amjad, 2022; Becherer et al., 2012; Farzaneh, et al., 2022; Jalali et al., 2014).

There are at least three entrepreneurial marketing strategies (Alqahtani et al., 2022):

1. Focus on reaching the target. An entrepreneur or businessman must have realistic targets. An optimism in achieving business targets must be accompanied by existing reality. Focus on continuing the processes to a well-designed initial plan.
2. Take advantage of social media. Any businesses can grow rapidly if someone takes advantage of social media to introduce and market products/services to the general public via online for promotion. The content must be updated with attractive photos and other various features.
3. Maintain good relations with consumers. The next entrepreneurial marketing strategy is to maintain good relations with existing customers. To increase the number of consumers, it needs establishing good relationships with existing customers. The goal is to create loyal customers to the offered products or services. The companies may offer discounts for certain products, etc.

2.3 Intellectual Capital (IC)

Intellectual capital is defined as a body of knowledge generated and used by companies to gain an advantage over competitors (Arshad and Arshad, 2018). To develop innovation capabilities, companies must utilize knowledge resources embedded in their organization or company, which originate from human capital (employees), social capital (business networks), and organizational capital (codified knowledge). Meanwhile, human resources are defined as a set of skills, know-how, and knowledge that are integrated in company employees (Barkat & Beh, 2018). By suggesting that unique ideas are obtained from employees, interactions with other people (employees, clients) and the storehouse of organizational knowledge can offer different perspectives for companies to advance the company's current services (Daou et al., 2013; Edvinsson, 1997; Farzaneh et al., 2022).

The goals of production operations are largely influenced by the management of intellectual capital in today's competitive corporate environment (Chaudhary et al., 2023). The primary goals of production activities in the context of business competition have started to change. Previously, they were primarily focused on creating

finished goods, but currently, they are primarily focused on the process of manufacturing finished goods, which are consistent with science, followed by the production of goods and services (Petty & Guthrie, 2000; Pulic, 2000).

When intellectual capital is increased in recognition and optimal utilization, it will help increase stakeholder confidence in the survival of the company which can affect the company's stock return (Rehman et al., 2022). So that by increasing stock returns, investors will show more appreciation by investing in the company. With the increase in investment, it will also have an impact on increasing the value of the company.

2.4 *Learning Capability (LC)*

Learning ability also known as organizational learning ability is defined as organizational and managerial characteristics that facilitate organizational learning processes or enable organizations to learn (Siahaan & Tan, 2020). It enables companies to be adaptive to environmental changes and market uncertainties, including demand customers, turbulent competition, or technological changes to produce new products or services. Companies need to develop learning capabilities to enhance the generation, dissemination, and use of knowledge. Through this process, learning abilities can increase employee creativity and knowledge better through collecting, distributing, and using employee knowledge. Ideas are generated through informal interactions between employees enabling an atmosphere that triggers company innovation (Farzaneh et al., 2021; Sabir et al., 2020; Saunila, 2020; Sulistyo, 2016; Teece, 2007).

Organizational learning aids in the creation, transfer, integration, and ongoing learning inside organizations or which promote learning in organizational processes (Tohidi et al., 2012). In the meantime, Sok et al. (2013) defined the learning capability in an organization as "organizations where people continuously develop their capacity to use creating the results they really desire, where new patterns of thinking develop are fostered, where group aspirations are given free rein, and people are constantly learning to learn something together".

Moreover, Chiva et al. (2007) highlighted that learning capability is a characteristic of a person that acts as a managerial ability to facilitate the learning process. According to Kamp et al. (2011), there are no actual restrictions or obstacles to organizational or individual learning. For instance, the organizational learning is facilitated by organizational learning capabilities. Mbengue and Sané (2013) assert that organizational learning is a collection of management techniques that facilitate the learning process, or as a collection of processes that strengthen an organization's capacity to sustain and enhance performance.

Learning capabilities related to the innovative ability which must be posed by an entrepreneur means that simply the ability in reading opportunities. In addition, the innovative ability of an entrepreneur is a process of changing the chances of an idea

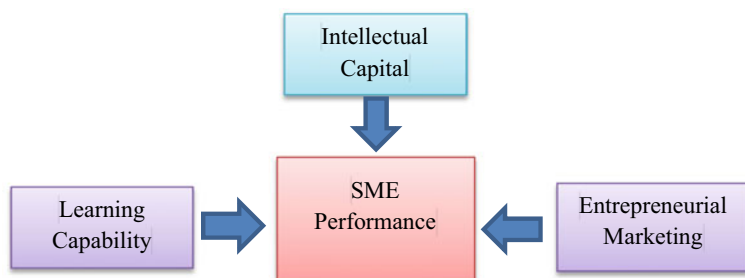


Fig. 1 Proposed framework of SME performance

or ideas that can be offered (Rajapathirana & Hui, 2018). Meanwhile, IT capabilities represent another important determinant of innovation success in general and digital innovation success in particular (Bharadwaj, 2000; Chan & Ahuja, 2015; Kohli and Melville 2019; Mauerhoefer et al., 2017; Wiesboeck et al., 2020). Organizations must be able to manage digital infrastructure to begin with. Additionally, enterprises must be able to integrate IT with their business organization and develop and implement digital solutions. This necessitates superior IT planning, IT management, or IT implementation skills, among other things. Also, businesses need to be able to develop the frameworks, resources, cultures, and governance processes needed to support digital innovation. Then, businesses need to be able to develop and implement digital business concepts that support digital solutions.

Furthermore, in order to manage tasks and activities associated to the creation and management of digital innovation, particular skills are needed (Wiesboeck et al., 2020). According to Nambisan et al. (2017) and Wiesboeck et al. (2020), this skill describes an organization's capacity to develop new digital products and services, organizational processes and structures, or business models. Below is the proposed framework of firm performance with other three crucial elements (entrepreneurial marketing, intellectual capital, and learning capability) (Fig. 1).

3 Methods

This study adopts a content analysis with additional few items on bibliometric analysis. Bibliometric analysis manifests interconnections among the articles whereby the data were retrieved from Scopus, a reputable and comprehensive database. The primary reason for choosing Scopus is its availability, nearly 60% larger than the Web of Science (WoS) database (Zhao & Strotmann, 2015).

4 Discussion

4.1 Entrepreneurial Marketing

Refer to the Scopus database, the research on entrepreneurial marketing has resulted with 2.598 documents. The highest hit of number of research is in 2020 with 243 documents. Below is the table of the research summery on entrepreneurial marketing. In the top ten list, each author has successfully published articles in a range of 9–18 articles, indicating that this subject is quite familiar among the researchers. It is also shown that Ulster University (32 articles) leads the list among other reputable Universities. One of the Universities located in Southeast Asia is among in the list (Universiti Kebangsaan Malaysia), while other located mostly in Europe. Most the researchers had chosen an article type of document to be the platform for them to acknowledge their efforts in research if to compare to other types of documents such as conference paper or book chapter (Table 1).

Table 1 Summary of top ten research outputs, affiliations, and document types on entrepreneurial marketing

No	Year/number of documents	Author/ number of documents	Country/ number of documents	Affiliation/number of documents	Document type/ number of documents
1	2023 (55)	Fillis, I. (18)	USA (654)	Ulster University (32)	Article (1838)
2	2022 (201)	Miles, M.P. (16)	UK (353)	University of Tehran (24)	Conference paper (272)
3	2021 (197)	Ratten, V. (15)	Australia (160)	University of Tasmania (22)	Book chapter (232)
4	2020 (243)	Jones, R. (14)	India (127)	University of Stirling (16)	Review (128)
5	2019 (182)	Eggers, F. (12)	Indonesia (116)	Szkola Główna Handlowa w Warszawie (15)	Book (69)
6	2018 (195)	Hills, G.E. (12)	Germany (94)	University of Birmingham (15)	Conference review (18)
7	2017 (137)	Hultman, C.M. (12)	Malaysia (76)	The University of Queensland (15)	Short survey (12)
8	2016 (120)	Gilmore, A. (11)	Spain (74)	The University of Manchester (14)	Editorial (10)
9	2015 (131)	Kraus, S. (10)	China (73)	Deakin University (14)	Note (10)
10	2014 (100)	Kowalik, I. (9)	Canada (72)	University Kebangsaan Malaysia (13)	Erratum (7)

4.2 *Intellectual Capital*

Based on the Scopus database, the research on intellectual capital has been done by many researchers with 10.352 documents. The highest hit of number of research is in 2022 with 794 documents. This huge number means that this topic is being exposed impressively by researchers in many countries. Refer to the table shown the data on the research of intellectual capital. The number of articles is consistently published with at least 150 documents in the period of 2014–2023, which indicates that the interest of researchers on this topic is high. Meanwhile, each author has successfully published articles with a highest number which is 90 articles by Bontis, N. It is also shown that McMaster University (102 articles) had successfully lead the list among other reputable Universities in producing the articles on intellectual capital. This also acknowledged that the USA is the most active country that having interest to do research on intellectual capital. All of the documents are published in the research-based document of article rather than conference paper, book chapter, or book.

The research on intellectual capital must be continued since it is a dynamic capital which is needed by any companies. It is also considered as an intangible asset in the form of information and knowledge resources that serves to increase competitiveness and can improve firm performance (Florén et al., 2016; Lee & Yoo, 2019) (Table 2).

4.3 *Learning Capability (LC)*

Refer to the Scopus database, the research on learning capability has been done by many researchers with 78.763 documents. The highest hit of number of research is in 2022 with 12.542 documents. Looking at the numbers, it seems that learning capability is the hot topics that are to be explored by the researchers in many countries. Moreover, the table had shown the data on the research of learning capability with a very impressive number of published articles since 2014. Pedrycs, W. became the popular author who has been written the articles and other nine names considered as the dedicated researchers. It is also shown that Chinese Academy of Sciences with 1165 published articles leads the institutions' list, but as a country, China is in the second place for the most active country doing research on learning capability. A type article found to be the most popular form where researchers presented their research results compared to conference paper or book chapter.

Moreover, the importance of learning capability aligned with the findings by Pham and Hoang (2019) that mentioned organizational learning capability enhances corporate performance. Additionally, two of the four organizational learning capability dimensions—management commitment to learning and knowledge transfer and integration—have a favorable impact on corporate performance (Table 3).

Table 2 Summary of top ten research outputs, affiliations, and document types on intellectual capital

No	Year/number of documents	Author/number of documents	Country/number of documents	Affiliation/number of documents	Document type/number of documents
1	2023 (157)	Bontis, N. (90)	USA (1731)	McMaster University (102)	Article (6714)
2	2022 (794)	Dumay, J. (58)	UK (937)	DeGroote School of Business (83)	Conference paper (1443)
3	2021 (688)	Guthrie, J. (46)	Italy (656)	Macquarie University (78)	Book chapter (1099)
4	2020 (752)	Roos, G. (39)	Russian Federation (570)	Bucharest University of Economic Studies (73)	Review (637)
5	2019 (674)	Kianto, A. (32)	Spain (557)	HSE University (69)	Book (219)
6	2018 (612)	Matos, F. (30)	Australia (503)	Universiti Teknologi MARA (61)	Editorial (72)
7	2017 (635)	Edvinsson, L. (29)	China (498)	LUT University (60)	Conference review (53)
8	2016 (523)	Mouritsen, J. (27)	Canada (369)	The University of Sydney (58)	Note (49)
9	2015 (514)	Marr, B. (26)	Malaysia (355)	Islamic Azad University (54)	Short survey (33)
10	2014 (495)	Nielsen, C. (25)	India (312)	Universidad de Castilla-La Mancha (53)	Retracted (16)

5 Conclusion

Future challenges for SMEs that must be addressed jointly by all relevant stakeholders, among others, related to innovation and technology, digital literacy, productivity, legality or licensing, financing, branding and marketing, human resources, standardization and certification, equitable development, training and facilitation, as well as a single database.

There are further steps to be undertaken related to the research works and outputs presented above in terms of number of publication, authors who produce quality articles, name of institutions and country affiliated with the authors, and type of documents of publications. The three elements which are related to firm performance are crucial to be explored and used as a reference for strategic planning.

Table 3 Summary of top ten research outputs, affiliations, and document types on learning capability

No	Year/ number of documents	Author/ number of documents	Country/ number of documents	Affiliation/number of documents	Document type/ number of documents
1	2023 (2986)	Pedrycz, W. (48)	USA (17,963)	Chinese Academy of Sciences (1165)	Article (41,543)
2	2022 (12,542)	Lin, F.J. (38)	China (16,094)	Ministry of Education China (921)	Conference paper (30,785)
3	2021 (9963)	Bouguila, N. (34)	UK (5805)	Tsinghua University (634)	Book chapter (2617)
4	2020 (7940)	Chen, H. (34)	India (5055)	Nanyang Technological University (596)	Review (2468)
5	2019 (6627)	Samui, P. (30)	Australia (3836)	University of Chinese Academy of Sciences (542)	Conference review (610)
6	2018 (4567)	He, H. (29)	Germany (3725)	Zhejiang University (520)	Book (357)
7	2017 (3506)	Ng, W.W.Y. (29)	Italy (3139)	Shanghai Jiao Tong University (447)	Note (105)
8	2016 (2804)	Yan, S. (29)	Canada (2743)	National University of Singapore (443)	Editorial (74)
9	2015 (2527)	Bazi, Y. (28)	Spain (2686)	Harbin Institute of Technology (412)	Retracted (63)
10	2014 (2286)	Niyato, D. (28)	Japan (2354)	CNRS Centre National de la Recherche Scientifique (411)	Short survey (55)

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Marketing and Management

Factors Affecting Work Motivation of the Academic Staff



Florinda Zegullaj, Jusuf Zeqiri , Selajdin Abduli, and Shpresa Syla

Abstract The study aims to identify academic staff reward-related problems and to assess the impact of financial and non-financial reward systems on lecturers' work motivation. The study sample is drawn from four university faculties of "Fan S. Noli" University of Korça. Data are gathered with the aid of a structured questionnaire in Google Forms. Partial least squares (PLS) and structural equation modeling (SEM) have been utilized to examine how social recognition, wage and welfare, work characteristics, peer relationships, and leader caring affect lecturers' motivation. The findings of this study show that wage and welfare and peer relationships are the most important factors that impact the motivation of lecturers at Korça's University.

Keywords Reward system · Motivation · Organizational performance · Academics · Universities

1 Introduction

The mission of each university all around the world is to create, develop, and impart knowledge through teaching, scientific research, and other community services, contributing to the economic, social, and cultural development of a given country (Abdulsalam & Mawoli, 2012). To achieve that, qualified and competent academics are needed. Therefore, their performance, both as teachers and researchers,

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has crucial importance in terms of effective teaching and delivery of knowledge (Wahyudi, 2022). To reach the institutional mission to offer high-quality learning experiences through enhancing work productivity and performance levels, reward system management is increasingly becoming one of the most essential concerns in higher education institutions. Highly motivated academic staff can build a national and international reputation for themselves and the institution in the research, publishing, and professional areas (Bayissa & Zewdie, 2011). Moreover, they can contribute to the ability of the institution to attract students and increase research funds.

Previous studies (Amri, et al., 2021; Paais & Pattiruhu, 2020; Sitopu et al., 2021; Wahyudi, 2022) have shown that the performance of employees depends not only on their qualification and professional competence but also on motivation that derives from the reward system. Albanian universities are currently facing several challenges, the primary among which is the dearth of students and qualified academics, due to the mass emigration of the population to other countries in the EU and overseas; poor development; poor research, inadequate funding, etc. Moreover, it is observed that staff is lacking motivation and the quality of teaching may be decreased. In these conditions, the objectives of this study are to evaluate the problems that are related to the existing reward system of the university and to determine the factors that impact the motivation of lecturers.

Even though during the last year academics have protested about the level of their wages and their work conditions, we have found that studies that are related to the above-mentioned issues in Albanian institutions of higher education are scarce and very few in number. Therefore, this study will fill this gap and provide more insight for policymakers as far as lecturers' motivation is concerned.

After the introduction, the paper is organized as follows. Section 2 presents the literature review. Section 3 is devoted to the research methodology. The results and discussions are presented in Sect. 4, while conclusions are elaborated in Sect. 5 which concludes the study. The bibliography and the structured questionnaire (Appendix 1) that are used are also part of this research paper.

2 Literature Review

The linkage between employee motivation and job performance has been established by several studies (Forson et al., 2021; Girdwichai & Sriviboon, 2020; Sharaeva & Chao, 2019) that have demonstrated that there is a strong and positive relationship between them. The working environment plays a crucial role in terms of employees' performance (Girdwichai & Sriviboon, 2020). In the existing literature, one can identify several factors referring to different types of reward systems that are used with the purpose of improving lecturers' motivation and job performance. These factors are discussed below.

2.1 Reward System

Armstrong (2010) stated that: “a reward system consists of interrelated processes and practices that combine to ensure that reward management is carried out effectively to benefit the organization and the people working there.” Its components and interrelationships are presented in Fig. 1. The starting point of every organization is its strategy, which determines the performance drivers and sets organizational goals. It is the defined strategy that defines reward systems that will support the achievement of long-term organizational goals such as financial rewards (i.e., pay structure, allowances, pensions, and benefits, etc.), and non-financial rewards (recognition, autonomy, responsibility, growth, achievement, etc.).

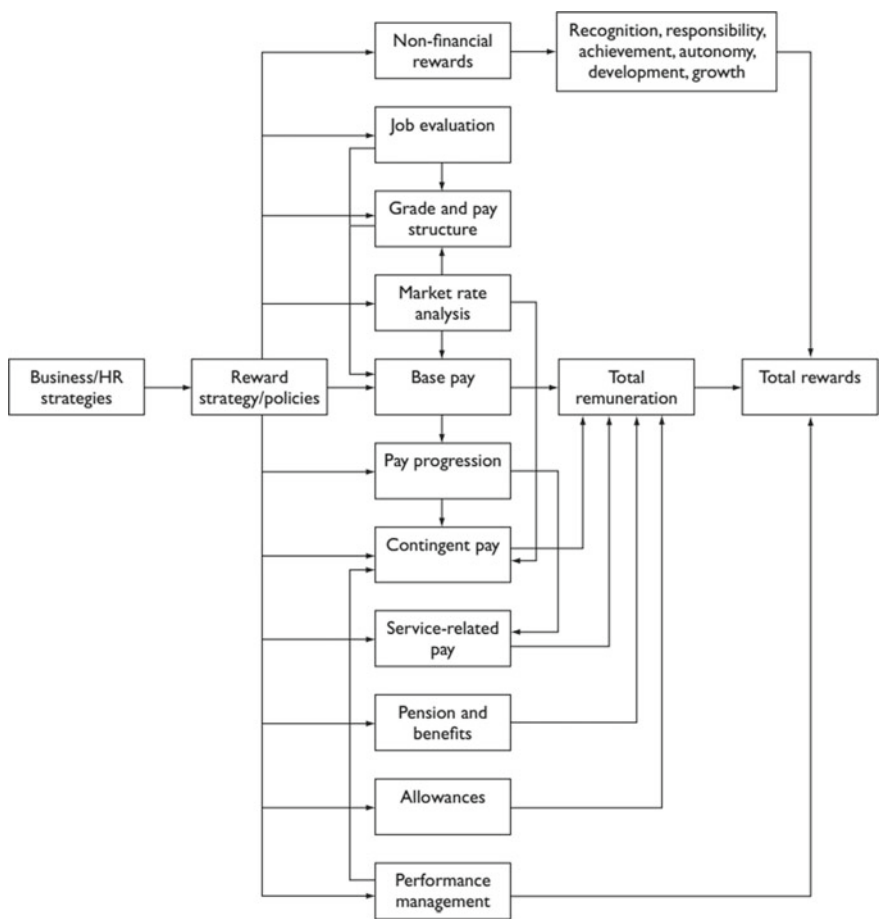


Fig. 1 Components of the reward system and their interrelationships. *Source* Based on Armstrong (2010, p. 29)

As mentioned earlier, there is a wide variety of methods available for motivating staff, from recognizing the employee's achievements by simply saying "thank you" to more complex schemes which combine and set targets with fixed rewards (Bayissa & Zewdie, 2011). Bau and Dowling (2007) noted examples that are used to reward employees such as **intrinsic** (participation in decision-making processes, more responsibility, personal growth, greater freedom, etc.), and **extrinsic** (**financial**: performance-based such as commissions, performance bonuses, etc., implied membership-based like profit sharing, time-in rank increase, etc., explicit membership-based such as protection programs for instance; **non-financial**: preferred lunch hours, reserved parking spaces, business cards, impressive titles, etc.) (Fig. 2).

It is worth noting that the measurement of the factors that impact lecturers' performance is complicated because they cannot be directly observed as far many organizational and psychological obstacles can affect the goals achieved.

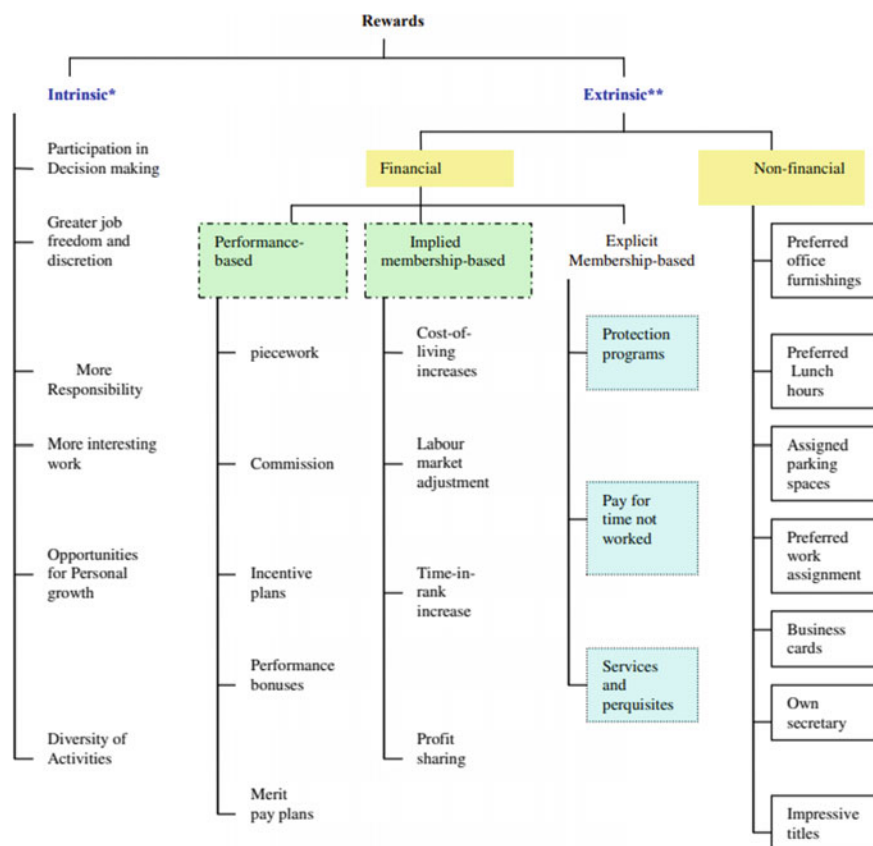


Fig. 2 Academic staff reward. *Source* Compiled from different sources by Workineh Bayissa & Dr. Shimels Zewdie

2.2 Relationship Between Rewards and Performance

Numerous researchers (f.e. Kokubun, 2018; Prihatono et al., 2022; Pramesti et al., 2019) stated that rewards have a positive and significant effect on employees' performance. Moreover, Aktar et al. (2012) found out that the reward system has a progressive and significant impact on performance. However, Siswanto et al. (2021); Susanto (2016) revealed that the reward system does not have a significant influence because of the organization's inability to use it as motivation for workers. In addition to that, it is important to emphasize that firstly, it is very difficult to measure directly lecturers' performance and work results because of the complexity of the work nature, and secondly, the reward is not given immediately for their performance results.

2.3 Work Motivation and Performance

Motivation (encouragement) is widely known as a strategy used for the performance improvement of employees in different organizations. According to Armstrong (2010), motivation is an inner force that vitalizes, directs, and assists behavior. The more the rewards are tied to performance, the more people will be motivated to work as stated in the instrumentality theory of motivation (Graen, 1969). Work motivation is driven by two types of motivation, namely intrinsic and extrinsic work motivation (Shafi et al., 2020). Tran and Do (2020) have defined motivation as: "*the process that initiates, guides, and maintains goal-oriented behaviors in all activities.*" Highly motivated lecturers make the teaching process more effective and impact students' achievement. Studies by Hanafiah et al. (2020); Nurlaela et al. (2017); have found that work motivation has a positive and significant influence on improving performance. Lack of motivation among academic staff is one of the main barriers identified earlier by Sulaiman et al. (2011). It is worth mentioning that the findings of previous studies regarding factors that affect lecturers' motivation are different and context-dependent. In this paper, factors that affect the job motivation of lecturers are in line with those considered by Tran and Do (2020): (a) wage and welfare, (b) work characteristics, (c) social recognition, (d) peer relationships with colleagues, and (e) leader caring.

Work Characteristics (W_C)

Work characteristics represent objective, measurable dimensions of work and reflect conceptually distinct design features (e.g., Morgeson & Campion, 2003). They profoundly influence employee well-being and job satisfaction (Bos et al., 2009). Hernaus (2013) stated that work design represents the central pillar of employee performance concerning its importance on individual well-being and organizational success. For that reason, the topic of work characteristics has been the subject of many research papers in the field of behavior and organizational psychology (Foss et al., 2009; Hernaus, 2013). Work characteristics of the academic staff are different

from those of business workers (Barnabé & Burns, 1994; Hernaus, 2013) because of the craft-style organizational structure, and the nature of work with students, which deprive them of interactions with other adults. Therefore, it can be assumed that lecturers may be motivated differently compared with other workers in terms of task importance, job autonomy, job feedback, and diversity.

Wage and Welfare (WW)

When it comes to job motivation, numerous researchers (Alam et al., 2020; Kampelmann et al., 2018; O'Connor, 2018) have revealed that wages have a crucial role in attracting and motivating employees and organizational performance. Moreover, the study of Yee (2018) has demonstrated that wages impact employees' behaviors and attitudes toward work. On the other hand, welfare is a broader term used to describe different benefits, services, and facilities to boost the motivation of workers (Alam et al., 2020; Manju & Mishra, 2012). Tiwari (2014) has stated that welfare facilities are provided by organizations in order to keep employees highly motivated. In the context of academic workers, the findings of previous studies suggest that Albanian lecturers of public universities face many difficulties when it comes to wages and welfare. The current wage structure consists of base salary and compensation for seniority (*the maximum age for which work is rewarded is 15 years*), while other factors such as performance and academic activities are not rewarded financially.

Social Recognition (SR)

Petrescu and Simon defined recognition as “confirmation of a given occurrence or performance.” In an academic framework, social recognition is defined as “*the judgment, which is provided to an academic for being a valued individual of his/her educational institution and society*” (Amarasena et al., 2015; Tran & Do, 2020). The study of Chikungwa and Chamisa, in support of the Herzberg theory of motivation in studies by Backer, revealed that academic employees are most motivated and satisfied through recognition of performance and achievement. This finding also corresponds with the results of Geoffrey, who has revealed that recognition has a positive and significant on lecturers' teaching and research activities. Rewarding employees through recognition may affect their work performance. Numerous studies, including those mentioned before, have revealed a significant and positive between reward, recognition, work motivation, satisfaction, and performance.

Peer Relationships with Colleagues (RC)

When it comes to Albanian universities, we have not found any studies that have examined the relationship between RC and lecturers' motivation. But researchers like Tran and Do (2020) have demonstrated that peer relationships with colleagues are a great source of lecturers' motivation and well-being. Skaalvik and Skaalvik (2018) have found that good relationships with colleagues and the feeling of being recognized have positively affected academics engagement and well-being and are negatively related to lecturers' stress.

Leader Caring (LC)

Leaders should inspire and motivate their employees rather than demonstrate hierarchical control and command. Moreover, they promote the excitement and meaning of work (Tran & Do, 2020). Dynamic leaders may increase the work motivation and performance of employees by being appreciative, supportive, and inspirational. According to Zhang et al. (2022), caring leadership is associated with organizational commitment, increased self-esteem, organizational performance, and productivity. A caring relationship, based on Watson's theory, incorporates the 10 Caritas Process for the leading process such as loving-kindness, trusting, nurturing, inspiring, co-creating, balancing, deepening, ministering, forgiving, and opening principles. Moreover, Zhang et al. (2022) argued that leading and caring are two inseparable concepts because when a leader concentrates on caring and forgets his/her responsibilities, and/or vice versa, it may cause a loss of motivation among employees and an inability to achieve goals.

3 Research Methodology

Population and sample size: The study sample is drawn from 4 (four) university faculties located in Korça. The sampling technique used was random sampling. Data are gathered with the aid of a structured questionnaire in Google. The sample size (N) is calculated as suggested by Green (1991): $N \geq 50 + 8p$, where p is the number of independent variables. In this study, the number of independent variables is 6; therefore, the minimum value of the sample size is 98. A total number of 100 questionnaires were completed in Google in December 2022 and January 2023 (Fig. 3).

Variables measurement: Items that measure factors that affect academic employees' motivation and performance were adopted from previous research: GebrekirosHagos (2015); Munyengabe et al. (2017); Skaalvik and Skaalvik (2018).

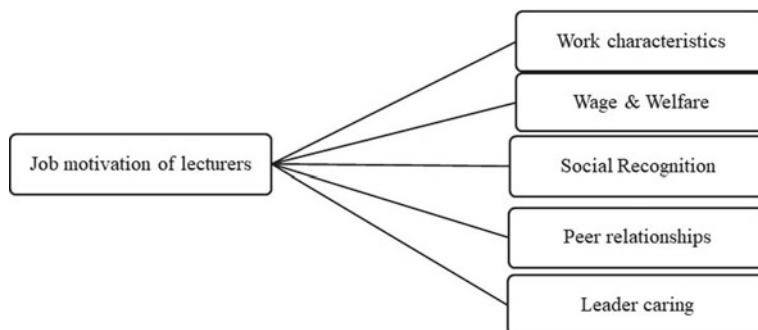


Fig. 3 The conceptual framework

A total number of 27 questions were incorporated into this questionnaire. A five-point Likert scale is used to measure all items by agreement with the statement (1—strongly disagree to 5—strongly agree). Data were analyzed by using structural equation modeling in Smart PLS 4 software.

Respondent demographics: From the demographic data, it resulted that the majority of respondents are female (65%), 80% of respondents hold a Ph.D. degree, and 50% of them have worked in “Fan S. Noli” University of Korça for more than 13 years. It is worth mentioning that 85% of the respondents claim that they are promoted in their academic career in accordance with the legal framework of the Republic of Albania, but 55% of them admit that their contributions are not rewarded. When it comes to financial rewards, the majority of respondents (80%) claim that the average level of monthly earnings (not including the wage) is 0 ALL, meaning that factors such as performance and academic activities are not rewarded financially as mentioned before.

4 Data Analysis and Results

The latent variables are tested through SEM. The measurement model is gained by a two-step strategy (Emini & Zeqiri, 2021) and is evaluated with the SEM technique, while a bootstrapping method was used for testing the factor loadings and the significance of the path coefficients.

4.1 Measurement Model, Reliability, and Validity

Factor loadings for all the items of the construct are presented in Table 1. When analyzing them, it can be observed that all loadings are higher than the recommended 0.55, referring to Hair et. al. Items related to work characteristics (W_C), leader caring (LC), and social recognition (SR) are dropped after the examination of cross-loadings. As can be seen, all the remaining factor loadings are between 0.6 and 0.8 (they vary from 0.694 to 0.945), showing that all considered factors extract sufficient variance from the variables. In the table below, it is also presented the variance inflation factor (VIF) to measure the collinearity of the model. All VIFs from this test are lower than 3.3. Therefore, with regard to Kock, the model can be considered free of common method bias.

4.1.1 Convergent Validity Testing

The convergent validity test in Smart Pls is used to evaluate the correlation of measures of the same construct. The results presented in Table 2 show internal consistency between variables. The average variance extracted (AVE) values for all

Table 1 Construct items loadings

Name	Loadings	Mean	Standard deviation	VIF
WW_1	0.945	0.918	0.138	1.316
WW_2	0.747	0.694	0.215	1.316
RC_1	0.720	0.706	0.102	1.228
RC_2	0.937	0.936	0.031	1.228
MP_1	0.694	0.692	0.075	1.492
MP_2	0.713	0.711	0.063	1.723
MP_3	0.901	0.900	0.025	2.757
MP_4	0.840	0.837	0.046	2.070

Source Authors' calculations

Table 2 Convergent validity testing

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
Wage and welfare (WW)	0.658	0.894	0.840	0.726
Peer relationships with colleagues (RC)	0.603	0.796	0.820	0.698
Work motivation	0.804	0.851	0.869	0.627

Source Authors' calculations

the items are above the recommended by Fornell and Larcker value of 0.50 ranging from 0.627 to 0.726.

4.1.2 Discriminant Validity Testing

Discriminant validity is tested after the convergent validity as far as their assessment is used to demonstrate construct validity. Discriminant validity examines how items in one construct are different statistically from items in other constructs. To assess discriminant validity is used the heterotrait–monotrait ratio of correlations (HTMT). Based on the results given in Table 3, which are all below the recommended 0.90, it can be concluded that discriminant validity has been established (Table 4). The model fit is presented in Table 4.

4.2 Structural Model Estimation

In this study, it is used Smart PLS Structural Equation Modeling for evaluating the proposed model. The results of the SEM path analysis are shown in the figure below.

Table 3 Discriminant validity—HTMT matrix

	MP	RC	WW
MP			
RC	0.597		
WW	0.327	0.150	

Source Authors’ calculations

Table 4 Model fit

	Saturated model	Estimated model
SRMR	0.106	0.106
d_ULS	0.401	0.401
d_G	0.176	0.176
Chi-square	105.545	105.545
NFI	0.603	0.603

Source Authors’ calculations

The path measurement shows that wage and welfare (WW) and relationships with colleagues (RC) are, respectively, 0.252 and 0.455. Wage and welfare contribute 0.252 to the motivation and performance of academic staff, while relationships with colleagues are 0.455. This explains that wage and welfare (WW) and relationships with colleagues (RC), respectively, explain 25.2% and 45.5% of the endogenous latent variables (Fig. 4).

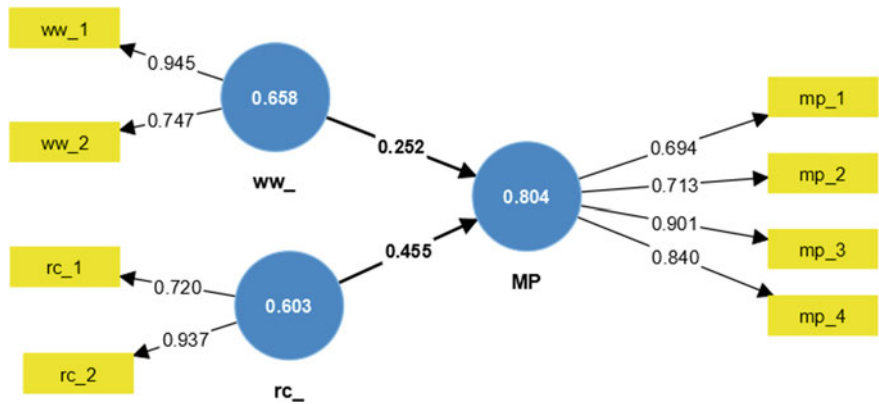


Fig. 4 Structural equation modeling. Source: Authors’ illustration

Table 5 Hypothesis testing

		Path coefficient	STDEV	T statistics	P values	
(1)	WW -> MP	0.252	0.099	2.554	0.011	Supported
(2)	RC -> MP	0.455	0.071	6.431	0.000	Supported

Source Author's calculations using Smart PLS

4.3 Testing Hypotheses

As mentioned before, items related to work characteristics (W_C), leader caring (LC), and social recognition (SR) are dropped after the examination of cross-loadings. Therefore, based on the literature review and data analysis on SMART PLS, the postulated hypotheses are as follows:

H₁: Wage and welfare have a positive and significant effect on the motivation of the academic staff.

H₂: Peer relationships with colleagues have a positive and significant effect on the work motivation of the academic staff.

The relationship between wage and welfare and relationships with colleagues on the motivation of the “Fan S. Noli” University of Korça is analyzed by multiple regression analysis with a SEM model. The results presented in Table 5 indicate that wage and welfare have a positive and significant effect on motivation with path coefficient = 0.252, $t = 2.554$, and $p < 0.011$ supporting the H₁. When it comes to the relationships with colleagues, the results (path coefficient = 0.455, $t = 6.431$, $p < 0.000$) indicate that there is a significant positive relationship between them, denoting H₂ is supported as well.

5 Discussion and Conclusions

This study has revealed that peer relationships with colleagues and wage and welfare are the most important factors that affect the work motivation of “Fan S. Noli” University academic staff. Among all the analyzed factors, “peer relationships with colleagues” have resulted to have the biggest impact on the dependent variable. These findings are in line with previous studies (Alam et al., 2020; Kampelmann et al., 2018; Tran & Do, 2020; Skaalvik & Skaalvik, 2018; O’Connor, 2018) arguing that factors such as wage and welfare and relationships with colleagues strongly impact employees’ motivation. Currently, the lack of financial support for the academic staff has caused a decline in their motivation, which directly has impacted the quality of teaching and research activities. Considering the work nature of lecturers, the results regarding relationships with colleagues are quite interesting. They may be explained by the cultural aspect of the city where “Fan S. Noli” University is located, and the quality of students of this institution that is ranked among the lowest in Albania.

Other factors such as work characteristics, social recognition, and leader caring do not have shown any significance in terms of the motivation of the lecturers of this university. Therefore, items related to them have been removed from the model. It is worth of note that the lack of interaction at the right level between academic structures and managerial ones explains the reason why leader caring has not shown significance in the initially proposed model. When it comes to the results related to the work characteristics of lecturers and their social recognition, it has been revealed that these variables do not impact the motivation of lecturers. This can be expounded by a variety of reasons such as the declining number of students from year to year that has weakened the interaction between students and lecturers; the poor quality of students that have been registered in this university during the last years; lack of incentive mechanisms to boost research development. The “Fan S. Noli” University of Korça does not have incorporated any research center/institute to promote research and increase not only the productivity of the academic staff but also their work motivation. Moreover, the existing system of performance appraisal does not include their teaching and researching portfolio. Thus, the contributions of academics in teaching and researching are neither recognized nor rewarded.

The study findings account for valuable policy recommendations, and the relevant authorities could use the above-mentioned factors to improve the motivation and performance of university academic staff.

Anyhow, this study is not without limitations as far as it is conducted only in one university; therefore, its results may not get generalized and compared to the rest of Albanian universities. Future studies might consider increasing the validity of the study and replicating its findings on a larger scale with a more representative sample.

Appendix 1: Structured Questionnaire

Link: <https://forms.gle/e96WGvzkNhsgqnkU9>

Section 1—Demographics

1. **Gender:**

- Male
- Female

2. **Age:**

- 25–30 years old
- 31–45 years old
- More than 46 years old

3. **What academic title are you holding?**

- Master
- Ph.D.

- Associate Professor
 - Full Professor
 - Other
4. **For how long have you been working in “Fan S.Noli” University of Korça?**
- 2–4 years
 - 5–8 years
 - 9–12 years
 - More than 13 years
5. **In which faculty are you hired?**
- Economic Faculty
 - Agriculture Faculty
 - Faculty of Education and Philology
 - Faculty of Natural Sciences and Humanities
6. **The average level of monthly financial rewards (excluding wage) is:**
- 0 ALL
 - 2500–5000 ALL
 - 5100–10,000 ALL
 - 10,100–20,000 ALL
 - More than 20,000 ALL
7. **Do you think that your special contributions for “Fan S.Noli” University are appreciated and rewarded?**
- Yes
 - No
8. **Are you promoted accordingly with the existing legal framework in the Republic of Albania?**
- Yes
 - No
9. **Financial rewards are more important than non-financial ones. Do you agree with this statement?**
- Yes
 - No.

Section 2: Factors affecting the work motivation and performance (MP):	1. (1) <i>Strongly disagree</i>	2. (2) <i>Disagree</i>	3. (3) <i>Neutral</i>	4. (4) <i>Agree</i>	5. (5) <i>Strongly agree</i>
10. The wage level (MP_1)					

(continued)

(continued)

11. Job security (MP_2)					
12. Social & health contributions (MP_3)					
13. Social status (MP_4)					
Section 3: Work Characteristics (W_C)	6. (1) <i>Strongly disagree</i>	7. (2) <i>Disagree</i>	8. (3) <i>Neutral</i>	9. (4) <i>Agree</i>	10. (5) <i>Strongly agree</i>
14. My job is creative and interesting (W_C)					
15. My job imparts important values for the society					
16. The lecturer's position gives you an opportunity for career development					
Section 4: Wage and welfare (WW)	11. (1) <i>Strongly disagree</i>	12. (2) <i>Disagree</i>	13. (3) <i>Neutral</i>	14. (4) <i>Agree</i>	15. (5) <i>Strongly agree</i>
17. My earnings are in proportion with my duties					
18. I think that the wage level is fair					
19. My wage reflects correctly my contribution for the university					
Section 5: Social recognition (SR)	16. (1) <i>Strongly disagree</i>	17. (2) <i>Disagree</i>	18. (3) <i>Neutral</i>	19. (4) <i>Agree</i>	20. (5) <i>Strongly agree</i>
20. My work is recognized in the community					
21. My achievements are recognized and properly rewarded					

(continued)

(continued)

22. The institution I work for, has an effective system for job evaluation					
Section 6: Peer relationships with colleagues (RC)	21. (1) <i>Strongly disagree</i>	22. (2) <i>Disagree</i>	23. (3) <i>Neutral</i>	24. (4) <i>Agree</i>	25. (5) <i>Strongly agree</i>
23. Peer relationships with colleagues are characterized by reciprocal respect					
24. My colleagues always support and appreciate my achievements					
Section 7: Leader Caring (LC)	26. (1) <i>Strongly disagree</i>	27. (2) <i>Disagree</i>	28. (3) <i>Neutral</i>	29. (4) <i>Agree</i>	30. (5) <i>Strongly agree</i>
25. Leaders are friendly and easily approachable					
26. Leaders always support lecturers' work					
27. Leaders always consult subordinates before making decisions					

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The Impact of Sales Promotion Methods on Buying Behavior of Hygienic Products



Arta Ejupi Ibrahimi and Jusuf Zekiri

Abstract Since the market is overwhelmed with many hygienic products, companies need to make something that will attract customers, and they need to make many promotion activities just to capture their attention. The purpose of this paper is to find out what customers from North Macedonia want which sales promotion methods they prefer more. There is a little research of sales promotion in North Macedonia, so this paper will also help companies to better understand the sales promotion methods and they will better serve the best method to their customers. Secondary data were used from journals and books. The sample consists of 222 responses which were analyzed with the program Smart PLS. The results of the study show that Price discount, Free sample, Free gifts, Buy one get one for free have positive impact on sales promotion, and the most effective way is Buy one get one for free.

Keywords Sales promotion · Buying behavior · Price discount · Free sample · Free gift

1 Introduction

Hygienic products are those products essential for any household and it is very important that these products will be on the right customer's hands. In this era, companies are trying to give the greatest effort for attracting and creating more customers, they want to boost more sales, and they do this with the right marketing communication method. Sales promotion methods as one of marketing communication methods play an important role on customers buying behavior, and companies set objectives to increase their market share, to attract more customers, and to make their target market bigger, but how they do that? Companies as a strategy to achieve their goal

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of attracting more customers (Bridges et al., 2006) use different sales promotion methods, they do this when they have a new product in the market, or they add something new to the product or they see that their product is in maturity stage and start to go in the decline phase, and for that they need to act immediately. As we mentioned with the sales promotion methods they want to attract more customers (Rowley, 1998), they also want to be different from competitors because the market is so harsh now and each competitor enters with different strategies (Das, 2011) and is harder now for customers to change brands that are used to (Ahmad et al., 2015), so companies will try to make those customers attracted to the sales promotion methods in order to make them their customers.

Ibrahim and Ejupi (2020) stated that firms pay much more attention now than before to their customers, and they really want to offer them the product they want and that will be suitable for them, so it is important to analyze sales promotion methods carefully because as Rowley (1998) mentioned that promotion has a great role in the company's success and brings a profitable business (Weerathunga & Pathmini, 2015).

Several papers have been analyzed in other countries, and a study by Weerathunga and Pathmini (2015) was conducted for sales promotion in supermarkets where the research has resulted that sales promotion has a great impact on buying behavior. The study of Gilbert and Jackaria (2002) analyzed sales promotion in the UK supermarkets and resulted that Price discount was the most statistically significant method.

Therefore, the paper will try to analyze the sales promotion methods that are: Price discount, Free sample, Free gifts, Buy one get one for free. Specifically, the objective of the paper will be to find out the most effective methods to use for customers in North Macedonia. There is a gap on sales promotion research in North Macedonia especially for hygienic products, and this paper will contribute to the literature of marketing promotion and will be useful for companies that work in this industry. This will be very helpful for them to understand better the promotion activities that can be used for their customers.

The paper is structured as follows: introduction, literature review (in literature review, there are presented the concepts of sales promotion), following with methodology and data, and is closed with the conclusion section.

2 Literature Review

Chang and Tsai (2011) stated that communication methods are: sales promotion, direct marketing, advertising, and public relation. Based on Berjani and Strufe (2011), sales promotion is part of promotional mix and this method is more used in hygienic products. According to Karim and Zhao (2011), sales promotion is like a stimulation for buying the product and it is like having a great role on customers (Laroche et al., 2003). Based on Kotler and Keller (2011), sales promotion is a key factor in marketing strategies that are used to encourage customers for a purchase. Chandon et al. (2000)

listed the advantages of sales promotion that customers will save money if they buy in promotion, they also indicated that is easy to buy in promotion, and products that are in sale are also with a good value. Promotion also can motivate customers to think for that specific brand and there are more possibilities of buying in promotion rather than without it (Osman et al., 2011).

Prior research has been investigated on related topics, Ahmad et al. (2015) emphasized the sales promotion on customer buying in the city of Pakistan, and the results showed that all of the sales promotions have a great effect on buying behavior. Moreover, studies showed that Price discount influences their buying pattern (Papatla & Krishnamurthi, 1996; Strang, 1975). Also, Gardener and Trivedi (1998) did a research that will give a good strategy to managers in terms of communication of sales promotion. Besides this, Smith and Swinyard (1983) analyzed the attitude of customers toward the promotion and they compared low- and high-cost products, where they said that product trial is a good method because customers will evaluate the product. Additionally, Gedenk and Neslin (1999) concluded that price promotion has a positive effect on brand purchase rather than non-price promotion.

On the other hand, there are consumers that will not be affected by any attracting activity. They are aware about their preferences, rely on their attitude and will not be attracted of any price factor (Heilman et al., 2000). Those consumers once they buy a brand, they will be less interested in that promotion, so they relate the purchase with their information that they have about the product (Bridges et al., 2006; Smith & Swinyard, 1983). Also, Kopalle and Lehmann (1995) agree with that once consumer buys a brand, they are more linked with their internal information rather with any promotion. So many studies approved that customers are more affected to promotion after they have made buying in a promotion activity (Bridges et al., 2006) and they are attracted more to promotion when they buy low involvement product (Ndubisi & Moi, 2006). Another study of Lau et al. (2006) showed that brand switching occurs more because of sales promotion that they see and they will buy if they are satisfied. On the other hand, there is a study of Peattie and Peattie (2009) which concluded that products in promotion are always low quality and customers will stay loyal to their brand. The study of Karbasi and Rad (2014) was about the effect of sales promotion on brand equity and investigated the monetary and non-monetary promotions with the perceived quality, brand awareness, brand association, and brand loyalty and resulted that brand association and perceived quality have more effect on brand loyalty.

Based on Gardener and Trivedi (1998); Karim and Zhao (2011) in the end, the main goal will be to attract customers and all that were planned to be communicated in a good way to the right target market. By effective communication of promotion, companies will likely increase sales, make brand awareness, make the brand memorable, strengthen the customer loyalty, and they will have a good strategic positioning.

2.1 *Customers' Buying Behavior*

Customer behavior refers to customers and the buying decision process (Shimp, 2013; Solomon, 2010; Broniarczyk, 2008). According to Kotler et al., (2013), customer behavior study the ways on how people buy, use products for their needs, while Kumar et al., (2014), define it as a marketing field that analyze what customers want, how they choose a specific product, why they buy it, etc.

It is very important for any company to understand the customers' behavior and to offer them the best product with a suitable promotion method.

2.2 *Brand Switching*

Brand switching is when customers change brands of certain product, that could be for a longer or temporary period, and the reason why this occur is because customers can be attracted by the promotion sales methods and they want to try a new one (Bhatt & Saiyed, 2015; Garga et al., 2019).

2.3 *Promotion Sales Methods*

- *Free sample*—Free samples are small of the original product, so customers can try the product before they buy (Osman et al., 2011). The study of Gilbert & Jackaria, 2002, proved that Free sample method has a positive impact on buying behavior.
- *Buy one get one for free*—This method is when customers buy one product, the same product will go for free, and customers think that they are taking more value than the price they pay for the product (Sinha & Smith, 2000).
- *Price discount*—According to Fill (2002), Price discount is a method that you set lower price than the usual price. There are many studies that Price discount plays an important role on customers' buying behavior (Fill, 2002; Shimp, 2003).
- *Free gift*—Customers will take any gift with the product.

3 *Methodology*

This study analyzed the promotion sales methods that are: Price discount, Buy one get one for free, Free sample, and Free gift with the buying behavior in hygienic products. The main goal was to investigate which of those methods are more effective for buying behavior. Primary data were collected from 222 participants, where the questionnaire was structured with few sections. The first section includes questions related to demographic data with multiple questions, such as gender, age, education, status and others and a Likert scale (1 = 'completely disagree' and 5 = 'completely

agree') was used. Also, there were included questions related to buying behavior, brand switching, price discount, buy one-get one for free, free sample, free gift, etc. In the appendix are shown all items for every variable and respective authors. The questionnaire was distributed through social media. JSP statistical software and Smart PLS was used for descriptive statistics. The research model is presented in Fig. 1.

The study tries to answer these questions:

- What is the impact of Price discount on consumer buying behavior?
- What is the impact Buy one get one for free on consumer buying behavior?
- What is the impact of Free sample on consumer buying behavior?
- What is the impact of Free gift on consumer buying behavior?

The research also tries to test these hypotheses:

H1: Price discount has a positive impact on sales promotion.

H2: Free sample has a positive impact on sales promotion.

H3: Free gifts have a positive impact on sales promotion.

H4: Buy one get one for free has a positive impact on sales promotion.

H5: Sales promotion has a positive impact on brand switching and buying behavior.

H6: Brand switching has a positive impact on buying behavior.

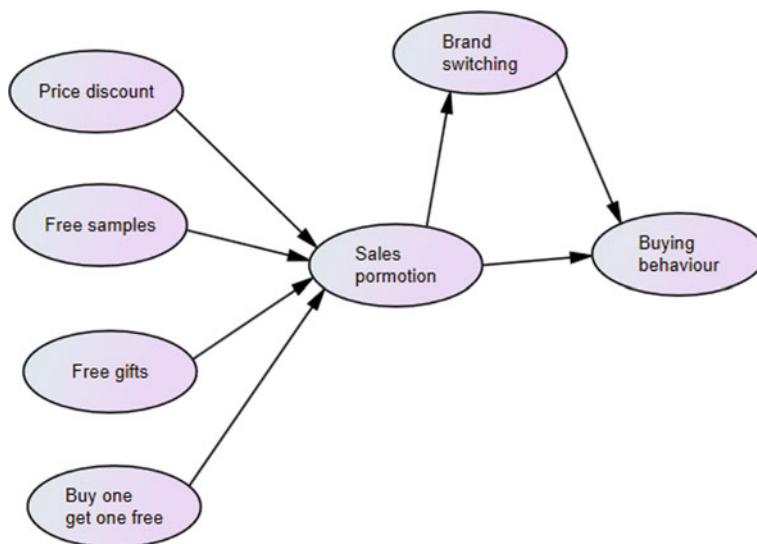


Fig.1 Research model

Table 1 Participants based on their demographic information (222 participants)

Descriptive statistics			
		Frequency	Percent
Gender	Female	152	68.5
	Male	70	31.5
Age	Less than 20	8	3
	21–30	113	50.9
	31–40	59	26.6
	Over 40	42	18.9
Education	High school	36	16.2
	Faculty	120	54.1
	Master	53	23.9
	Doctorate	13	5.9
Status	No job	49	22.1
	Student	38	17.1
	Employed	112	50.5
	Business	23	10.4

4 Data Analysis

In this section, data analysis is included that is collected from the questionnaires.

4.1 Descriptive Statistics

The first section of the questionnaire includes questions related to demographic information of respondents. Table 1 presents the demographic information. From the data collected, we can see that 70 (31.5%) are males and 152 are females (68.5%). Regarding the age, less than 20 years are eight respondents (3%), between 21 and 30 years are 113 (50.9%), 31–40 years are 59 (26.6%), and over 40 42 (18.9%). Related to the education of the sample, 36 (16.2%) are in high school, 120 (54.1%) are with faculty, and with master are 53 (23.9%). And according to the status of the work, 49 (22.1%) are not employed, 38 (17.1%) are students, the majority are employed with 50.5%, and 23 (10.4%) have their own business.

4.2 Structural Equation Modeling

This research used Smart PLS Structural Equation Modeling for analyzing the model (Fig. 2). The SEM path analysis is shown in Fig. 2. The path Price discount is 0.331,

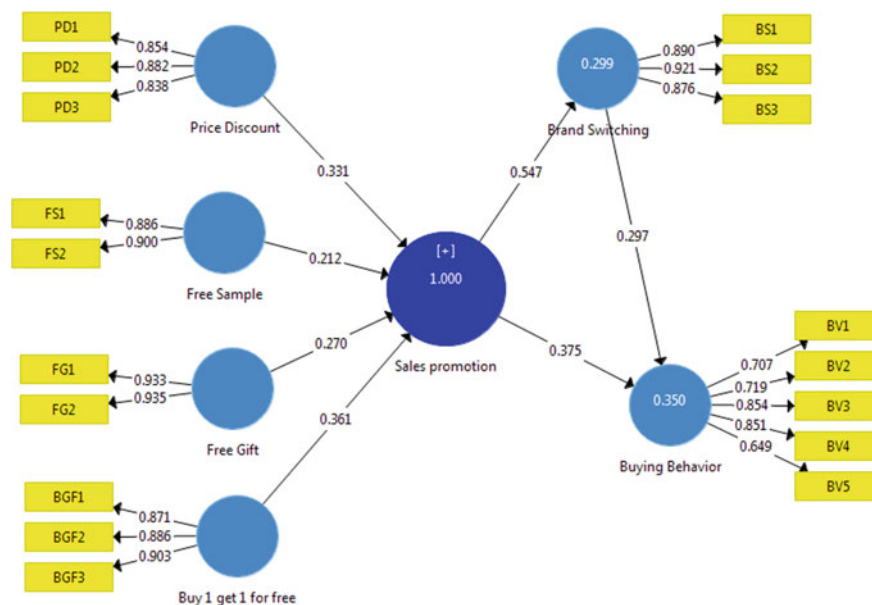


Fig. 2 Structural equation modeling

Free sample is 0.212, Free gift is 0.270, and Buy one get one for free contributes more to sales promotion with 0.361 that means 36.1%. Moreover, sales promotion contributes to brand switching 0.547 and 0.375 to buying behavior, also brand switching to buying behavior 0.297.

Table 2 shows the factor loading for each item and all the loadings are greater than 0.05 (Hulland, 1999). Also, the collinearity was performed to see if the method is biased, and based on Kock (2015), the values lower than 3.3 are good and mean no bias method.

4.2.1 Convergent Validity Testing

According to Kock (2015), the convergent validity results should be greater than 0.5, and in Table 3, the results are shown and all range from 0.872 to 0.932. The analysis of Cronbach Alpha measures the reliability of the items and the results range from 0.747 to 0.877, and according to Nunnally (1978), that number shows good reliability level. The average variance extracted (AVE) values range from 0.579 to 0.872 that are good results (Bagozi & Yi, 1988; Fornell & Larcker, 1981).

Table 2 Construct item loading

Construct items	Loadings	Mean	SDEV	VIF
<i>Buying behavior (BV)</i>				
BV1. Promotions make consumers make immediate purchases	0.707	3.85	1.12	1.518
BV2. I pay attention to promotion of hygienic products	0.719	3.92	1.19	1.578
BV3. I always buy products in promotion even though I did not have a plan to buy	0.854	3.46	1.3	2.217
BV4. Promotions make me buy more products	0.851	3.57	1.35	2.271
BV5. I always save money while buying in promotions	0.649	3.75	1.34	1.284
<i>Brand switching (BS)</i>				
BS1. I would change the brand with any product that is in promotion	0.890	3.14	1.45	2.598
BS2. I usually change hygienic products to try other brands that are being promoted	0.921	3.12	1.45	2.945
BS3. I always try different brands that are in promotion	0.876	3.18	1.4	2.064
<i>Price discount(PD)</i>				
PD1. Price discount always attracts me to the hygienic products	0.854	4.1	1.2	1.863
PD2. I think that Price discount saves me money	0.882	4.16	1.17	2.045
PD3. I buy more products when there are with Price discount	0.838	3.89	1.25	2.264
<i>Buy one get one for free (BGF)</i>				
BGF1. I usually buy products that are 1 + 1 for free	0.871	3.56	1.39	2.042
BGF2. I think that products offered 1 + 1 for free are good	0.886	3.4	1.3	2.297
BGF3. I think that I save money when I buy 1 + 1 for free	0.903	3.82	1.29	2.432
<i>Free sample (FS)</i>				
FS1. Free samples of hygienic products then make me buy the product if I like it	0.886	3.98	1.24	1.551

(continued)

Table 2 (continued)

Construct items	Loadings	Mean	SDEV	VIF
FS2. Free samples help me decide more easily about the brand in the future	0.900	3.89	1.27	1.983
<i>Free gift (FG)</i>				
FG1. Hygienic products that offer extra gifts immediately attract me	0.933	3.93	1.23	3.190
FG2. I would chose the brand that offers the gift attached to the product	0.935	3.8	1.29	2.244

Table 3 Convergent validity

	Cronbach Alpha	Rho_A	Composite reliability	AVE
Buying behavior	0.877	0.882	0.924	0.803
Brand switching	0.815	0.835	0.872	0.579
Price discount	0.821	0.821	0.893	0.736
Buy one get one for free	0.864	0.866	0.917	0.787
Free sample	0.747	0.749	0.888	0.798
Free gift	0.854	0.854	0.932	0.872

Source Author's calculations

4.2.2 Discriminant Validity Testing

The square root of AVE for latent variable are used to measure the discriminant validity. Table 4 show the results, where AVE values are greater than 0.5 and the discriminant validity is supported (Fornell & Larcker, 1981). Moreover, the square root of AVE should be greater than the correlation of all constructs (Fornell & Larcker 1981).

Table 4 Discriminant validity

	BS	B1GF	BB	FG	FS	PD
Brand switching	0.761					
Buy one get one for free	0.433	0.887				
Buying behavior	0.501	0.455	0.896			
Free gift	0.431	0.712	0.522	0.934		
Free sample	0.371	0.613	0.301	0.619	0.893	
Price discount	0.558	0.644	0.536	0.647	0.489	0.858

4.2.3 Testing Hypothesis and the Moderating Effect

Finally in the end, the path coefficients of variables and testing hypothesis given t-statistics and p-values are calculated. In Table 5, the results are shown that each variable has significant relationship. The Price discount was positively and significantly related to sales promotion with a path coefficient = 0.331, $t = 23.287$, $p = 0.000$, indicating that H1 is supported. The Free sample was positively and significantly related to sales promotion with a path coefficient = 0.212, $t = 13.871$, $p = 0.000$, indicating that H2 is supported. The Free gift was positively and significantly related to sales promotion with path coefficient = 0.270, $t = 21.538$, $p = 0.000$, indicating that H3 is supported.

Table 5 shows that H4 is supported, which means 'buy one, get one for free' is positively and significantly related to sales promotion (path coefficient = 0.361, $t = 28.852$, $p = 0.000$). Moreover, the results revealed that brand switching is significantly related to buying behavior with path coefficient = 0.297, $t = 3.97$, $p = 0.000$ and H5 is supported. Additionally, H6 and H7 are supported because sales promotion is significantly related to brand switching with path coefficient = 0.547, $t = 9.407$, $p = 0.000$, and sales promotion is positively related to buying behavior with path coefficient = 0.375, $t = 5.877$, $p = 0.000$.

Table 5 Hypotheses' testing

		Path coefficient	STDEV	T-values	P-values	Results
H:1	Price discount—sales promotion	0.331	0.015	23.287	0.000	Supported
H:2	Free sample—sales promotion	0.212	0.014	13.871	0.000	Supported
H:3	Free gift—sales promotion	0.270	0.012	21.538	0.000	Supported
H:4	Buy one get one—sales promotion	0.361	0.014	28.852	0.000	Supported
H:5	Brand switching—buying behavior	0.297	0.072	3.97	0.000	Supported
H:6	Sales promotion—brand switching	0.547	0.057	9.407	0.000	Supported
H:7	Sales promotion—buying behavior	0.375	0.068	5.877	0.000	Supported

5 Conclusion, Limitations, and Future Research Directions

This study was done to investigate the promotion sales methods as Price discount, Free sample, Free gifts, and Buy one get one for free on brand switching and customer behavior on hygienic products. This research will be a good contribution to companies that produce hygienic products because the promotional methods to reach customers are very important that will affect their buying decision. This study will help them use the most effective methods of promotions, to the right target group.

The results showed that Price discount, Free sample, Free gift, Buy one get one for free have positive effect on sales promotion and also brand switching has a positive effect on buying behavior; therefore, sales promotion has positive effect on brand switching and buying behavior.

A study by Weerathunga and Pathmini (2015) concluded that loyalty program has greater effect on customer buying behavior. Alvares et al. (2005) concluded that any promotion in price will have a great effect, and also Santini et al. (2015); Gilbert and Jackaria (2002) confirmed positive effect of Price discount on purchase intention, where concluded that Price discount was significant; moreover, Fill(2002); Shimp(2003) declared that Free sample had a significance on buying behavior.

A study of Osman et al. (2011) points out that the most sales of any company occur during the sales. The study of Khan et al. (2019) showed that all promotional methods have an important role on customers' buying behavior only except Free samples and bonus packs. Nagar (2009) who did a study of sales promotion on brand loyalty and brand switchers found that customers that switch brand are more attracted to sales promotions, and according to the methods, Free gift has more impact on those customers.

Finally, the objective of the study was to find out the most effective method, and based on analysis, the method Buy one get one for free is the most effective one.

As any other paper, this also has limitation because the number of the sample is not high, and it was analyzed only hygienic products no other products. A good topic for future research would be to analyze also cosmetic market with these promotional methods.

Appendix

Construct	Item	Questions	Adapted from
Buying Behavior (BV)	BV1	Promotions make consumers make immediate purchases	(Nasir & Bal, 2016) (Bakewell & Mitchell, 2003) (Nasir & Bal, 2016)
	BV2	I pay attention to promotion of hygienic products	
	BV3	I always buy products in promotion even though I did not have a plan to buy	
	BV4	Promotions makes me buy more products	
	BV5	I always save money while buying in promotions	
Brand Switching (BS)	BS1	I would change the brand with any product that is in promotion	
	BS2	I usually change hygienic products to try other brands that are being promoted	
	BS3	I always try different brands that are in promotion	
Price Discount (PD)	PD1	Price discount always attracts me to the hygienic products	(Nasir & Bal, 2016) (Osman et al., 2011)
	PD2	I think that Price discount save me money	
	PD3	I buy more products when there are with Price discount	
Buy 1 get one for free (BGF)	BGF1	I usually buy products that are 1 + 1 for free	(Nasir & Bal, 2016) (Yang, 2009) (Osman et al. 2011)
	BGF2	I think that products offered 1 + 1 for free are good	
	BGF3	I think that I save money whn I buy 1 + 1 for free	
Free Sample (FS)	FS1	Free samples of hygienic products then make me buy the product if I like it	(Yang, 2009)
	FS2	Free samples help me decide more easily about the brand in the future	
Free Gift (FG)	FG1	Hygienic products that offer extra gifts immediately attract me	(Yang, 2009)
	FG2	I would chose the brand that offers the gift attached to the product	

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Enterprise Support Services Among Forcibly Displaced Refugee Women Entrepreneurs in Glasgow



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Abstract This study intends to critically assess the mainstream enterprise support service provider agencies in Glasgow. A topic fits with the conference track “*Entrepreneurship, Innovation and Family Business—Women entrepreneurship*”. The literature review suggested that enterprise support agencies tend to not only lack engagement with displaced women entrepreneurs (Mwaura, S., Levie, J., Lassalle, P., Stoyanov, S., & Carter, S. “Taking Steps to Combat Barriers to Ethnic Minority Enterprise in Scotland” 2018; Edwards et al., 2016; UNHCR, 2021; Savazzi et al., 2020; Abebe, in J Small Bus Econ 60:315–350, (2023)) but also displaced women entrepreneurs do not trust these agencies (Nijhoff, K., (2019) “Support Programs for Entrepreneurial Refugees in the Netherlands. An Overview of Practical Experience”, The Hague University of Applied Sciences.https://www.researchgate.net/publication/342040577_SUPPORT_PROGRAMS_FOR_ENTREPRENEURIAL_REFUGEES_IN_THE_NETHERLANDS_An_overview_of_practical_experiences. (Accessed on 18th 03. 2023).; Bikorimana & Nziku, 2022). A qualitative research study based on semi-structured, face-to-face interviews with seven mainstream enterprise agencies responsible for providing business support services in Glasgow was conducted. These study findings reveal poor engagement due to immigration constraints; lack of social network; as well as lack of contact with displaced women entrepreneurs.

Keywords Enterprise support • Women entrepreneurs • Support agencies • Refugee • Forcibly Displaced • Glasgow

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1 Introduction

Globally, the displaced population continues to rise, reaching a record high of 32.5 million (UNHCR, 2023), causing a humanitarian disaster that affects both developing and developed countries. For many decades, wars, conflicts, and violence were observed in developing countries, particularly in Asia, Africa, and South America, but with the Russian invasion of Ukraine in 2022, the Ukrainian displaced population reached a record high of 8.1 million across Europe (UNHCR, 2023). Due to this invasion, Scotland offered resettlement to 23,000 Ukrainian people under the “Homes for Ukraine” scheme that was launched in March 2022 (Scottish Refugee Council, 2023).

In comparison to Scotland’s dispersal policy implementation, Meer et al. (2018) suggested that since the year 2000, Scotland accommodated an estimate of 20,000 forcibly displaced people (approximately 10%) of the UK’s total asylum applicants under the dispersal policy. Majority of these asylum seekers and refugees from 70 different countries were housed in Glasgow (the Convention of Scottish Local Authorities (COSLA, 2022)). In 2000, Westminster introduced a dispersal policy designed to “*spread the burden*” of housing asylum seekers across the UK on a no-choice basis and to discourage long-term settlement in London and South-East England (Stewart & Shisheva, 2015). Glasgow was the first Scottish local authority to sign such a contract with the Home Office (Meer et al., 2018).

This study investigates the lack of provision of business support services among displaced women entrepreneurs located in the geographical area of Glasgow, Scotland. The current provision of business support services to different communities in Scotland is delivered by several mainstream agencies. However, existing studies conducted in Scotland have criticised those agencies, suggesting that they lack effective engagement with the wider disadvantaged groups such as women, young people, minorities, immigrants, and displaced women entrepreneurs (Mwaura et al., 2018, 2019; Bikorimana & Nziku, 2022; Deakins et al., 2009).

Furthermore, entrepreneurship studies carried out in Scotland stress that market failure exists in the provision of business support services, characterised by red tape and inadequate alignment between the agencies and policies and operations they abide by (Scottish Government, 2017). Arshed (2021) found that the founders of women-led businesses lack access to information, lack appropriate support, and suffer from a gender gap. The issue of market failure to provide appropriate business support has been well documented by other authors, with Carter et al. (2015) revealing there to be a market failure and government failure in upholding ethnic minority women entrepreneurs and their enterprises. Arshed and Danson (2016), meanwhile, noted that small firms in certain sectors face constraints in developing and attracting investment, and as a result, the government needs to assist them in reaching their full potential.

Improving engagement with the target group can be beneficial for both business agencies and displaced women entrepreneurs alike since they can increase the take-up of services, create new jobs, and improve the relationship between

government support agencies and displaced women entrepreneurs. In return, those women entrepreneurs will be able to access mainstream support and contribute to the economic growth of Glasgow.

1.1 Study Aim and Objectives

This study aims to critically assess support provided by mainstream business support agencies in Glasgow. In order to understand the difficulties faced by enterprise agencies in supporting effectively displaced women entrepreneurs to establish their ventures, three objectives were set.

1.2 Study Objectives

To achieve the proposed aim, the following three objectives were set:

1. To critically investigate barriers mainstream business support agencies, face to engage with displaced women entrepreneurs.
2. To critically identify factors that contribute towards increased participation of displaced women entrepreneurs partaking in services delivered by business support agencies.
3. To provide recommendations to policymakers and local authorities towards the implementation of a new strategy for effective engagement with displaced women entrepreneurs.

This paper is organised into multiple sections where the first part presents the introduction, the second part is the literature review; the third section is research methods. The fourth part presents the research findings, section five the discussion of findings, and the sixth section presents the conclusion of the research study, followed by implications and limitations.

2 Literature Review

Over the past few decades, entrepreneurship has been recognised as the engine of job creation (Brieger & Gielnik, 2021), an essential driver of societal health and wealth (GEM, 2021), and an engine of economic growth (Gimenez-Jimenez et al., 2020). It promotes innovation and productivity (Rose, 2017) and addresses some of society's greatest challenges. The reduction of exclusion and social inequalities (Ram & Jones, 2008; Wishart, 2018) poverty alleviation (Federation of Small Businesses (FSB, 2018)) offering income equality (OECD, 2021), providing support for

social and economic intergration of forcibly displaced refugee women entrepreneurs (Heilbrunn et al., 2018).

Several scholars suggested that government entrepreneurship and enterprise policies are poorly formulated as they are badly designed, they fail to achieve a clear objective, and such enterprise policy lacks effectiveness (Arshed et al., 2014; Mason, 2009; Shane, 2009). However, other scholars, recognising that the enterprise policy is ineffective, have moved away from trying to assess it based on its implementation, monitoring, and evaluation. Shane (2009) and Storey (2000b) argued that some of the government interventions are “*bad*” policies, and to this extent, the study of Carter et al. (2015) found that there is a market failure that justifies the provision of specialist business support for ethnic minorities and women entrepreneurs.

The rationale for government intervention to provide business support to the most disadvantaged groups (young people, women, disabled, ethnic, immigrant, and displaced entrepreneurs) can be explained by the existence of market failure (European Carter et al., 2015; Commission, 2014; OECD, 2021). The European Commission (2014) revealed that the provision of advice to SMEs can be restricted by market failure, arising when such advice is perceived to be of insufficient value, or when the private sectors believe that they cannot make a commercial return even where there is a demand or need for a service.

A recent study conducted by Johnston et al. (2022) revealed that mainstream agencies are not well equipped to engage with women entrepreneurs in the UK, and those women receive less support. This causes more barriers to business creation and success. Other studies indicated that enterprise providers in the UK use gender blindness (Johnston, 2019), while gender bias and lacking access to business support services were reported to be barriers faced by women entrepreneurs (Halabisky, 2018; Rose, 2017). The OECD (2021) study highlighted that mainstream business support agencies in Scotland were not offering appropriate support required by women entrepreneurs because those businesses fail to meet the eligibility criteria such as a lack of high turnover, limited projected growth, or scale-up; women entrepreneurs are found in no high-growth sectors. Following Brown and Mason (2013) stressed that policymakers need to support existing businesses because they are the main generators of future high-growth firms. Arshed (2021) suggested that enterprise providers in Scotland practically use a “one size fits all” client approach. Such an approach was perceived as not suitable for all businesses including women suggesting that those enterprise agencies need to implement tailored programmes to meet the need of women and underrepresented groups Scottish Parliament (2019).

Ram et al. (2017) work indicated that there is a lack of government funding to support existing specialist agencies which provide effective interventions to help new migrant entrepreneurs to establish new ventures in the UK. Scott and Irwin (2009, page 241) found that ethnic minority, immigrant, and ethnic women entrepreneurs face persistent “discouraged advisees” and do not trust mainstream agencies. Evidence from GEM (2021) stated that women entrepreneurs in Europe are usually less engaged in high-growth entrepreneurship than women in most parts of the world, while Anyadike-Danes et al. (2015) found that the majority of jobs in the UK are created by small companies. A report from the Scottish Government

(2017) revealed that there should be a clearer and simpler pathway for firms which are new to business support agencies to ensure that they know what support available and which agency was offering such services.

Existing studies suggested that to increase participation and take up mainstream business support services among disadvantaged groups, there is a need to improve the supply side of mainstream agencies. This means that mainstream agencies need to act and deliver business support services to all members of the communities they serve (Blackburn & Smallbone, 2015) or build solid working relationships with leaders, existing businesses, and specialist agencies run by ethnic minority organisations (Deakins et al., 2009; OECD, 2021; Ram et al., 2012). Such initiative helps to win the trust and develop better engagement with disadvantaged groups (Bikorimana & Nziku, 2022; Mwaura et al., 2018; Bikorimana & Whittam, 2019; Abebe, 2023; Ram et al., 2022).

2.1 *Institutional Theory*

This investigation focuses on institutional theory as a lens to examine constraints faced by mainstream agencies in engaging with displaced women entrepreneurs in Glasgow. North's (1997) work shows that institutions are the primary source of economic development of any country, and over the past few years, institutional theory has been used to describe entrepreneurial behaviour. It is pertinent here because we need to find out about challenges and issues faced by enterprise providers and understand why gaps continue to exist. The institutional theory also underscores the significance of the setting or environment that constrains, shapes, penetrates, and renews the organisation's social, political, and cultural systems (Scott, 2001).

North's studies (1990, 1994, 1997) revealed that institutions create and establish the norms, rules, constraints, and incentives that function as tools of governance for exchanges among individuals. Others suggested that formal and informal institutions interact together to boost entrepreneurial behaviour, and the influence of formal institutions can be supported by the informal institutions (Aparicio et al., 2016; North, 2006, 1997, 1990; Smallbone & Welter, 2012). Scott (2014) proposes that there are three pillars of institutional forces, the regulative, normative, and cognitive pillars.

The regulative pillar assumes that entrepreneurs obey the rules of the game, meaning that businesses are required to follow rules with the government able to shape or restrict the development of enterprise. The normative pillar refers to the prospects, values, and standards that reinforce and impact start-up and entrepreneurial behaviour. The Cultural-cognitive pillar represents the values that are recognised in shaping entrepreneurial behaviour of individuals towards accepting entrepreneurship as a viable career path or a means of making a living by preparedness for embarking on the entrepreneurial venture. (Nziku and Henry, 2020). According to Su et al. (2017), institutional theory suggests that entrepreneurs must conform to existing institutions'

Table 1 Mainstream agencies involved in this study

Mainstream agencies	Respondent functions	Codes
Jobs and business Glasgow	Business advisor	P01
People plus	Business advisor	P02
Transmit loans provider	Start-up business advisor	P03
Microfinance loans provider	Development officer	P04
Department of work and pensions	Manager	P05
Glasgow city council	Manager	P06
Scottish enterprise	Manager	P07

Source Researchers (2022)

rules to gain support, legitimacy, and resources. In this paper, we anticipate examining how mainstream agencies support or restrict displaced women entrepreneurs and uncover their experiences.

3 Research Methods

A qualitative research study consisting of semi-structured, face-to-face interviews was conducted in Glasgow from June to October 2022 with seven mainstream agencies. All interviews were organised into three categories. The first category involved three managers, responsible for delivering business support services to all entrepreneurs. The second category involves two business advisors who provide information and advice to start-up and early-stage growth companies. The third category comprises one development officer (microfinance institutions) and one start-up business advisor (start-up loan provider). Purposive sampling was used to select seven respondents from mainstream agencies (Smith & Osborn, 2008), with those agencies agreeing to participate in this study due to the research team which has established robust working relationships with those institutions. The table below shows the name of the mainstream agencies involved in our study and the function of the respondents who agreed freely and gave consent to participate in this study. Two more mainstream agencies declined our invitation to participate in this study. All interviews were audio recorded and transcribed (Table 1).

4 Data Analysis

Data analysis was conducted by reading and re-reading all transcripts to familiarise with the data, and more time was spent coding. Creswell (2013) describes coding as the process of organising the data by bracketing chunks. Several codes were grouped into categories to form themes, which were then analysed and discussed by the

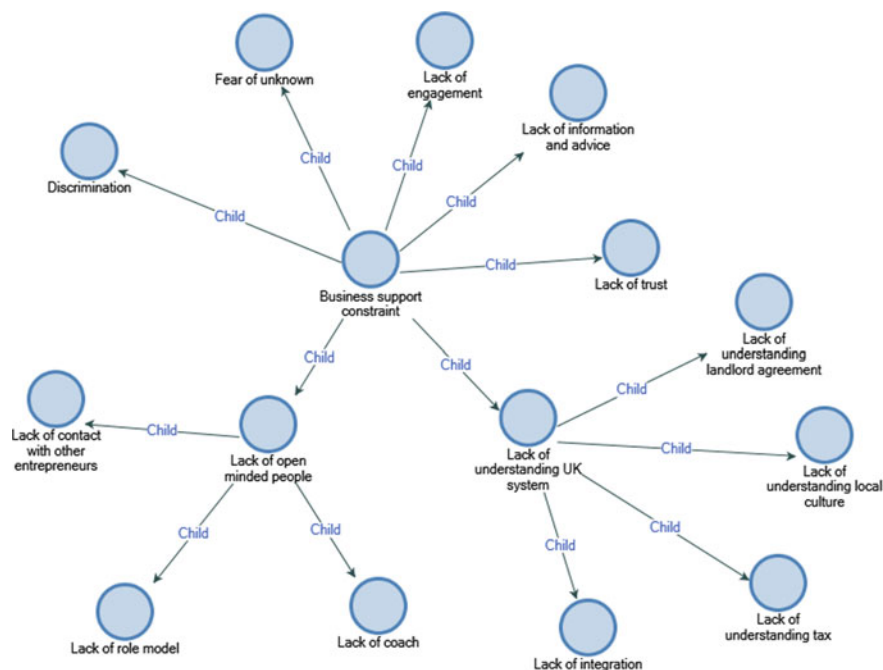


Fig. 1 Enterprise support agency constraints. *Source* Researchers (2022)

research team. The analysis of our data was conducted by using Nvivo 12 software, following Braun and Clarke's (2006) thematic analysis, the six steps' framework (Appendix 1: Table 3). All themes used in this study emerged from our data analysis (Figs. 1 and 2).

5 Findings

The findings of this study revealed that mainstream business support agencies experience several constraints on engaging with displaced women entrepreneurs.

5.1 Social Network Constraints

Data obtained from the interviews confirmed that enterprise agencies lacked engagement with the wider communities because government funding was cut. When asked about the source of the referrals, they replied that:

Our referrals come from Job Centre, Business Gateway and Jobs and Business Glasgow P02.

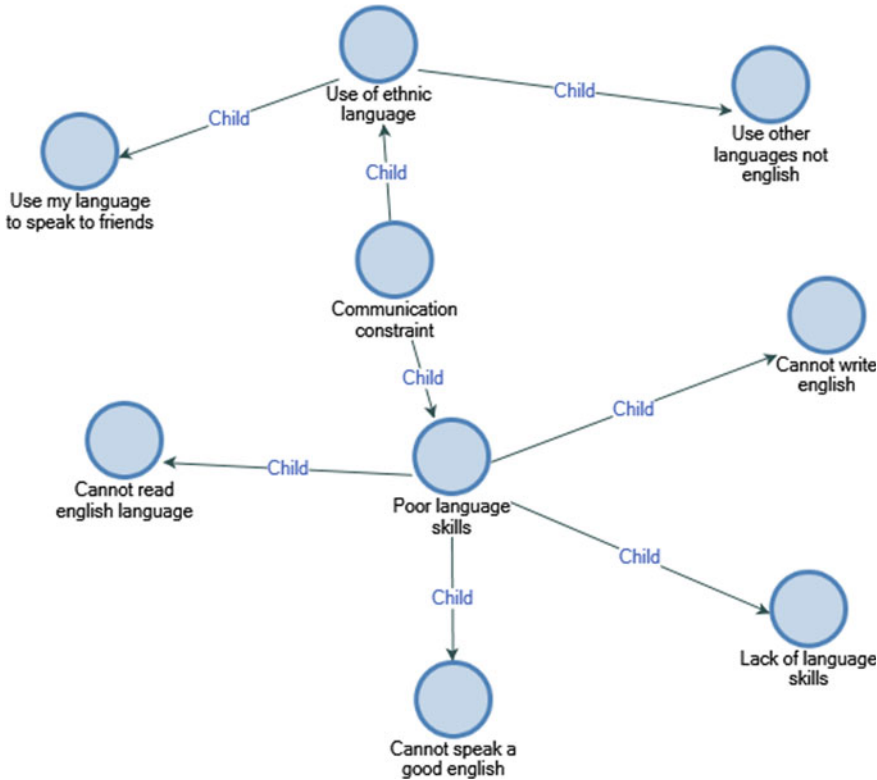


Fig. 2 Communication constraints. *Source* Researchers (2022)

Because we have a limited budget, we are not able to organise an enterprise event targeting ethnic people P01.

The interviews with mainstream business support agencies confirmed that they do not use role models, not used specialist agencies to engage with displaced women. Such absence of engagement may restrict access to information.

5.2 Immigration Constraints

All enterprise providers stressed that most displaced women entrepreneurs experienced issues related to immigration matters but cannot assist with their resolution.

One of the enterprise providers suggested that they cannot help people to renew their immigration status P04.

Before offering our grant funding, we check residence permit validity, and the claimant should have a valid residence permit. P06.

We denied offering a small loan to one of the displaced women because she did not have a valid residence permit, she had only 9 months to stay in the UK. P03.

Our interviews indicated that displaced women entrepreneurs with immigration issues related to short-stay residence permits were unable to access grant funding and were unable to access any microfinance loan.

5.3 *Racial Discrimination Constraints*

The interviews indicated that enterprise agencies were aware of Scotland's need to tackle racial discrimination, inappropriate behaviour, and unfair treatment and that the local authority in Glasgow is dealing with such issues.

I imagine that displaced women entrepreneurs still face discrimination in the ecosystem and evidence suggested that there was an indirect discrimination applied by banks and lenders and hopefully somethings have changed. P07.

In Scotland and across the UK, some groups like displaced and ethnic minority groups suffer from racial discrimination mainly in the deprived areas which have also fewer opportunities P05.

Racial discrimination exists in Glasgow, and this needs to be tackled. P06.

The interviews indicated that mainstream business support agencies recognise that hard work is required to eliminate discrimination and ensure that individuals are free to exploit their opportunities without fear, harassment, and racial discrimination.

5.4 *Finance Constraints*

Most enterprise agencies recognised that displaced women entrepreneurs face acute barriers to accessing external finance since they have limited savings, no collateral, no credit history, and no family to support them. The interviews with mainstream agencies revealed that unsuccessful applicants from displaced women entrepreneurs may believe that they were denied loans due to not meeting the eligibility criteria of lenders (Table 2).

If we have a displaced women entrepreneur applying for our loans, we need to check when the residence permit will expire, if the applicant has not had a long-term residence, we cannot offer the loan. P03.

Our finances are unrestricted, we don't discriminate. We don't do any background checks; have no credit score and require no collateral; only 5 guarantors are needed to access a loan of £1000, payable in 12 months and charged an interest rate of 26.95% which can be paid to the applicant in one week. P04.

We offer a loan to businesses, but such a loan is taken out as a personal loan rather than a business loan and the process to access such funding can take between 2 to 3 months.

For many businesses which lack funding, this is the right loan. Our start-up loans are UK government-backed loans for businesses seeking to borrow money between £500 to £25,000, charged a fixed interest rate of 6% per year, offered to anyone who is 18 years old and over, and repayable in 1 to 5 years. There is no penalty or charges to be paid if the loan is paid before the agreed term. P03.

Evidence obtained from the interviews shows that displaced women entrepreneurs were unable to access start-up loan funding even if backed by the UK government under the loans' guarantee scheme. During the interview with the start-up loan company, we asked if any successful cases had been funded by the agency, but an unsatisfactory answer was provided. Some agencies suggested that displaced women entrepreneurs are disadvantaged because they do not have access to any arranged overdraft facility, or credit cards, which other groups might have from their banks.

Table 2 Eligibility criteria for accessing loans to start up

1	Passing credit scoring
2	Checking personal affordability and business viability
3	Checking returned direct debits
4	Checking for unarranged overdraft charges
5	Checking if the entrepreneur is under debt management schemes
6	Checking if the entrepreneur is involved in gambling games
7	Checking the length of stay or immigration expiry date

Source Researcher (2022)

Table 3 Thematic analysis framework

Phase	Description of the process used to code our data
1. Familiarising oneself with the data	All interviews were transcribed, then we spent time reading each transcript and re-reading again the data and writing down the initial ideas
2. Generating codes	We started coding by identifying some aspects of the data that we assigned a descriptive label to allowing us to identify related content across the data
3. Searching themes	We coded all data and then examined all codes, opting to combine relevant codes to form themes
4. Reviewing themes	Checking all themes again to ensure that it fits with the coded extracts (Level 1) and the whole dataset (Level 2), creating a thematic "map" of the analysis
5. Defining and naming themes	We defined and refined all themes as part of our data analysis, and then we analysed the data within them
6. Producing the report:	Write up of the final report. Our paper provides appropriate evidence of the themes contained in the data. We offered enough data extracts to demonstrate the prevalence of the theme used

Source Braun and Clarke (2006, p. 87)

5.5 *Business Support Constraints*

Data obtained from the enterprise providers suggested that many displaced women entrepreneurs faced problems accessing information and advice due to their reluctance to engage, while others have trust and confidence issues.

In many cases, displaced clients turn in the office without an appointment and want to be seen, sometimes, they do not attend their appointments on time, they do not show up and do not cancel their appointments P02.

Some of my clients are reluctant to write their business plans. If they do not have a business plan, they cannot receive a grant of £250. P01

In order to meet our ethnic client targets, we work in partnership with other public organisations such as job Centre and Business Gateway. P02

The interviews with enterprise agencies raised several challenges faced by mainstream agencies, such as a lack of understanding of the UK system, and poor communication between agencies and displaced women.

6 Discussion of Findings

6.1 *Social Network Constraints*

The findings of this study indicate that displaced women entrepreneurs were less likely of having useful social networks in and out of Glasgow. The interviews with business support agencies revealed that displaced women entrepreneurs had limited access to a social network. The situation was due to a lack of contact with the local community in the city, as well as limited access to their families and friends. Similar findings were reported by Embiricos (2020), Mawson and Kasem (2019). Furthermore, researchers found a lack of engagement between business support provider agencies and the displaced minority women entrepreneurs; Stewart & Shisheva, 2015, argued that the lack of engagement between business support agencies and displaced people originates from the dispersal programme. Mainstream agencies stressed that social networks play a crucial role, with better-connected entrepreneurs who can access information and advice, learn about new opportunities, access suppliers, and obtain financial and non-financial support (Kloosterman et al., 2016; Bikorimana & Nziku, 2022).

In our research sample, two agencies reported that they lack funding to organise enterprise events, or even to cover the cost of childcare, preventing women entrepreneurs from attending their activities. Data from the sample show that mainstream agencies suggested that their referrals were from other public organisations. However, Johnston et al. (2022) study suggested that public organisations are not well suited to engage effectively with displaced women who want to be entrepreneurs.

Pattichis (2021) reported that Business Gateway lacks a clear identity, clear direction, lack clear communication between regions, and a lack of understanding of the customer base. The business support agencies in this study reported that most displaced women entrepreneurs were typically not embedded in informal networks, which consist of family and relatives and were unable to connect with wider ethnic networks. Other types of entrepreneurs, however, were found to use their social networks for recruitment of staff, sourcing suppliers, and accessing finance and information (Chliova et al., 2018; Lyon et al., 2007; Sarvimäki, 2017).

6.1.1 Immigration Constraints

The findings of this study signal that business service provider agencies are highly constrained to support displaced women because of their immigration status which they do not have control. Those agencies reported that most displaced women entrepreneurs have limited leave to remain, and Scotland does not have the power to legislate immigration matters. Following immigration policy, many scholars agreed that the immigration policy environment in the UK has become more hostile in recent decades (Goodfellow, 2020; Griffiths & Yeo, 2021) and our sample shows that displaced women are initially only granted temporary leave for five years. Such a restriction imposes barriers for displaced women entrepreneurs to access external funding. Similar findings were revealed by other authors who suggested that displaced entrepreneurs were not able to secure funding due to their immigration status (Lyon et al., 2007; Nijhoff, 2019).

6.1.2 Racial Discrimination Constraints

Findings from our study suggested that, mainstream business support agencies were aware of racial discrimination facing forcibly displaced refugee women entrepreneurs while accessing labour market. Refugee women entrepreneurs are prone to red tape and bureaucracy that requires them to fill in many paperwork and wait longer even for obtaining minimal grant. Our findings were supported by other scholars that showed red tape, perceived discrimination and bureaucracy imposed by the enterprise agencies to exist, with those authors suggesting that enterprise agencies must tackle these challenges and provide real solutions (Johnston et al., 2022; Lazarczyk-Bilal & Glinka, 2021; Scottish Government, 2017). Some agencies cited two cases where women entrepreneurs experienced racial discrimination in their shops in Glasgow. Other studies reached similar conclusions, stating that racial discrimination is a major obstacle in Scotland, and often, displaced entrepreneurs living in deprived areas of Glasgow have experienced racial discrimination (Bikorimana et al., 2018; Mwaura et al., 2018). Ishaq et al. (2010) suggested that racism is a problem faced by most ethnic minority business owners in Glasgow.

6.1.3 Finance Constraints

Our interviews with the business support agencies indicated that the lack of involvement in enterprise activities can be explained by the difficulties faced by displaced women entrepreneurs in accessing start-up funding. Similar results were found in other studies, where business support agencies reported that new migrant entrepreneurs were found to share the same constraints related to lack of finance, sector distribution, and lacking recognition of their role in the economy (Ram et al., 2022; Jones et al., 2015). All agencies in our sample suggested that displaced women entrepreneurs found difficulties when accessing start-up funding due to not having collateral, credit history, or sufficient savings, and with no access to overdrafts, credit cards, or other facilities accessible by other entrepreneurs in their start-up stage. This aligned with the findings of Richey et al. (2021), Betts et al. (2014), Smith et al. (2019), and the OECD- European Commission (2021). Other studies indicated that women have less access to start-up funding compared to male entrepreneurs (OECD, 2021; Rose, 2017; Bikorimana & Nziku, 2022; Bikorimana & Whittam, 2019). All enterprise agencies interviewed in our sample cited finance as a major barrier faced by displaced women entrepreneurs who are granted temporary leave to remain, and similar results were mentioned by other authors (Carter et al., 2015; Kone et al., 2020; Nijhoff, 2019).

6.1.4 Business Support Agencies' Constraints.

The findings of this study indicated that our sample of business support agencies was found to not engage with displaced women entrepreneurs. Following the Scottish Parliament (2019), it was reported a lack of transparency, accountability, and alignment with Business Gateway services, while the Scottish Government (2017) reported that the provision of business support services which was inconsistent. A lack of trust, poor communication, a language barrier, and no staff from ethnic minority groups to reach out to the target groups were found to exist. Similar findings were found by other authors, who stated that enterprise agencies are not adequately equipped to engage with ethnic entrepreneurs due to lacking understanding of the culture and businesses led by displaced people (Wishart, 2018; OECD, 2021; Bikorimana & Nziku, 2022; Nijhoff, 2019; Lyon et al., 2007). Our sample revealed that they experienced issues related to cultural sensitivity, as some women were reluctant to engage with male business advisors, in favour of female advisors. Similar findings were also reported by other authors who suggested that women prefer female business advisors due to their culture and religious beliefs (Lyon et al., 2007; Mwaura et al., 2018; Ram & Smallbone, 2001).

On issues related to referrals, enterprise agencies cited that their referrals come from other public organisations they work with, such as Job Centre Plus and Business Gateway. A study conducted by Kone et al. (2019) found that the use of public agencies such as job centres is not a particularly effective channel for gaining a good referral. Our sample shows there to be a lack of useful working relationships with

the wider ethnic organisations across Glasgow and no effective bridge for referring potential entrepreneurs from displaced communities to join enterprise providers. Similar findings were reached by other authors, who found a market failure that justifies the need to offer specialist business support services to displaced women (Carter et al., 2015; Deakins et al., 2009; Ram et al., 2012).

Evidence from our empirical study revealed that business support providers lack resources (start-up funding) and are focused to meet targets rather than providing an effective engagement with displaced women entrepreneurs. Our findings are supported by other studies which revealed that business support agencies put efforts to meet their contract targets rather than offering clear solutions (information, support, and advice) to their displaced clients (Arshed et al., 2016; Ram et al., 2012). We discovered that some business advisors were frustrated because they could not effectively help their clients to source funding. Our results are supported by other studies revealing that there is frustration on both sides because of a lack of government resources and bureaucracy (Arshed et al., 2016; Johnston et al., 2022; Ram et al., 2012).

The interviews with enterprise support providers found that displaced women entrepreneurs are hard to engage with, and hard to reach, particularly as enterprise providers do not engage effectively with ethnic agencies. Our findings are supported by other scholars who recognised the same in displaced women (Adeeko & Treanor, 2022; Ram et al., 2008). We found that many enterprise agencies had no staff members from the same ethnic background that could access or facilitate engagement with the wider ethnic groups. Blackburn and Smallbone's (2015) study revealed that enterprise agencies should hire staff members from the wider communities to reach out to the community they are seeking to serve. Other studies indicated that business support agencies can improve their engagement with diverse groups if they use co-ethnic business advisors, known and trusted within the community (Bagwell, 2006; Mwaura et al., 2018). A study by Ram and Smallbone (2001) revealed that barriers to engagement are linked to a lack of identifying and reaching the client groups, inadequacy of databases, and a lack of confidence and trust in those delivering support.

6.2 *Influential Factors*

To increase women's participation in enterprise promotion

The results of this study revealed that if mainstream agencies want to increase the take-up of their services among ethnic, immigrant and displaced women entrepreneurs, they need to use different strategies as a “one size fits all” approach has not worked well.

6.2.1 Influential Factor

Use of open-minded entrepreneurs and role models

Several studies have shown that the use of open-minded entrepreneurs and role models may increase confidence, trust, and participation in hard-to-reach services delivered by enterprise agencies (Arshed, 2021; Lazarczyk-Bilal & Glinka, 2021; Rose, 2017). This requires the creation of a supportive environment that provides opportunities to all individuals in our society. The use of like-minded entrepreneurs and role models can play a crucial role in encouraging other potential entrepreneurs to take a positive attitude towards entrepreneurship, and it is recognised that they can boost other individuals' confidence and trust, empowering them to establish their ventures. Evidence suggests that many displaced people used to run their own companies back home, with a little help and support from the enterprise networks, and so they may opt to launch similar businesses or open new ones. Some studies show that individuals who used to run their businesses back home may take the opportunity to do the same in the host country if the environmental conditions permit (Alexandre et al., 2019; Demir, 2018; Kachkar, 2019). A study conducted by Rose (2017) among women in the UK suggested that women feel confident in running their businesses when they meet like-minded people (65%) and feel most confident when they see another women entrepreneur succeed (49%).

6.2.2 Influential Factor

Staff recruitment and specialist business support agencies

Data obtained from this study highlighted that if mainstream agencies adopted an attitude of recruiting new staff members among the new communities, or displaced people that are trusted and well-known by their communities, this would increase the participation of displaced women. Following Blackburn and Smallbone (2015), mainstream agencies should recruit new employees from the wider communities to ensure that they can support everyone who wishes to establish a venture. Such an approach can help win the trust of displaced women as well as build trust between the business adviser and the client's business. Ram et al.'s (2012) work suggested that mainstream agencies need to tackle the issue related to the lack of participation of ethnic, immigrant, and displaced people by focusing on offering contracts to specialist, community-based organisations that engage with those disadvantaged clients. However, for political reasons and changes in enterprise policy, many specialist provisions lost their contracts for delivering business support to their communities (Sepulveda et al., 2010). The research team recognises that funding should be allocated by the Scottish Government to support the development of displaced women entrepreneurs, rather than *cutting* the budget, since this has been a bad experience.

6.2.3 Influential Factor

Change in immigration policy

The interviews revealed that without a change in the immigration rules, the development of businesses managed by displaced women entrepreneurs may happen slowly due to restrictions imposed by the UK Government. In terms of immigration rules, displaced women have, since 2005, been granted temporary leave to remain for five years. Previously, the UK Government granted those seeking international protection indefinite leave to remain before replacing it (Stewart & Mulvey, 2014; Meer et al., 2020). This measure was imposed to reduce the number of claims related to international protection (Stewart & Shisheva, 2015). Evidence suggests that individuals granted temporary leave to remain may not be able to obtain a loan due to their immigration restrictions. Several authors reported that in the case of immigrant matters, many displaced entrepreneurs granted temporary leave to remain face uncertainty, deterring investment and entrepreneurial activity (Desai et al., 2020; Kone et al., 2020; Lyon et al., 2007). Other studies stressed that displaced women entrepreneurs granted temporary leave, continue to face uncertainty, and are discouraged from considering entrepreneurial opportunities due to not knowing the outcome of their immigration case (Harima et al., 2021; Lazarczyk-Bilal & Glinka, 2021).

6.2.4 Influential Factor

Offering better access to finance

The interviews conducted among mainstream agencies suggested that many entrepreneurs face constraints in accessing finance, but displaced women entrepreneurs face acute barriers to establishing their ventures. Those agencies recognised that the UK and Scottish Governments should revisit their integration and immigration policies to allow individuals granted leave to remain to prepare their long-term plans. This should be facilitated by the introduction of a loan scheme guarantee, or by expanding the existing start-up loan scheme by recognising that displaced entrepreneurs are also contributors to the UK's economic growth. As such, they should be given the same opportunities to access finance. The lack of access to finance is a major constraint on the development of displaced women businesses, since, without it, those businesses will remain small and will be unable to create enough jobs or employ more people (Bikorimana & Nziku, 2022; Carter et al., 2015; Leitch et al., 2018; Ram et al., 2017).

7 Conclusions, Implications, and Recommendations

This study aimed to critically evaluate support provided by mainstream business support agencies in Glasgow, and three objectives were set. This paper contributes to improving the knowledge related to mainstream business support agencies in Scotland. Our first research objective was to investigate barriers that mainstream business support agencies face to engaging with displaced women entrepreneurs. The findings of this study revealed that mainstream agencies experienced several difficulties to engage with displaced women entrepreneurs. We found that business service providers' agents in Glasgow had little engagement with the target groups and were not resourced to provide the support required by displaced women entrepreneurs. The results of this study show that business support services had poor communication, had no robust referral system, and have not used ethnic agencies or recruited staff from the same communities to facilitate participation. Data from the interviews with enterprise providers show that mainstream agencies use the "ethnic blind" mainstream approach; however, such an approach ignores the unique challenges that displaced women entrepreneurs face while seeking to establish their ventures which may prevent them to benefit from interventions.

The interviews with those agencies suggested that business support providers had poor networks with the ethnic organisations, and they did not organise any enterprise events or use role models to engage with the desired clients. We found that those agencies have used a "*one size fits all*" approach, which has not worked well at meeting the needs of displaced women entrepreneurs. Additional barriers observed in this study were linked to a lack of finance, problems linked to a lack of understanding of displaced women's culture and language, no social networks, lack of engagement with business support, and lack of awareness of immigration issues.

The second objective of this study is related to identifying influential factors that can contribute to increased participation of displaced women entrepreneurs by taking up services delivered by business support agencies. The findings of this study identified key influential factors that need to be implemented to alleviate those constraints identified. To improve partake business support among displaced minority women entrepreneurs, business support providers need to use and deliver their interventions in the minority communities, using a like-minded entrepreneurs, and role models and recruiting staff members from a similar ethnic backgrounds, revise the immigration policy, and provide better access to finance.

The third objective of this study was to provide recommendations for policymakers and local authorities towards the implementation of a new strategy for effective engagement with displaced women entrepreneurs. Evidence of this empirical study shows that there is a market failure to provide effective mainstream services to all communities in general and to displaced women entrepreneurs to ensure that nobody is left behind to participate in public service.

7.1 *Implications*

This study is aimed at shedding the light of the business support services for displaced minority women entrepreneurs. The study findings suggest that business service providers' operations are aimed to ensure that public goods are offered to all communities across Scotland. We recommend that the Scottish Government (and local authorities across Scotland) should review the delivery of mainstream business support agencies to ensure that all communities are fully supported and assisted while seeking to establish their ventures. They should also introduce a new entrepreneurship and enterprise policy that aims to support the development of ethnic groups, including displaced women entrepreneurs. Without introducing a transformational landscape for strengthening the development of wider enterprise in communities in general, and businesses led by displaced women entrepreneurs in particular, their businesses may grow slowly, with slow job creation also seen.

The research team recommends that the Scottish Government needs to provide access to finance to ensure that people who need start-up funding with viable business plans are capable to be funded to ensure that they can create better jobs and shape Glasgow's economic growth. Practically, Scotland lags behind other developed countries in the EU, Canada, Israel, and the USA, and this could be overcome only by creating political and socio-economic conditions that allow all diverse entrepreneurs to access support and finance. The research team believes that displaced people need international protection as they have lost the protection of their states. For this reason and based on humanitarian protections need, the UK Government should reverse their decisions to grant displaced people temporary leave to stay by replacing it with indefinite leave to remain to allow them to plan their long-term resettlement which can facilitate access to finance.

7.2 *Study Limitations and Recommendations for Further Studies*

The current study has several limitations from the sample size, which is very small, hence limiting the generalisability of the findings. This is together with the geographic coverage of the study; subsequently, our research sample was based on Glasgow only, the single location limits also generalisability as Scotland has 32 local authorities and business support services are delivered by both local authorities and private contractors. Furthermore, researchers in this study recommend on the need of investigating the lack of engagement of women entrepreneurs by including another immigrant from different ethnic backgrounds. The fourth limitation is linked to the method used to carry out this investigation. For this reason, the research team suggests that further research should use a mixed-method approach to investigate this lack of engagement to meet the needs of displaced women entrepreneurs. Further research should include other stakeholders such as commercial banks and other lenders. Finally,

further research should also include third-sector organisations because they provide integration support to displaced people in Scotland.

Appendix 1

See Table 3.

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Examination of Decision-Making Processes in the Context of Framing Effect: The Case of Yildiz Technical University



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Abstract The theoretical debate between traditional economics and behavioral economics centers on the extent to which human decision-making is influenced by rationality versus psychological biases. Behavioral economics posits that decision-making is affected by a range of factors, including psychology, which limit rationality. The framing effect is one such factor, whereby the presentation of information in either a positive or negative manner can influence decision-making. This study aims to explore the extent to which the framing effect influences decision-making. To this end, an online survey was conducted with 119 students from Yildiz Technical University's finance and engineering departments, with the hypothesis that finance students, due to their exposure to rationality theory, would be less influenced by the framing effect compared to engineering students. Data collected from the survey were analyzed using frequency tests, chi-square tests, and correlation analysis. The findings reveal that finance students tend to exhibit more rational behavior and are less susceptible to the framing effect compared to their engineering counterparts.

Keywords Behavioral economics · Framing effect · Rationality

1 Introduction

Nothing is perfect, and economics is among them. Because some things in life cannot be explained mathematically. Therefore, problems bring with them new solution methods. Perhaps this is how we can define the relationship between traditional economics and behavioral economics. So much so that behavioral economics tries to complete the deficiencies or faults of traditional economics. These two schools, which used to be in great conflict because behavioral economics tried to completely change the science of economics, today have a slightly better relationship, although

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behavioral economics is still not fully accepted. The reason for this is that the behavioral economics school is in a better position today and the number of researchers interested in this school is increasing day by day.

One of the biggest criticisms of behavioral economics to traditional economics is the rational human phenomenon, which is one of the important assumptions of traditional economics. The criticism brought by behavioral economics to this assumption is that it argues that human behavior will move away from rationality, especially due to the psychology factor. At this point, we come across an important question that we can ask ourselves: “Do we really act rationally in our choices or do we make guided choices?”.

The study comprises four parts. The first part defines and provides a historical overview of behavioral economics, while the second section explains the framing effect, which is a significant psychological bias affecting decision-making. The third section highlights the study’s objectives and methodology, followed by an empirical application of the framing effect, where statistical analysis was used to approach the results. In the fourth and final section, a general evaluation of the participant questionnaire results is presented.

The study’s aim was to investigate the decision-making behavior of two distinct groups of individuals: finance students, who are assumed to possess a higher level of information regarding decision-making processes, and engineering students, who are hypothesized to possess relatively lower knowledge. Specifically, the study aimed to examine how these groups made decisions under the influence of the framing effect. Furthermore, the study also examined whether there were variations in the rational behavior of these groups based on gender and age factors.

2 Behavioral Economics

One of the primary criticisms of conventional economics is its reliance on highly mathematical and often overly simplistic assumptions. One of these assumptions is the notion of “*Homoeconomicus*,” which posits that individuals are rational actors who always act in their own self-interest and never make systematic errors in their decision-making processes. As a response to these limitations, the field of behavioral economics has emerged, which recognizes that individuals may act with limited rationality and may not always make perfectly rational choices. The central goal of behavioral economics is not to supplant traditional economics, but rather to enhance our understanding of economic behavior and provide more nuanced and accurate models of human decision-making (Cartwright, 2011).

Behavioral economics refers to the merge of the fields of economics and psychology, which has not been an easy integration process. A historical examination reveals that psychology was initially considered to be a crucial factor in economics until the early 1900s. However, the rise of positivism in economics transformed it into a science focused primarily on numerical analysis from the early 1900s until the 1980s. The traditional economics community long disregarded the role of

psychology in economic behavior, a bias that the proponents of behavioral economics have attempted to address. These efforts have taken into account criticisms made by influential economists such as John Maynard Keynes regarding the importance of psychological factors in consumer behavior (Akerlof, 2002).

Despite garnering attention from many economists, behavioral economics was not able to make a significant impact in its early stages due to the initial proponents of what is called “old behavioral economics.” These early proponents took a rejecting approach to the concept of rationality and sought to revolutionize economics entirely. As a result, they were unable to make significant changes to traditional economics. However, the emergence of “new behavioral economics” with the contributions of Daniel Kahneman and Amos Tversky took a different approach. Rather than rejecting the concept of rationality entirely, they proposed that individuals may behave with limited rationality and sought to convey their views within the framework of rationality (Kahneman, 2003).

The introduction of the “expectation theory” by Daniel Kahneman and Amos Tversky has played an important role in the development of behavioral economics. This theory posits that human behavior can change according as whether they are in a win or loss situation, meaning their rationality can become impaired. Specifically, individuals tend to act more confidently when they stand to win something and are generally more inclined to take risks when facing a potential loss. As the likelihood of loss increases, individuals tend to take even more risks (Tversky & Kahneman, 1979).

One of the fundamental assumptions of behavioral economics is that economic behavior is influenced by various factors, particularly psychology. The psychological effects that impact decision-making, known as “heuristics” in the literature, can take various forms and can lead individuals away from rationality. The framing effect is one of the most critical of these effects.

3 Framing Effect

The inclinations of individuals may fluctuate depending on the circumstances in which they find themselves. In situations of gain, individuals tend to act more confidently, while in situations of loss, they tend to engage in more risky behaviors. The framing effect suggests that individuals can alter their decisions by focusing on the positive or negative senses of the options presented to them during the decision-making process. This means that when the same options are presented in different ways, different outcomes can be observed. One of the most significant experiments on the framing effect was conducted by Kahneman and Tversky. In the experiment, students from Stanford University and the University of British Columbia were asked to specify their preferred options in two scenarios (Kahneman & Tversky, 1984).

An unexpected virus emerging in Asian countries is estimated to kill 600 people in the USA. There are two different treatment methods regarding the treatment of this virus. The first scenario is as below:

- If option A is implemented, 200 people will be saved.
- If option B is applied, there is a 33% probability that everyone will be saved, and a 66% probability that no one will be saved. Which option would you choose?

While 72% of the participants preferred option A, only 28% preferred option B. (152 Participants)

In this scenario, the vast majority of the participants perceived the phrase “save” as positive and focused their choices on option A, which is a more guaranteed option, associating it with the earnings situation. In this context, the second scenario directed to the participants is as follows:

- 400 people will die if option C is implemented.
- If option D is applied, there is a 33% probability that no one will die, and a 66% probability that everyone will die. Which option would you choose?

While 78% of the participants chose option D, only 22% chose option C. (155 participants)

In this scenario, again, a very large part of the participants perceived the expression “to die” negatively, and they focused their choices on option D, which is a more risky option, associating it with the situation of loss.

When we look at the results of the experiment, the students thought that they would choose different scenarios under the framing effect, but we can say that the two scenarios asked to them were the same. For example, considering that 600 people are affected by the virus, if 200 people are saved in option A, 400 people will die. However, if 400 people died in option C, 200 people would likewise be saved. So, both options are the same. The same is true for options B and D. Due to the framing effect, the students evaluated the probabilities as losses and gains and made their decisions accordingly. Consequently, most of the decisions made were different from what rational behavior would dictate.

Thaler (1985) delved into the role of wins and losses in shaping decision-making processes. The writer posits that wins and losses arise from two distinct sources: The first is characterized by simple emotional responses, while the second emanates from preferences that emerge when confronting uncertainty. Nonetheless, previous experiences with wins and losses can influence how individuals respond to future loss situations. Thaler’s research on the framing effect spanned several studies, one of which involved presenting participants with two versions of the same scenario and soliciting predictions about which version would elicit greater happiness or sadness. Despite both versions representing statistically identical circumstances, participants perceived that one person was happier while the other was sadder.

- Person A buys lottery tickets. He earns \$50 from one ticket and \$25 from another ticket.
- Person B buys a lottery ticket and wins \$75.

Who is happier? (A: 56), (B: 16), (No difference: 15)

- Person A receives a letter during the day and learns that a mistake has been made in the tax calculation, so he has to pay an additional \$100. Person A receives another letter from the government on the same day and learns that he has to pay 50 dollars in tax. He has to pay a total of \$150 and has no chance to dispute taxes.
- Person B receives a letter during the day and learns that a mistake has been made in the tax calculation, so he has to pay an additional \$150.

Who is more upset? (A: 66), (B: 14), (No difference: 7)

- Person A buys a ticket for the first time and earns \$100. However, when he returns to his rented house, he accidentally renders the rug unusable and has to pay the landlord \$80.
- Person B buys a ticket for the first time and earns \$20.

Who is happier? (A: 22), (B: 61), (No difference: 4)

- Person A's car is damaged during parking, and he has to pay \$200 for the repair. The day his car was damaged, he enters a lottery and wins \$25.
- Person B's car is damaged during parking and he has to pay \$175 for the repair.

Who is more upset? (A: 19), (B: 63), (No difference: 5)

Fagley and Miller (1990) conducted a study to examine the effectiveness of the framing effect on the preferences by gender. Their results revealed that women were less sensitive to the framing effect in both positive and negative situations compared to men. Takemura (1992) investigated the effect of time on the framing effect. His research showed that the framing effect was stronger when decisions were made quickly, while the effect weakened when more time was given for deliberation. Malenka et al. (1993) explored how the presentation of benefits in a relative or absolute manner influenced decision-making. The majority of participants indicated that presentation format did not affect their choices; however, the concept of framed utility had a greater impact when presented relatively. Fagley and Miller (1997) also investigated the impact of the framing effect on the choice between money and human life. While predictions regarding the framing of human life were partially confirmed, the existence of a general framing effect was not found. Nonetheless, participants made more risky choices regarding human life, regardless of the framing used. Robins and Mayer (2000) studied the use of metaphors in decision-making. They found that the framing effect weakened when metaphors were not necessary or when their use increased uncertainty. Druckman (2001) examined the impact of the framing effect on public policy decisions. He found that the effect was significantly reduced or eliminated when interacting with elements that people deemed trustworthy. Mikels and Reed (2009) investigated the framing effect of age factor care. Their research showed that while both young and old individuals were inclined to seek guarantees in gain scenarios, only young individuals were prone to take risks in loss scenarios.

4 Method

In this study, the researchers chose to use the online survey method as the primary means of data collection. The survey began by asking participants personal questions such as their age range, academic department, and gender. Following these initial inquiries, participants were presented with a series of questions related to the framing effect. The collected data were analyzed using SPSS version 29.0.0.0 (241). Initially, frequency tests were conducted, followed by chi-square tests and correlation analyses.

The chi-square test is a statistical method that can determine whether there is a significant relationship between two factors. A p-value is obtained from the test, and if this value is less than 0.05, it points out that there is a significant relationship between the two variables. However, if the p-value is greater than 0.05, it points out that there is no significant relationship between the two variables (Ugoni & Walker, 1995). Another statistical method that can be used to determine the relationship between variables is correlation analysis, which measures the relationship between two variables. In correlation analysis, the values generated range from -1 to $+1$, wherein negative values signify a negative association between the variables, while positive values denote a positive relationship (Schober et al., 2018).

The survey administered in this study consisted of a total of nine questions organized into four basic experiments. The first experiment, referred to as the win/loss scenario, consisted of three questions (Q1, Q2, and Q3). The other experiments each contained two questions (Q4 and Q5 in the second experiment, referred to as the stock market scenario; Q6 and Q7 in the third experiment, referred to as the investment scenario; and Q8 and Q9 in the fourth experiment, referred to as the savings scenario). To reduce the framing effect, which can arise when related questions are placed consecutively, the questions were arranged in a way that did not group them together. Further details about each experiment are provided below, with hyperlinks to the relevant results for each experiment. Clicking on the scenario title will allow readers to return directly to the experiment questions while examining the analysis results.

First Experiment (Win/Loss Scenario)

1. Which one would you prefer?
 - a. %25 chance to win \$340 or %75 chance to lose \$1085
 - b. %25 chance to win \$355 or %75 chance to lose \$1070
2. Which one would you prefer?
 - c. Making \$340 for sure
 - d. %25 chance to win \$1425 or %75 chance to win nothing
3. Which one would you prefer?
 - e. Losing \$1070 for sure

- f. %75 chance to lose \$1425 or %25 chance to lose nothing

Second Experiment (Stock Market Scenario)

- 4. You plan to buy stocks with the money you have. You must spend all the money you have for the choice you make. Based on this, which would you prefer?
 - a. Owning 1 stock for sure
 - b. 50% chance of owning 3 stocks or 50% chance of not owning any stock
- 5. You plan to buy stocks with the money you have. You must spend all the money you have for the choice you make. Based on this, which would you prefer?
 - c. %10 chance of owning 1 stock
 - d. %5 chance of owning 3 stocks

Third Experiment (Investment Scenario)

- 6. You plan to make an investment that is expected to have an impact of \$4275. Which one would you prefer?
 - a. To earn \$1425 for sure
 - b. 1/3 chance to win \$4275 or 2/3 chance to win nothing
- 7. You plan to make an investment that is expected to have an impact of \$4275. Which one would you prefer?
 - c. Losing \$2850 for sure
 - d. 2/3% chance to lose \$4275 or 1/3% chance to lose nothing

Fourth Experiment (Saving Scenario)

- 8. You plan to buy a \$280 computer and a \$28 computer case. The seller at the store where you will buy the computer bag says that you can buy the same computer bag for \$21 at another store within half an hour's walking distance. Would you make this trip and buy the computer bag from the other store?
 - a. Yes
 - b. No
- 9. You plan to buy a \$280 computer and a \$28 computer case. The seller at the store where you will buy a computer says that you can buy the same computer for \$273 at another store within half an hour's walking distance. Would you make this trip and buy the computer from the other store?
 - c. Yes
 - d. No

4.1 Sample of the Research

This research utilized data obtained through surveys administered to a sample of 119 undergraduate students from diverse departments of Yildiz Technical University, including finance-related disciplines such as economics and business administration, as well as engineering fields such as construction and mechanical engineering. The study's aim was to investigate the decision-making behavior of two distinct groups of individuals. Specifically, the participants were categorized into two groups for comparative analysis: students from the finance department, who were presumed to possess knowledge of decision-making processes and rationality theory, and students from the engineering department, who were hypothesized to lack such knowledge. The investigation aimed to show the differential impact of framing effect on these two groups of participants.

4.2 Expectations

The principal objective of this survey is to investigate the extent to which the framing effect influences the decision preferences of finance and engineering students. It is hypothesized that finance students, who are presumed to have knowledge of economic preferences and rationality theory, will display more rational decision-making under the influence of framing, owing to their exposure to various information and examples of rational decision-making. Conversely, it is expected that engineering students will exhibit less rational behavior than finance students under the framing effect, due to their presumed lack of knowledge about economic preferences and rationality theory. Thus, the anticipated outcome of the survey is that finance students will make more rational decisions than engineering students when exposed to framing effects. In addition, findings from previous studies such as Fagley and Miller (1990) and Ellingsen et al. (2013) suggest that women tend to exhibit more rational decision-making compared to men. Hence, the survey results may reveal unexpected gender-related differences in decision-making behavior that could influence the study's conclusions.

5 Research Findings

52.1% of the students participating in the survey are men and 47.9% are women. In other words, 62 of the 119 participants participating in the survey are men and 57 are women (Table 1).

There are some studies about the framing effect can vary according to the gender factor. For example, Fagley and Miller (1990) show that men were more sensitive by the framing effect in positive and negative scenarios than women. Ellingsen et al. (2012) also obtained similar results to the study of Fagley and Miller (1990). In other

Table 1 Gender analysis of participants

	Number	Percentage
Male	62	52.1
Woman	57	47.9
Total	119	100

Table 2 Age analysis of participants

	Number	Percentage
18–24	82	68.9
25+	37	31.1
Total	119	100

words, it has been determined that both women and men are affected by the framing effect, but women are less affected by the framing effect than men.

While 68.9% of the students participating in the survey are between the ages of 18–24, 31.1% are 25 and above. In other words, 82 of the 119 participants who participated in the survey are in the 18–24 age range, while 37 of them are 25 and above (Table 2).

Prior studies have investigated the impact of age factor on the framing effect. Mikels and Reed (2009) found that not only young people but also old people incline take risks in loss scenarios, while only young people incline to take risks in win scenarios. Best and Charness (2015) also investigated the impact of age on framing effects and found that both young and old people incline to choose the certain option in win scenarios, but younger people are more tend to take risk than older people. Moreover, in the case of loss, younger people tend to make riskier choices compared to older individuals. These results suggest that age factor has a significant role in decision-making under the framing effect and that young people and old people show different patterns of decision-making behavior in response to win and loss frames.

The survey sample consists of 119 undergraduate students, 64 of whom are studying in finance-related departments (e.g., economics and business administration) and 55 of whom are studying in engineering-related departments (e.g., construction, chemistry, and machinery). The majority of the participants (53.8%) are from finance-related departments, while 46.2% are from engineering-related departments (Table 3).

Table 3 Major analysis of the participants

	Number	Percentage
Finance students	64	53.8
Engineering students	55	46.2
Total	119	100

As previously noted, this section presents an analysis of nine questions across four different scenarios that were posed to study participants. The analysis begins by providing descriptive statistics for each experiment. Next, frequency, chi-square, and correlation analyses are conducted to examine whether significant differences exist between finance and engineering students, men and women, and different age groups in terms of rational decision-making behavior.

5.1 Win/Loss Scenario

The win/loss scenario revealed that options D and E in Question 2 and 3 respectively lead to option B in Question 1. Given that all participants chose option B in Question 1 and assuming that participants act rationally, it can be inferred that both options D and E should be chosen since they are necessary to reach the most rational option, option B.

The results of the analysis indicate that in the win/loss scenario, the first question was easily answerable and all participants, both finance and engineering students, preferred the rational option B. However, in the second question, a significant number of participants, especially engineering students, chose the more secure option C. In the last question, most participants, especially engineering students, chose the more risky option F. This suggests that there is a tendency to take more risks in a loss situation, especially among engineering students.

Based on Table 4, the chi-square test and correlation analysis results prove that there was no significant relationship between students' majors and their rational behavior in the win/loss scenario. This indicates that both finance and engineering students demonstrated similar levels of rationality in their decision-making in this scenario.

The first question in the win/loss scenario revealed that option B was preferred by 100% of both male and female participants, indicating a unanimous preference for the rational option. In the second question, relating to earnings, option C was preferred by 53.2% of men and 47.4% of women, which is a more secure option. In the final question, relating to loss, option F was preferred by 87.1% of men and 79% of women, which is a riskier option. Only a small percentage of men (8%) and women (10.5%) were rational. On the other hand, option B was selected by 100% of participants aged 25 and over and those in the 18–24 age range for the first question, indicating unanimous preference for the rational option. For the second question, 48.6% of those aged 25 and over and 51.2% of the 18–24 age group preferred option C, which is the more secure option. For the third and final question, option F, the more risky option, was chosen by 80.5% of the 18–24 age group and 89.2% of the 25 and over age group. Only a small percentage of participants aged 18–24 (12.2%) and aged 25 and over (2.7%) chose the rational option.

For gender, the chi-square test conducted on the data in Table 5 yielded $p > 0.05$ which shows that a non-significant relationship between gender and rational behavior in the win/loss scenario. This result was further supported by the correlation analysis

Table 4 Statistical relationship between student' major and rationality in terms of win/loss scenario

	Option A	Option B		
Finance students	0% (0)	100% (64)		
Engineering students	0% (0)	100% (55)		
	Option C	Option D		
Finance students	48.4% (31)	51.6% (33)		
Engineering students	52.7% (29)	42.3% (26)		
	Option E	Option F		
Finance students	20.3% (13)	79.7% (51)		
Engineering students	12.7% (7)	87.3% (48)		
	Those who chose option D and E together			
Finance students	9.4% (6)			
Engineering students	9.1% (5)			
Major and Rationality				
	Value	df	Asymp. Sig. (2-tail)	N
Pearson chi-square	0.003 ^a	1	.957	119
EC: 5.08 (%0.0)				
	Value			
Pearson correlation	0.005			

results. For age group, the chi-square test performed on the data in Table 5 produced $p > 0.05$, indicating a non-significant relationship between the age group of the participants and their rational behavior in the gain/loss scenario. This results is also supported by the correlation analysis results.

5.2 Stock Market Scenario

The framing effect is evident in the given question, where it can be argued that the two questions posed to students essentially convey the same information. Specifically, by dividing the probability in option A by 10, option C can be obtained, and by dividing the probability in option B by 10, option D can be obtained. This implies that the options presented in Question 4 are one-tenth of those presented in Question 5. As such, rational decision-making would entail selecting matching options in both questions. This can only be achieved if a student who selects option A also selects option C, and a student who selects option B also selects option D.

Regarding the stock market scenario, 64.1% of finance students displayed self-consistency in their decision-making, meaning they chose the same option in both

Table 5 Statistical relationship between gender/age group and rationality in terms of win/loss scenario

	Option A	Option B		Option A	Option B
Male	0% (0)	100% (62)	18–24	0% (0)	100% (82)
Woman	0% (0)	100% (57)	25 +	0% (0)	100% (37)
	Option C	Option D		Option C	option D
Male	53.2% (33)	46.8% (29)	18–24	51.2% (42)	48.8% (40)
Woman	47.4% (27)	52.6% (30)	25 +	48.6% (18)	51.4% (19)
	Option E	Option F		Option E	Option F
Male	12.9% (8)	87.1% (54)	18–24	19.5% (16)	80.5% (66)
Woman	21% (12)	79% (45)	25 +	10.8% (4)	89.2% (33)
	Those who chose option D and E together			Those who chose option D and E together	
Male	8% (5)		18–24	12.2% (10)	
Woman	10.5% (6)		25 +	2.7% (1)	
Gender and rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	.215 ^a	1	0.643	119	
EC: 5.27 (%0.0)					
	Value				
Pearson correlation	-0.042				
Age and rationality					
	Exact Sig. (1 sided)		Exact Sig. (2-tail)		N
Fisher's exact test	0.088		0.169		119
EC: 3.42 (%25.0)					
	Value				
Pearson correlation	-0.152				

questions if they chose the guarantee or risky option in the first question. For engineering students, the self-consistency rate was 41.8%, indicating that 58.2% of engineering students were unable to act rationally.

The chi-square test performed on the data in Table 6 produced $p < 0.05$, indicating a significant relationship between the students' major and their rational behavior in the stock market scenario. This results is also supported by the correlation analysis results. Specifically, finance students were found to be less susceptible to the framing

effect compared to engineering students, and this difference is statistically significant (Table 7).

In the context of the stock market scenario, it was found that 40.3% of men and 57.9% of women were self-consistent in their decision-making, meaning they maintained their initial choice of either the risky or the guaranteed option across both questions. It can be observed that a higher percentage of women acted rationally than men, with 42.1% of women and 59.7% of men failing to act rationally. On the other hand, it was found that a higher percentage of individuals aged 25 and over, specifically 64.9%, exhibited consistency in their responses compared to 41.5% of individuals aged 18–24. This suggests that 35.1% of individuals aged 25 and over and 59.5% of individuals aged 18–24 failed to demonstrate rational behavior with respect to the stock market scenario.

For gender, the chi-square test yielded a *p*-value that is very close to the significance threshold of 0.05, indicating a weak association between gender and rational behavior in the stock market scenario. This finding is further supported by the correlation analysis results. Therefore, we can say that gender does not have a significant effect on rational decision-making in this particular scenario. For age group, $p < 0.05$, indicating a significant relationship between the age group of participants and their rational behavior regarding the stock market scenario. This results is also supported by the correlation analysis results. Therefore, it can be concluded that individuals aged 25 and over were less susceptible to the framing effect compared to those aged 18–24, and this difference is statistically significant.

Table 6 Statistical relationship between student's major and rationality in terms of stock market scenario

	Option A	Option B		
Finance students	48.4% (31)	51.6% (33)		
Engineering students	58.1% (32)	41.9% (23)		
	Option C	Option D		
Finance students	50% (32)	50% (32)		
Engineering students	32.7% (18)	67.3% (37)		
	Those who chose the same answer in both questions			
Finance students	64.1% (41)			
Engineering students	41.8% (23)			
Major and Rationality				
	Value	df	Asymp. Sig. (2-tail)	N
Pearson chi-square	13,013 ^a	1	< 0.001	119
EC: 26.81 (%0.0)				
	Value			
Pearson correlation	0.331**			
**p < 0.01				

Table 7 Statistical relationship between gender/age group and rationality in terms of stock market scenario

	Option A	Option B		Option A	Option B
Male	53.2% (33)	46.8% (29)	18–24	53.7% (44)	46.3% (38)
Woman	52.6% (30)	47.4% (27)	25 +	51.4% (19)	48.6% (18)
	Option C	Option D		Option C	Option D
Male	37.1% (23)	62.9% (39)	18–24	45.1% (37)	54.9% (45)
Woman	47.4% (27)	52.6% (30)	25 +	35.1% (13)	64.9% (24)
	Those who chose the same answer in both questions			Those who chose the same answer in both questions	
Male	40.3% (25)		18–24	41.5% (34)	
Woman	57.9% (33)		25 +	64.9% (24)	
Gender and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	3,670 ^a	1	0.055	119	
EC: 27.78 (%0.0)					
	Value				
Pearson correlation	−0.176				
Age and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	5,588 ^a	1	0.018	119	
EC: 18.03 (%0.0)					
	Value				
Pearson correlation	−0.217*				
	*p < 0.05				

5.3 Investment Scenario

Upon comparison, it becomes apparent that the options presented in both Question 6 and Question 7 are essentially the same. For instance, if an individual were to prefer the \$1425 definite gain presented in option A of Question 6, they would also incur a loss of \$2850 since the investment is expected to have an effect of \$4275.

Similarly, if an individual were to prefer the \$2850 absolute loss presented in option C of Question 7, they would gain \$1425 since the investment is expected to have an effect of \$4275. This implies that the possibilities presented in the two options are essentially identical. The same holds true for options B and D. Therefore, in order to ensure rationality in decision-making, either options A and C or options B and D should be preferred in tandem.

Upon analyzing the responses of participants to the investment scenario, it was found that a higher percentage of engineering students, specifically 74.5%, did not act rationally compared to finance students, of which only 65.7% did not act rationally. Furthermore, only 25.5% of engineering students and 34.3% of finance students acted rationally with respect to the investment scenario.

The chi-square test performed on the data in Table 8 produced $p > 0.05$, indicating a non-significant relationship between the department of study and rational behavior regarding the investment scenario. This results is also supported by correlation analysis results. Therefore, it can be concluded that there is no statistically significant relationship between student' major and rational behavior with respect to the investment scenario.

Upon analyzing the responses of participants to the investment scenario, it was found that a higher percentage of women, specifically 43.9%, acted rationally compared to men, of which only 17.7% acted rationally. Furthermore, 56.1% of women and 82.3% of men did not act rationally and chose different options. On the other hand, it was found that a higher percentage of participants aged 25 and over, specifically 75.7%, did not act rationally compared to participants aged 18–24, of

Table 8 Statistical relationship between student's major and rationality in terms of investment scenario

	Option A	Option B		
Finance students	73.4% (47)	26.6% (17)		
Engineering students	80% (44)	20% (11)		
	Option C	Option D		
Finance students	23.4% (15)	76.6% (49)		
Engineering students	25.5% (14)	74.5% (41)		
	Those who choose options A and C or B and D			
Finance students	34.4% (22)			
Engineering students	25.5% (14)			
Major and Rationality				
	Value	df	Asymp. Sig. (2-tail)	N
Pearson chi-square	1.116 ^a	one	0.291	119
EC: 16.64 (%0.0)				
	Value			
Pearson correlation	0.097			

which only 67.1% did not act rationally. Furthermore, 24.3% of participants aged 25 and over and 32.9% of participants aged 18–24 acted rationally with respect to the investment scenario.

The chi-square test performed on the data in Table 9 produced $p < 0.05$, and it shows that a statistically significant relationship between the gender of the participants and their rational behavior with respect to the investment scenario. This results is also supported by the correlation analysis results. Therefore, women are less sensitive to the framing effect than men, and this difference is statistically significant in the context of the investment scenario. Table 9 also shows that, for age group, $p > 0.05$, indicating a non-significant relationship between the age and their rational behavior with respect to the investment scenario. This finding is also supported by the correlation analysis results. Therefore, we can say that there is no statistically significant relationship between age groups and rational behavior with respect to the investment scenario.

Table 9 Statistical relationship between gender/age group and rationality in terms of investment scenario

	Option A	Option B		Option A	Option B
Male	80.6% (50)	19.4% (12)	18–24	78% (64)	22% (18)
Woman	71.9% (41)	28.1% (16)	25 +	73% (27)	27% (10)
	Option C	Option D		Option C	Option D
Male	22.6% (14)	77.4% (48)	18–24	26.8% (22)	73.2% (60)
Woman	26.3% (15)	73.7% (42)	25 +	18.9% (7)	81.1% (30)
	Those who choose options A and C or B and D			Those who choose options A and C or B and D	
Male	17.7% (11)		18–24	32.9% (27)	
Woman	43.9% (25)		25 +	24.3% (9)	
Gender and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	9601 ^a	1	0.002	119	
EC: 17.24 (%0.0)					
	Value				
Pearson correlation	−0.284**				
	**p < 0.01				
Age and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	0.894 ^a	1	0.344	119	
EC: 11.19 (%0.0)					
	Value				
Pearson correlation	0.087				

5.4 Saving Scenario

The framing effect can be observed in both Question 8 and Question 9, as the same amount of savings can be achieved in both cases despite the different scenarios presented. In Question 8, participants can save \$7 by traveling to purchase a computer bag that costs \$28 for \$21. Similarly, in Question 9, participants can save \$7 by traveling to purchase a computer that costs \$280 for \$273. Thus, in order to act rationally in response to these questions, it is necessary to either answer “yes” to both questions or answer “no” to both questions. Choosing different options for each question would result in a disruption of rationality.

Upon analyzing the responses to the savings scenario, it was found that 84.4% of finance students and 52.7% of engineering students acted rationally in their choices. The chi-square test performed on the data in Table 10 produced $p < 0.05$, and this result was supported by the correlation analysis, indicating a significant relationship between the participants’ department of study and their rational behavior in the savings scenario. Specifically, finance students were less sensitive to the framing effect than engineering students, and this difference was statistically significant (Table 11).

Upon analyzing the responses to the savings scenario, it was found that a greater proportion of women than men were able to make rational decisions, with 86% of women acting rationally compared to only 54.8% of men. On the other hand, it is observed that 67.1% of the participants aged 18–24 and 75.7% of the participants

Table 10 Statistical relationship between student’s major and rationality in terms of savings scenario

	Option A	Option B		
Finance students	73.4% (47 people)	26.6% (17 people)		
Engineering students	90.9% (50 people)	9.1% (5 people)		
	Option C	Option D		
Finance students	64.1% (41 people)	35.9% (23 people)		
Engineering students	50.9% (28 people)	49.1% (27 people)		
	Those who answered yes to both questions or no to both questions			
Finance Students	84.4% (54 people)			
Engineering Students	52.7% (29 people)			
Major and Rationality				
	Value	df	Asymp. Sig. (2-tail)	N
Pearson chi-square	14,041 ^a	one	< 0.001	119
EC: 16.64 (%0.0)				
	Value			
Pearson correlation	0.343**			
	**p < 0.01			

Table 11 Statistical relationship between gender/age group and rationality in terms of savings scenario

	Option A	Option B		Option A	Option B
Male	88.7% (55)	11.3% (7)	18–24	80.5% (66)	19.5% (16)
Woman	73.7% (42)	26.3% (15)	25 +	83.8% (31)	16.2% (6)
	Option C	Option D		Option C	Option D
Male	50% (31)	50% (31)	18–24	57.3% (47)	42.7% (35)
Woman	66.7% (38)	33.3% (19)	25 +	59.5% (22)	41.5% (15)
	Those who answered yes to both questions or no to both questions			Those who answered yes to both questions or no to both questions	
Male	54.8% (34)		18–24	67.1% (55)	
Woman	86% (49)		25 +	75.7% (28)	
Gender and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	13,636 ^a	1	< 0.001	119	
EC: 17.24 (%0.0)					
	Value				
Pearson correlation	–0.339**				
	**p < 0.01				
Age and Rationality					
	Value	df	Asymp. Sig. (2-tail)	N	
Pearson chi-square	0.894 ^a	1	0.344	119	
EC: 11.19 (%0.0)					
	Value				
Pearson correlation	0.087				

aged 25 and over made rational choices. For gender, the chi-square test and correlation analysis shows that $p < 0.05$ and that means the difference statistically significant. Hence, this results indicating that women were less affected by the framing effect than men. Also, statistical analysis using the chi-square test and correlation analysis showed that the relationship between the age group and their rational behavior was statistically non-significant.

6 General Discussion

Each study encompasses strengths as well as limitations or gaps, and this holds true for the current investigation as well. Specifically, the number of participants recruited for the online survey methodology is relatively inadequate, posing a challenge to establish statistically significant correlations based on the collected data.

In the context of a gain/loss scenario, no significant relationship was detected in relation to rational behavior based on department, gender, and age group, which can be attributed to the difficulty in identifying the appropriate answer among the questions presented to the participants. The limited number of correct responses received by participants is considered a primary factor contributing to the absence of a meaningful relationship. Nonetheless, the framing effect was found to be consistent across various groups, including finance and engineering students, as well as both genders. Although participants between the ages of 18 and 24 were slightly less influenced by the framing effect compared to those aged 25 and above, this difference lacks statistical significance. Moreover, previous research by Kahneman and Tversky (1981) has shown that only a small percentage of participants, approximately 3%, demonstrated rational behavior. Hence, the outcomes of the first questionnaire in this study correspond with the results observed by Kahneman and Tversky (1981), highlighting that a majority of participants did not display rational behavior.

Regarding the stock market scenario, it was found that finance students were less susceptible to the framing effect and demonstrated more rational behavior compared to engineering students, which was statistically significant based on chi-square test and correlation analysis. On the other hand, it was also observed that women were less influenced by framing compared to men, but the p-value obtained from the chi-square test did not reach statistical significance as it was slightly higher than 0.05. Furthermore, a significant relationship between age group and rational behavior was identified through chi-square and correlation analysis, indicating that participants aged 25 and above were less influenced by the framing effect than those between 18 and 24 years old. This finding may be attributed to the practical experience of adults, who typically have a better knowledge base regarding the stock market compared to younger individuals. Similar to the present study, Kahneman and Tversky (1979) conducted an experiment on the stock market scenario, where participants were asked to choose between a holiday with a 100% probability and 3 country holidays with 50% probability. Results showed that 78% of participants preferred a single country holiday. Additionally, when presented in a 1/10 frame, 67% of participants chose a holiday over 3 countries with a 5% probability due to the framing effect. Overall, the majority of participants were unable to make a rational choice.

In the investment scenario, it was observed that finance students were less influenced by the framing effect than engineering students, but the statistical analysis did not yield significant results. However, it was found that women were more susceptible to framing, yet acted more rationally than men. This finding was statistically significant according to both the chi-square test and correlation analysis. This result is consistent with previous studies by Fagley and Miller (1990) and Ellingsen et al.

(2012), which suggest that women are less affected by framing than men. Also, no significant relationship was found between age group and rational behavior in the investment scenario.

In the savings scenario, it was found that finance students were less influenced by framing and acted more rationally compared to engineering students. This result was statistically significant based on the chi-square test and correlation analysis. Moreover, women were found to be less susceptible to framing compared to men, and this relationship was statistically significant. However, there was no significant relationship found between age groups and rational behavior in the savings scenario.

7 Conclusion

Behavioral economists argue that our decision-making process is influenced by various psychological factors, which make it difficult to make completely rational decisions. This perspective has gained prominence since the 1970s and suggests that individuals often act with limited rationality. However, some economists prefer to keep psychology and economics separate, viewing behavioral economics as a negative phenomenon. Ironically, this reaction is precisely what behavioral economists have been warning about—the tendency to stick to our own views, even when presented with accurate and proven information, can lead us away from making rational decisions.

Drawing from behavioral economics, decision-making can be influenced by the framing effect, which alters the presentation of a given situation and can potentially disrupt rationality. This study seeks to evaluate the significance of the framing effect, a well-established concept in the behavioral economics literature. To this end, an empirical investigation was conducted through an online survey administered to undergraduate students from Yildiz Technical University. The study participants were divided into two groups: finance students, who were presumed to possess knowledge of economic preferences and rationality theory, and engineering students, who were expected to have no such knowledge. The primary objective of the study is to assess the effectiveness of the framing effect and to examine the extent to which it varies between the two groups. It was hypothesized that finance students would exhibit a stronger tendency toward rational decision-making, owing to their prior exposure to relevant information.

The study employed an online questionnaire approach, where a total of nine questions were presented to participants across four distinct scenarios. The study aimed to explore the responses of two distinct groups when presented with identical questions. To minimize the framing effect, questions were presented in varying sequences, with related items being interspersed among unrelated ones. The study sought to identify any differences between the responses of finance and engineering students and evaluate the impact of the framing effect on their decision-making processes.

The study's results are largely consistent with prior research, indicating that the framing effect has a tendency to disrupt rational decision-making. Specifically, the

findings revealed that participants were more likely to opt for guarantees in gain scenarios and were more prone to risk-taking in loss scenarios. As anticipated, the study also confirmed that finance students were less susceptible to the framing effect than their engineering counterparts. Additionally, the study found that, on average, women were less influenced by the framing effect and tended to make more rational decisions than men.

In conclusion, the study highlights the impact of psychological factors, particularly the framing effect, on the decision-making process. While individuals may strive to make rational choices, it is important to recognize that these factors can influence their decisions. Consequently, understanding the effects of psychological biases and other relevant factors can help mitigate their impact on decision-making. By raising awareness and promoting knowledge of these factors, individuals can make more informed and rational decisions.

The findings of this study have the potential to serve as a valuable point of reference for future research on the framing effect and related psychological factors. In order to build on these findings, future studies could replicate the survey approach with a larger participant pool, in order to establish a more robust connection with the framing effect. Such an expansion of the study would be expected to further enhance the significance of the presented results, providing additional insight into the impact of the framing effect on decision-making processes.

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Sectarianism in Management: Effect of Religious Affiliation on Career Development Opportunities in Lebanon



Elsa Abboud and Fadia Al Hajj

Abstract Lebanon, a small nation with a diverse religious population, views religion as a significant part of its identity. In public institutions, the allocation of jobs and promotions is based on distribution among different religious groups. Therefore, the purpose of this paper is to evaluate if religious affiliation plays a role in career advancement decisions in the private sector as well. To gather data, qualitative and quantitative methods were used by conducting four interviews with HR managers and distributing a survey to 1300 employees. The findings revealed that individuals' religious affiliation impacts their professional growth. Additionally, it was evident that religious discrimination clearly occurs in the public sector and secretly in the private one.

Keywords Spirituality · Religion · Religious affiliation · Religiosity · Career development · Lebanon

1 Introduction

Given that religion plays a crucial role in shaping national and cultural identities, this paper explores its impact on human resource practices at the workplace, specifically on career development. As globalization and migration have led to cultural diversity in most businesses, it is important to address the new managerial challenge of avoiding religious discrimination in all human resource functions to ensure employees' well-being.

Regarding the MENA region and Arab countries, Lebanon is specifically selected for this subject because it can be a model for the world. Actually, Lebanon is a small

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country that has four religious groups and eighteen officially recognized sects. In history, it was the land of refugees having diverse religious communities who lived together in peace until conflicts started to arise between them. This resulted in a fifteen-year civil war, which ended with the establishment of confessionalism and consociationalism in the parliamentary democratic system. This system proportionally distributes all positions in government and public institutions between representatives of certain religious communities, which has raised concerns about potential religious discrimination in private organizations.

Therefore, this study aimed to analyze the impact of religious affiliation on career development in the Lebanese private sector, which is primarily composed of small family businesses. The research question is focused on understanding the association between spirituality, religious affiliation, religiosity, and career development by asking the following research question: To which extent does people's religious affiliation affect their career development opportunities in the Lebanese private sector?

The first part of the paper will present a literature review on the concepts of spirituality, religion, religiosity, and career development, with an overview of Lebanese history and culture to explore how these topics are perceived and practiced in the country. The second part will consist of an empirical study that assesses if the confessional system applicable in the public sector is also applied in the private one, using hypothetical deductive reasoning, experimental research, and the quantitative analysis of variables. Moreover, qualitative method will be used by conducting interviews with human resources managers to understand their perspectives on religious discrimination, and its impact on human resource practices. The study will either validate or reject four hypotheses and provide an answer to the research problematic.

2 Literature Review

2.1 *History of Lebanon*

Lebanon is a small country in the Middle East with a population estimated at 5.5 million, including over 1.5 million Syrian refugees and 475,075 Palestinian refugees as per the United Nations Relief and Works Agency (UNRWA) census in 2019. There are eighteen officially recognized religious sects, with Islam and Christianity being the two main religions. Muslims are mostly Sunnites and Shiites, while Christians are mostly Maronites and Greek Orthodox (Nelson, 2013).

The Lebanese Republic follows a parliamentary democratic system that is based on power distribution according to religious affiliation, with the President and Commander of the Army being Christian Maronite, the Prime Minister Muslim Sunnite, and the Head of Parliament Muslim Shiite. Other positions in the government are also assigned based on religious groups (Maktabi, 1999). Peaceful coexistence and cooperation among Christians and Muslims have been achieved through

this power sharing in all aspects of the government, even though the powers of the Christian Maronite President have been limited by the Taif Agreement, while the Muslim Sunni Prime Minister and Muslim Shiite Speaker of the Parliament have gained more power. Despite this, grouping the population based on religious affiliation remains a major cause of conflict in Lebanon's political, economic, and social spheres (Haddad, 2002).

The distribution of political power based on religion has highlighted sectarian identity and led to the rise of religio-political organizations, which provide many social services to the people. These organizations have been used by political elites to control and sectarianize communities for their own political and socioeconomic interests. These leaders also have a significant presence in the government according to sectarian quotas, which has weakened the role of public institutions and diminished the power of the state to regulate division and conflict between sectarian groups. Religio-political establishments have become deeply rooted in Lebanese society, shaping their people's socio-cultural characteristics and promoting loyalty to these leaders and their organizations. As a result, this has led to political instability in Lebanon (Baytiyeh, 2017).

Talking about the culture of Lebanon, Lebanon has a rich and diverse cultural heritage, shaped by several civilizations that have lived there over thousands of years. Lebanese citizens are known for their strong attachment to family and religion. As per Khashan (1992), Lebanese people adhere strongly to the ideologies of their own religious sects and identify themselves primarily based on their confessional identity and not national identity. To them, leaving one's sect is seen as leaving one's entire world. This attachment to social and religious groups has hindered Lebanon's ability to become a modern democratic state and has led to a kind of many states within one state, with support for the sectarian system and a rejection of liberal values. So, sectarianism is the dominant social, political, and economic reality in Lebanese society (Makdisi, 2008). Moreover, the lack of consensus on fundamental issues among religious groups has led to the formation of private independent organizations managed by each group. This diversity management challenge is similar to the ones faced by the world due to globalization and increased migration (Turner, 2007).

2.2 Religiosity in Lebanon

The majority of the Lebanese population remains highly religious despite calls for a secular segment. According to Hoffman (2016), 88% of Muslim Sunnites, 87% of Muslim Shiites, and 79% of Christians consider themselves highly religious. Additionally, over 97% of every sect declared that religion was very important in their lives, and personal devotion, spirituality, and religiosity are high among all Lebanese sects.

In Lebanon, people follow their religious doctrines, but because of differences in beliefs between sects, each group has unique behaviors. Muslims, both Sunnites and Shiites, are more likely to pray at home or work. Almost daily, 77% of Shiites

and 70% of Sunnites pray, while only 27% of Christians do so. However, collective prayer follows the opposite trend, with 61% of Christians attending Sunday Mass and 49% of Sunnites and 32% of Shiites attending Friday prayer at the mosque. Additionally, 81% of Sunnites and 76% of Shiites report fasting during Ramadan, or Lent, while only 43% of Christians do so, according to Haddad (2002).

2.3 Workplace Spirituality in Lebanon

As workforces become more diverse, employees are bringing their personal values, including their religious views, to work. The concept of workplace spirituality is evolving and becoming less associated with a higher power and more related to community values. However, individuals' values and beliefs may still be linked to a higher power based on their level of religiosity. Studies on religion in the workplace have found that traditional religiosity plays a significant role at work, according to Duffy (2006). Mitroff and Denton (1999) suggested that organizations supporting employees in expressing their spirituality are more likely to succeed. Adams and Csiernik (2002) defined workplace spirituality as positive sharing, valuing, caring, respecting, acknowledging, and connecting people's talents and energies in goal-directed behavior that enables personal fulfillment and a sense of ownership in their shared destiny. Moreover, some studies have found that various aspects of workplace spirituality, such as meditation, meaning-making, and a sense of mission, are positively associated with productivity, job engagement, and job satisfaction, benefiting both employees and the company (Millman et al., 2003). Organizations that promote spirituality and have a strong corporate culture outperform their competitors in terms of investment return and shareholder value, according to Thompson (2000).

2.4 Career Development in Lebanon

In Western culture, career advancement is based on merit and performance. In this context, emphasis is placed on individualism rather than collectivism (Bennis & Thomas, 2002). On the contrary, Lebanon's culture is more collectivistic and Lebanese leaders promote collectivism and high-power distance through centralized decision-making, hierarchical bureaucratic control, low risk tolerance, low uncertainty avoidance, and paternalistic values. Lebanese employees generally accept and obey their superiors' orders to avoid misunderstandings and persecution (Zgheib, 2005). However, this culture can have an impact on organizational success (Taylor, 2003).

According to Awad (1998), most Lebanese companies lack organized human resources structures and performance evaluation systems to measure the performance of their employees and propose individual development plans. As for the training

and development function of human resources, reports on employees' skills development and performance improvement in Lebanon were mainly limited to macro-level human development and labor economics (Dirani, 2006). A study conducted by Dirani (2012) to examine the impacts of a Western professional training program on individuals' skill development and discover how cultural factors related to Lebanon can affect learning, determined that although training programs have motivated employees, they did not address cultural or organizational-specific difficulties. Al Ariss (2010) stated that in Lebanon, since most companies are family businesses, employees may believe that belonging to the same religious group as the owner increases their chances of obtaining managerial positions.

2.5 Discrimination in Lebanon

In recent years, expressing religious beliefs and seeking religious accommodations at the workplace has become a common practice of individuals (Borstorff, 2011). This has presented a challenge for human resource managers to implement diversity management practices into their companies. Furthermore, the tendency to employ, promote, and develop employees who share the same religious affiliation as the company owner has made this challenge even more difficult (Messarra, 2014). Therefore, human resource managers must now balance the discriminatory actions of owners and managers while also promoting tolerance among employees of different religious communities in order to create a religiously diverse workplace environment (Bizri, 2018).

In Lebanon, the question is whether religious diversity leads to discrimination against employees. In fact, the practices of religious diversity strategies are based on the sectarian system implemented in the country. These practices rendered and weakened the adoption of equality and inclusive managerial practices (Klarsfeld et al., 2016). Since belonging to a religious sect ultimately infers one's social and political identity, it can cause people from one sectarian group to discriminate against those from another group, and this will end up by having in-group nepotism at the workplace. This falls under the social categorization theory, whereby differences and similarities become benchmarks to label individuals and distribute them into groups. Research shows that religious discrimination hinders career advancement, leading Lebanese people to emigrate due to a lack of merit-based promotions, with evidence of the sectarian system's role in this dynamic (Tlaiss & Kauser, 2011).

3 Methodology

3.1 Hypotheses

The hypotheses stated below constitute provisional answers to the problematic. The link between variables and hypotheses is reflected in Fig. 1.

Based on the difference between religious affiliation and religiosity, H1 assesses whether Lebanese religious people show their affiliation and express their religious beliefs.

H1: A religious person exhibits his religious affiliation.

As per Holdcroft (2006), religiosity is the level to which people devote their life to that religion and live by its doctrines and spirituality is about expressing many aspects of one's being. As per H2, those two concepts might be perceived together at the workplace.

H2: There is a positive interplay between religiosity and workplace spirituality.

Despite their differences, there are many common points between spirituality and religion. So, H3 proposes that organizations which accept and promote spirituality at the workplace may also enable the expression of one's religious affiliation.

H3: Workplace spirituality enables the tolerance of religious affiliation.

In the Lebanese public sector, a person's confession is a major factor in determining transfers, promotions, and other career development opportunities because seats are only allocated to people based on their religion. H4 examines if the same case is applicable in the private sector.

H4: Religious affiliation has a significant impact on career development.

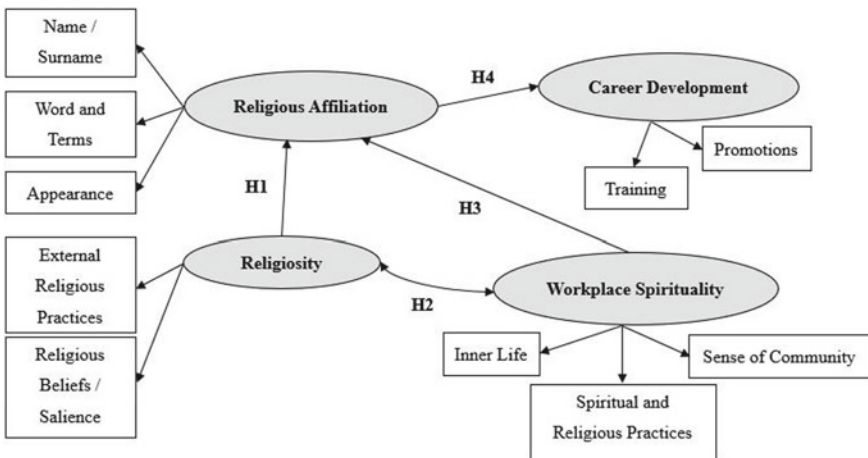


Fig. 1 Conceptual framework

3.2 *Research Model and Methods*

3.2.1 *Qualitative Method*

To understand the impact of religious affiliation on career development from the point of view of employers, interviews were conducted with human resource professionals working in the public and private sectors. Interview questions, stated in the appendix, tackled human resource practices that can be influenced by subjective decisions related to religion.

The goal was to collect data about religious diversity, such as the number of employees who are Christians versus Muslims, and the religion of the managers in comparison with one of the subordinates, in order to understand if there is religious diversity and if the positions are fairly distributed between people who are religiously different. But, none of them accepted to provide such information, as this is confidential and might be perceived as discriminative.

3.2.2 *Quantitative Method*

In addition to the interviews, a questionnaire was created to assess the subject from the point of view of employees. The questions measured four variables, namely workplace spirituality, religiosity, religious affiliation, and career development. The anonymous survey included 25 questions on a 7-points Likert scale ranging from strongly agree to strongly disagree.

3.3 *Sample*

Regarding the sample size, the survey was downloaded on Google Forms and sent to 1300 employees working in the Lebanese private sector. Those people were personally contacted on LinkedIn, because on that platform you can identify the ones working in Lebanese private companies and reach out to people living in different geographic areas in the country. 497 persons responded and after selecting the responses, the remaining sample size was 485 which is well above the required size of 385 as defined by Cochran's formula.

3.4 *Framework of the Survey*

See Fig. 2.

Variables	Dimensions	Questions	
Religious affiliation	Name / Surname	My name and surname give a clear idea about my religious affiliation	
	Words and terms	I use the names of God and religious figures such as Saints or The Prophet or Imam Ali, etc., in invocations and oaths	
	Appearance	I wear religious accessories (Cross, Hijab, Ali's sword, Allah pendant, etc.)	
Religiosity	External Religious Practices	I attend worshipping places (church, mosque) or other religious meetings	
		I spend time in private religious activities, such as prayer, meditation or spiritual books study	
	Religious Beliefs	In my life, I experience the presence of God My religious beliefs are what really lie behind my whole approach of life I place my religious values above everything else	
Workplace spirituality	Inner life	My spiritual values influence the choices I make at work I can speak out my religious views and express my spirituality at work	
	Spiritual and religious practices	I can wear or post religious signs at work We are allowed to pray and organize meditation sessions during working hours We celebrate all holidays at work including religious ones and are allowed to take any holiday leave	
	Sense of community	The majority of employees in the company belong to the same religious group I don't mind working with colleagues from different religions I care about the spiritual health of my coworkers	
		Promotions	My manager supports my professional growth regardless of my religious affiliation My manager assesses objectively my performance by providing only facts, numbers and results Based on the performance appraisal results, I either get a salary adjustment, promotion, demotion, bonus, reward or nothing at all There is no religious favoritism or subjectivity when it comes to promotions
			Training

Fig. 2 Framework of the survey

4 Findings and Discussion

4.1 Results

4.1.1 Sampling Adequacy and Test of Sphericity

Sampling adequacy allows to verify whether the sample size is adequate for the sought number of items in the measurement model. It is based on Kaiser–Meyer–Olkin (KMO) measure where values above 0.5 indicate an acceptable sampling adequacy. Several runs were performed before reaching the optimum results reported in the Fig. 2.

Table 1 reports a KMO measure equal to 0.822. This is synonymous to a meritorious sampling adequacy. Furthermore, Bartlett’s test of Sphericity is significant and $p = 0.0001 < \alpha = 0.05$. This means that the inter-item correlation matrix is not an identity matrix, i.e., items from the survey are related to each other. This finding is enough to run an EFA. In this paper, the varimax orthogonal rotation and the Principal Components Analysis (PCA) factoring methods were used.

Table 2 identifies the communalities obtained from exploratory factor analysis. These indicate the extent to which a particular item correlates with all other items. The higher the communalities are, the better the results are. As a rule of thumb, items

Table 1 KMO and Bartlett’s test of the exploratory factor analysis

Kaiser–Meyer–Olkin measure of sampling adequacy		0.822
Bartlett’s Test of sphericity	Approx. chi-square	3058.074
	Df	153
	Sig	0.000

with communalities less than 0.4 should be omitted from the study. Such items might encounter difficulties to load significantly on any factor. The results of Table 2 are obtained after several runs and the remaining items are the most fit for the study. A visual inspection of the table (the extraction column) shows that only 18 items out of the original 32 were kept.

Table 2 Table of communalities

	Initial	Extraction
I wear religious accessories (Cross, Hijab, Ali's sword, Allah pendant, etc.)	1.000	0.519
I attend worshipping places (church, mosque) or other religious meetings	1.000	0.602
I spend time in private religious activities, such as prayer, meditation or spiritual books study	1.000	0.514
In my life, I experience the presence of God	1.000	0.613
My religious beliefs are what really lie behind my whole approach of life	1.000	0.664
I place my religious values above everything else	1.000	0.744
I can speak out my religious views and express my spirituality at work	1.000	0.646
I can wear or post religious signs at work	1.000	0.663
We are allowed to pray and organize meditation sessions during working hours	1.000	0.582
We are all treated with fairness and equality regardless of our religion	1.000	0.511
We engage in social responsibility activities to serve and help all the community	1.000	0.450
My manager supports my professional growth regardless of my religious affiliation	1.000	0.618
My manager assesses objectively my performance by providing only facts, numbers and results	1.000	0.608
Based on the performance appraisal results, I either get a salary adjustment, promotion, demotion, bonus, reward or nothing at all	1.000	0.445
There is no religious favoritism or subjectivity when it comes to promotions	1.000	0.553
I have a career development program that is defined by reaching specific targets with respect to succession planning	1.000	0.570
The company encourages us all to participate in training workshops it organizes	1.000	0.600
The company endorses us all to pursue a higher education (MBA, CPA, Ph.D., etc.)	1.000	0.582

4.1.2 Factor Extraction

It became relevant to investigate how many factors were represented by the 18 items remained. The measurement model considered four factors, namely religious affiliation (items with abbreviation RA), religiosity (items with abbreviation REL), workplace spirituality (items with abbreviation SPIRIT), and career development (items with abbreviation CAREER).

Table 3 describes the number of extracted factors from the exploratory factor analysis. The number of extracted factors is based on Kaiser's criterion, where all factors with eigenvalues equal to or greater than 1 are extracted. Table 3 reports that four factors were extracted. These extracted factors can explain 58.248% of the total variance of the model. It is important to note that the threshold of acceptance of any given model is when its extracted factor can explain 50% of its total variance. So, the extracted number of factors is acceptable.

Table 4 explains the rotated component matrix obtained from EFA, and which allows to identify which item belongs to which factor.

Table 3 Table of the number of extracted factors

Component	Initial Eigen values			Extraction sums of squared loadings			Rotation sums of squared loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	4.004	22.245	22.245	4.004	22.245	22.245	3.582
2	3.635	20.197	42.442	3.635	20.197	42.442	2.758
3	1.751	9.726	52.167	1.751	9.726	52.167	2.359
4	1.095	6.081	58.248	1.095	6.081	58.248	1.786
5	0.983	5.460	63.709				
6	0.840	4.669	68.378				
7	0.707	3.928	72.306				
8	0.676	3.754	76.060				
9	0.610	3.389	79.449				
10	0.586	3.257	82.706				
11	0.487	2.707	85.414				
12	0.480	2.669	88.083				
13	0.440	2.445	90.528				
14	0.425	2.359	92.886				
15	0.408	2.266	95.152				
16	0.342	1.902	97.054				
17	0.308	1.709	98.764				
18	0.223	1.236	100.000				

Table 4 Rotated component matrix

	Component			
	1	2	3	4
RA1: I wear religious accessories (Cross, Hijab, Ali's sword, Allah pendant, etc.)	0.664	0.208	-0.133	0.133
REL1: I attend worshiping places (church, mosque) or other religious meetings	0.764	0.033	-0.035	0.129
REL2: I spend time in private religious activities, such as prayer, meditation or spiritual books study	0.691	-0.135	0.133	0.023
REL3: In my life, I experience the presence of God	0.765	-0.040	0.151	-0.057
REL4: My religious beliefs are what really lie behind my whole approach of life	0.808	-0.085	0.059	0.003
REL5: I place my religious values above everything else	0.858	-0.071	0.021	0.051
SPIRIT1: I can speak out my religious views and express my spirituality at work	0.171	0.102	-0.048	0.777
SPIRIT2: I can wear or post religious signs at work	0.174	0.144	-0.119	0.774
SPIRIT3: We are allowed to pray and organize mediation sessions during working hours	-0.144	-0.159	0.225	0.697
CAREER1: We are all treated with fairness and equality regardless of our religion	-0.014	0.683	0.170	0.123
CAREER2: We engage in social responsibility activities to serve and help all the community	0.052	0.113	0.651	0.107
CAREER3: My manager supports my professional growth regardless of my religious affiliation	-0.043	0.735	0.275	0.016
CAREER4: My manager assesses objectively my performance by providing only facts, numbers and results	-0.043	0.679	0.377	-0.050
CAREER5: Based on the performance appraisal results, I either get a salary adjustment, promotion, demotion, bonus, reward or nothing at all	-0.052	0.519	0.410	-0.066
CAREER6: There is no religious favoritism or subjectivity when it comes to promotions	-0.026	0.739	0.041	0.066
CAREER7: I have a career development program that is defined by reaching specific targets with respect to succession planning	0.031	0.327	0.680	0.018
CAREER8: The company encourages us all to participate in training workshops it organizes	0.104	0.434	0.618	-0.136
CAREER9: The company endorses us all to pursue a higher education (MBA, CPA, Ph.D., etc.)	0.066	0.183	0.738	-0.018

A visual inspection of the rotated component matrix shows that items RA1, REL1, REL2, REL3, REL4, and REL5 are loaded on factor 1. In the original measurement model, these items were sought to measure religious affiliation and religiosity. It seemed that participants perceived both variables as a single factor. Then, factor 1 can be called religiosity.

Table 5 Reliability test

Cronbach's alpha	No. of items
0.769	25

Items CAREER1, CAREER2, CAREER3, CAREER4, and CAREER5 are loaded on factor 2. In the original measurement model, these items were sought to measure promotions, which is a dimension of the career development. Then, factor 2 represents promotion.

Items CAREER6, CAREER7, CAREER8, and CAREER9 are loaded on factor 3. In the original measurement model, these items were sought to measure trainings, which is a dimension of the career development. Then, factor 3 represents trainings.

Items SPIRIT1, SPIRIT2, and SPIRIT3 are loaded on factor 4. In the original measurement model, these items were sought to measure workplace spirituality. Then, factor 4 represents workplace spirituality.

4.1.3 Reliability Analysis

Reliability examines the consistency of the items that belongs to the same factor. Reliability is measured by Cronbach's alpha where values above 0.7 indicate a strong reliability. Table 5 reports the reliability measurement for all extracted factors.

4.2 Interpretation of Qualitative and Quantitative Methods

As per the survey, almost everybody considered that religion and religiosity are the same. This can be explained by the fact that Lebanese people are highly religious so they do not perceive a difference between both concepts. Also, the interviewees confirmed this when they said that religion is part of the Lebanese culture. As for the interviews, all public institutions and some private ones allow employees to express their religious and spiritual views at the workplace so in this case, there is a link between religious affiliation, religiosity, and spirituality.

The participants of the survey perceived an effect of religious affiliation on career development. Regarding interviews, human resource managers working in the public sector described the reality as it is and clearly stated that religion affects career development opportunities, whereas the managers working in the private sector either don't really know what the reality is, or are trying to hide it in order to present a good corporate image of the companies they are working at. This confirms that religion is a taboo and can be seen in so many viewpoints. Consequently, the results affirmed that distributing an anonymous questionnaire to employees working in the private sector was needed in order to portray what is really happening from the perspective of employees.

4.3 Discussion and Recommendations

Based on the analysis of relevant literature, the theoretical framework, interviews, and survey findings, apparently spirituality, religiosity, and career play essential roles in the lives of most individuals. For those who embrace a holistic perspective on life, these three elements mutually influence one another, as they often perceive that spirituality and religion are the main lenses through which they interpret every part of their lives, including work.

Recent events in Lebanon proved that people recognized that prioritizing religious identity over national one is detrimental. The longstanding sectarian system that contributed to governmental mismanagement was the main cause of the latest Lebanese revolution in which protests overcame confessional divisions and united under a common national allegiance. In order to achieve the desired change, comprehensive transformations are necessary at the national, educational, and social levels. Consequently, I categorize my recommendations into two parts: one addressing the government and the other focusing on organizations.

Governmental Level:

- (1) Convert the sectarian system to a secular one.
- (2) Declare the establishment of one national identity that transcends religious differences.
- (3) Adopt laws prohibiting religious discrimination at the workplace and ensure their application by implementing affirmative action programs to address non-compliance.

Organizational Level:

- (1) Implement proactive actions to promote equality among employees, which will eventually decrease religious discrimination.
- (2) Create a supportive corporate culture, in which coworkers demonstrate mutual respect for one another, irrespective of their religious beliefs.
- (3) Develop strategies and procedures to accommodate employees' spiritual identities and religious commitments, while ensuring that overt expressions of religiosity are properly controlled within the workplace context.

5 Conclusion

The paper aimed to identify the impact of people's religious affiliation on their career development in the Lebanese private sector, due to the confessional culture prevalent in the country's public institutions. The study adopted a positivist approach, formulating hypotheses and seeking empirical confirmation to answer the following research question: *To which extent does people's religious affiliation affect their career development in the Lebanese private sector?* Thus, four hypotheses linking spirituality, religion, and religiosity with career development were developed, and

qualitative and quantitative methodologies were used to test them. The study consisted of an anonymous questionnaire of twenty-five questions distributed to 1300 employees working in the Lebanese private sector and four interviews with human resource professionals.

The questionnaire results showed that Lebanese citizens do not differentiate between religious affiliation and religiosity and see a positive relationship between them and workplace spirituality. The study and interviews found that individual's religious affiliation can impact career development opportunities in Lebanese organizations.

The study's findings indicate that the confessionalism and consociationalism framework prevalent in the Lebanese public sector is as well implicitly applicable in the private sector. The research warns that there are unequal opportunities for career advancement, and that religiosity can promote or hinder support for democracy, cause conflicts in the workplace, and influence individual and organizational performance. The paper emphasizes the need to limit religious practices in the workplace.

The recommendation for reducing discrimination in private organizations requires a significant transformation at the national, educational, and social levels, to respect religious differences, value diversity, and uphold Lebanon as an exemplar of diversity, coexistence, and peace. The first step toward reducing discrimination in Lebanon is to replace the confessional system with a liberal or secular one. The government must then implement diversity policies that eliminate discrimination and encourage merit-based opportunities. Moreover, educating citizens on national identity and respect for cultural diversity should be integrated early in schools and universities. Finally, the human resource staff should focus on promoting religious diversity in the workplace by ensuring tolerance and appreciation for colleagues with different beliefs.

In conclusion, limiting oneself to specific attributes like gender, race, or religion can only cause discrimination. Instead, we should see spirituality and religiosity as enriching elements that bring people together. Promoting religious diversity in the workplace should lead to a more positive and productive environment and enhance organizational performance.

5.1 Implications

The objective of this study is to provide insights into discriminatory behaviors observed in certain businesses. Respecting religious diversity and taking into consideration factors such as individuals' abilities and skills are essential in order to successfully stop discrimination based on religion during performance evaluation and career advancement decisions. Promotions that are made purely to achieve a quota for religious diversity representation might have can have adverse effects on organizational performance. Therefore, business owners and managers must recognize the value of religious diversity while also acknowledging the talents of individuals.

5.2 *Limitations and Future Research Directions*

The main limitation faced in this research was about the methodology. The organizations approached did not provide the needed information that identifies whether they have religious diversity or no, under the excuse that this is confidential and may seem to be discriminative. For that reason, the plan was changed into conducting general interviews with human resource professionals and distributing an anonymous survey to employees working in the private sector to understand religious discrimination from both sides, employees and employers.

Bearing in mind that religion is a taboo topic to be discussed in organizations, future researches can analyze whether expressing one's confessional beliefs at the workplace, organizing events that have religious context or perform any religiously related action can affect the satisfaction, motivation, engagement, and retention of employees.

Appendix: Interview Questions

1. Describe the workplace environment. Do you have religious diversity? Is there any specific quota?
2. Can employees express their religious views at work? (Having a prayer room, wearing a cross or a veil, celebrating spiritual holidays, participating in religious events...)
3. How do you evaluate the performance of employees? On what basis do they receive a salary raise or a promotion?
4. What types of training and development programs does the ministry provide? Is there a career plan for everyone?
5. Do you have internal policies to protect employees from discrimination based on religion? Is there any governmental law for that?
6. In your opinion, do you think religion has an impact on career development in the Lebanese private sector? If yes, why and what can be done to avoid this?

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Evolution of Digital Marketing Among Automotive Sector in Kosovo



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Abstract The paper aims to provide evolution of digital marketing in the automobile industry or more specifically how Internet changed marketing of companies in the automobile sector on Kosovo. The key question of interest is change from traditional to digital marketing in the automotive sector on the respective market. Therefore, quantitative research was conducted through 30 interviews with managers of car dealers and a qualitative research with ten semi-structured interviews with ten account managers from marketing agencies who are responsible for automotive companies. The results show that communication strategies of automobile manufacturers are mostly online though social media, online portals, and websites. This highlights the prevalence of digital marketing compared to traditional marketing and accents the dynamic business environment.

Keywords Digital marketing · Automotive industry · Social media · Cars

1 Introduction

Technology innovations and developments have changed the world and our lives as well. Bits and bytes are affecting our daily life and digital technology is present in every business. As in all industries, there are big changes also in the automotive industry, which has evolved rapidly recently. Automotive marketers know the fact that more and more clients turn to Internet to do their research. Instead of visiting multiple dealerships to compare brands, clients can compare brands, models, colors, and prices on multiple online sites. Advertisers in the automobile industry can reach much larger audiences on automobile shopping sites and other digital destinations through display advertising, especially this trend is observed among younger customers. The idea is

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that online marketing will be having the golden days in near future. Marketing budget is important for any business, and it is essential to spend it in the right direction. Companies make efforts to find different ways to reach their potential consumers. Leveraging the right kind of marketing techniques in order to reach their target audience is crucial in order to be ahead of the competition.

Nowadays, companies are confronted with a new challenge that did not exist in the past—the emerging of Internet. They are challenged to adjust part of their marketing activities and recourses from traditional marketing activities they were accustomed to conduct and to employ newly developed Internet Marketing strategies. The purpose of this study is to detect the change that digital marketing has on automotive industry in present times and to estimate the effectiveness of both traditional marketing strategies and digital marketing strategies in automotive industry with focus on Kosovo's market.

Ultimately, as the result of development of the digital technology, the convergence between digital marketing and traditional marketing seems inevitable. The question remains to what extent one should prevail over the other in order to best meet the current preconditions of automotive industry market at the present time. The purpose of the study is to distinguish and highlight the efficient strategies of traditional marketing and of digital marketing and to show how they should be adapted to the changing nature of customer paths. A quantitative survey and qualitative research were conducted in order to achieve the main goal of the survey—the identification of the propensity degree of traditional and digital marketing techniques in the era of the major shift from product-driven marketing to customer-centric marketing.

2 Literature Review

2.1 *Digital Marketing Overview*

Digital marketing first appeared as a term in the 1990s according to Kingsnorth (2022). Though, according to other sources like Ambati (2017), digital marketing has roots in the mid-1980s, when the Soft Ad Group, now Channel Net, developed advertising campaigns for automobile companies: People sent in reader reply cards found in magazines and received in return floppy disks that contained multimedia content promoting various cars and free test drives. The first banner advertising started in 1993 and a year later, in 1994, the first web search site called WebCrawler was created; it was the beginning of search engine optimization (SEO). Meanwhile Google, YouTube, Blogger, Myspace, and Google's AdWords started to develop increasingly fast. Cookies have played a key role in the personalizing of the user's experience online and the development of the relevant content by storing some information about the user's preferences or the past actions taken by them. On the other hand, we have ongoing privacy debates and privacy concerns by applying new digital technology, and especially cookies. The short definition of digital marketing is “the

Table 1 Comparison of traditional and digital marketing (Yasmin et al., 2015)

Traditional marketing	Digital marketing
Traditional marketing includes print, broadcast, direct mail, and telephone	Digital marketing includes online advertising, email marketing, social media, text messaging, affiliate marketing, search engine optimization, pay per click
No interaction with the audience	Interaction with the audience
Results are easy to measure	Results are to a great extent easy to measure
Advertising campaigns are planned over a long period of time	Advertising campaigns are planned over short period of time
Expensive and time-consuming process	Reasonably cheap and rapid way to promote the products or services
Success of traditional marketing strategies can be celebrated if the firm can reach large local audience	Success of digital marketing strategies can be celebrated if the firm can reach some specific number of local audience
One campaign prevails for a long time	Campaigns can be easily changed with ease and innovations can be introduced within any campaign
Limited reach to the customer due to limited number of customer technology	Wider reach to the customer because of the use of various customers technology
24/7 year-round exposure is not possible	24/7 year-round exposure is possible
No ability to go viral	Ability to go viral
One way conversation	Two ways conversation
Responses can only occur during work hours	Response or feedback can occur anytime

application of the Internet and related digital technologies to achieve marketing objectives”. Chaffey et al. (2009) simply define Internet Marketing as “the application of the Internet and related digital technologies to achieve marketing objectives”.

The main difference between digital and traditional marketing is the medium through which an audience encounters a marketing message. While traditional marketing uses traditional media like magazines and newspapers, digital marketing uses digital media, such as social media or websites. However, we see also differences in the way the customer is approached. Table 1 given by Yasmin et al. (2015) shows comparison of traditional and digital marketing.

2.2 Digital Marketing in Automotive Industry

Bagga and Gupta (2014) write that Internet Marketing is a very vital tool for automotive promotions. Automobile companies tend to practice more and more promotion strategies through Internet advertisements and use of social media pages. This is related to the interest of the followers through real-time updates. The conclusion is that automobile dealers must invest in better promotions and better reach to the

masses through Internet. Example is Volkswagen India that impressed the market in short period of time. Therefore, promotions through Internet Marketing are very much crucial for all dealers in order to find out about the tastes and preferences of the customers. The final conclusion is that Internet Marketing is the best practice for advertisements.

Hasmet (2020) focuses on marketing strategies in the adaptation of Industry 4.0 technologies. The explanation is that Industry 4.0 is digital revolution apart from industrial revolution that occurs at the factory level and changes the way products are produced. Main aim of marketing plays is to provide feedback to the production function. Therefore, companies in order to create market growth change their marketing strategy alongside industry 4.0. Consequences are new generation of marketing and sales for the organization. Industry 4.0 helps in reducing costs in terms of marketing and sales and increases market growth with certain flexibility.

Kalliokuusi (2013) examined how to renew existing marketing strategies for a company that is market leader in the Kenyan automobile sector. The author did a situational analysis of the industry utilized tools through PESTEL and Porter's Five Forces. The survey applied in the case is qualitative research method, through structured and unstructured interviews with the company employees. The results of the study support renewal strategies proposed by the author.

Darshan (2018) writes that Internet and online resources have made a significant influence on all aspects of human life. Related to that there is a dependency on people which determine their tastes and purchasing decisions from online sources. The current trends show the importance of online resources and social media in purchasing decisions. Therefore, the study aimed to investigate the influence of the Internet and social media resources on vehicle purchasing behavior. Ninety people who bought a car participated in the research in the period May 2017 to May 2018. The results outline that Internet and online resources have big influential on the decision of purchasing a car. Also, socio-demographic characteristics of the respondents are important factors in the purchasing decision.

Samson et al. (2014) conducted a study about the impact of online digital communication, on customer buying decision. Their initial goal was to test how effective is online digital communication when it comes to automobile industry. They were focused on passenger car segment. Similar to the study of the author of desertion, their study was consisted of 100 respondents that had different backgrounds. The results show that at that time (9 years ago) TV and word of mouth were most effective drivers. However, majority of the potential clients used digital communication sources and evaluated them as useful. The final conclusion was that digital communication tool was powerful tool with big potential.

In a similar time, Arora and Batra (2015) made a comparison between traditional and digital marketing techniques and their usage in automobile sector. They define digital marketing as a term that is used for the different promotion and advertising activities/techniques in order to utilize different digital methods in relation to customers. The study was conducted in India in a time when there was a boom of IT sector and many people living in India had access to Internet via mobile or tablet. The aim of authors was to explore how digital marketing influences decision making

for buying new cars in India. Authors made a comparison between the traditional and digital marketing techniques. For this purpose the authors used survey with questions about customer feedback during pre- and post-purchase decision of automobile via different traditional or digital methods. The conclusion is that both techniques at that time were complementary, but automobile industry should invest and focus on digital marketing as a more effective tool for communication with customers.

In a newer study, Premkumar and Godwin (2020) examined the influence of digital marketing in the automobile industry in India. They wanted to see whether Indian vehicle buyers decisions tend to use digital marketing when they buy a new car. For this purpose, they conducted a cross-sectional descriptive study with survey on a 5-point Likert scale. The sample was snow ball, and they managed to get 120 respondents. Their target respondent was individual in the family who had automobile or wanted to buy a new automobile in near future. The results of the study confirm usage of digital marketing communication by the potential clients when purchasing a new car.

Todor (2016) suggests that companies adapt to the new reality of the digital. One important solution is automation of all the processes. However, the author concludes that traditional methods should not be ignored and that companies should try to blend digital marketing with traditional campaigns. This is the only way for the companies to achieve their ultimate goals.

Tiago and Verissimo (2014) write that there are changes in consumer behavior, and therefore companies, must innovate with their digital strategies. Now everything is focused on the customers. These authors write about co-creation of content with customers. In order to improve companies must focus on relationships with customers. The conclusion is that everything should be focused on engagement with customers and to have stronger relationship with them in order to create loyal customers. Apart from loyal customers, Efremov (2022) accents loyal and committed employees that are influenced by emotions for the organization they work for.

For the last part of theoretical review, data about visits to dealers will be shown. According to Charlesworth (2014) in a study for digital marketing by Mercedes-Benz, data show that before the Internet, an average customer visited a dealer around nine times prior to automobile purchase. At present due to Internet, this number is set to almost halve between 2015 and 2018. The costs are lower, but there is no real relationship, but only virtual.

The recommendations are that automobile manufacturers should focus on aspects on marketing and not on chasing followers. At the end, it is important to note that dealers get predefined content from the manufacturers and are in a position to change it, but to better distribute it on the local market and find strategy that works best in the context. The prediction of this specific study is that digital marketing prevails over traditional marketing in automotive industry on Kosovo market.

3 Methodology

3.1 Research Methods

For the purpose of the study, both quantitative and qualitative research were conducted. The quantitative research was conducted through face to face interviews with car dealer managers, while qualitative research consisted of face to face semi structured in depth interviews with account managers in charge of automotive clients in marketing agencies. The fieldwork was conducted in January and February 2020.

3.2 Research Instrument

For the purpose of this study, a questionnaire and a discussion guide have been created. The questionnaire is given to representatives of automobile manufacturers on Kosovo market and includes data about the respondents and the company. The qualitative discussion guide was given to managers working in marketing companies and were in charge of automotive clients.

3.3 Sample

There were 30 car dealer managers included in the quantitative survey, while ten account managers in charge of automotive clients in marketing agencies were included in qualitative research through in depth interviews.

3.4 Descriptive Data

The descriptive statistics analyses of survey with 30 car dealer managers are presented in this part of the paper (Table 2).

Most of the interviewed representatives of dealers are CEO/CFO/CMO (33%) and General Manager (30%). What follows is marketing people with 20%.

Majority of companies in the sample (around half of them) said that they have two franchise locations, followed by dealers with three locations (23%). There are only two independent dealers on the market, and they are represented with 7% in the sample (Table 3).

All respondents (100%) answered that there are online digital marketing activities in the company they work (Table 4).

The results show that most of the companies started using digital marketing nine years ago in 2014 (43%). Around one third of companies (37%) started using digital

Table 2 Q1. Please describe your position at your car dealership

Options	Frequency	Percent
Owner/partner	2	6.7
CEO/CFO/CMO	10	33.3
GM	9	30.0
Marketing responsible	6	20.0
Salesperson	2	6.7
Service manager	1	3.3
Total	30	100

Table 3 Q2. How many new car franchise locations are in your organization?

Options	Frequency	Percent
1	3	10.0
2	10	46.7
3	7	23.3
4	3	10.0
5–10	1	3.3
Independent dealer	2	6.7
Total	30	100

If you have five Jeep Chrysler Dodge stores you would answer five.
If you have a BMW, Ford and Hyundai store you would answer 3

Table 4 Q3. Does your company have any online digital marketing activities run or planned?

Options	Frequency	Percent
Yes	30	100
No	0	0

Table 5 Q4. Since when you are using digital marketing as a part of your marketing campaigns?

Options	Frequency	Percent
2014	13	43.3
2015	11	36.7
2016	6	20.0
Total	30	100

marketing in 2015 while one-fifth (20%) started using digital marketing in 2016 (Table 5).

The analysis reveals that one-third (33%) of the companies spent 80% of their budget on digital marketing, followed by 23% of them who spent 90% on digital marketing. All companies stated that they spent over 60% for digital marketing (Table 6).

Table 6 Q5. What is the ratio of spending that your company invests on traditional and digital marketing at the moment? (Indicate how your car dealership budgets will be affected in 2019 for marketing, branding or advertising?)

Digital marketing	Frequency	Percent
60	1	3.3
65	2	6.7
67	1	3.3
70	4	13.3
75	4	13.3
80	10	33.3
85	1	3.3
90	7	23.3
Total	30	100

Please fill the percentages for both so that the sum will be 100%

Table 7 Q6. What was the ratio of spending that your company invested in traditional and digital marketing, 5 years ago (year 2014)?

Digital marketing	Frequency	Percent
10	10	33.3
20	10	33.3
25	2	6.7
30	4	13.3
33	1	3.3
35	1	3.3
40	2	6.7
Total	30	100

Please fill the percentages for both so that the sum is 100%

The results show that five years ago, two-thirds of the companies (66%) spent over 80% of their budget on traditional marketing, followed by 70% of spending's in traditional marketing for 13% of the companies (Table 7).

The majority of respondents answered that their organization is not using Twitter, Flickr, or LinkedIn. On the other hand, among Facebook there are 53% super users and 47 regular users. Also, there are 70% regular users of press releases and 30% super users of press releases (Table 8).

Around 70–80% of the budget among half of the companies is dedicated for online media. Further, we can see that 20% of the companies have dedicated 80–90% of their budget for online media, while 6.7% of the companies, uses over 90% of their advertising and marketing budget for online media (Table 9).

Most of the respondents evaluated Facebook as most effective when it comes to conveying specifications, features, and comparative information regarding cars. Facebook has average evaluation of 4.5, closely followed by Instagram 4.0. Newspapers and print media have lowest evaluation for this aspect (Table 10).

Table 8 Q7. Please rate your organization's use of the following internet marketing tools, social media platforms, and online strategies

Options—percentage	Not using	Ready to start	Just beginning	Regular user	Super user
Facebook				46.7	53.3
Twitter	100.0				
Flickr	100.0				
YouTube	20.0	56.7	23.3		
Microsites	26.7	56.7	16.7		
Blogging	6.7	46.7	26.7	20.0	
LinkedIn	93.3	6.7			
Press releases				70.0	30.0
Testimonial videos	33.3	30.0	23.3	10.0	3.3
Walk-around car videos	23.3	46.7	23.3	6.7	
Google AdWords	3.3	33.3	40.0	23.3	

Table 9 Q11. What percentage of your advertising and marketing budget is for online media, lead purchasing, SEO (internal, organic website optimization), SEM (Search engine marketing), blogging, websites, microsites, IRM, online

Options	60–70%	70–80%	80–90%	>90%	Total
Percent	23.3	50.0	20.0	6.7	100

Table 10 Q8. Which medium do you find is the most effective from your customers' point of view in conveying specifications, features and comparative information regarding cars?

Options—percentage	1	2	3	4	5	Average
Television	10.0	23.3	33.3	16.7	16.7	3.1
Print media (magazines and newspapers)	30.0	53.3	13.3	3.3		1.9
Radio	20.0	33.3	40.0	3.3	3.3	2.4
Billboard		26.7	56.7	13.3	3.3	2.9
Fliers/brochures		20.0	46.7	30.0	3.3	3.2
Newspapers	26.7	40.0	30.0	3.3		2.1
Google AdWords		3.3	43.3	43.3	10.0	3.6
Facebook			6.7	40.0	53.3	4.5
Instagram			33.3	30.0	36.7	4.0
YouTube		6.7	63.3	20.0	10.0	3.3
Banner advertising		23.3	46.7	16.7	13.3	3.2
Direct mail, cards, flyers, email brochures		20.0	13.3	53.3	13.3	3.6

Please evaluate it with marks from 1 to 5 where 1 is Not effective at all, and 5 is It is the most effective

Table 11 Q9. On which medium do you advertise specifications, features and comparative information regarding cars?

Options	Frequency	Percent
TV	0	0.0
Print media (magazines and newspapers)	0	0.0
Radio	7	23.3
Billboard	7	23.3
Fliers/brochures	1	3.3
Newspapers	0	0.0
Google AdWords	10	33.3
Facebook	30	100.0
Instagram	0	0.0
YouTube	0	0.0
Banner advertising	3	10.0
Direct mail, cards, flyers, email brochures	2	6.7

Please choose more than one

The analysis shows that Facebook is the most used media for advertisement, and all respondents use it. Next in line are Google AdWords (33%), Radio (23%), and Billboard (23%) (Table 11).

When it comes to skills of digital marketing managers, the respondents evaluated the person responsible for Facebook as peer leader (57%) or super user (43%). Regarding video, the persons are evaluated 73% as peer leader while 20% as super user. The situation is similar among consumer reviews (70% peer leader and 20% super user) (Table 12).

Less than half of the respondents (47%) evaluate dealership as very strong, while one-third (30%) said that they dominate. The rest have average evaluation (23%) (Table 13).

Table 12 Q10. Please score the Internet Sales Manager (if applicable), or the person responsible for digital marketing of the store which you are employed on their general understanding and high level knowledge of how to leverage this tool/strategy for the dealership

Options—percent	No Clue	Just starting to ask questions	Beginner	Peer leader	Super user	Total
Facebook				56.7	43.3	100
Twitter	43.3	46.7	10.0			100
Search engine Optimization			40.0	43.3	16.7	100
Microsites		13.33	63.33	23.33		100
Blogging		13.33	63.33	23.33		100
Video		3.33	3.33	73.33	20.0	100
Consumer reviews		6.67	3.33	70.00	20.0	100

Table 13 Q12. What is the overall score you would give your dealership in their ability to be competitive online in your local market when a consumer searches for a new car that you sell in Google, Yahoo, etc.

Options	Percent
Average	23.3
Very strong	46.7
We dominate	30.0

Table 14 Q13. Do you have a written policy that governs the actions of employees for their participation or involvement with

Options Percent	Yes	No	Total
Facebook	63.3	36.7	100
Twitter	13.3	86.7	100
Blogging	13.3	86.7	100
Customer reviews	73.3	26.7	100

Among 63% of the companies answer that there are written policies for Facebook, while for customer reviews there are written policies for 73% of the companies. Only 13% of the companies have those policies for twitter and blogging (Table 14).

Around three-quarter (77%) of the companies send companies to automotive conferences of regional seminar specifically for Internet Marketing skills development (Table 15).

All respondents (100%) agree that investments in digital marketing are more effective compared to investment in traditional marketing (Table 16).

Table 15 Q14. Does your dealership send employees to automotive conferences (NADA, Digital Dealer, Driving Sales, and JD Powers) and regional seminars specifically for Internet Marketing skills development?

Options	Percent
Yes	76.7
No	23.3

Table 16 Q15. Do you think that investing in digital marketing is more effective than investing in traditional marketing when it comes to Kosovo automotive market?

Options	Percent
Investments in digital marketing are more effective	100
Investments in traditional marketing are more effective	0

3.5 *Qualitative Data*

The qualitative analyses of in depth interviews with ten marketing managers in charge of automobile clients are presented in this part of the paper.

3.5.1 Description of Current Automobile Market on Kosovo

According to respondents, the automobile market in Kosovo is very competitive and is split into two major groups: used car market and new car market. The current automobile market in Kosovo consists mostly of used vehicles that are imported from western countries. Estimated ratio used to the new car market is about 8:1. In Kosovo, the biggest car manufacturers are present through their distribution channels. Automobile market in Kosovo is concentrated mostly in the suburbs of Prishtina, which is the biggest city and capital of Kosovo. Since 2016 with some legislative help, mainly the removal of custom tax for vehicles that are produced in Europe, there has been a rise in demand for new cars that are produced in Europe. Given this new development, the new car importers have started to grow and invest more in their presence in the market.

3.5.2 Information About Kosovo Automobile Market

The respondents estimate the yearly budget spent on marketing in Kosovo for the total market around 500,000.00 EUR. Two distributors: Porsche Kosova (Volkswagen Group Vehicles) and Auto Mita (Renault/Nissan Dacia) are making up for 50% (around 25% each) of yearly marketing expenses. On the other hand, other importers such as Auto Trade (Toyota), Kosova Motors (Ford), Mercom (Peugeot), Siquani (Opel) are making up for the other 50%. Regarding used cars marketing, respondents estimate that the budget is around 300,000.00 EURO, which is roughly split among four distributors. The estimates are that around 75% of current communication strategy is mainly online, while around 25% is through TV and Radio channels.

3.5.3 Current Communication Strategies of Automobile Manufacturers on Kosovo Market

Respondents state that most of the local representatives adapt the global strategies on the local market. All respondents agree that the most active communication strategy is online based and it consists mostly of social media, online portals, and websites.

3.5.4 Influence of Internet Over Decision Making to Buy New Car on Kosovo

All respondents believe that the Internet is affecting the decision making of the customer. Main reason is that every car dealer is present in social media and other Internet channels as well, so that customers can communicate with dealers directly 24/7. Also, there are countless video reviews and articles online for almost every car, and this gives the opportunity to the customer to have a deeper knowledge and form their impressions on the cars before even visiting our showrooms. Additionally, all local importers are very active in social media and many customers contact local dealers online before visiting them. All respondents state that online car promotions automatically link the customers to dealer's websites and social media contact points. This process serves as a new sales channel for cars.

3.5.5 Differences Between Internet and Traditional Media

All respondents agree that online ads are much easier to maneuver with and their content can be much easily and quickly changed based on the reaction that is received from the market. Most of the online ads are interactive, and this gives people the opportunity to comment directly in these ads which means that dealer gets live feedback that is highly important. The conclusion is that besides being interactive, the online marketing is much more cost efficient, and it can reach a broader audience. As the main disadvantage of traditional marketing, respondents mention that message that is given cannot be updated for a certain period of time. Therefore, that must be thoroughly planned and implemented. On the other side, in Internet media, respondents' state that content can be updated and adopted almost anytime, according to the interaction with the customers. The conclusion is that it is not only fast to implement any change in content but also it is far cheaper than a change in a traditional media.

3.5.6 Usage of Digital and Traditional Marketing by Automobile Dealers Now and 5 Years Ago

The respondents state that the whole strategy has changed. 5 years ago dealers had some presence online but, in the meantime, they still invested a lot in traditional media such as billboards, newspapers and TV. Nowadays, almost all dealers' efforts are on online marketing and what has mostly changed is the presence of the audience. Dealers are highly aware that our average customer spends much more time in front of a screen today than they did 5 years ago. Previously, dealers had mostly one way communication with the customers. On the other hand, nowadays, customers are able to write on their own about their negative experiences to the broader audience, and this should be handled promptly. Also the technology advancements have made it possible to have a higher presence in online marketing. As a consequence respondents mention that nowadays, consumers prior to the visit in dealerships, search on the

Internet for more information, deals, and car reviews. The conclusion is that there is a big shift in favor of usage of digital marketing.

3.5.7 Opinion About Communication Strategies of Automobile Manufacturers in the Future

All respondents agree that from today's point of view, it seems that online marketing will completely dominate the marketing industry. There are improvements every day in online configurators and that makes it possible for customers to practically build and see their desired vehicle just as it would be in real life. There is already a rapid change in consumer behavior, mostly influenced by digital media. With the rise of user generated content, Virtual Reality, as well as the information available in the form of blogs, tweets, and Facebook posts, the domination of digital media is in sight. Additionally, there is a much higher focus to develop online sales channels. Therefore, the conclusion is that online media will most likely dominate this market.

4 Findings and Discussion

4.1 Findings from Quantitative Survey

The findings from quantitative survey are outlined in this part. All respondents (100%) answered that there are online digital marketing activities in the company they work. The results show that most of the companies started using digital marketing nine years ago, in 2014 (43%). In 2015 around third of companies started using digital marketing (37%) and one-fifth (20%) in 2016. The analysis reveals that one-third (33%) of the companies spent 80% of their budget on digital marketing, followed by 23% of the companies who spent 90%. All companies stated that they spent over 60% for digital marketing. The results show that when asked about five years ago, two-thirds of the companies (66%) spent over 80% of their budget on traditional marketing, followed by 70% of spending in traditional marketing for 13% of the companies.

Regarding Facebook, there are 53% super users and 47 regular users. Also, there are 70% regular users of press releases and 30% super users of press releases. The majority of respondents answered that their organization is not using Twitter, Flickr, or LinkedIn. Most of the respondents evaluated Facebook as most effective when it comes to conveying specifications, features, and comparative information regarding cars. Facebook has average evaluation of 4.5, closely followed by Instagram 4.0. Newspapers and print media have lowest evaluation for this aspect. The analysis shows that Facebook is the most used media for advertisement and all respondents use it. Next in line are Google AdWords (33%), Radio (23%), and Billboard (23%).

When it comes to skills of digital marketing managers, the respondents evaluated the person responsible for Facebook as peer leader (57%) or super user (43%). Regarding video, the persons are evaluated 73% as peer leader while 20% as super user. The situation is similar among consumer reviews (70% peer leader and 20% super user).

Around 70 to 80 percent of the budget among half of the companies is dedicated for online media. Further, we can see that 20% of the companies have dedicated 80–90% of their budget for online media, while 6.7% of the companies, uses over 90% of their advertising and marketing budget for online media. Less than half of the respondents (47%) evaluate dealerships as very strong, while one-third (30%) said that they dominate. The rest have average evaluations (23%).

Among 63% of the companies there are written policies for Facebook, while for customer reviews there are written policies for 73% of the companies. Only 13% of the companies have those policies for twitter and blogging. Around three-quarter (77%) of the companies send companies to automotive conferences or regional seminars specifically for Internet Marketing skills development. All respondents (100%) agree that investments in digital marketing are more effective compared to investment in traditional marketing.

4.2 Findings from Qualitative Research

The findings from quantitative survey show that automobile market in Kosovo is very competitive and is split in two major groups: used car market and new car market (Estimated ratio used to new car market is about 8:1). Since 2016 due to legislative change (mainly the removal of custom tax for vehicles that are produced in Europe), there is a rise in demand for new cars that are produced in Europe.

The yearly budget spent on marketing in Kosovo for the total market is around 500,000.00 Euro split by two distributors: Porsche Kosova (VW Group) and Auto Mita (Renault/Nissan Dacia) that make up for 50% (around 25% each). Budget for used cars marketing is around 300,000.00 Euro, which is roughly split among four distributors.

Current communication strategies of automobile manufacturers on Kosovo market are mostly online, and it consist mostly of social media, online portals, and websites. Internet is affecting the decision making of the customer because every car dealer is present in social media and other Internet channels, and there is communication 24/7.

Online ads are much easier to maneuver with, and their content can be much easily and quickly changed based on the reaction that is received from the market. Online ads are interactive, and this gives people the opportunity to comment directly in the ads.

The conclusion about digital marketing is that besides being interactive, the online marketing is much more cost efficient, and it can reach a broader audience. As main disadvantage of traditional marketing, respondents mention that message that is given

cannot be updated for the certain period of time. Digital marketing is cheaper than traditional media.

Consumers, prior to the visit to a dealership, search on Internet for more information, deals and car reviews. The rise of user generated content, Virtual Reality, as well as the information available in form of blogs, tweets, and Facebook posts, the domination of digital media is in sight in the near future.

5 Conclusions

The results show the prevalence of digital marketing compared to traditional marketing. This trend shows that current business environment is changing and companies especially automotive manufacturers use digital marketing strategies predominantly. The findings are in line with the study of Premkumar and Godwin (2020) who examined the influence of digital marketing in the automobile industry in India. The results of the study confirm usage of digital marketing communication by the potential clients when purchasing a new car.

5.1 Implications

This study aims to shed light on current marketing strategies and changes that result from transition to digital marketing due to evolving business environment. Automobiles are products that are costly and are bought for a certain period of time, and therefore, the decision is done after scanning of market. The results of the study are useful for other industries where heavily involvement of buyer and previous research on the topic is needed.

5.2 Limitations and Future Research Directions

Despite the sample size, one limitation of the study emerges from usage of convenient samples, which are not totally representative for the population of interest (although majority of potential stakeholders were included). Apart from that, lack of additional sources for digital marketing on Kosovo represents another limitation of the study. However, the scope and range of questions overcome these limitations and provide a benchmark for other markets and industries. Future research directions are aimed at different markets and different industries in order to test the prevalence and rise of digital marketing. The findings of this study are useful for managers in automotive industry when making marketing decisions.

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School Leadership in a Pandemic: A Case Study of Two Secondary Schools in North Macedonia



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Abstract This study explores how school leadership managed their schools during the COVID-19 pandemic. It also explores how school leaders adapted their leadership practices to the crisis by implementing virtual practices and technology. The study focuses on two secondary schools in North Macedonia, using semi-structured qualitative and quantitative research methods to collect data from school leadership and teachers through interviews and questionnaires. Results showed that the roles of school leaders were critical in managing the unpredictable situation and completing the school year successfully. The leaders demonstrated strong crisis management skills and distributive leadership, working closely with teachers and pupils to shift the teaching and learning process from onsite to online. This study highlights the importance of effective school leadership during a crisis.

Keywords COVID-19 pandemic · Distributive leadership · Online teaching and learning · Secondary education

1 Introduction

The COVID-19 epidemic has greatly impacted education globally, leading to school closures and a shift to online learning to limit virus transmission. School leaders have had to modify their policies and practices, implementing prevention and response strategies, supporting online teaching and learning, and addressing the emotional

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needs of students and staff. The switch to online learning has created challenges for leaders as they had to adapt to new virtual practices and utilize technology.

Moreover, according to Smith and Riley (2012), the pandemic of COVID-19 created uncertainty among school leaders and teachers and other educational stakeholders. Its massive scale and complete unpredictability made it challenging for many school leaders to respond efficiently during the pandemic. In addition, the school leaders had to adapt quickly to face the challenges and manage their day to day activities by changing their roles and by acting differently than in normal circumstances (Smith & Riley, 2012). In this context, John Maxwell states that the role of leaders when faced with a crises situations changes by making themselves more visible because as he says during crises leadership is more needed than in normal circumstances. 'A leader's visible presence during times of crisis inspires confidence and gives others a sense of security. Certainly, the ability of leaders to control their own emotions is paramount during crisis' (Maxwell, 2013).

The study aims to investigate the process of school leadership during a pandemic, focusing on the actions of school leadership groups in mitigating the effects of the pandemic on the overall functioning of schools. We conducted case studies at two secondary schools in North Macedonia: 'Zef Lush Marku' in the capital city, Skopje, and 'Drita' in Kicevo, a city in the west of North Macedonia.

Moreover, it also reveals how the two school leaderships improved the schools' capacities to deal with the drastic and imposed changes, especially during the first wave of the pandemic. In particular, it reveals the established internal mechanisms of the schools, their flexibility, and capability to face such crises. Namely, the study reveals the situation in terms of school readiness to face imposed changes and unpredictable challenges, in particular the schools' digital infrastructure, which was a very important component in ensuring the smooth functioning of the teaching and learning process during the pandemic.

In general, this study has the following objectives:

1. It aims to reveal the actions of the schools' leadership to enable a smooth continuation of the teaching and learning process, despite the challenges of the pandemic, by shifting the mode of teaching and learning from onsite to online.
2. It also aims to reveal the teachers' views and perceptions of all measures undertaken by the school leadership to enable the smooth transition of the mode of teaching and learning from onsite to online, as well as their changing role during this shift and during the online mode of teaching and learning.

2 Literature Review

There are numerous studies that investigated the school leaders' leadership roles during the pandemic and the way they responded to its disruptive effects on education, especially in terms of transitioning from an onsite teaching mode to that of online (Harris & Jones, 2020; Kaul et al., 2020; McLeod & Dulskey, 2021; Stone-Johnson & Miles, 2020).

According to Harris and Kaul et al. (2020), the COVID-19 pandemic has redefined the roles and actions of school leaders. They have had to make quick and informed decisions about priorities and policies in response to the disruptions and pressures brought on by the pandemic. According to them, these decisions differed significantly from those made in more normal circumstances, and therefore school leaders have had to ensure the physical and mental well-being of both staff and students and ensure that the education process continues smoothly. Leithwood et al. (2020) and Netolicky also noted that in times of crisis, such as the COVID-19 pandemic, school leaders must act and make decisions quickly while also remaining calm (Leithwood et al., 2020).

Similarly, Khalida et al. conducted a study that used a systematic literature review to investigate the leadership challenges faced by principals in public schools during the COVID-19 pandemic. The study identified 24 challenges and found that the most significant challenges were related to self-care and well-being, learning continuity and the quality of education, distributive leadership, emotional and mental health, equity gaps, digital divides, and cyber security in online education. The study emphasized the importance of considering these challenges, as the role of principals was central to the smooth running of schools during the pandemic.

A study conducted by Dykstra-Lathrop (2022) examined the experiences of eight high school principals in Colorado, USA, during the COVID-19 pandemic. The principals in the study reported that their professional learning network provided key support for each other, and that they used Zoom and text messaging to share strategies and cope with the challenges of the pandemic. Rehm et al. also found that school leaders used Twitter to effectively communicate and share information about the transition from in-person to online teaching and other issues that arose during the pandemic. On the other hand, Dykstra-Lathrop (2022) found that strong, decisive communication was a critical component of leadership during the pandemic, and that the leaders in the study embodied the traits of adaptive leadership. They also identified priorities, focused on essential standards, and fostered collaboration among staff, even through virtual platforms. The study also emphasizes the importance of shared leadership and the need for leaders to connect with people as individuals, establish mutual trust, distribute leadership throughout the organization, and communicate clearly and often with all stakeholders. The leaders in the study were successful in managing the challenges of the pandemic by being adaptive, setting high expectations for learning, and holding a positive mindset (Dykstra-Lathrop, 2022).

Another research conducted by Madalińska-Michalak (2021) in Poland focused on the role of school leadership in supporting resilience in teachers and building resilient schools under conditions of uncertainty and risk, such as those created by the COVID-19 pandemic. The research identified seven core leadership practices that are successful in these circumstances: sustaining education service delivery and innovations, planning in a context of uncertainty and responding to changes in policy, re-framing and extending health and safety policies based on health and education data, leadership across the school, provision of an inclusive curriculum, inclusive partnerships with students' families, and motivation, commitment, and professional development for teachers Madalińska-Michalak (2021). The structural limitations

of the paper prevent a more comprehensive exploration of this topic, but it highlights the need for further research on the values, principles, and norms that underlie shared leadership in creating the proper conditions for teacher resilience and resilient schools. The research also raises questions about the future of successful school leadership in the twenty-first century and the policies and modes of organization needed to enhance the roles and responsibilities of educational leaders in building resilient education systems (Madalińska-Michalak, 2021).

Similarly, according to Fink et al. in Sreejith et al., the role of educational leaders and the influence of their decisions and actions are heightened during a crisis, especially during the early phase of the pandemic when educational institutions are facing shocks that could threaten their existence. According to them, leaders are also vulnerable to these crisis shocks, which can leave their institutions paralyzed; therefore, educational leaders need to be adaptable to rapidly changing situations and use different skills and types of leadership to create the best possible mode of teaching and learning and achieve the best possible student outcomes. Whereas, Kerrissey and Edmonson (2020) suggest that effective leaders have to be proactive, inclusive, and transparent and provide immediate responses to any circumstances (Kerrissey & Edmonson, 2020).

What is more, according to Lathan (2022), the pandemic has demonstrated that effective school leaders, particularly during crises, establish and maintain close partnerships with families and communities and use these partnerships to create inclusive, caring, and culturally responsive school communities (Lathan, 2022). According to Lathan, building these school-community connections requires school leaders to be visible in their schools and communities, develop trust, and create a sense of transparency and shared purpose with parents, staff, community members, and students. Lathan (2022) emphasizes the fact that during crises, leaders co-lead the school with teachers and parents, meaning they distribute leadership to their teams and teachers so that everyone is involved in leading the school by participating in the decision-making process. They recognize that these challenges cannot be addressed alone and therefore cultivate leadership in others (Lathan, 2022).

Furthermore, Fernandez and Shaw, cited in McLeod and Dulsky (2021), recommend that school leaders adopt best practices and seek out opportunities in the crisis, communicate clearly with others, and distribute leadership within the organization during the pandemic (McLeod & Dulsky, 2021). Distributed leadership involves a shift away from traditional leadership toward a flatter, more decentralized, and networked approach (Harris, 2011). It emphasizes leadership interactions rather than actions and is focused on capacity building rather than control. It involves mobilizing others to lead through engagement and collective action. What is important to note is that distributed leadership directs attention away from the actions of individual leaders and toward joint and practical actions taken in collaboration with others. If schools return to normal functioning, it is suggested that school leaders recognize and demonstrate how technology has enhanced and significantly changed teaching. In addition, distributed leadership promotes teamwork and utilizes the expertise and skills of various staff members to address the new situation, including knowledge that may differ from that of the school leaders.

On the other hand, a study conducted in Malaysia found that while online learning was seen as a suitable method of learning during the COVID-19 pandemic, only a small percentage of respondents felt that they benefited from it and preferred traditional classroom methods. The study also found that limited Internet access due to poor infrastructure and high costs negatively impacted students' learning experiences. It was suggested that in order to improve the effectiveness of online learning, teachers should utilize effective pedagogical methods and the government should improve online infrastructure and facilities. Additionally, support from school communities and parents was seen as important for the success of online learning. The unfamiliar learning environment and new tasks presented challenges for students and may have affected their motivation to learn (Basar et al., 2021).

Similarly, Lal Lamsal (2022) conducted a survey of teachers and students in the Nepalese community secondary schools to explore the challenges and opportunities of online learning during the COVID-19 pandemic. The study found that the transition to online learning was accompanied by a number of challenges, including a lack of necessary resources and technical difficulties such as lack of proper access to Internet in the community schools and their students were from poor background and the students' parents had had less awareness toward the online teaching mode (Lal Lamsal, 2022). However, the study indicated that the online teaching mode made the teachers active and dynamic in their teaching learning activities. Those teachers who were illiterate in operating computer, they got an opportunity to be familiar using it, and they could participate in different virtual conferences, seminars, and workshops that assisted them in their professional development. The author concluded that the successful implementation of online learning programs in the Nepal required the provision of necessary resources, the implementation of effective teacher training programs, and the demonstration of strong leadership skills and abilities by school leaders (Lal Lamsal, 2022).

Overall, research has shown that the transition to online learning during the COVID-19 pandemic was not without challenges. Lack of necessary resources and technical difficulties were commonly cited challenges. However, the successful implementation of online learning programs was often facilitated by the use of innovative technologies and the provision of support services such as tutoring and counseling. Some studies have also noted that access to technology and reliable Internet was a challenge in certain countries, making it difficult for schools to effectively implement online learning programs. In addition, some scholars have suggested that adopting a distributive leadership style, in which leadership responsibilities are shared among a group of individuals, may be effective in certain contexts during the pandemic. It is important to note that the most appropriate leadership style will depend on the specific needs and context of the school.

3 Methodology

3.1 Research Model and Methods

We used semi-structured qualitative and quantitative research methods of collecting data, including interviews and questionnaires, to gather information from the surveyed school leaderships and teachers at both schools.

Therefore, this research paper reveals the results from both the quantitative and qualitative methods of enquiry. The former incorporated two structured online questionnaires with predefined answers, whereas the latter incorporated two interviews with the school leaders/leaderships.

The purpose of the questions in the questionnaires was to reveal the views of the leaders and teachers about the overall measures undertaken by the school leaderships to face the pandemic as well as about the imposed need to convert the mode of teaching and learning at schools from onsite to online.

After the questionnaires were completed online, more specific, in-depth information was obtained through interviews with the school leaderships of the two surveyed schools.

3.1.1 Research Questions

The research questions of this study are as follows:

1. How did the school leaders react to the first wave of the pandemic, in terms of maintaining the smooth functioning of teaching and learning process?
2. How did school leaders create and maintain networks (internal and external) during the pandemic?
3. What standards and attitudes strengthened their leadership practices? What leadership styles did they use?
4. What are the teachers' perspectives in terms of the school leadership's actions to confront the pandemic and to enable a smooth transition of the mode of teaching and learning from onsite to online during the pandemic?

3.2 Research Instrument

The data for this study was obtained by means of online questionnaires and interviews with the two high school leaders and teachers.

3.3 Sample

The study was conducted at two secondary schools in North Macedonia: Zef Lush Marku, Skopje, the capital city of North Macedonia and Drita in Kicevo, a city in the west of North Macedonia. Both schools were selected for the study due to their diverse student populations and their different approaches to online learning during the pandemic.

The participation of the high school leaders and teachers in this study was voluntary. The participants in this study are the school principal and thirty teachers of the Secondary School 'Drita' in Kicevo, as well as ten teachers; and the school leadership (the school leader and his deputy, secretary, and the administrator of the secondary school 'Zef Lush Marku' in Skopje).

3.4 Descriptive Data

3.4.1 Interviews with the Two School Leaders

The interviews with the two high school leaders of the surveyed schools in North Macedonia revealed the following:

The high school Zef Lush Marku in Skopje was not prepared for the challenges of the COVID-19 pandemic and did not have advanced technology in place to easily transition to online learning. However, the school leader was able to work with state authorities and the school staff to quickly set up necessary preparations and shift onsite classes to online through teamwork and innovative technology. The school provided support and assistance to students and parents as they adapted to the new paradigm of online learning and held frequent meetings in Microsoft Teams. Despite the challenges, the school leader and teachers believe that onsite learning is irreplaceable and the pandemic had a significant impact on the learning process.

In addition, the high school Zef Lush Marku in Skopje was not prepared for the pandemic and struggled to adapt to online learning at first. The school lacked advanced technology and had to quickly set up training sessions to familiarize teachers with the new paradigm of teaching and learning. Despite these challenges, the school leader was able to successfully transition onsite classes to online and provided support to students and parents. However, the online learning process caused difficulties and negatively impacted student learning outcomes. The pandemic also required school leaders to adopt a different leadership style, which involved managing the school remotely during a time of uncertainty. Despite these challenges, the school leadership was able to continue the teaching and learning process and successfully complete the school year online.

The school leader at Zef Lush Marku in Skopje was able to navigate the challenges brought on by the pandemic and ensure the smooth operation of the school by working closely with the state authorities, providing necessary resources and technology for

online learning, and offering continuous professional support to teachers. In addition, the school leader had to make decisions about the school budget and increase spending in order to facilitate the transition to online learning. Despite facing a lack of solutions and instructions from the Health Authorities and Ministry of Education, the school leader was able to lead the school effectively and maintain continuity of operations during the pandemic.

The high school Drita in Kicevo was not prepared to handle a pandemic like COVID-19. The school did not have Internet or technology to facilitate online learning and the teachers were not experienced in this method of teaching. As a result, many students were unable to participate in the online classes at the beginning of the pandemic. However, the school leader worked closely with the Ministry of Education and Science to address these issues and attendance for online classes eventually increased to 75% of students attending regularly, 15% partially, and 10% unable to attend due to lack of conditions at home. There were no official dropouts, but some students simply did not attend online classes for various reasons.

The school leaders at the two surveyed schools in North Macedonia were responsible for coordinating with the Ministry of Education and Science and addressing any issues that arose due to the pandemic. These leaders faced challenges as the schools were not prepared for a crisis, lacking technology, and experience with online learning. However, with the help of their teams, they were able to quickly get organized and create conditions for continued education until the end of the school year.

The school leaders at the two schools in North Macedonia faced significant challenges due to the pandemic, as the schools were not prepared with the necessary technology and infrastructure to shift to online teaching and learning. However, they were able to quickly adapt and establish effective communication with the Ministry of Education, teachers, students, and parents to ensure that the educational process could continue. They also engaged with the community through various digital platforms and social media to maintain continuity and support. Despite the difficulties, the school leaders were able to demonstrate creativity and resilience in leading their teams virtually and achieving successful outcomes.

In summary, the pandemic has highlighted the need for an effective leadership model that can manage risks in education, both global and internal. It is important to prioritize education expenditures, focusing on projects that increase the sustainability and resilience of the education system and increase inclusiveness, such as investments in online learning and greater technical support. In order to effectively monitor the effectiveness and efficiency of educational policy, it is necessary to define clear indicators and maintain continuity in policymaking. Additionally, school leaders have had to adapt to a new model of online leadership and have demonstrated creativity and innovation in leading their schools through the challenges of the pandemic. They have also had to empower others and build networks in order to effectively respond to the crisis and have shown empathy and attention to their own well-being in doing so.

4 Findings and Discussion

The results from the survey conducted with ten teachers at the high school ‘Zef Lush Marku’ revealed that online learning has not affected the quality of the learning. On the contrary, there is a huge percentage of teachers (80%) who claimed that online learning has not caused any difficulties in the continuity and integrity of school evaluation. They possessed the necessary digital competencies (70%). As regards the leadership method, most of the teachers (80%) claimed that the leadership changed their methods of leading and managing the school. As regards communication, most of the teachers (90%) confirmed that there was a channel of communication among leadership-teachers-parents established by the school leadership which functioned smoothly and without interruptions. As for the professional support during the pandemic, most of the teachers (85%) confirmed that they were provided with the necessary training and other technical support which enabled continuity in the teaching and learning process. Most of the teachers felt safe since the school leadership had undertaken all the necessary actions to ensure safety at work. New curricular priorities were established due to the pandemic, and this was felt primarily by teachers.

As regards the survey conducted with 30 teachers at the High School ‘Drita’–Kicevo, the following was revealed:

Question/Statement 1: Older teachers encounter more difficulty adjusting to online teaching than young teachers.

Agree	21 teachers	70%
Neutral	8 teachers	27%
Disagree	1 teacher	3%

The answers to this statement show that senior teachers or elderly teachers in this school had more difficulties to adjust to the online teaching environment.

Question/Statement 2: Interaction and engagement in online teaching and learning is more suitable for introverted students who have been less active in the classroom.

Agree	15 teachers	50%
Neutral	2 teachers	7%
Disagree	13 teachers	43%

The answers to question 2 show that slightly more than half of the surveyed teachers agreed that less active students became more active in the online mode of teaching and learning.

Question/Statement 3: In the future, an online teaching and learning mode will replace the traditional teaching and learning mode and will be more efficient.

Agree	13 teachers	43%
Neutral	0 teachers	0%
Disagree	17 teachers	57%

Question/Statement 4: Students do not engage in online teaching and learning as a result of:

- They lack technological equipment 25 students—35%
- Do not have Internet access at home 22 students—31%
- The way of learning from a distance does not seem attractive and efficient 11 students—15%
- They have trouble adjusting their schedules with other family members who also participate in distance learning ten students—14%
- They do not know applications and platforms for distance learning two students—3%
- Parents do not agree with this method of learning 1 student—1%.

As stated above, the data for this study were obtained by means of online questionnaires and online interviews with the two schools' leaders and teachers. The interviews with the school leaders and teachers provided supplementary information with more precise results, as well as an in-depth understanding of their actions and views in terms of the undertaken measures to face the challenges by the spread of the coronavirus in North Macedonia and the shift of the mode of teaching and learning process from onsite to online at their schools.

The participation of the high school leaders and teachers in this study was voluntary.

The school principal and thirty (30) teachers of the Secondary School 'Drita' in Kicevo, and ten (10) teachers, and the school leadership of the secondary school 'Zef Lush Marku' in Skopje (the principal, deputy principal, secretary, and the administrator) participated in this study.

The collected data analysis revealed that the roles of the two school leaders were critical in redirecting the unpredictable situation and enabling the completion of the school year in the best way possible. Both school leaders demonstrated strong leadership skills and abilities and were able to effectively practice crisis management and distributive leadership to ensure the success of the imposed online learning program.

Moreover, the results showed that close collaboration between all schools stakeholders, especially of school leaders, teachers, and students was essential in the transition from onsite to online learning. The teachers at both schools reported that they felt supported by the school leaders and were able to work together effectively to ensure the success of the online learning program. In addition, the students at both schools reported that they felt well-prepared for online learning and were able to adapt to the new learning environment.

Overall, the results of this study suggest that school leaders who demonstrate strong leadership skills and abilities, and who were able to effectively practice crisis management and distributive leadership, were well-equipped to lead their schools through the challenges of a pandemic. Close collaboration between teachers and students was also essential in the transition to online learning and could greatly contribute to the success of the program.

5 Conclusions

In conclusion, during the COVID-19 pandemic, high school leaders in North Macedonia faced challenges in transitioning from onsite to online learning. On the one hand, the high school 'Zef Lush Marku' in Skopje was not initially equipped with advanced technology, but was able to shift to online learning through teamwork and innovation. Around 75% of students participated in online classes, which were held through Microsoft Teams meetings. The pandemic had a negative impact on the learning outcomes of students, and the online teaching and learning process caused difficulties. The school leader had to increase spending in order to shift to online learning and provided continuous professional support to teachers. On the other hand, the high school 'Drita' in Kicevo also faced challenges due to a lack of technology and Internet access at the school. The school leader worked to coordinate with the Ministry of Education and Science and solve problems, but faced difficulties in managing the school during the pandemic. He also worked to provide necessary resources for online learning and sought support from the community. Both school leaders demonstrated strong leadership during the pandemic and worked to ensure a safe and productive learning environment.

Moreover, the school leadership at the surveyed schools in North Macedonia successfully managed the challenges of the pandemic through the implementation of distributed and collaborative leadership. This approach allowed for the involvement of all members of the school community in decision making and problem solving and resulted in successful outcomes including the continuation of the educational process and successful completion of the school year. The pandemic also highlighted the importance of risk management in education and the need for increased investment in the education system to increase its resilience and sustainability.

In continuation, we will provide answers to each of the research questions separately as follows:

RQ 1 *How did the school leader overcome the first wave of the pandemic in terms of maintaining the smooth functioning of the teaching and learning process?*

Answer

Overall, the pandemic brought about significant challenges for school leaders and required them to adapt their leadership style in order to effectively manage the crisis. This often involved shifting to a more collaborative and distributive leadership approach, establishing strong partnerships and communication channels, and finding innovative solutions to ensure the continuation of teaching and learning. The school leaders also had to adapt to leading their schools remotely, using technology to maintain communication and support their teams. Despite these challenges, the school leaders were able to successfully lead their schools through the pandemic and ensure the continuation of education and complete the school year successfully.

RQ 2 *How do school leaders create and maintain networks (internal and external) in a time of crisis?*

Answer

The pandemic required school leaders to adapt to a new type of leadership, one that was conducted entirely online. This was a new and difficult experience for many school leaders, as they had to manage their schools remotely and communicate with their staff and students through digital platforms. In order to successfully manage this new environment, school leaders had to establish strong team dynamics, communicate effectively with the Ministry of Education and Science of North Macedonia, choose appropriate digital platforms for communication, prioritize the social and emotional well-being of their school community, monitor the effectiveness of online learning, implement policies in accordance with government guidelines, and provide support and guidance to teachers as they adapted to online teaching. Additionally, school leaders had to demonstrate empathy and be open to empathy from others, while also taking care of their own well-being. They also had to maintain good communication with the community, including parents, through various digital platforms and social media. One major challenge during the transition to online learning was establishing effective communication between the school and students.

RQ 3 *What standards and attitudes strengthen their leadership practices? What leadership styles did they use?*

Answer

According to research, COVID-19 has forced school leaders to make quick decisions while prioritizing the physical and mental well-being of staff and students. Scholars have debated the role of leaders during crises, but adaptability and varied leadership styles have been the crucial ones for successful outcomes. Online learning presented challenges, but strong leadership, resources, and teacher training made the transition smoother. A distributive leadership style involving stakeholders was a necessity. The pandemic highlighted the need for effective leadership models that emphasize collaboration, networking, and virtual work to manage risks in education.

RQ 4 *What are the teachers' perspectives in terms of school leadership actions to confront the pandemic and to enable a smooth transition from onsite teaching and learning to online teaching and learning during the pandemic?*

Answer

The teachers at the two high schools in North Macedonia reported that their schools were not prepared for the challenges presented by the pandemic. However, with the help of the Ministry of Education and Science of the Republic of North Macedonia and through collaboration with teachers and parents, the schools were able to quickly adapt and implement online learning. The school leaders adopted distributed and collaborative leadership styles, provided training for teachers on using digital platforms, and supported the transition to online learning throughout the pandemic. While the teachers generally had positive experiences with online learning, they preferred onsite teaching and hoped to return to onsite classes as soon as possible.

5.1 Implications

The pandemic of the coronavirus COVID-19 has highlighted the need for effective management and leadership in education to manage and overcome the global and internal risks. School administrators have adapted by using network leadership, which is collaborative and widely distributed (shared leadership). This approach emphasized capacity building and mobilizing others to lead through engagement and collective action, rather than traditional administrative hierarchies. The success of distributed leadership (shared leadership) in the surveyed schools in North Macedonia during the pandemic demonstrated its potential as a successful model to be implemented in post-pandemic schools. It is also crucial to increase funding for education and prioritize investments in projects that enhance the sustainability and resilience of the education system, promote inclusiveness, and provide technical support for anticipating operational-technical risks.

5.2 Limitations and Future Research Directions

We recognize that the limitations of this paper may include the sample size of the target population and the measures taken for this study, which could impact the overall accuracy of the findings. In the future research on the topic of school leadership during various crises, we suggest expanding the scope of the study to include a larger sample size and incorporating a variety of data collection methods to provide a more comprehensive understanding of the experiences of school leaders, teachers, students, parents, and other relevant stakeholders. Furthermore, comparing the experiences of high schools from different regions or with varying levels of resources could also provide valuable insights into effective strategies for managing high schools during crises.

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A Review on Work Engagement, Attitude Towards Change and Performance



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Abstract This chapter aims to elaborate the root of research on work engagement, attitude towards change and performance. The study adopts content analysis technique where various sources are referred including reports, official documents and research articles. The two factors were crucial and have impact to the performance. It is proven that the number of researches on work engagement, attitude towards change and performance is increasing, while reputable affiliations were came out with quality articles as well as most developed countries are concern on the three mentioned factors. All information in this chapter are valuable for strategic planning and initiatives.

Keywords Work engagement · Attitude towards change · Performance

1 Introduction

Employee engagement has become a topic (Nazir & Islam, 2017) at the forefront of management research and practice for over ten years (Saks, 2019), demonstrating a critical role in achieving competitive advantage and positive organizational outcomes (Nwachukwu et al., 2021), positively influence important individual and organizational outcomes, for example, the health and well-being of employees (Knight et al., 2019; Saks, 2019), work/job performance (Knight et al., 2019; Lai et al., 2020; Saks, 2019; Tian et al., 2019), job satisfaction, organizational commitment, intention to quit, organizational citizenship behaviour, stress and strains, burnout (Saks, 2006, 2019). However, in previous studies, especially those that examined the relationship between employee engagement and employee performance, there were inconsistent results. Several previous studies have shown significant results (Arwab et al., 2022;

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Hanaysha, 2016; Ismail et al., 2019; Linggiallo et al., 2021; Meswantri & Ilyas, 2018; Nazir & Islam, 2017; Rumman et al., 2020; Sugianingrat et al., 2019), while several other studies showed insignificant results (Ahmed et al., 2017; Guan & Frenkel, 2018; Kim & Koo, 2017; Luong, 2012; Nguyen & Nguyen, 2022).

Empirically, the relationship between work involvement and individual performance is not a simple or direct relationship but is mediated by various factors (Karatepe & Ngeche, 2012). A number of studies on the relationship between employee engagement and employee performance have been carried out using mediating variables such as OCB (Sugianingrat et al., 2019), creativity (Ismail et al., 2019), employee commitment (Linggiallo et al., 2021; Uddin et al., 2018), learning goal orientation (Chughtai & Buckley, 2011) and customer-oriented behaviours (Ghlichlee & Bayat, 2020). But academics say there is a need for more studies that can explore mediating factors that have the potential to be important in the relationship between individual work engagement and individual performance (Kim et al., 2013).

Change is an inseparable part of organizational life today (Akhtar et al., 2016; van der Smissen et al., 2013), and all professions are challenged by the changes that occur (Carvalho, 2017). Individual attitude towards change is one of the determining factors for organizational success which is expected to be able to provide positive/expected change effects (Oreg, 2006; Van den Heuvel & Schalk, 2009). This is in line with what Piderit (2000) stated that, individual attitude towards change is the key to the success or failure of organizational change. Attitude towards change is the attitude of feeling, thinking and behaving both positively and negatively about the changes made by the organization (Arnold et al., 1995). In previous research, the relationship between engagement and attitude towards change has been done, but it is still rare (van Den Heuvel et al., 2017). Furthermore, in previous research, attitude towards change has been found to be a strong predictor of outcomes such as job satisfaction (Rafferty & Griffin, 2006), organizational commitment (Martin et al., 2005), as a predictor of turnover intention (Martin et al., 2005; van Den Heuvel et al., 2017), participation in change (Huang, 2022), post-acquisition performance (Savović, 2017), fulfilment of the psychological contract (van der Smissen et al., 2013). However, how attitude towards change affects employee performance is still rare. Therefore, this research will expand the relationship between attitude towards change and other outcomes, namely performance and its role as a mediator in the relationship between employee engagement and employee performance.

The influence of global trends has brought about changes that impact all organizations, including universities (Siekkinen et al., 2020) which is one of the important elements of higher education, and a challenge for all professions (Carvalho, 2017), including the teaching profession (Musselin, 2007). The teaching profession is very different from other professions because it is dynamic (Siekkinen et al., 2020), transfer and shape knowledge to other professions (Höhle & Teichler, 2013) and create knowledge (Carvalho, 2017), and understanding the lecturer's attitude towards change is important (Evetts, 2014). In previous studies, employee engagement has affected performance in various sectors such as tourism and hospitality

industry (Arwab et al., 2022; Bhardwaj & Kalia, 2021; Liu et al., 2022; Sugianingrat et al., 2019); manufacturing industry (Ali et al., 2019; Jabeen & Rahim, 2021; Pattnaik & Sahoo, 2021); private companies (Iddagoda & Opatha, 2020; Ismail et al., 2019; Nguyen & Nguyen, 2022); hospital (Sendawula et al., 2018); energy (Ohemeng et al., 2020). However, the documentation of employee involvement on performance in the education sector, especially higher education (university) for the teaching profession, is still limited, and this is in line with what Daniels found (2016) which states that research in the field of education is still small. Therefore, further research is needed, and it is important to understand the attitude of university lecturers towards change.

This study aims to examine the role of university lecturers' attitude towards change in the relationship between work engagement and performance and the relationship between employee engagement and performance, both directly and indirectly.

2 Literature Review

2.1 Relationship Between Work Engagement and Performance

The term involvement of a person in work has appeared in various variations, such as "individual involvement" (Kahn, 1990), "employee engagement" (Macey & Schneider, 2008) and "work engagement" (Bakker & Demerouti, 2008). And job involvement has also been defined by experts. One definition of job involvement is "as a positive, satisfying, work-related state of mind characterized by enthusiasm, dedication and absorption" (Schaufeli et al., 2002). Work involvement is an important construct in research and has been widely used to improve various outcomes, one of which is performance.

A number of studies have demonstrated a relationship between employee engagement and performance (Arwab et al., 2022; Ismail et al., 2019; Linggiallo et al., 2021; Rumman et al., 2020; Sugianingrat et al., 2019) and showed positive and significant results. This is in line with what Bakker and Demerouti stated (2008) and Bakker et al.(2006) which states that employees who are involved in work will show a variety of positive behaviours that will improve team performance towards achieving organizational goals.

2.2 Relationship Between Work Engagement and Attitude Towards Change

Job involvement is a concept that denotes a positive state of mind related to work characterized by passion, dedication and absorption (Schaufeli & Salanova, 2007;

Schaufeli et al., 2009). However, empirical studies on the relationship between engagement and attitudes towards change are scarce (van Den Heuvel et al., 2017). The results of research conducted by Van Den Heuvel et al. (2017) have shown that job involvement has a positive and significant effect on attitudes towards change. This is also in line with what was stated by Van den Heuvel et al. (2010) that workers who are willing to work harder, be more creative, and more productive have become a very important part in dealing with change.

2.3 Relationship Between Attitude Towards Change and Performance

Many studies have been carried out on attitudes towards change towards outcomes, such as towards intentions (Tussyadiah et al., 2018), job satisfaction (Rafferty & Griffin, 2006), organizational commitment (Martin et al., 2005), as a predictor of turnover intention (Martin et al., 2005; van Den Heuvel et al., 2017), participation in change (Huang, 2022), post-acquisition performance (Savović, 2017), fulfilment of the psychological contract (van der Smissen et al., 2013), where the results show that attitudes towards change have a significant effect on the outcome. However, studies on the relationship between attitudes towards change and performance are still scarce.

3 Methods

This study adopts a content analysis with comprehensive literature review and few items on bibliometric analysis. Bibliometric analysis manifests interconnections among the articles whereby the data was retrieved from Scopus, a reputable and comprehensive database. The primary reason for choosing Scopus is its availability, nearly 60% larger than the Web of Science (WoS) database (Zhao & Strotmann, 2015).

4 Analysis and Discussion

4.1 Relationship Between Work Engagement and Performance

Figure 1 shows that the research on work engagement and performance has a peak in year 2021 in terms of number of documents that have been published. It is started increasing in 2003.

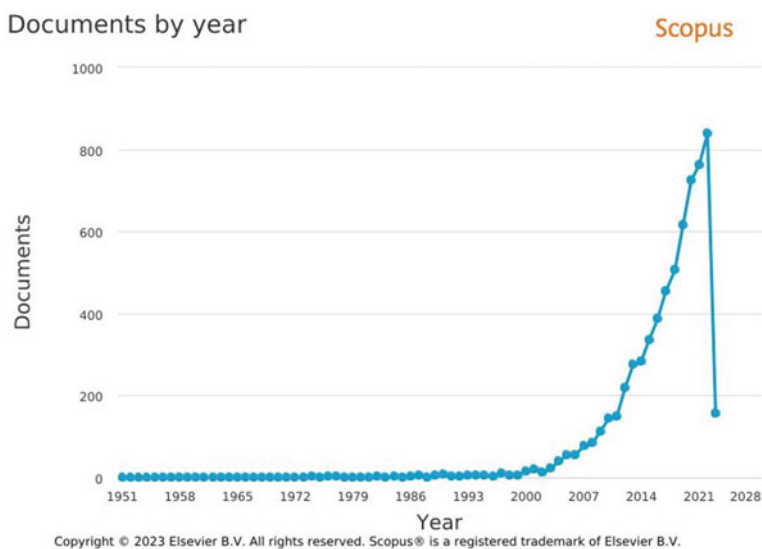


Fig. 1 Number of documents by year

Figure 2 shows that the research on work engagement and performance lead by an institution named Erasmus Universiteit Rotterdam with 77 published documents, followed with Universiteit Utrecht with 68 published documents. The top ten lists of institutions are located in developed countries. Means the research on work engagement and performance are rarely found in developing countries.

Figure 3 shows that the research on work engagement and performance mostly conducted in USA with a total of 1850 published documents, followed with UK with a total of 850 published documents. Other countries which mostly located in Europe realized that work engagement is a factor to be influencer towards the performance.

4.2 Relationship Between Work Engagement and Attitude Towards Change

Figure 4 shows that the research on work engagement and attitude towards change has a peak in year 2011, 2016 and 2021 in terms of number of documents that have been published. It is started increasing in 2009. Both terms of work engagement and attitude towards change seem have a crucial attention from researchers since 2002.

Figure 5 shows that there are ten institutions actively doing research on work engagement and attitude towards change which lead by University College London, Deakin University and University of Queensland with a number of published articles of 5, 4 and 4 respectively, while all other seven institutions have three publisher

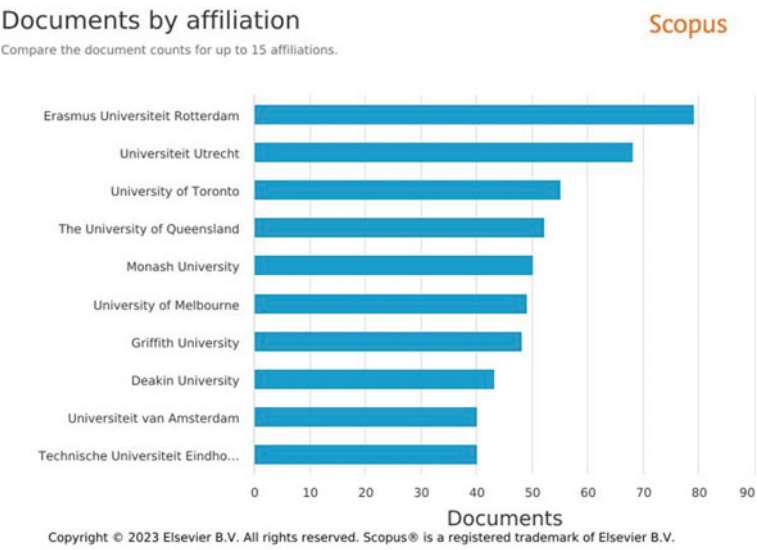


Fig. 2 Number of documents by affiliation

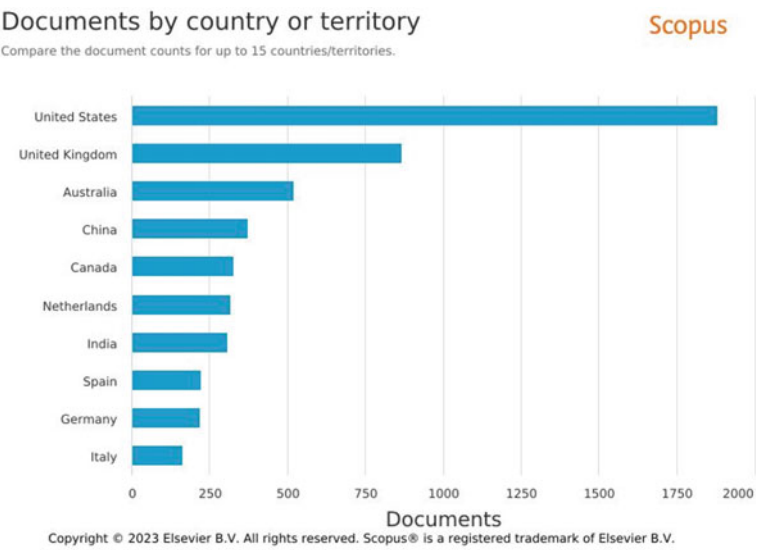


Fig. 3 Number of documents by country

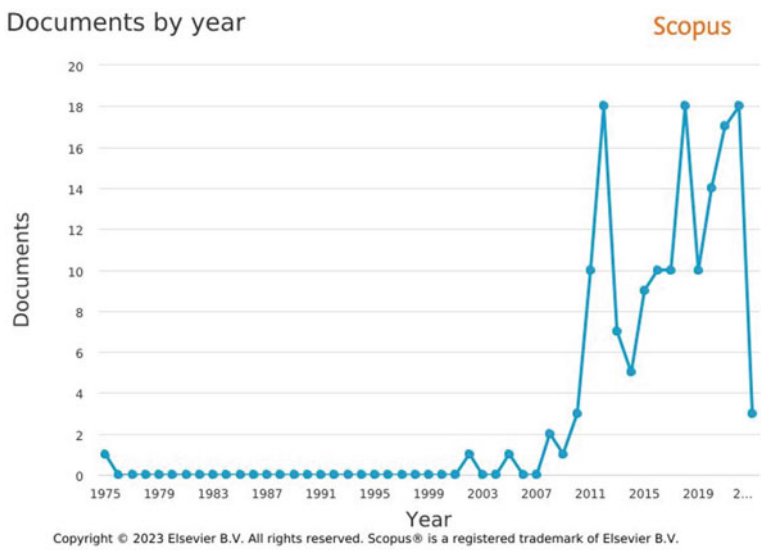


Fig. 4 Number of documents by year

articles each of them. It seems the institutions in developed countries are more engage with the research on work engagement and attitude towards change.

Figure 6 shows that the research on work engagement and attitude towards change mostly conducted in UK with a total of 53 published documents, followed with

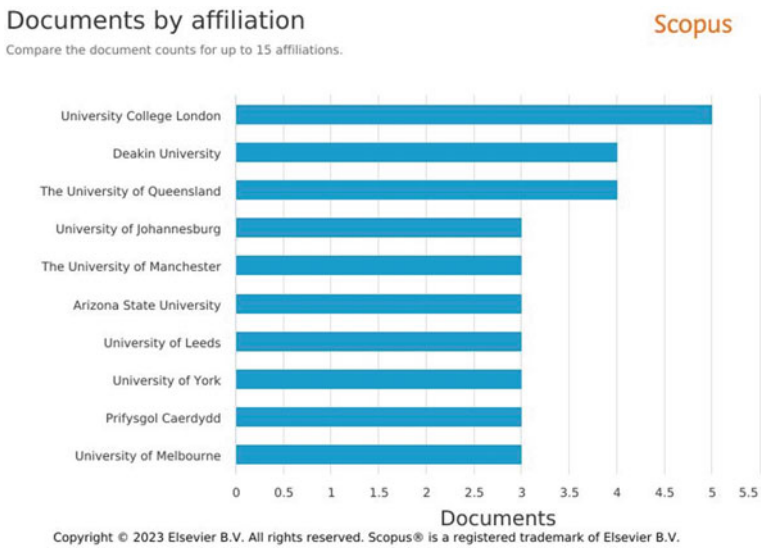


Fig. 5 Number of documents by affiliation

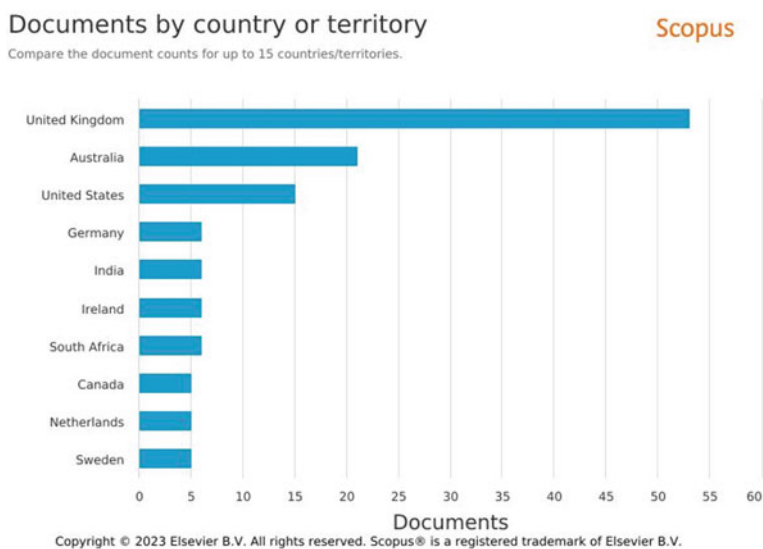


Fig. 6 Number of documents by country

Australia and USA with a total of 22 and 15 published documents respectively. Other than Western countries, India and South Africa included in the top ten list which means that the research on work engagement and attitude towards change is widely done in various countries.

4.3 Relationship Between Attitude Towards Change and Performance

Figure 7 shows that the research on attitude towards change and performance has a peak in year 2021 with a total of 84 articles. It is started increasing in 2001 with a stable curve. Both terms of work engagement and attitude towards change seem have a crucial attention from researchers since 2002.

Figure 8 shows that University of Manchester leads the list of top ten of the most active affiliations that produce reputable articles on attitude towards change and performance, followed with King's College London and University College London. It seems the top ten affiliations are located in developed countries rather than developing countries.

Figure 9 shows that the research on attitude towards change and performance mostly conducted in UK with a total of 179 published documents, followed with USA and Australia with a total of 162 and 69 published documents, respectively.

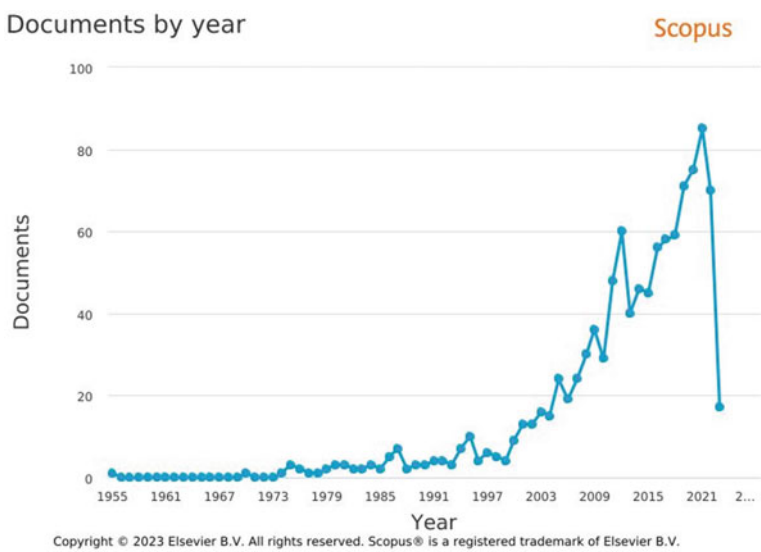


Fig. 7 Number of documents by year

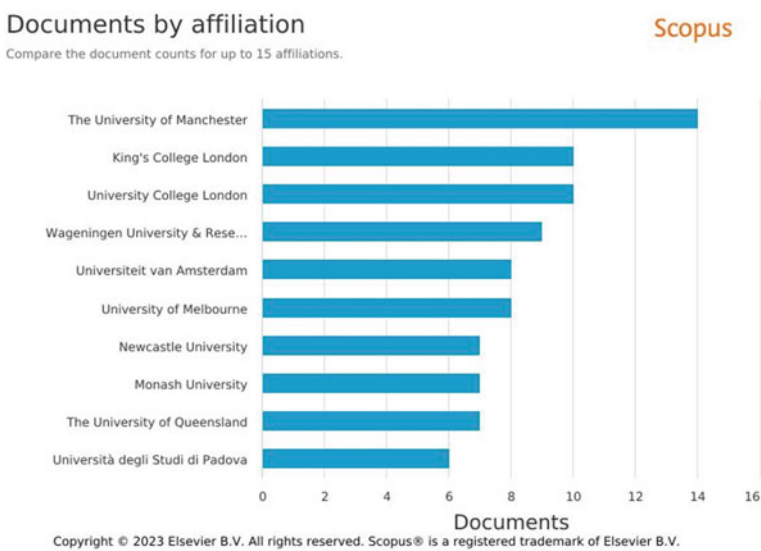


Fig. 8 Number of documents by affiliation

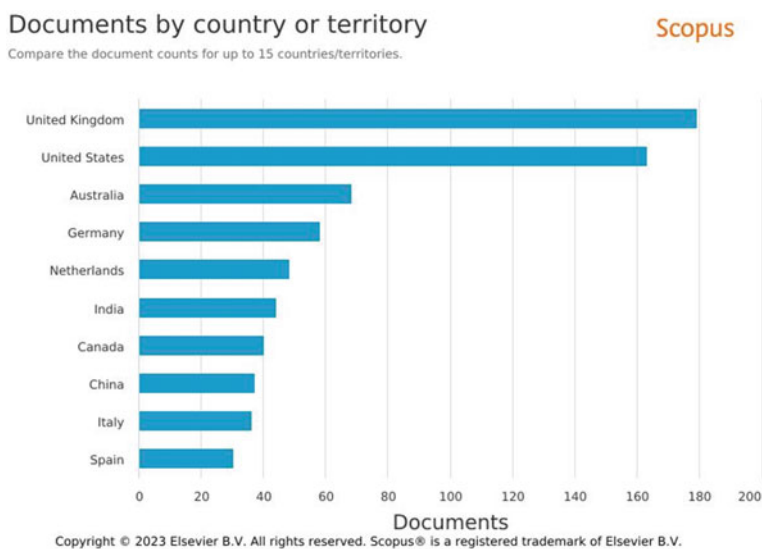


Fig. 9 Number of documents by country

5 Conclusion

This chapter explores the three important keywords, variables or factors which are related each other, namely work engagement, attitude towards change and performance. There are arguments and statements based on previous researches shown that both work engagement and attitude towards change would be the influencer to the performance. Although empirical assessments for both factors were done, however, an extension with other variables should be considered. The potential of both variables can be seen from the figures indicating the high interest of researchers on work engagement, attitude towards change as well as performance at least since 2001. The researches also have been conducted in various countries dominated in developed rather than developing countries. Both USA and UK are the most active countries that come out with quality articles. Reputable institutions from those countries are among the affiliations where the publications are produced such as University of Manchester, University of Queensland, University of Leeds and Monash University. These indicating that the factors of work engagement, attitude towards change and performance have crucial impact in managerial or organizational processes.

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Revealing the Novelty of Talent Management Research Using Bibliometric Method



R. Turino Januar Budyanto, Yusniar Lubis, and Ahmad Rafiki

Abstract This chapter aims to elaborate the history and root of research on talent management. The study adopts content analysis technique where various sources are referred including reports, official documents and research articles. This includes the use of bibliometric analysis where authors, affiliations, countries, document type and subject are of the research on talent management is revealed. A tool named VOSviewer is used to analyze the relationship of each author, keywords, and other important clues of the research on talent management. There are issues related to the talent management which can be learned and analyzed. The impact of talent management to the organizations needs to be revealed and used as valuable information for strategic planning and further initiatives.

Keywords Talent management · Bibliometric · VOSviewer

1 Introduction

Strategic talent management is about constructing a talent pool of high-potential and effective incumbents to fill these positions, creating a differentiated human resource architecture to make it simpler to hire competent incumbents for these positions and ensuring that these incumbents are competent are all part of the group of activities and processes (Collings & Mellahi, 2009). Moreover, organizing the process of recruiting, selecting, hiring, motivating, fostering professional growth, retaining, and deploying superior employees for an organization's benefit is known as talent management. In order for them to give their all and remain devoted to the firm, it is important to place the right people in the right jobs at the right times and in the right positions. The goal of talent management is to develop and maximize high potentials or talents of employees within the business more swiftly than ever before in order to increase competitiveness,

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even though it is organization-specific. One of the essential resources for firms to gain a competitive advantage is talent (Nzewi et al., 2015).

Talent management is a process that aims to drive performance through integrated human resource management practices. The companies must be more creative and innovative in employee recruitment and selection. One of them through collaboration with top universities, while others attempted to establish their own tertiary institution which is considered the best choice, because the quality of the graduates can be adjusted to the company's needs.

This study used a bibliometric methodology which often known as "analysis," has become well-established as scientific specialties and is an important aspect of research evaluation methodology, particularly in scientific and practical disciplines. The methodologies are increasingly being employed in the study of many elements of science, as well as in the ranking of institutions and universities around the world. After a significant number of investigations have been conducted, it is now possible to analyze the bibliometric approach using its own methodology using the generated literature (Ellegaard & Wallin, 2015; Tupan et al., 2018).

The aims of this study are to determine: (a) the root and history of research and publication on talent management, respective authors, its subject area, document type, affiliations, and countries of publication which are crucially to predict future research.

2 Literature Review

2.1 Talent Management

Researchers have proposed a variety of definitions for talent management. According to Rampersad (2006), talent management is a technique to successfully manage talent inside the organization, prepare for and establish succession within the business, realize maximum employee self-development, and utilize talent to its fullest potential. Talent management is also acknowledged as a process starting from recruitment, placement, to development and planning for better employee growth (Lewis & Heckman, 2006).

Talent is a differentiating factor in organizational performance (Pella & Inayati, 2011). The organization wants to develop talents due of their capabilities as people. Employees who have been identified as having the potential to lead the organization in the future are also considered to have talent. The definition given above demonstrates that talent is something that belongs to employees and is created and nurtured by an organization through training and development programs for a long-term process in order to be able to improve their performance and serve as the catalyst for their contribution to the success of the organization. Hence, it is the responsibility of every business to assess and cultivate the talent that each of its employees possesses.

A company's important positions for future leaders and jobs that support its core capabilities are filled through the talent management process (unique skill and high strategic value). Through one of its "the war of talent" studies from 1997, McKinsey and Company first popularized the phrase talent management. Ed Michaels, Helen Handfield-Jones, and Beth Axelrod later recorded talent management in 2001 that mentioned an employee who possesses: "strong strategic thinking, leadership abilities, communication skills, the capacity to attract and inspire others, has innate entrepreneurial instinct, functional skills, and the ability to produce outcomes" is what meant talent management.

It is stated that the factors contribute to the creation and maintenance of organizational excellence through human resources (HR) should consider several important points: (i) performance-oriented culture; (ii) low levels of employee turnover; (iii) relatively high level of employee satisfaction; (iv) preparing qualified HR employees; (v) effectiveness of investment in the form of remuneration in human resource development; and (vi) employee selection process and competency-based performance evaluation (as a success factor).

The research also led to the simple conclusion that in order to optimize capabilities to achieve lasting excellence, organizations must have talent management that is proactive and has a systematic way of carrying out these talents management activities. The tendency of modern organizational structures is getting flatter and leaner, which demands rightsizing which leads to downsizing. Thus, it is important to identify and develop the finest candidates for key leadership roles and roles supporting the organization's core business in order to maximize the accomplishment of organizational goals and maybe speed up national development (Schiemann, 2014).

Moreover, talent management would be a strategy in selecting individuals according to their skills and talents, so that they can have a good effect on the performance of their employees (Khoreva & Vaiman, 2021). This can be said as something that is needed by the organization in determining and retaining employees to achieve organizational goals in developing human resources. The existence of talent management will get the best talents who can become future leaders and positions that support the core affairs of organizations or institutions to optimize in achieving national development. The importance of talent management will be able to help encourage increased professionalism in talent performance and realize an objective, targeted, accountable succession plan so that it can strengthen the implementation of the merit system in the government institution itself.

Some of the challenges related to the talent management is facing the disruption era of industrial revolution 4.0. The disruption brought by the fourth industrial revolution and the generational gap still requires many business entities to continuously adapt to stay relevant. Automation is also predicted to be the best solution. However, around 70% of companies fail to carry out digital transformation, even though they understand how crucial this change is (Shava & Doorgapersad, 2021; Stopochkin et al., 2022). Many companies have tried to build their own facilities and infrastructure to achieve so-called digitalization, but have failed in the end. Many factors must be considered before a business entity decides to transform (Whysall et al., 2019).

2.2 Talent Management in the Context of Millennial

Several things need to be considered in talent management for the millennial generation so that later they become valuable human resource assets (Kravariti et al., 2022). *First*, a quality recruitment process. The recruitment process will help the organization to get employees with good abilities and skills. Recruiting employees with high ability and competence as well as having good character will help the organization achieve its goals.

The *second* is the empowerment of talents during a career. Talent management is expected to be able to explore as much of the potential of existing human resources as possible. The search for potential requires time and a long process. Through various work assignments, mentoring, training, and development will form the competencies needed. The millennial generation is often identified with workers who like to move around because they need challenges to be able to show their character and abilities. Organizational efforts to make them stay in the organization are needed. Efforts that can be made by organizations to retain employees among others by increasing facilities and welfare, creating a pleasant work environment, providing challenging work, providing sufficient autonomy, clear career programs and of course competitive compensation.

The *third* is directed talent career management. The millennial generation has high expectations for career development. They have high competitiveness and creativity. Organizations can start by creating a talent pool which is a list of competent employees. Therefore, it is necessary to carry out a clear and open assessment so that employees know what components the organization will assess. Disclosure of performance indicators will make it easier for each employee to contribute according to their abilities. Clarity of career paths will help employees prepare themselves to reach certain positions.

In this case, the millennial generation is a generation that wants openness and a more open and flexible superior-subordinate working relationship. Communicating and discussing millennial career development preferences will reduce workforce turnover rates. Organizations that have multiple and rigid job hierarchies will be seen as unattractive. Organizations that are flexible and able to adapt are needed. Jobs that offer continuous self-development are becoming more attractive. Adaptation needs to be carried out by both parties, both the organization and the millennial workforce. The formation of an adaptive organizational culture will be able to help millennials manage their careers by maximizing all of their potential.

Great expectations for the management of potential and quality human resources have various challenges in the future (Claus, 2019). However, this does not mean that implementing talent management will guarantee the success of next generations especially the millennial generation in the workplace. The issue of distance or gap between generations often arises. This will give a different color to the work pattern between the millennial generation and the previous generation. Therefore, it is necessary to change the habits and culture of the organization.

Moreover, organizational awareness and various efforts to minimize this distance must be carried out in various ways such as increasing collaboration and building intergenerational communication (Hongal & Kinange, 2020). Communication is expected to be a bridge between generations. The millennial generation still needs a lot of experience, expertise, and networking, which are the advantages of the previous generation. Finally, collaboration and a culture of sharing are the keys to success in managing talent management for the millennial generation.

3 Methods

This chapter used a bibliometric analysis to draw the root of research publication by searching through the Scopus database. This approach has been done long time ago as part of data collection method (Garfield, 1972), which then been updated with additional information technology tools (Gaviria-Marin et al., 2018). The research data on talent management collected which have been published till year 2023. This includes, the year of publication, language, journal, title, author, affiliation, keywords, document type, abstract, and counts of citations for the publications. Then, the co-authorship, co-occurrence, citation, and co-citation were examined using VOSviewer (version 1.6.10). The Scopus itself contains 27 million abstracts dating back to 1966 with complete citations.

4 Results and Discussion

Based on some findings from techniques in bibliometric analysis, the research on talent management has been done by many researchers in various countries. There are 9,334 documents sourced from reputable database called Scopus by searching through keywords: “talent,” “management.” As depicted in Fig. 1, the highest hit on the number of documents is in the year 2021 and 2022 with a total number of 973 and 997 documents, respectively. It is also shown that the number of documents increase incrementally since 2003, which consider the interest of studies on this topic is perceived positively.

As depicted in Fig. 2, there are ten affiliations that produced articles on talent management. In fact, the University of Galway leads the list of affiliations, followed by Saint Petersburg State University. Most of the affiliations are located in the developed countries.

As depicted in Fig. 3, the highest percentage in the document type on talent management published with article type (54.9%), followed with a type of conference paper (25.4%) and the rest of 19% articles published in various types, for instances book chapter, book, review, etc. Means that the article which is known as a research platform becomes the right place to share knowledge.

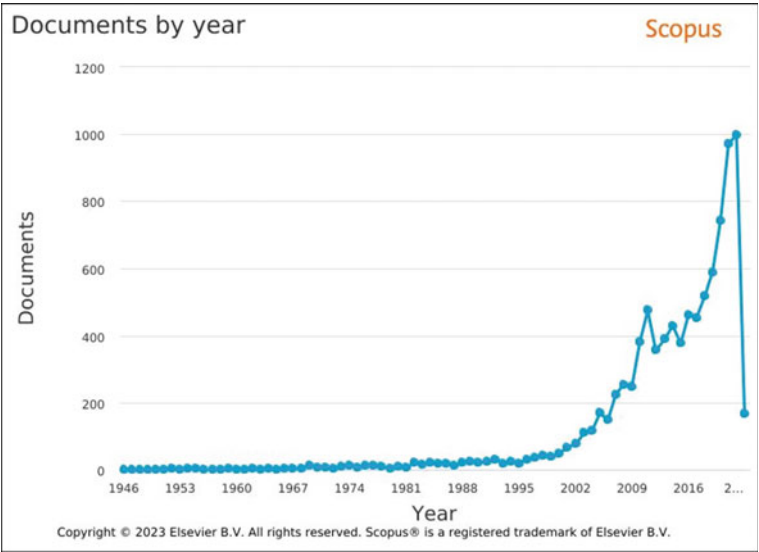


Fig. 1 Number of documents by year

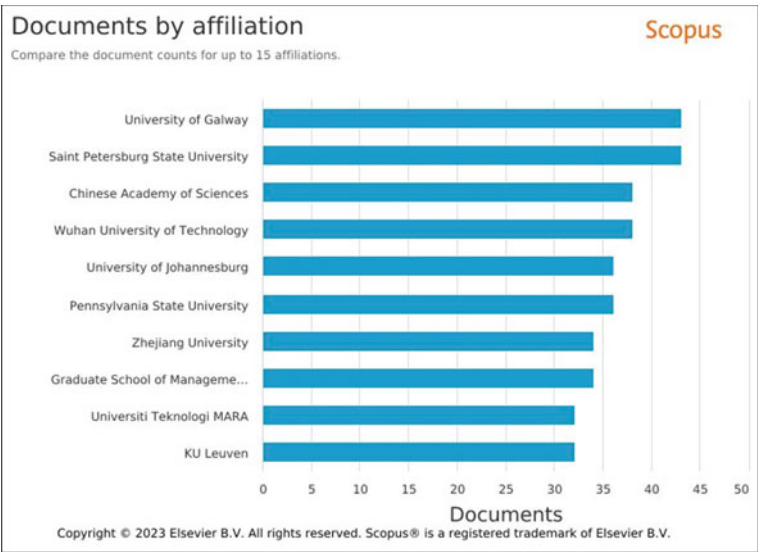


Fig. 2 Number of documents by affiliations

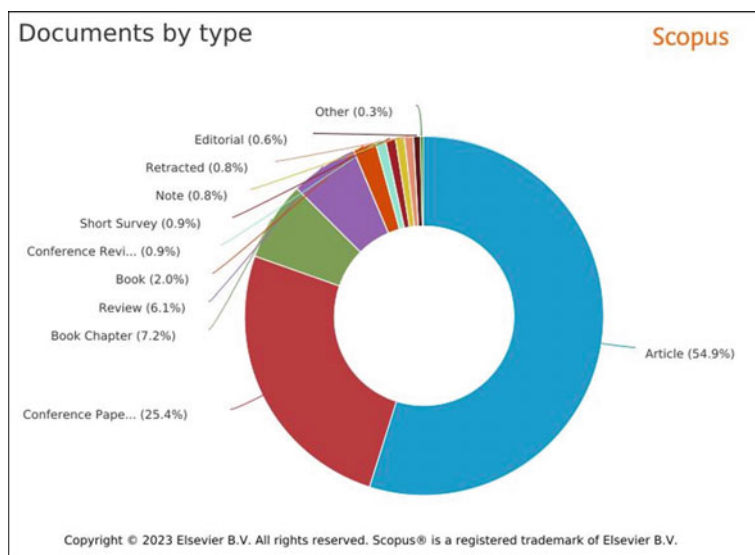


Fig. 3 Number of documents by document type

As depicted in Fig. 4, it is shown that the China is a country that has huge number of research on talent management with 2432 number of articles, followed by USA with 1948 and UK with 7732 number of article. The research on talent management was initiated more by Chinese with various education programs which then empower the human resources.

4.1 Bibliometric Analysis of the Keywords

The final analysis included keywords submitted by the authors of the publication that appeared more than 25 times in the Scopus database, only 215 keywords out of 14,559 met the criteria. The 215 threshold was then reduced to 129 keywords, which were then rationalized into 43 variables (85 keywords had to be eliminated). Moreover, “*Management*” (total link strength 9192 with 42 links) was the most common keyword, with a strong link to “*Performance*” (total link strength 890) and “*talent management practice*” (total link strength 652) (Fig. 5a and b).

The size of the nodes, as shown in the Fig. 5a, corresponds to how frequently they occur. The curves between the nodes display the co-occurrence of the nodes. The distance between two nodes decreases as the frequency of two phrases occurring together increases.

As depicted in Fig. 5b, the bright yellow color indicate represents the frequency with which they occur more often.

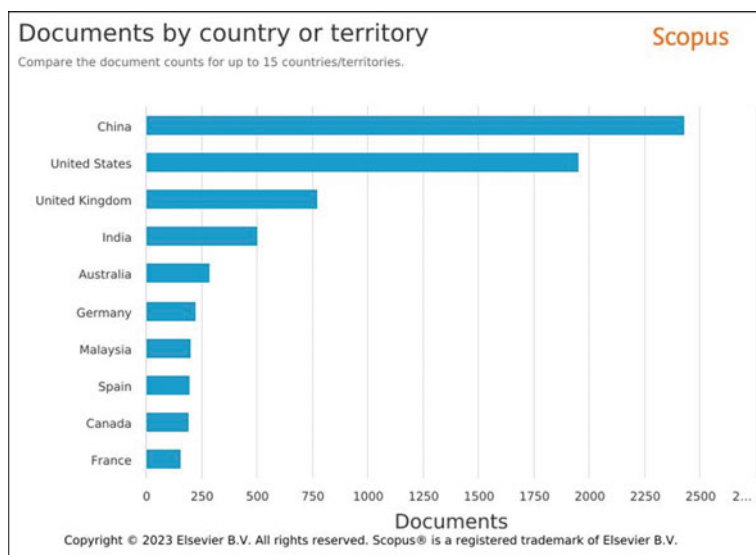


Fig. 4 Number of documents by country

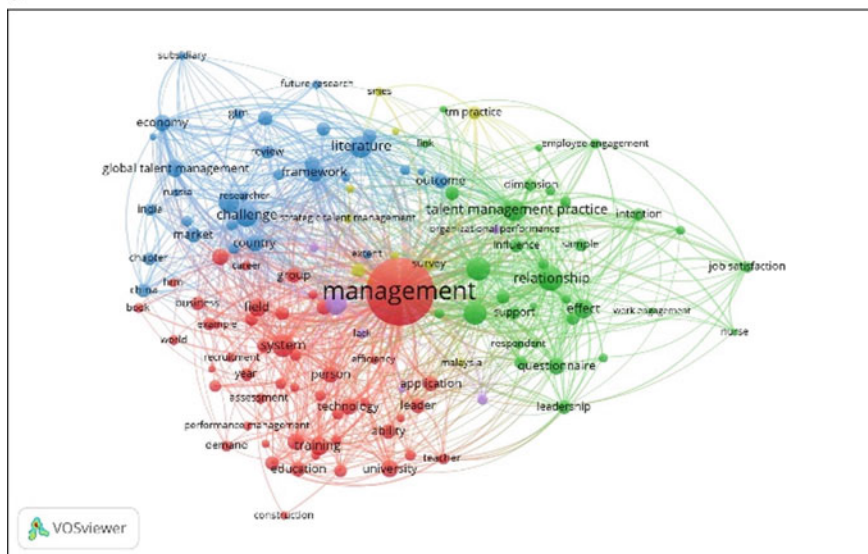
Figure 6 indicate that *Management* one of the 129 items that mostly appears in the research. At least there are five clusters that related to *Management* with total strength 4756 and 288 occurrences.

As depicted in Fig. 6a, cluster 1—red line (49 items), shows ability, application, assessment, book, business, career, case, characteristic, construction, definition, demand, education, efficiency, employer, enterprise, evaluation, example, experience, field, future, group, hr, human capital, human resources management, innovation, interview, knowledge management, leaders, management, performance management, person, problem, quality, recruitment, school, science, skill, society, student, subject, system, talent management system, teacher, technology, today, training, university, world, and year.

As depicted in Fig. 6b, cluster 2—green line (33 items), shows academic, commitment, data, dimension, effect, employee engagement, employee performance, employee retention, hypothesis, influence, intention, job satisfaction, leadership, link, motivation, nurse, organizational commitment, perception, performance, questionnaire, relationship, respondent, retention, sample, self, staff, support, talent management practice, talent retention, talented employee, total, variable, and work engagement.

As depicted in Fig. 6c, cluster 3—blue line (31 items), shows attention, challenge, chapter, china, country, economy, empirical study, employer branding, evidence, extent, framework, future research, global talent management, growth, GTM, India, issue, literature, market, MNE, outcome, practitioner, region, research limitations implication, researcher, review, Russia, subsidiary, talent management strategy, topic, and understanding.

a



b

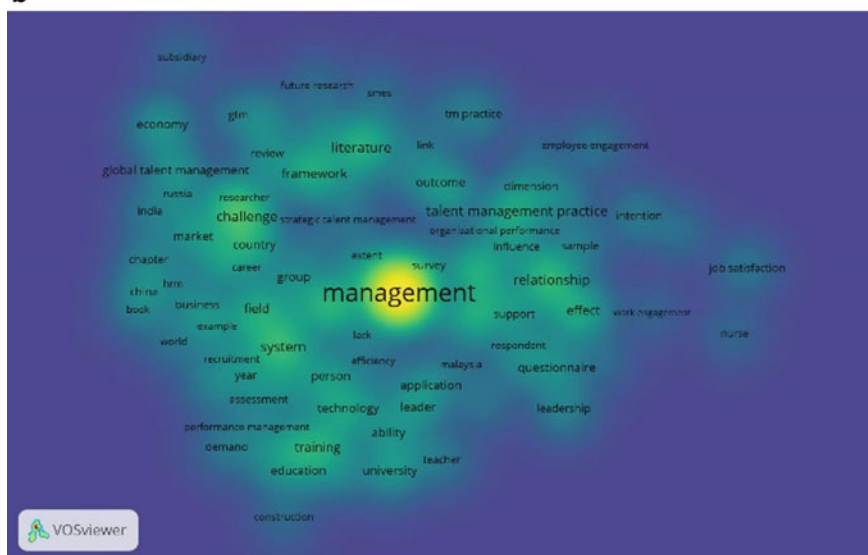


Fig. 5 **a** Keywords in talent management. **b** Keywords in talent management

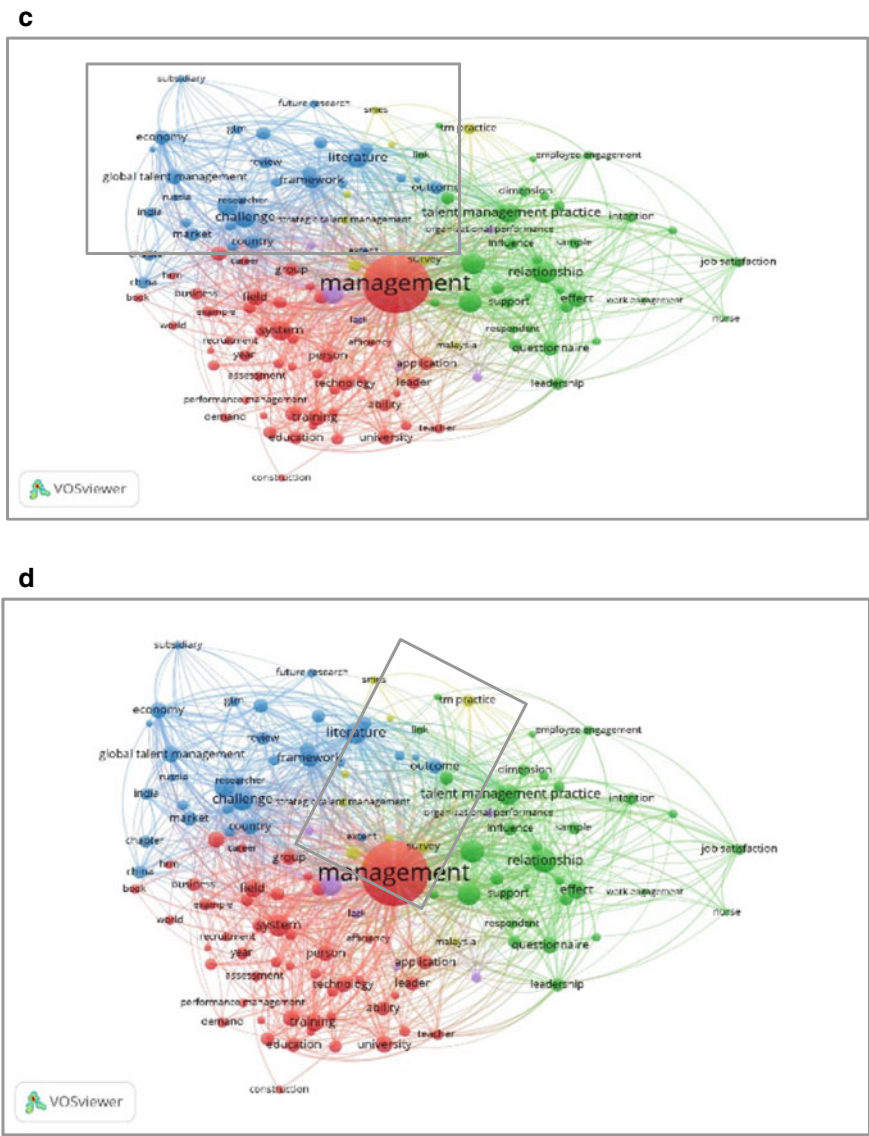


Table 1 List of author, title, publisher, country, years and number of citations on talent management

Num. of Citation	Authors	Title	Publisher	Countries	Years
220	Al Ariss et al	Talent management: Current theories and future...	J. of World Business	USA	2014
217	Stahl et al	Six principles of effective global talent...	MIT Sloan Management Review	USA	2012
209	Schuler et al	Global talent management and global talent challenges...	J. of World Business	USA	2011
206	Dries, N	The psychology of talent management...	Human Resource Management Review	UK	2013
152	Vaiman et al	Talent management decision making	Management Decision	UK	2012
145	Thunnissen et al	A review of talent management: "infancy or adolescence?"	Int. J. of Human Resource Management	UK	2013
144	Deery et al	Revisiting talent management, work-life balance and...	Int. J. of Contemporary Hospitality Management	UK	2015
135	Meyers et al	The influence of underlying philosophies on talent management...	J. of World Business	USA	2014
131	Tansley, C	What do we mean by the term "talent" in talent management?	Industrial and Commercial Training	UK	2011
130	Thunnissen et al	Talent management and the relevance of context: Towards...	Human Resource Management Review	UK	2013
129	Cooke et al	Talent management in China and India: A comparison of management ...	J. of World Business	USA	2014
125	Cappelli and Keller	Talent Management: Conceptual Approaches and Practical Challenges	Annual Review of Organizational Psychology and Organizational Behavior	USA	2014

(continued)

Table 1 (continued)

Num. of Citation	Authors	Title	Publisher	Countries	Years
122	Collings, D.G	Integrating global mobility and global talent management...	J. of World Business	USA	2014
114	Gallardo-Gallardo and Thunnissen	Standing on the shoulders of giants? A critical review of....	Employee Relations	UK	2016
109	Festing & Schäfer	Generational challenges to talent management: A framework for...	J. of World Business	USA	2014
109	Gallardo-Gallardo et al	Towards an understanding of talent management as a phenomenon-driven ...	Human Resource Management Review	UK	2015
103	Meyers et al	Talent—Innate or acquired? Theoretical considerations and their...	Human Resource Management Review	UK	2013

Talent management strategy which is shown in Fig. 7b had 116 links with total link strength 2074 and occurrences 106. Words that related to the word are subsidiary, economy, future research, global talent management, literature, practitioner, challenge, market, country, problem, group, management, leader, retention, relationship, and employee engagement.

Figure 7c shown that *talent management practice* is the strongest compare with four other words with total link strength 4800, occurrences 236, and total link 124. Words that match with the word are future research, talent management strategy, economy, review, literature, global talent management, framework, challenge, India, country, China, market, talent retention, outcome, dimension, employee engagement, organizational performance, intention, sample, relationship, staff, support, effect, work engagement, job satisfaction, nurse, questionnaire, management, group, case, problem, system, technology, training, quality, university, leader, and application.

Figure 7d shown that *strategic talent management* is the most weeks with the other word. It has total link strength 589, occurrences 41, and total link 86. Words that matches with the word are management, survey, data, and field. The last word, *talent management system* has total link strength 1030, occurrences 72, and links 101. Words that match with the word of talent management system are framework, challenge, system, person, and university.

5 Conclusion

The study comprehensively presented the analysis on talent management research. It started with the root of research on authors, affiliation, country, and document type which give information to be used for further research works. It is particularly important to evaluate the quality of such a great number of research papers and obtain essential information. Scientific research plays a vital role in understanding talent management.


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Live Commerce: Challenges to Adopt for Indonesian SMEs



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Abstract In the era of technology, Live Commerce arises as the new method for SMEs to perform their business in a real-time interaction with consumers. The technology also allows SMEs to permit the consumers blend the physical and online shopping experience. Adopting Live Commerce may bring challenges toward SMEs to fulfill the succession. As one of the countries that has a numerous SMEs, Indonesia should give heed to this concern. In this paper, we provide several studies that are related to the Live Commerce adoption, including both the internal factors and external factors. The interactivity, Live Commerce characteristic, role of the streamer, and payment and purchase context are designated as the internal factors, while internal factors is more sticked to the consumers' intention to buy, loyalty, satisfaction, and trust. We also present a framework that illustrates the relationship between the factors. The paper also discussed the strategies for Indonesian SMEs to face the challenge in adopting Live Commerce.

Keywords Live commerce · Challenge · Adoption · Indonesia · SME

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1 Introduction

Today is the era of Information Communication Technology which has a significant impact on almost every sector. ICT is used in various ways to improve efficiency, productivity, and communication in industries (Peraković et al., 2020). ICT has transformed the retail industry, with E-Commerce platforms, mobile apps, and digital marketing tools. This has made shopping more convenient and accessible, and has led to improvements in supply chain management and inventory tracking (Jameel et al., 2017). The E-Commerce, also known as electronic commerce, refers to the buying and selling of goods and services over the Internet. It involves conducting commercial transactions using digital technologies such as mobile devices, computers, and the Internet (Jain et al., 2021). This technology offers several advantages toward consumers, including the ease of use, convenience, wider range of products and variety of products. Besides, the implementation of E-Commerce should face certain objections including the security, logistics and shipping, also “trust” from the customer side (Taher, 2021).

Additionally, the E-Commerce has been transformed into the new trend called as the social commerce. Social commerce refers to the use of social media platforms to facilitate online shopping. It involves using social media networks like Facebook, Instagram, and Pinterest to promote products, enable purchases, and provide customer support. Social commerce can include features like shoppable posts, social media ads, and chatbots (Attar et al., 2022). These tools allow businesses to promote their products and services directly to consumers on social media platforms, making it easier for customers to discover and purchase items they are interested in. Social commerce also offers businesses the ability to engage with customers directly, build brand awareness, and gather customer feedback (Wirapraja & Subriadi, 2019).

Apart from that, during the development of technology, the E-Commerce also has been shifted into a flexible method for helping business which involves live streaming video to showcase products and services called as Live Commerce. The trend allows businesses to interact with customers in real-time, answer questions, and provide demonstrations. Live Commerce is often used in combination with social media platforms, allowing businesses to reach a wider audience (Hu & Chaudhry, 2020; Wongkitrungrueng et al., 2020). The rise of Live Commerce can be attributed to the increasing popularity of social media and video streaming platforms like Facebook, Instagram, and YouTube. These platforms allow businesses to broadcast live video content to their followers, providing a more engaging and interactive shopping experience. Live Commerce is particularly effective for products that require demonstration or explanation such as beauty products, fashion items, or electronics (Sun et al., 2019). Live Commerce is an effective tool for small and medium-sized enterprises (SMEs) to engage with customers, showcase products, and increase sales. By leveraging social media and other online channels, SMEs can showcase their products in a more dynamic and engaging way that drives sales and improves customer loyalty (Ong et al., 2021).

In Indonesia, SMEs play a crucial role in Indonesia's economy, accounting for over 60% of employment and contributing around 40% to the country's gross domestic product (GDP) (Panjaitan et al., 2020). SMEs in Indonesia are highly diverse, ranging from micro-enterprises that operate informally in rural areas to more formalized businesses in urban centers. The majority of SMEs in Indonesia are in the wholesale and retail trade, followed by manufacturing, agriculture, and services (Tambunan, 2019). SMEs in Indonesia are optimistic about the future and are increasingly embracing digital technology to grow their businesses. The rapid growth of E-Commerce and social media platforms has provided SMEs with new opportunities to reach customers and expand their markets (Yacob et al., 2021). However, the adoption of ICT and E-Commerce among SMEs in Indonesia has been slow in comparison with other countries in the region (Hasan et al., 2021). It is caused by several factors including limited access to technology and infrastructure, lack of awareness and understanding, limited digital skills and resources, and other reasons (Muljono et al., 2021).

In terms of Live Commerce, the new trends of E-Commerce, the information regarding its usage has not been discovered. SMEs in Indonesia should have numerous advantages offered by the technology and yet it also become the challenges for them to implement for their business. In this paper, we reviewed researches that have been conducted about Live Commerce adoption. We also provide a comparison between the studies regarding the variables or factors that portray the challenges for Indonesian SMEs in using Live Commerce.

2 Literature Review

2.1 SMEs in Indonesia

SMES in Indonesia represents a vital sector of the economy, and efforts are underway to support the growth and development of SMEs in the country. As the economy continues to grow, the role of UKM is expected to become even more significant, driving innovation, job creation, and economic prosperity (Windusancono, 2021). According to data from the Ministry of Cooperatives and UKM, there are around 65 million SMEs in Indonesia as of 2019. These SMEs are spread across various sectors, including manufacturing, agriculture, trade, and services. The number of SMEs in Indonesia has been increasing steadily in recent years, highlighting the importance of this sector in the country's economy (Salekhah, 2022).

According to Fig. 1, SMEs in Indonesia have been growing rapidly in decades. The number of SMEs are doubled from 1997 until 2019. Also, there are no reduction of SMEs emergence over years. In Indonesia, SMEs are classified based on their business sector and annual revenue. The Ministry of Cooperatives and UKM has established the following criteria to classify SMEs, including micro enterprises, small enterprises, and medium enterprises. These classifications are used by the Indonesian government to provide various forms of support and assistance to SMEs, such as

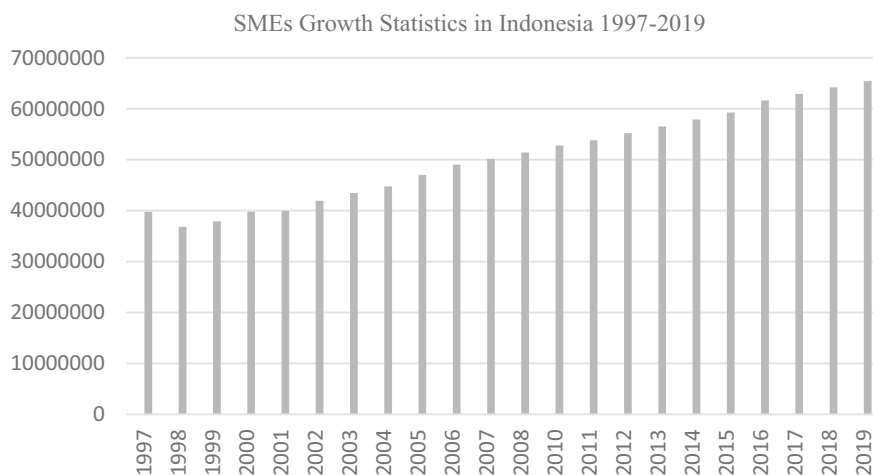


Fig. 1 Total of SMEs in Indonesia (1997–2019) (Salekhah, 2022)

access to financing, training and education programs, and business development services. Additionally, the largest sectors for SMEs in Indonesia are trade, services, and manufacturing (Tambunan, 2019).

2.2 *ICT and SMEs*

ICT has become increasingly important for SMEs, as it provides them with various tools and platforms to improve their operations, increase efficiency, and reach new customers (Ab Wahab et al., 2020). ICT brings significant effects toward SMEs to improve their business, such as digital marketing to reach a wider audience and promote their products or services; E-Commerce as the platforms to sell their products or services online, which can increase their sales and customer base; cloud computing to store and access their data and applications remotely, which can save them money on hardware and maintenance costs; and online payment systems to accept digital payments from customers, which can increase their sales and reduce the risks of fraud and theft (Benard et al., 2021; Kadjie et al., 2022; Shetty & Panda, 2021).

Besides its significant advantages, the usage of E-Commerce by SMEs is still low. The global usage percentage of E-Commerce by SMEs was around 36%. This data comes from a report published by the International Trade Center (ITC) in 2020, which surveyed more than 3,000 SMEs across 58 countries. The report also noted that there were significant differences in E-Commerce usage by SMEs across different regions and countries, with some countries having much higher adoption rates than others. Furthermore, its likely increased since 2021 due to the ongoing COVID-19 pandemic, which has accelerated the shift toward digitalization and online commerce (Thukral, 2021). In developed countries such as the United States and Canada, E-Commerce

adoption rates among SMEs were relatively high, with around 80% of SMEs using digital channels for sales and marketing (Hassen et al., 2019; Merzlyakova et al., 2021). In contrast, in developing countries such as India and Brazil, E-Commerce adoption rates among SMEs were still relatively low, with around 20–30% of SMEs using digital channels for sales and marketing (Mohan & Ali, 2019; Sousa et al., 2022).

As the part of Southeast Asia country, Indonesia is still lacking of SMEs using E-Commerce. According to Hasan et al., (2021), majority of Indonesian SMEs used the Internet and conventional means instead of E-Commerce platform for their business. In line with this, Nasution et al. (2021) also stated that there are 36% of all SMEs in Indonesia that still use offline transactions, while 37% are able to use simple online computers and accesses. Then, 18% of SMEs are capable of using social media and other medium-sized Internet platforms, while 9% of them can conduct E-Commerce. Eventhough Indonesian government has been actively promoting E-Commerce adoption, yet SMEs are still not implemented the technology for some reasons (Cao & Anggara, 2019).

2.3 *Live Commerce*

Live Commerce is a rapidly growing trend in the world of E-Commerce. It refers to the practice of using live video streaming technologies to showcase products and services, and to allow customers to purchase them in real-time and has become increasingly popular in recent years (Xu et al., 2019), particularly in Asia (Cai & Wohn, 2019). The popularity of Live Commerce is caused by its' advantages over the old E-Commerce. Live Commerce allows customers to see the products in action in real-time, which can help them make more informed purchasing decisions.

Secondly, the technology provides a more interactive and engaging shopping experience, which can increase customer satisfaction and brand loyalty. Furthermore, it allows retailers to build a stronger relationship with their customers, by providing personalized recommendations and assistance (Sun et al., 2020; Xie et al., 2022). One of the key benefits of Live Commerce is that it allows retailers to build a more personal relationship with their customers. They can interact with the vendor in real-time while seeing these broadcasts on their cellphones, tablets, or desktops. Asking questions, expressing comments, and even making purchases are all examples of this contact. Retailers can utilize Live Commerce to exhibit new products, run discounts, and give product demonstrations (Li et al., 2022; Mao et al., 2022).

3 Methodology

This paper is a narrative review, summarizes and synthesizes information from several sources in a narrative form by neglecting the statistical methods for data synthesis (Linnenluecke et al., 2020). As a narrative review, we generate some steps in order to undertake the research objectives, namely (1) identify the research question; (2) search for relevant literature; (3) selection and splitting the literature; (4) data extraction; and (5) analyze. These steps are depicted in Fig. 2.

At first, we define the research question by conducting a review research that is to define the research question or problem that the review aims to address. In this study, there is no information regarding the level of Live Commerce usage among Indonesian SMEs. Hence, we propose the challenge of Live Commerce adoption to be discovered to explain the variables or factors. The second step is searching for relevant literature that has the explanation of factors and variables that influence challenge of Live Commerce adoption for Indonesian SMEs. This step may involve searching databases such as PubMed, Google Scholar, or Scopus, as well as hand-searching relevant journals and reference lists. The next step is to select or screen the identified studies for relevance and eligibility. This may involve screening the title and abstract of each study, and then reading the full text of potentially relevant studies.

The fourth stage is to extract data from each study after they have been chosen. This can entail filling out a standardized data extraction form with details on the study's design, kind of intervention, and end measures. In this stage, we split the challenging factors into two parts, namely the internal and external factors. Analyzing and putting together the information gleaned from the chosen research is the last step in doing a narrative literature review. In order to do this, the key conclusions from each study must be summarized, and common themes or patterns between studies must be found.

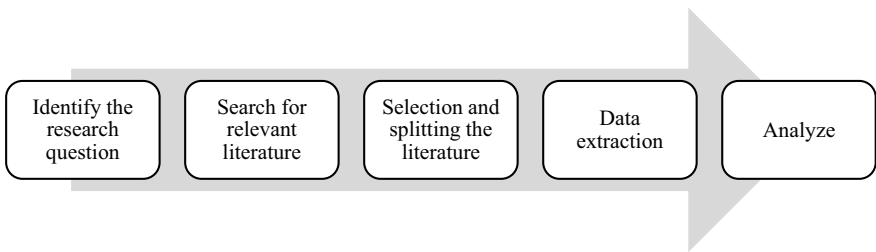


Fig. 2 Research flow

4 Findings and Discussion

4.1 *The Internal Challenging Factors*

The term “challenge” describes the difficulties and impediments that the SMEs may face when attempting to adopt a new invention, technology, or practice (i.e., Live Commerce). We collected several studies that may contribute to designate the challenges for Indonesian SMEs in adopting Live Commerce for their business. As challenges and influencing factors are often related and their reciprocal effect, we assumed that the influencing factor can act as the challenge in Live Commerce adoption. The challenging factor is described as the internal factor for SMEs to implement the Live Commerce for their business.

A study conducted by Lee (2021) stated that the interactivity is the main factor that influences the purchase intention by user while using Live Commerce. The interactivity is described as the degree to which customers can interact with an online business and its items through different digital channels is referred. Zhao et al. (2023) conducted a study to discover the factors influencing consumers’ intentions to adopt the Live Commerce. The study pointed out that interactivity, role of the streamer, and attractiveness have significant effect of the consumer intention to use the Live Commerce. The study declared that attractiveness is the ability of an online store to draw in and keep customers through its products and user interface.

Furthermore, Lee et al. (2023) argued that consumers’ purchase intention of Live Commerce is influenced by several factors, including service characteristic, information characteristic, and system characteristic. The service characteristics are defined as the distinctive qualities that characterize the delivery of services via electronic means; the information characteristic is described as the availability and accessibility of information that is made available to clients via electronic methods; system characteristic is referred to as the technology infrastructure, which includes hardware, software, and networks that facilitates online transactions.

Similarly, Choi and Jeon (2021) also stated that the Live Commerce’s characteristic is significantly effecting the consumers’ intention to buy. The research also pointed out that streamer or the host plays a crucial role in engaging with the audience and demonstrating the features and benefits of the products. On the other hand, Ying and Kim (2021) argued that consumers’ satisfaction is influenced by their experience factors, including information provision services and personalized services. The information provision services are defined as the functions and resources that make it possible to give customers current, correct information, while the personalized services are described as the capacity of Live Commerce platform to offer unique experiences to each of its consumers based on their interests, behaviors, and previous purchases. In line with this, Ye and Cho (2021) also stated that platform service and purchase context have a positive impact on users’ purchase intention.

A study by Su et al. (2022) generated different outcomes. The study stated that the platform’s infrastructure and streamer’s role in a live video stream play the important role for the Live Commerce success. Payment convenience and payment security as

part of platform’s infrastructure have positive relationship with consumers’ satisfaction. Meanwhile, the study also argued that streamer plays a crucial role for the Live Commerce. Streamer is defined as a person who organizes a live video session exhibiting goods and services to audiences. Nevertheless, research by Chen and Chang (2021) pointed out that the Live Commerce influencer is significantly affecting the consumers intention apart from their satisfaction.

A research by Shin and Shin (2022) found a different result. The research pointed out that information characteristic and interactivity may have significant effect toward the consumers’ satisfaction, loyalty and trust. The loyalty is referred as the degree to which customers are committed to a particular online store and its offerings, while trust refers to consumers’ belief and their ability to receive the goods and services they have ordered. Meanwhile, Zhang et al. (2022) stated that consumers’ trust is also influenced by the streamer or anchor and characteristics of Live Commerce. Additionally, Madina and Kim (2021) also argued that the attractiveness of influencer while hosting a live stream may affect the consumers’ loyalty.

The challenges of Live Commerce adoption may involve various factors. These challenging factors are identified as the internal factor for the SMEs to implement the Live Commerce for their business. Some studies argued that a Live Commerce platform may have the interactivity (Lee, 2021; Shin & Shin, 2022; Zhao et al., 2023). Meanwhile, several studies stated that the service, system, and information characteristic are the keys of Live Commerce success (Choi & Jeon, 2021; Lee et al., 2023; Shin & Shin, 2022; Ye & Cho, 2021; Zhang et al., 2022).

On the other hand, certain researches pointed out that the streamer is the strong factor of the consumers’ intention, loyalty, and trust in purchasing through Live Commerce (Chen & Chang, 2021; Choi & Jeon, 2021; Madina & Kim, 2021; Su et al., 2022; Zhang et al., 2022; Zhao et al., 2023). Then, the payment and purchase context also become the influencing factor of users’ intention and satisfaction (Su et al., 2022; Ye & Cho, 2021). Table 1 gives the summary of Live Commerce adoption challenges when referred to the recent studies.

Based on the Table 1, it is given that there are four challenges that should be faced by SMEs to adopt the Live Commerce for their business. The platform used is the main factor to attract the consumers’ intention, satisfaction, loyalty, and trust. A Live Commerce platform should have a great service, qualified system, and comprehensive information for the product sale. Furthermore, the studies argued that one of the

Table 1 Live Commerce adoption challenges

Challenges	Source
Interactivity	Lee (2021), Shin and Shin (2022), Zhao et al. (2023)
Live Commerce characteristic	Choi and Jeon (2021), Lee et al. (2023), Shin and Shin (2022), Ye and Cho (2021), Zhang et al. (2022)
Streamer	Chen and Chang (2021), Choi and Jeon (2021), Madina and Kim (2021), Su et al. (2022), Zhang et al. (2022), Zhao et al. (2023)
Payment and purchase context	Su et al. (2022), Ye and Cho (2021)

fundamental challenges of Live Commerce adoption is the streamer. A live stream shopping should employ a professional and skilled host to offer their product. A good streamer may cause the consumers to intent to purchase, build their loyalty and trust, and to be satisfied.

The interactivity is also considered as the vital element for the Live Commerce adoption. Consumers expect a frictionless, interesting, and catered to their needs and preferences experience. The last challenge of Live Commerce adoption is a secure, convenient, and fast of payment transaction. Consumers also expect that they have a trusted payment transaction of their needs.

4.2 The External Challenging Factors

SMEs' goal is simple, the product is sold (Kim & Jin, 2020). However, it should be followed by the consumers intention to buy, loyalty, satisfaction, and their trust to fulfill the goal (Chen et al., 2022; Haryanto et al., 2019; Jadil et al., 2022; Sivaram et al., 2019). These factors are denoted as the external factors for SMEs to adopt the Live Commerce due to the consumers or users' perspective. In E-Commerce, the term "consumer intention to buy" refers to the psychological state of a customer who is considering to make a purchase from an online retailer. It is the tendency or propensity of a buyer to buy a good or service based on their subjective assessment of its alleged advantages, worth, and risk (Naseri et al., 2021).

Businesses frequently perform market research to uncover consumer preferences, wants, and behaviors in order to understand consumer intention to buy in E-Commerce. With the use of this knowledge, E-Commerce companies may better target their marketing efforts to appeal to their target market and enhance user experience on their websites (Tanrikulu, 2021). Furthermore, consumer loyalty refers to how frequently a consumer makes purchases from a specific online retailer. It refers to a consumer's desire to make additional purchases from an online retailer despite having other options (Suharto et al., 2022).

Businesses in E-Commerce employ a variety of tactics to increase customer loyalty, including loyalty programs, individualized offers, and focused marketing efforts. These tactics are intended to encourage repeat business and foster feelings of appreciation and exclusivity in the customer (Cachero-Martinez & Vázquez-Casielles, 2021). SMEs' long-term success depends on having repeat consumers. Increased sales, favorable comments and recommendations, as well as a market edge, are possible outcomes (López-Jáuregui et al., 2019).

Consumers' satisfaction refers to how satisfied a consumer is with all aspects of their online purchasing experience, including their interactions with the website, the caliber of the goods or services they purchase, and the caliber of the customer support they receive (Gajewska et al., 2020). Consumer satisfaction in E-Commerce can help a company stand out from its rivals and increase sales and customer loyalty, in addition to helping to develop a favorable brand reputation. E-Commerce companies can become market leaders and draw new clients to their online store by offering

a superior shopping experience (Otto et al., 2020). For businesses to be successful in the digital economy, consumer trust in online transactions is crucial. Consumers who shop online need to have faith in the security of their personal and financial information, the quality of the goods or services they purchase, and the company’s ability to address any problems or complaints (Aslam et al., 2020).

For E-Commerce enterprises, customer trust is essential since it affects purchasing decisions, recurring business, and referrals. Customers are more inclined to stick with a brand and refer it to others if they feel confident in it. On the other hand, a lack of trust can result in a loss of customers, unfavorable feedback, and reputational harm (Nalendra et al., 2021; Soleimani, 2022).

As discussed in the previous section, consumers’ intention to buy, loyalty, and trust are influenced by several factors (i.e., internal factors). The intention is influenced by interactivity, role of the streamer, attractiveness, service characteristic, information characteristic, system characteristic, and purchase context. Moreover, the loyalty is influenced by information characteristic, interactivity, attractiveness of influencer, or streamer. Meanwhile, the consumers’ satisfaction is influenced by information provision services, personalized services, payment convenience and its security, then influencer or streamer. Lastly, consumers’ trust is influenced by information characteristic, interactivity, and also the streamer. Figure 3 shows the relationship between internal factors and external factors.

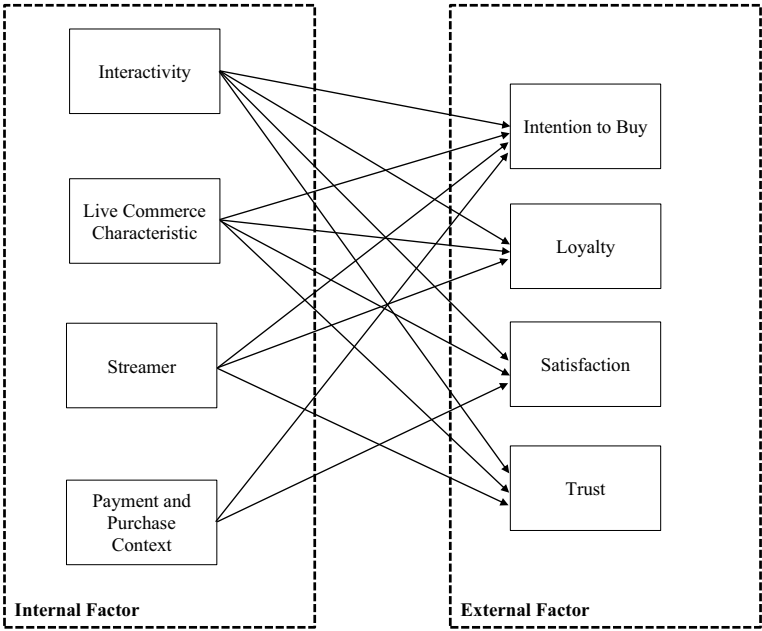


Fig. 3 Relationship between internal factor and external factor

As illustrated in Fig. 3, the internal factors of Live Commerce adoption are including interactivity, Live Commerce characteristic, the streamer, and payment and purchase context. These are indicating the challenging factors from the SMEs perspective. On the other hand, the external factors are intention to buy, loyalty, satisfaction, and trust which are indicating the challenging factor for the SMEs consumers' perspective.

4.3 Discussion

Indonesia has numerous and various SMEs which actively perform their business to fulfill the consumers' needs. In the same way, Indonesia is the most populous country in the world. Hence, SMEs should have great opportunity to arrange their business with the myriad of possible consumers. Adopting Live Commerce may boost their business performance, product sold, and have a significant impact on economic stability by creating new opportunities for businesses, increasing consumer spending, and generating employment (Huang & Zhang, 2022; Shi, 2022; Sim et al., 2023).

The review pointed out that previous studies show that there are several challenges to be faced by SMEs in adopting Live Commerce for their business, including internal factors and external factors. In context of interactivity and Live Commerce characteristic, SMEs should select the proper platform to be used. A different social media has heterogeneous interactivity and characteristic to perform the Live Commerce.

Facebook has its advantages to allow businesses to showcase their products and services in a more personalized way (Pei & Mas'Od, 2023). TikTok has a young and highly engaged user base, making it the perfect platform for companies trying to market to younger consumers (Hua & Chiu, 2022). Meanwhile, Instagram Live Stream Commerce allows businesses to reach a larger audience, which can lead to increased brand awareness and customer acquisition (Maares et al., 2021). Besides, consumers may explore goods and services in 360 degrees, thanks to YouTube 360 Live Stream Commerce, which gives them a more immersive purchasing experience (Liu et al., 2019).

In the point of streamer, SMEs should employ a professional and skilled streamer to anchoring the live stream shopping. Live streaming hosts are frequently well-known social media influencers with a sizable fan base. Businesses may enhance brand awareness and reach a wider audience by collaborating with these influencers. These influencers can utilize their followers' purchasing decisions to their advantage by promoting goods, highlighting their advantages, and making recommendations (Xu et al., 2022). The factor of payment and purchase context are also important. Payment options, which provide worldwide payment options, convenience, security, availability, rewards, and incentives, can have a big impact on consumers' purchasing decisions in E-Commerce. Businesses may increase consumer happiness and loyalty by providing a variety of payment options, which will ultimately boost sales and revenue (Chun, 2019; Hassan et al., 2020; Zhou et al., 2021). By regarding these

internal factors, SMEs in Indonesia may face the external factors (i.e., intention to buy, loyalty, satisfaction, and trust) smoothly.

5 Conclusions

Live Commerce is a new technology that can enhance the SMEs' business performance. It can increase wider range of their consumers, perform an interactivity of selling products in real-time, and also facilitate the consumers to discover the product in immersive way, even if they are in different location. However, adopting Live Commerce may bring difficulties among SMEs in Indonesia. The usage of E-Commerce among Indonesian SMEs is low; hence it leads them to face several challenges to adopt the technology for their business. The challenges are including internal and external factors that may drive the successful Live Commerce adoption. Live Commerce interactivity, the characteristic, role of the streamer, and payment and purchase context are assumed as the internal factors, while consumers' intention to buy, loyalty, satisfaction, and trust act as the external factors. Therefore, Indonesian SMEs should pay attention for those challenges to reach the peak performance of their business. The utilization of technology as Live Commerce may give them opportunities to enhance the ease of business transaction and the procurement.

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Social Media, Buying Interest and Womenpreneur: A Review and a Call for Action



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Abstract Entrepreneurship is the backbone of the nation's economy, entrepreneurship plays a very important role in reducing unemployment, providing jobs, reducing poverty, improving welfare and building national character. Meanwhile, women entrepreneurs play a very important role in starting business as well as the social media in supporting sustainable businesses. The study adopts content analysis technique where various sources are referred including reports, official documents and research articles. This includes the use of bibliometric analysis. The paper also explains the roots of research on social media, buying interest and women entrepreneurs. These three keywords of social media, buying interest and women entrepreneurs are interrelated and are importantly to be discussed by practitioners, academicians and other stakeholders.

Keywords Social media · Buying interest · Women entrepreneurs

1 Introduction

Social media gives businesses a simple way to affect how consumers interact with their products by publishing products online. Then, marketing products by publishing them in the most appealing photographs, texts, or videos to draw in customers and showcase the caliber of the products made by these manufacturers. The importance of digital marketing as a component of overall marketing is stated by Kotler and Keller (2016: 642).

For entrepreneurs, social media has huge influence in helping to market their products (Afshan et al., 2021; Enke & Borchers, 2019). The ability to use social media in marketing goods also has a significant impact on the market (Appel et al.,

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2020). Without social media, the entrepreneurs have a big challenge to survive with their products. Furthermore, the social media is a form of marketing that has the aim of creating a positive impact on womenpreneurs' actions, which in fact the womenpreneurs must be able to create awareness, memory, recognition and action caused by a brand, product, business, individual, either directly or indirectly (Moreira et al., 2019).

The social media through a web presence aims to strengthen communication activities through the web which will increase interest in buying the product. Customer buying interest is influenced by the quality of an item and how to market the item. It could be backed by intrinsic or extrinsic motives in a buying decision.

2 Literature Review

Marketing plays an important role in the running of a company in achieving goals. The entire company's activities aim to create a growing company and then maintain the continuity of business operation. Hence, the sustainability remains a factor to be considered, so that the companies still would be able to compete. The three subsections of social media, buying interest and women entrepreneurs are interrelated. Further studies could see the elaboration of these three factors with addition of data sourced from Scopus database.

2.1 Social Media

According to Kotler and Keller (2016: 642), an important component of digital marketing is social media. With an effective social media, the sales could be increased and will help the sustainable business. They also added that social media is a means for consumers to share text, image, audio and video information with each other or with companies and vice versa. Social media allows marketers to build voice and presence on the web and strengthen other communication activities (Jin et al., 2019). The creation and engaged content is the foundation of any media social strategy. The created content must be of interest and representative so that consumer trust toward the products is shaped. Content sharing of various content with social communities can help the company network, while the type of content shared can generate sales directly or indirectly. Through social media, a large network is created and then can help develop relationships that will lead to more business (Carr & Hayes, 2015).

Network is essential to maintain open and honest communication when using social media (Kaplan & Haenlein, 2010). Community building of the social web is a large online community of individuals where interaction is between people living all over the world using technology. Building a community on the Internet that has similar interests can occur with social networking (Li et al., 2021). Moreover,

building the brand conversation through social media is a great way to increase brand awareness, brand recognition and recall brand loyalty (Jin et al., 2019).

Furthermore, the social media publicity offers businesses a channel through which to disseminate crucial information and alter unfavorable opinions. Promotion through social media marketing offers audiences exceptional discounts and opportunity to achieve goals and make individuals feel appreciated and special. The social web's technologies are used in market research to profile customer demographics and behavior, analyze consumer desires and needs, assess consumer wants and needs, and investigate consumer requirements as well as rival strategies (Olanrewaju et al., 2020). Moreover, product quality can make customers satisfied with the product or service provided and will influence customers to repurchase the product or service.

The development of an increasingly modern era and the existence of an open market mechanism requires SMEs to increase their competitiveness so that they can continue to run and develop (Qalati et al., 2021). The increasing use of the Internet and easy Internet connection is a breath of fresh air for SMEs to be able to compete in the current conditions (Salam et al., 2021). Through social media which has ease of application and use, every SME may be able to answer the challenges of market conditions in such a way. Having social media is currently an obligation because judging from how much influence it has, the SMEs can develop faster by having social media for promotion and sales than not using it.

There are many studies discussed on social media related to customer service, marketing and entrepreneurship such as Fang et al. (2022), Tiwasing (2021), Susanto et al. (2023), Basri and Siam (2019), Fraccastoro et al. (2021), Patma et al. (2021), Sedalo et al. (2022). These indicate the huge intention of doing research on social media and business activities.

2.2 *Buying Interest*

Buying interest is consumer behavior when there is a desire to buy and choose a product (Tan et al., 2019). For buyers, product quality is very influential on the interest in buying an item. If the product is seen as good to use, it will develop consumer buying interest. Then this causes consumers to believe or trust and feel that the quality of the product is very good.

Moreover, buying interest is considered as motivation collected from consumers to buy a product after knowing the quality of that product. The decision to buy could be identified through indicators, namely transactional interest; preferential interest and exploratory interest.

The buying interest can be increasing by paying attention to various factors, namely internal factors in the form of psychological factors, namely the driving component that starts from the buyer, namely, enthusiasm, perception, understanding, provision, and attitudes in each individual (Woo & Kim, 2019). Meanwhile, external factors consists of culture, demographics, family, social status, and reference members.

One of the measures of potential consumers' interests is in purchasing, namely their attention to what producers are offering. Target consumers must be drawn to existing communications in order for them to be seen. The message must be able to attract interest once the consumer's attention has been gained in order to answer their curiosity further.

There are many studies discussed on buying interest especially related to customer service and marketing such as Tandon et al. (2021), Zafar et al. (2021), Bhatt et al. (2019), Strong (1997), Carrigan and Attalla (2001), Carley et al. (2019), Cham et al. (2018), Paul and Rana (2012), Verbeke and Ward (2006), Hameed et al. (2021) and Zhu et al. (2019).

2.3 Women Entrepreneur

Women are often faced with challenges that affect the sustainability of their businesses (Chhabra et al., 2020), e.g., due to limited access to entrepreneurship training, minimal understanding of the use of digital technology and women's difficulties in obtaining access to capital from formal institutions (Rosca et al., 2020). Moreover, women often do not have independence in making decisions related to business matters. Compared with men, women entrepreneurs also have challenges in financial records. The lack of knowledge of financial records has an impact on poor business financial management. Women often mix up business with other things including the household matters. The absence of clear and structured financial reports also makes it difficult for them to apply for capital assistance to financial institutions.

Therefore, in helping the womenpreneurs to start and maintain in their efforts in business, firstly the active role of the central and regional governments is in identifying and mapping the potential of women. Then, other technical assistances can be provided such as facilitation and assistance with registering business identification numbers, in obtaining standard certificates or product licenses, providing business training tailored to the needs of women entrepreneurs, as well as providing supporting infrastructure (Kamberidou, 2020). Moreover, financial institutions can create products tailored to the needs of women entrepreneurs, financial products with easier conditions, flexible collateral, and fast search times. Financial institutions can also make products accompanied by training and business formalization assistance for women entrepreneurs (Orobia et al., 2020).

Furthermore, the women entrepreneurs must learn on the use of massive digital platform in any marketing activities. When women entrepreneurs utilize technology, it can open access to a wider market and ease in obtaining raw materials. Finally, it is important to encourage financial literacy so that women can understand business risks, are able to choose and utilize financial products and services, have good financial planning, and will assist in making decisions related to their business (Baporikar & Akino, 2020).

3 Methods

This study adopts a content analysis with additional few items on bibliometric analysis. Bibliometric analysis manifests interconnections among the articles whereby the data was retrieved from Scopus, a reputable and comprehensive database. The primary reason for choosing Scopus is its availability, nearly 60% larger than the Web of Science (WoS) database (Zhao & Strotmann, 2015).

4 Discussion

4.1 Social Media

Based on the Scopus database, the research on social media has been done by many researchers with 276,477 documents. This is a huge number of publications. The highest hit of number of research is in 2021 and 2022 with 34,035 and 32,072 documents, respectively. The entire research started in 1902 which has been more than three decades, means that the interest on the subject of social media is stable (Fig. 1).

Table 1 shows some facts on social media research. The most productive author in publishing articles related to social media is Liu, H. with 179 documents and followed by Griffiths, M.D. with 163 documents. Meanwhile, the University of Toronto leads

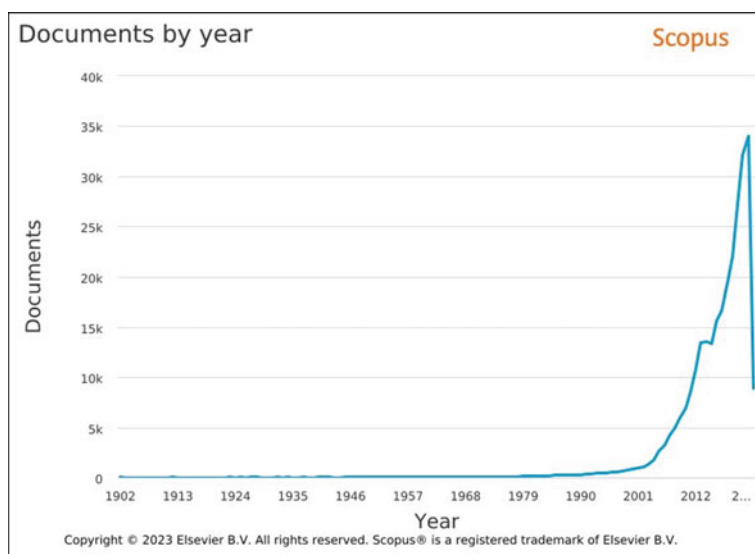


Fig. 1 Number of documents by year (social media)

the list of the most active institutions publishing the articles in social media research with 1885 documents and followed by University of Melbourne with 1640 documents. However, United States and United Kingdom are the most active countries producing the articles. Moreover, most of the research documents are in a type of article, means that more empirical studies have been done on the subject of social media compared with other types of documents; conference paper or book chapter. Lastly, it is shown that the research on social media mainly associated with the social sciences subject rather than other subjects.

Table 1 Summary of research output of author, affiliation, country, subject area and document types on social media

No	Authors/ number of documents	Affiliation/ number of documents	Country/ number of documents	Document type/ number of documents	Subject area/number of documents
1	Liu, H. (179)	University of Toronto (1885)	United States (82,847)	Article (176,298)	Social Sciences (108,840)
2	Griffiths, M.D. (163)	University of Melbourne (1640)	United Kingdom (29,606)	Conference paper (46,498)	Computer Science (69,312)
3	De Choudhury, M. (119)	The University of Sydney (1582)	China (17,494)	Book chapter (19,020)	Medicine (62,122)
4	Moreno, M.A. (101)	University of Michigan, Ann Arbor (1532)	Australia (15,882)	Review (14,952)	Arts and Humanities (34,762)
5	Luo, J. (96)	University College London (1428)	India (13,835)	Book (5817)	Business, Management and Accounting (29,808)
6	Carley, K.M. (88)	University of Washington (1415)	Canada (12,999)	Editorial (4443)	Engineering (28,786)
7	Dredze, M. (84)	University of Pennsylvania (1372)	Germany (12,270)	Note (3535)	Psychology (24,431)
8	Rosso, P. (84)	University of Oxford (1319)	Spain (10,180)	Letter (2301)	Environmental Science (14,549)
9	Young, S.D. (84)	Monash University (1283)	Italy (8608)	Conference review (2282)	Mathematics (13,539)
10	Dwivedi, Y.K. (82)	Pennsylvania State University (1270)	Netherlands (6482)	Short survey (808)	Economics, Econometrics and Finance (12,798)

4.2 *Buying Interest*

Based on the Scopus database, the research on buying interest has been done by many researchers with 2,165 documents. The highest hit of number of research is in 2019 and 2022 with 176 and 166 documents, respectively. The outcome of the research starts increasing in 1997 till the peak in year 2019, which means that the research on buying interest is considered an interesting topic (Fig. 2).

Table 2 tells some interpretations of the research on buying interest. It starts with a number of articles been published by each author with range of 4–6 articles, indicating that this subject relatively is being exposed to the researchers. While the highest institution producing the articles is Columbia University and followed by Bina Nusantara University. Each of them successfully published 12 documents. The top ten countries that engage mostly with social media research lead by the United States and followed by the United Kingdom. Meanwhile, most of the published document's type is a type of article which means that more empirical studies were produced. Lastly, the below data has shown that the research on social media is mainly related to the business, management and accounting subject rather than other subjects.

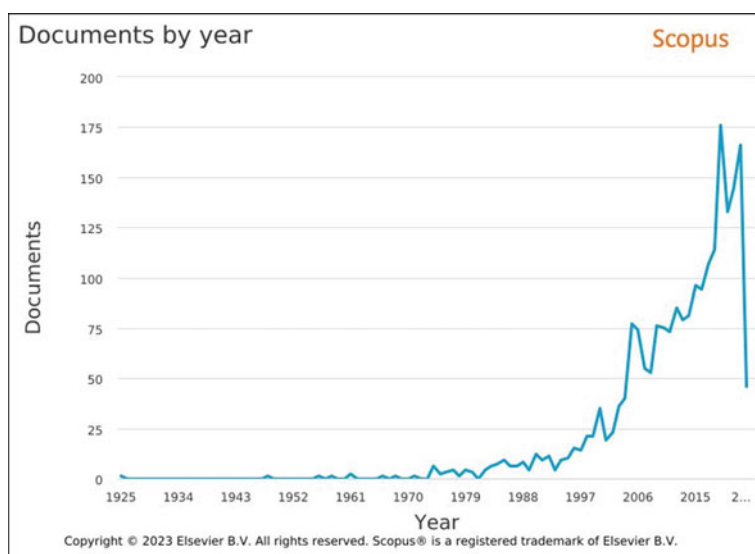


Fig. 2 Number of documents by year (buying interest)

Table 2 Summary of research output of author, affiliation, country, subject area and document types on buying interest

No.	Authors/ number of documents	Affiliation/number of documents	Country/ number of documents	Document type/ number of documents	Subject area/ number of documents
1	Anon (6)	Columbia University (12)	United States (508)	Article (1374)	Business, Management and Accounting (666)
2	Foster, B. (5)	Bina Nusantara University (12)	United Kingdom (162)	Conference paper (353)	Social Sciences (516)
3	Annunziata, A. (4)	Wageningen University & Research (11)	India (145)	Book chapter (186)	Computer Science (410)
4	Baghestani, H. (4)	Massachusetts Institute of Technology (11)	Indonesia (119)	Review (111)	Engineering (391)
5	Black, D.W. (4)	Harvard University (10)	China (99)	Book (54)	Economics, Econometrics and Finance (349)
6	Brabazon, A. (4)	University of Oxford (10)	Germany (89)	Note (48)	Medicine (174)
7	Cui, W. (4)	Bucharest University of Economic Studies (10)	Italy (80)	Short survey (23)	Agricultural and Biological Sciences (172)
8	Johansyah, M.D. (4)	Helsingin Yliopisto (9)	Spain (67)	Editorial (5)	Arts and Humanities (146)
9	Menrad, K. (4)	University of Minnesota Twin Cities (9)	Canada (56)	Business article (3)	Environmental Science (139)
10	Nativi, A. (4)	Princeton University (8)	Australia (50)	Conference review (3)	Decision Sciences (130)

4.3 Women Entrepreneurs

Based on the Scopus database, the research on women entrepreneurs has been done by many researchers with 4,771 documents. The highest hit of number of research is in 2021 and 2022 with 498 and 584 documents, respectively. The outcome of the research starts increasing in 1997 till the peak in year 2019, which means that the research on buying interest is considered an interesting topic (Fig. 3).

Table 3 has given the research on women entrepreneurs. Welter, F. acknowledged as the most active author who did research on women entrepreneurs with 32 documents so far and followed by Brush, C.G. with 27 documents, while the highest institution producing the articles is Babson College with 48 articles and followed

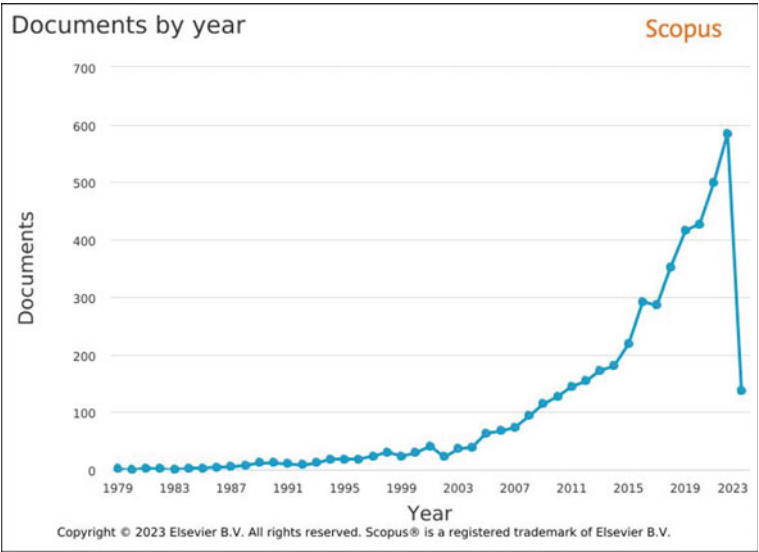


Fig. 3 Number of documents by year (buying interest)

by the University of North Carolina at Greensboro with 30 articles. Moreover, the United States and the United Kingdom are the most productive countries with 1039 and 555 articles, respectively. Meanwhile, most of the published documents is a type of article means, indicating more empirical studies have been done on the subject of women entrepreneurs compared with other types of documents. Lastly, the research on women entrepreneurs is mainly associated with the business, management and accounting subject.

Table 3 Summary of research output of author, affiliation, country, subject area and document types on women entrepreneurs

No.	Authors/ number of documents	Affiliation/number of documents	Country/ number of documents	Document type/ number of documents	Subject area/ number of documents
1	Welter, F. (32)	Babson College (48)	United States (1039)	Article (3442)	Business, Management and Accounting (2691)
2	Brush, C.G. (27)	The University of North Carolina at Greensboro (30)	United Kingdom (555)	Book chapter (684)	Social Sciences (2180)
3	Kaciak, E. (24)	Brock University (28)	India (451)	Conference paper (258)	Economics, Econometrics and Finance (1660)
4	Henry, C. (19)	Universität Siegen (28)	Canada (236)	Review (187)	Arts and Humanities (479)
5	Marlow, S. (18)	Högskolan i Jönköping (25)	Spain (232)	Book (145)	Engineering (298)
6	Ramadani, V. (17)	Universitat de València (24)	Australia (188)	Note (17)	Computer Science (268)
7	Ahl, H. (16)	Stockholms Universitet (24)	Malaysia (186)	Editorial (15)	Environmental Science (236)
8	Essers, C. (14)	Goodman School of Business (24)	Germany (150)	Conference review (9)	Decision Sciences (164)
9	Paoloni, P. (14)	Griffith University (23)	Sweden (142)	Letter (4)	Psychology (155)
10	Dilger, R.J. (12)	Kozminski University (22)	Italy (120)	Short survey (4)	Energy (119)

5 Conclusion

Women workers dominate to take on the role of this business to weave. The importance of social media knowledge for womenpreneurs is obviously acknowledged. Sometimes, the entrepreneurs do not fully understand how to use social media which is actually very potential in selling their products. Social media requires creation, sharing, connecting, and community building to help active womenpreneurs. The quality of the product must offer distinctive features in terms of reliability, aesthetic, durability, and performance that can attract market buying interest. Products are the subject of this marketing activity. Consumer purchase is not about only buying a product but want to get benefits for quality of the product. For the womenpreneurs, in order to get developed and sustain in their business, they must focus to market maps, interest of business, and desire and action to engage in extensive marketing activities. This research should be continued with more empirical outcomes which then will clarify the problems that occur faced by womenpreneurs such as customer satisfaction, customer loyalty, innovation and creativity.

There are further steps to be undertaken related to the research works and outputs presented above in terms of number of publication, authors who produce quality articles, name of institution and country affiliated with the authors and type documents of publications. The three elements which are related to marketing activities (social media, buying interest and woman entrepreneurs) are crucial to be explored and used as a reference for other studies.

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Problems and Prospects on Hospital Performance: TQM as Solution



Fahmi Natigor Nasution

Abstract This paper aims to elaborate and discuss on problems and prospects on hospital performance which then attempt to include total quality management as a solution. The study adopts content analysis approach that consists of information from various sources including reports, official documents and research articles. The paper elaborates on the importance of TQM on hospital performance as well as the problems faced by the hospital. The four main problems of high fees, service quality, human resources competencies, hospital information system are explained which assumed influence the hospital performance. These findings and information could be referred by practitioners, academicians and other stakeholders for further studies.

Keywords TQM • Hospital performance • Prospects • Human resources • Information system

1 Introduction

Hospital performance is a prominent concern in every country. In many developing countries, the performance of hospitals must be better which can compete and provide quality services. Good performance is not only quality but can also control cost behavior and can improve operational performance as a whole. Hospitals are really challenged to look at their operations and find more efficient ways to do business. Many hospitals are turning to TQM to cut costs and overall increase in the quality of services provided.

Two factors led to the adoption of TQM in the healthcare industry: survival in a shrinking market as the focus shifted from inpatient to outpatient care; and pressures to bear the costs imposed by health payers. A careful look at the basics of TQM reveals that TQM is not limited by unique industry considerations. Customer focus,

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error prevention, fact-based management, systems and continuous quality improvement are among the universal management concepts associated with TQM and are transferable to all business settings. Empowerment of employees is an important foundation for creating with total quality in every organization. Meanwhile, worker motivation, responsibility and accountability are general concepts that can benefit any business organization.

Several countries in Southeast Asia such as Singapore, Thailand and Malaysia take this opportunity to develop a health tourism, where the presence of this tourism sector will attract more patients who come for treatment to their country. The health tourism sector brings in profits of US\$3.5 billion in Singapore and US\$4.3 billion in Thailand.

There are many reasons why people choose treatment abroad, some of which are technology that is considered more advanced in other countries, lack of trust in doctors and health services and better hospital conditions. Public trust is something that must be built by health service providers and policy makers so that people have more confidence in undergoing treatment in the country. There are many challenges in building this trust, one of which is improving the quality of service.

This paper intends to elaborate the problems and prospects of hospital performance as well as the importance of total quality management (TQM) as the solution for a better performance.

2 Literature Review

2.1 *Quality Management*

The key to improving the quality of health services is to understand the patient's evaluation of the performance of hospital services. This study uses several models to assess hospital services, one of which is the SERVQUAL method. There are five dimensions of service quality, namely tangible, reliability, responsiveness, assurance and empathy. Apart from this method, there are other assessments of service quality. In developing countries, it was found that the quality of hospital services consists of seven dimensions, namely personnel quality, infrastructure, administrative process, process of clinical care, safety, overall experience of medical care and social responsibility. Patients, in this case, expect the hospital to be able to provide services, when the patient has a problem, the hospital shows concern for solving patient problems, provides timely services and offers a wide range of products and services (Ali & Alolayyan, 2013; Puthanveetil et al., 2021).

In addition, the results of the TQM—performance relationship are not always consistent (Psomas et al., 2017; Talib et al., 2013). The “universal validity” of TQM practice is in doubt, therefore more studies in different contexts should be carried out, especially in the healthcare sector.

2.2 Deming's Theory, Crosby's Theory and Juran's Theory

Deming's theory was introduced by W. Edwards Deming in 1920. Deming's theory of total quality management rests on the fourteen points of management that he identified in deep knowledge systems, and the Shewart cycle (plan-do-check-act). It is known for its ratio—quality equals hard work over total cost. If a company wants to focus on costs, the problem is that costs increase while quality decreases. Deming's in-depth knowledge system consists of the following four points:

1. System appreciation—an understanding of how company processes and systems work.
2. Variation knowledge—understanding of the variations that occur and the causes of variations.
3. Theory of knowledge—the understanding of what knowledge can know.
4. Psychology—understanding of human nature.

Plan-do-check-act (PDCA) is a cycle created for continuous improvement as shown below (Fig. 1):

While Crosby's theory was introduced by Philip Crosby who is credited with starting the TQM movement. In 1979, Crosby published his most famous book entitled "quality is free." In his book, Crosby explains that quality is not a gift, but that quality does not have to pay (quality is not a gift, but free).

Juran's theory was introduced by Joseph M. Juran in 1970, which was written in a book called Quality Planning and Analysis. According to Juran, quality means that a product meets customer needs leading to customer satisfaction, and quality also means all the activities in which a business is involved, to ensure that products meet customer needs (Osayawe Ehigie & McAndrew, 2005).

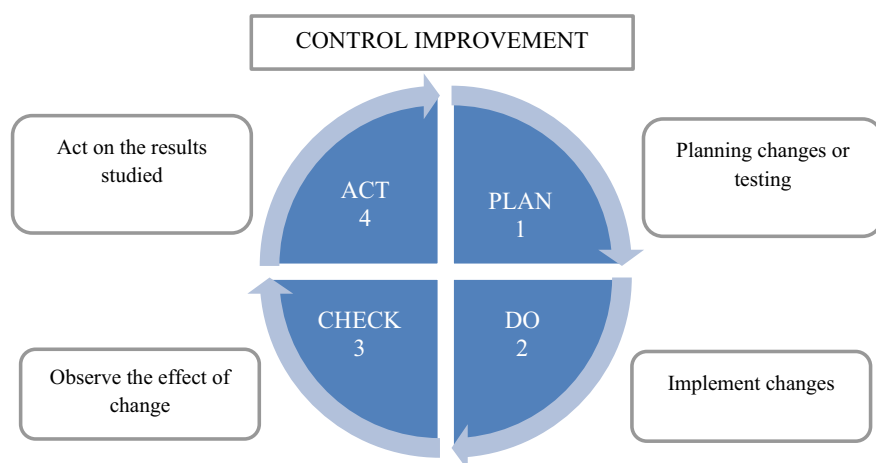


Fig. 1 Deming's PDCA cycle theory

Juran defines quality as fitness for use, which implies that a product or service must meet the expectations of its users. The definition of suitable for use contains five main dimensions, namely design quality, suitability quality, availability, security and field use.

Juran's most notable contributions include Juran's Three Basic Steps to Progress, Juran's Ten Steps to Quality Improvement, The Pareto Principle and The Juran Trilogy. In addition, Juran also developed the concept of managing business process quality, which is a technique for carrying out cross-functional quality improvements.

According to Juran, these three basic steps are the steps companies must take if they want to achieve world-class quality. Juran also believes that there is a point of diminishing return in the relationship between quality and competitiveness. The three steps consist of:

1. Achieve structured improvement on a continuous basis combined with dedication and urgency.
2. Conduct extensive training programs.
3. Forming commitment and leadership at a higher management level.

Ten steps to improve quality according to Juran include:

- Create awareness of the need for improvement and opportunities for improvement.
- Set goals for improvement.
- Organizing to achieve the goals that have been set.
- Provide training.
- Carry out projects aimed at solving problems.
- Report progress.
- Awarding.
- Communicate results.
- Save and maintain the results achieved.
- Maintain momentum by making improvements in the company's regular system.

2.3 Hospital Performance

Performance is defined as "the level of actual work performed by an individual" (Shore & Tetrick, 1991). Performance is a result achieved by workers in their work according to certain criteria applied to certain jobs. Robbins and DeNisi (1998) state that employee performance is a function of the interaction between ability and motivation. Employee performance refers to the achievement of a person as measured by the standards or criteria set by the company.

Patient satisfaction is a reflection of the quality of health services. Patient satisfaction is a level of patient feeling that arises as a result of the performance of health services obtained after the patient compares it with what he expected. If the patient does not find satisfaction from the quality of services provided, the patient tends to make the decision not to make a repeat visit to the hospital. Patient satisfaction as a service user is an indicator in assessing the quality of service in a hospital.

The quality of health services refers to the level of perfection of health services in creating a sense of satisfaction for each patient. The more perfect the satisfaction, the better the quality of health services. Good service quality is not only measured by luxurious facilities, technological completeness and physical appearance, but also by the attitude and behavior of employees who must reflect professionalism and have high commitment (Baidoun et al., 2018). The hospital as a health service facility is expected to provide quality services. The problem that is often faced by hospitals in general is that they have not been able to provide the maximum service expected by service users/patients.

Patient satisfaction is an integral and comprehensive part of health service quality assurance activities (Babu & Thomas, 2020), i.e., measuring the level of patient satisfaction must be an activity that cannot be separated from measuring the quality of health services. The consequence of such a mindset is that the dimension of patient satisfaction is one of the important dimensions of the quality of health services. Patients who enter inpatient services will get several services, namely doctor services, nurse services, medical support facility services, the patient's direct environment and administrative services. The patient must be satisfied in all of these respects. Patient satisfaction with health services can be measured using the dimensions of the quality of WHO health services which consist of six dimensions, namely effective, efficient, accessible, patient-centered, equitable and safe.

3 Methods

This study adopts a content analysis with reference of various sources. The author then reviews and puts it in sequence which is readable as well as could use as reference for further studies.

4 Discussion

4.1 Problems Faced by the Hospital

4.1.1 High Fees

Ideally, billing and pricing processes are based on operational budgeting processes (performance-based budgeting) which are estimated and calculated based on the current operational classification of organizational costs and in terms of functions and activities in the form of each workload and measurement of the cost of each activity for efficient production of goods or services (Yusefzadeh et al., 2013). Billing,

pricing and budgeting are successful when they receive full support from top management and are well-regarded by members (top management) for their initiation and implementation (Chaney et al., 2002; Ugoh & Ukpere, 2009).

In particular, the decision to join a strategic healthcare alliance can contribute to controlling costs, which in turn can have a positive impact on patient costs, for example through regulation when competitive mechanisms fail. Cost control is also related to the efficiency gains of many hospitals, and with a collaborative network, prices will be competitive and better. Several studies have found a positive relationship between network membership and operational efficiency (Carey, 1997; Chukmaitov et al., 2009; Mascia et al., 2012).

4.1.2 Service Quality

Patient satisfaction is important to maintain long-term customer behavior. The definition of patient satisfaction is the intersection of patient expectations for products and services by comparing perceived service performance. In addition to patient satisfaction, patient trust is also one of the impacts of expected hospital services. Patient trust consists of two things, namely honesty, where the patient believes that they can meet their needs at the hospital, and benevolence, where the patient believes that the hospital really cares about the patient's health and has the desire to improve the patient's health status (Hasin et al., 2001).

The effective dimension delivers health care that is evidence-based and delivers better outcomes for individuals and communities based on need. Health services must be effective, meaning that they must be able to treat or reduce existing complaints, prevent disease from occurring and the development and/or spread of existing diseases, while efficient dimensions, providing health care in a way that maximizes the use of resources and avoids wasting health resources are very limited.

The patient-centered dimension provides health care that takes into account the preferences and aspirations of individual service users and their societal culture. Hospitals are responsible for providing processes that support the rights of patients and their families while in service. Each patient is unique, with their own needs, strengths, culture and beliefs. The hospital builds trust and open communication with patients to understand and protect the patient's cultural, psychosocial and spiritual values. The fair dimension provides health care that does not discriminate in quality due to personal characteristics such as gender, race, ethnicity, geographic location or socioeconomic status. Hospital staff providing health services must be fair and provide equal treatment to patients and respect patient rights. The security dimension means that health services must be safe, both for patients, for service providers and for the surrounding community. Quality health services must be safe from minimizing the risk of injury, infection, side effects or other hazards caused by the health service itself (Boshoff & Gray, 2004).

4.1.3 Human Resources Competencies

Humans are one of the important resources in hospitals that are able to apply the functions of planning, organizing, directing and controlling various human resource management tasks. This is now one of the most important things besides the hospital information system as the backbone of a hospital's business process. HR management now has the task of achieving effective utilization of human resources, good working relations among employees, maximum employee development, high morale in the organization and sustainable development and appreciation of human assets.

Most hospitals have sufficiently understood the importance of HR planning with the principle of providing work that suits the individual, so as to achieve efficient service and patient satisfaction (Pandey et al., 2021). Performance appraisal is important to be able to improve human resources through various selection procedures.

Problems in implementing strategic HR management can be categorized into five key issues (Verma et al., 2022). *First*, the relationship between the structure of an organization and the HR management department. HR management is often considered to be a lowly position in an organization, but this has changed with the increased role and influence of HR management in recent years. In the service-oriented and knowledge-based division of health services, HR management has a more significant role compared with organizations in other fields. *Second*, the suitability of the HR department with organizational strategy. Organizations should have an understanding of the strategy being implemented which will then be applied in HR management practices, so as to produce employee behavior that supports organizational objectives. *Third*, cultural issues. HR management has an important role to play in building an adaptive learning culture while also having the capacity to keep up with drastic changes by creating appropriate behaviors and values for the healthcare workforce. *Fourth*, competency issues. One of the reasons the HR management department is rarely involved in the strategic planning of an organization is due to a lack of competence than expected, therefore the level of competence of executives from the HR management department has a major role in the integration of HR management functions and strategies, and *fifth*, the relationship between HR management and clinical outcomes.

Training and development

Specific performance improvements can be achieved with various types of HR management practices in the form of units or groups of practices (Ali & Johl, 2022). One of the practices of HR management that has also been widely researched is that training has been shown to have a positive impact on the four performance categories above.

Training in non-technical fields is a trend in hospitals and is proven to improve team performance, patient safety and organizational performance (Hwang et al., 2020). Another well-researched practice is task delegation which has been proven to have an impact on organization and patient outcomes. As for the collection of

practices that are applied mostly cover several domains such as increasing motivation, ability and empowerment.

One example is increasing job satisfaction with a combination of practices involving training, management support, teamwork, promotions, autonomy, financial incentives, scheduling and job appraisal. It is better for each hospital to apply a human resource management practice model that is adapted to the problems faced by each of these hospitals by paying attention to the aspects of performance assessment that they want to improve. The implementation of HR management will be a factor that will affect the effectiveness and efficiency of the health services offered by the hospital.

Suggestions that can be done for this problem are;

- (1) Training for prospective employees and employee development that has been determined must be carried out in accordance with existing procedures and procedures must be carried out clearly and continuously in order to increase employee competence and commitment to become qualified and competent employees.
- (2) In developing employees, don't just choose potential and diligent employees, but lazy employees should also be encouraged or even required to take part in development programs every few months, so that every employee feels supported by the company, so they feel motivated not to be lazy and competing to be promoted and also development programs can make their minds more open at work.
- (3) The evaluation results of the employee development program must be conveyed transparently to employees participating in the development program, so that employees who are less competent may be required to take part in a re-development program using the training method.

With the existence of a training program for prospective employees and employee development, it is hoped that the company can carry out prospective employee training and employee development with full responsibility in accordance with existing regulations and employees are also expected to follow these regulations. It is purposeful to make it easier for companies to achieve their goals and improve the quality of human resource work within the company.

4.1.4 Information Technology

The function of information technology is very much for hospitals, because it can help health workers to save thousands of lives every day (Sharma & Modgil, 2020). In addition, information technology also makes it easier for IT staff of health service institutions to process data they have, so that it can be used to improve the quality of the services provided. On the other hand, there are still many people who question the function of information technology for hospitals. In fact, as we all know, patient safety remains the first priority, one of which is to provide better facilities for patients.

The first function of information technology for hospitals is related to data. Meanwhile, the data owned by healthcare institutions is complicated. Therefore, the function of this information technology is to make it easier for you to access and also process the data you have. With an application that connects hospital staff with an integrated data center, the hospital you manage no longer has to worry about searching for patient data at the archive center and disassembling it one by one.

1. *Ease of Accessing Data*

You only need to type in certain keywords with the help of an online-based application, so you can get the required data in an instance. In addition, the function of information technology in hospitals is to reduce the risk of human error, because patient data and medical history are easier to check in more detail. Of course, this can improve the quality of services from the hospital as well, because patients don't have to stand in line to get health services from the hospital that you manage the data for.

2. *Able to Check the Data Needed in Real Time*

Another function of information technology in hospitals that is rarely known is its ability to check data online. The function of information technology is very important, because it involves making decisions that need to be taken by health workers. In many cases, patients are often faced with the condition that timing is everything. Therefore, the function of information technology in checking real-time data can cut the time that was previously wasted due to manual data searches.

3. *Speed in Communication Between Health Workers*

Besides being able to check data in real time, the function of information technology for hospitals is to increase the speed of communication from health workers. With an integrated system, officers no longer need to rush to provide patient documents to other officers. This is of course more efficient, because officers only need to access patient data via a computer. That way, a doctor's diagnosis can be made quickly.

4. *Ease in Data Processing*

On the other hand, the information technology function in the hospital can also make it easier for you to process the data you have. With the help of technology in the form of a hospital information system presence, your hospital's IT division can use the data for various needs. Examples include recording medical records, preparing RL reports for the Ministry of Health, to evaluating services provided to patients.

5. *Computerization of Doctor Consultation Services*

With the ongoing pandemic, the role of doctors in providing counselling services, including in consultations related to prescribing drugs must be done online. Therefore, the function of information technology in this case is to provide computerized facilities between doctors and hospital pharmacy departments.

This consulting system, known as telemedicine, can not only break the chain of transmission of COVID-19, but can also improve the quality of service by means of

a standardized process and also provide guidance for treating patients. Of course, the function of information technology in hospitals is very large, especially in the midst of increasing cases of health workers contracting the virus.

With several types of services such as the creation of a hospital management information system (SIMRS), hospital asset management system (SAMRS), medical record system, to mobile applications for queues, the function of medical services is done effectively and efficiently.

5 Conclusion

Health services have long been discussed in both developed and developing countries. This shows that the health service system is increasingly responsive to the needs of patients and the community. Therefore, healthcare organizations should be more focused on the interests of patients. In other words, health services must always strive for the needs and satisfaction of patients and society simultaneously. Quality service certainly will not injure the patient and is definitely safe. On the other hand, safe services are not necessarily of high quality and free from errors.

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Information Systems and Artificial Intelligence

Smart Homes Technologies Adoption: Effect of Social Trust and Risk Perception



Abhisek Dutta, Raj K. Kovid , Manisha Gupta, and Rajeev Sijaria

Abstract Smart homes devices and services are being increasingly adopted globally in view of Industry 4.0. Thus, it becomes imperative to investigate the factors that lead to their adoption. The trust heuristic and technology acceptance model were used in the study to examine a technology adoption model to account for adoption of smart home services. Results show that acceptance is indirectly influenced by social trust through perceived utility. Contrarily, even though the relationship was found to be inversely connected, perceived risk did not significantly affect behavior-related desire to adopt smart houses. Using a survey ($N = 200$) and testing with partial least squares structural equation modeling, the study verified the findings. Further discussion of the study's results' theoretical and practical consequences follows.

Keywords Smart home · TAM · Social trust · Perceived risk · Technology · Industry 4.0

1 Introduction

The Internet today has practically entered our homes, bringing with it automations that make our lives easier. Only a smartphone or tablet is required to operate Internet-connected gadgets. The smart homes today consist of a number of components and

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services that communicate with one another and the user, both individually and collectively which is known as Internet of Things (Wu et al., 2007). A smart home is a “home equipped with computer and information technology, which meets the users’ needs, working to increase their comfort, security, and entertainment through the management of technology in the home and with the rest of the world” (Aldrich, 2003). These smart home services provided consumers with control and interaction between devices (Kaneko et al., 2017), connected smart appliances such as fridges, washing machines, televisions, etc. (Dalvi, 2022), assisted living systems such as heating system (Lee et al., 2014), security systems (Robles et al., 2010), and many more. Past studies have shown that consumers display time savings and cost benefits in adopting smart home system. Moreover, smart homes can reduce energy consumption in a household by controlling the usage of the devices for amount of right time and reduce unwanted usage. It can also provide companionship to people staying alone and provide psychological well-being. Though, various legal issues plague the smart home systems in terms of privacy and security of information transmitted over the network. Though, smart home service companies in India are far and few, the interest toward these services are gaining popularity. India is now the second-largest digital market in the world because of cheaper data, increased disposable income, and lower hardware prices. Along with the already established businesses like Samsung, Xiaomi, Philips, and Fossil, a lot of new competitors were entering the market. One such company was launched by the famous Hero Group with its subsidiary named Hero Electronix, with its smart home camera in September 2019 (Sun, 2022).

There aren’t many studies that have looked at how people perceive and adopt smart homes, despite the developments in technology and the anticipated advantages. Users in the UK, Germany, and Italy loved the observable advantages and the enhanced quality of life, but they expressed reservations about the potential for installation failure, worries about privacy, and the challenges of using smart home technology (Theodoratos, 2004). As a result, there is still a limited penetration of smart house services. With the aid of well-known frameworks and models like the technology acceptance model (TAM) (Davis, 1989) and innovation diffusion theory (IDT) (Rogers, 2003), several studies looked at the extent of adoption of smart home technologies. TAM assesses the consumer’s acceptance of technology, through perceived utility (the degree to which a user believes a new technology will deliver more useful and helpful outcomes than a previous or earlier technology) and perceived ease of use (the degree that a user believes that it will be easy to use a new technology). Other researchers asserted that because consumer wants may vary depending on the technology under study, TAM must be expanded in accordance with those features (Legris et al., 2003). Thus, various other constructs were added to the TAM to investigate the factors influencing adoption of smart homes. The variables introduced are discussed in the sections further.

2 Literature Review

The technology acceptance model (TAM) (Davis, 1989), theory of planned behavior (TPB) (Ajzen, 1991), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), and UTAUT2—which used human behavior to explain user acceptance—were some of the most well-known models of technology acceptance (Venkatesh et al., 2012). In information systems research, the TAM, UTAUT, and UTAUT2 were developed to explain technology acceptance, but the TPB was introduced to characterize human behavior more generally. These models' basic tenet is that people's perceptions and beliefs will have an impact on their intentions, which will subsequently translate into their actual behavior. Perceived utility (PU) and perceived ease of use (PEOU) are the two direct factors that influence behavioral intention (BI) in TAM. Attitude, perceived behavioral control, and subjective norm are the three BI components included in TPB. It suggests that BI's use of a technology will be positively influenced by a positive mindset, positive normative values, and beliefs about voluntary control. According to UTAUT, BI is believed to have a positive impact on actual behavior along with the influence of facilitating conditions. BI is supposed to be influenced by social influence, performance expectation (PU), effort expectancy (PEOU), and social influence (SI). In addition, user characteristics including age, gender, experience, and willingness to use might influence the association between BI and its antecedents, according to UTAUT (Dutta & Kovid, 2023). Earlier researchers (such as Dutta et al., 2022; Lee & Lee., 2018) have reviewed and revised UTAUT2 model which now also considers three more constructs: hedonistic motivation, price value, and habit.

Studies modified the TAM to include trust and perceived risk in order to predict technology adoption (Singh et al., 2021). It was believed that each of the four elements would have a direct impact on BI and that trust may also have an indirect impact on BI through the perception components (Xu et al., 2018). Furthermore, trust is considered to be a function of reliability, security risk and privacy risk. Though, these factors only affect adoption because of the trust.

2.1 Behavioral Intention and Use Behavior

Earlier studies on the adoption of technology have shown that behavioral intention to use the technology has a significant impact (Ajzen, 1991; Venkatesh et al., 2012, 2016). Various research in social psychology identifies factors influencing BI (Wedlock & Trahan, 2019). The usage intention of a technology is affected by BI both directly and indirectly. Thus, hypothesizing,

H1: Behavioral intention has a positive effect on use behavior

Perceived Usefulness and Perceived ease of use

PU is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance.” The PU in TAM is similar to performance expectancy in UTAUT (Venkatesh et al., 2003). Davis (1989) defined PEOU as “the degree to which a person believes that using particular system would be free of effort” and is very similar to effort expectancy factor used in UTAUT (Venkatesh et al., 2003). Numerous studies conducted in the past have determined the impact of PE and PEOU on the adoption of various technologies (Davis, 1989; Ghazizadeh et al., 2012; Venkatesh et al., 2003) such as autonomous vehicle adoption (Yuen et al., 2020), augmented reality (Jang et al., 2021), electric vehicles (Shanmugavel & Micheal, 2022), and payment using facial recognition (Zhong et al., 2021). Thus, proposing the hypotheses:

H2: Perceived ease of use has a positive effect on behavioral intention

H3: Perceived ease of use has a positive effect on perceived usefulness

H5: Perceived usefulness has a positive effect on behavioral intention

2.2 Perceived Risk and Perceived Usefulness

When consumers perceive a technology to be risky, the usefulness, usability, and behavioral control of the technology reduce for them. Users' attitudes and intentions (TAM and TPB aspects) to utilize smart home services might be influenced by how they perceive risk and trust. Customers may view a security risk as the possible loss of control over their personal information (which also includes the potential for unauthorized system access from outside parties that might lead to fraud or criminal activity in and around the home) (Featherman & Pavlou, 2003; Yang et al., 2018). The perceived risk can also mean performance-based risk, which refers to the prospect that the system is broken and does not function properly the way it was meant to and thus does not provide the originally assured advantages (Featherman & Pavlou, 2003). Lastly but not least, time risk relates to time loss brought on by significant effort spent deciding whether to buy, install, or repair the system (Featherman & Pavlou, 2003). As perceived risk increases, TAM and TPB elements should generally decrease, whereas TAM and TPB elements should generally increase as trust increases. Each of these hypotheses also has an impact on risk-taking inclination, which in turn has an impact on intention to use technology.

H4: Perceived risk has a negative effect on perceived usefulness

2.3 Social Trust and Perceived Ease of Use

Consumers are more likely to attempt using social networking for transactions if they perceive the activity incorporating social technology as having a lower risk or better degree of trust, according to previous research (Hansen et al., 2018). Trust promotes self-disclosure of information online which was observed in context of online shopping (Ha & Stoel, 2009) and online communities (Posey et al., 2010). Social trust thus can provide the comfort to the users that in times of needs, others might be of help in understanding the smart home system, thus reducing the difficulty in using the system. Thus, hypothesizing,

H6: Social trust has a positive effect on perceived ease of use.

2.4 Social Trust and Perceived Risk

Social trust can be critical in overcoming the risk perception (McKnight et al., 2002; Rousseau et al., 1998). The findings in studies in social sciences found that when personal information about a danger is limited, the general public depends on social trust to make risk and benefit assessments (Siegrist & Cvetkovich, 2000). A certain amount of subjective assurance that the trustee will be able to achieve their objectives, keep their word, and really care about them can also be provided by a trust to the trustor. This may increase the likelihood that the trustor will receive the benefits they are hoping for from the trustee. It has already been demonstrated that social trust lowers risk perceptions and raises benefits perceptions (Siegrist & Cvetkovich, 2000). People's confidence in their government or smart home device manufacturers may act as a mechanism to help them overcome risk aversion and accept claims about the benefits of smart home services. Thus, hypothesizing;

H7: Social trust has a negative effect on perceived risk. The hypothesized model is given in Fig. 1 below.

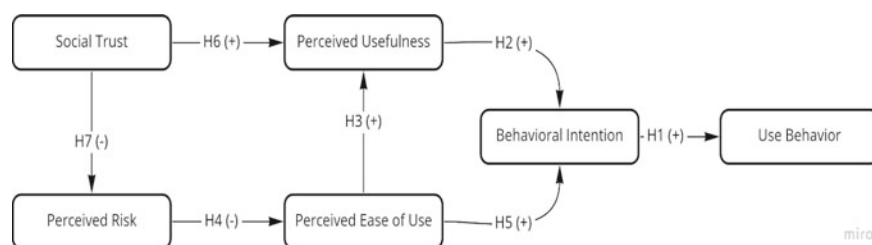


Fig. 1 Hypothesized model

3 Research Methodology

3.1 Method and Model

The structural equation modeling partial least squares approach was used to test the expanded TAM model (PLS-SEM). PLS-SEM was done using a Smart PLS version 4 trial that is completely functional. The primary benefit of PLS-SEM is that it can replace CB-SEM since it can help prevent problems caused by small sample sizes. Additionally, PLS-SEM has the ability to estimate a complex model with many latent variables. Finally, because PLS-SEM's assumptions for the variable and error terms are less tight, it can handle both reflecting and formative measurement models. (Henseler et al., 2009).

Firstly the study assesses the measurement model and then structural model (Hair et al., 2017). While the structural model defines how the constructs are related to one another in the model, the measurement model describes how each construct is measured. PLS-SEM makes it possible to analyze the measurement and structural model simultaneously, boosting estimation accuracy. (Barclay et al., 1995).

3.2 Sample

The survey was designed and shared through an online questionnaire creator. The questionnaire was distributed through personal and social media channel. In total we received 225 responses. After cleaning and removing incomplete data, this left us with 200 totally completed replies. Only individuals who are technology inclined make up the demography of the poll respondents, who are from India's urban areas.

3.3 Respondents' Characteristics

The respondents consist of 33% women, and 67% men and the age range from 14 to 50, but 93.5% of them were within the 18 to 35 age bracket, this is also the group whose members are most open to new ideas and have money to spend. Table 1 provides a summary of the above information.

Table 1 Demographic information

Gender/age	18–25 yrs	25–35 yrs	35–45 yrs	45–60 yrs	Grand total
Male	86	42	5	1	134
Female	39	20	4	3	66
Grand total	125	62	9	4	200

4 Result and Analysis

4.1 Measurement Model

The model’s reliability was assessed by observing the Cronbach’s alpha and composite reliability, whereas the validity of the model was analyzed using the convergent and discriminant validity. To investigate the internal consistency reliability, the Cronbach alpha was used as seen in Table 2 whose values range from 0.724 to 0.801, all of which are higher than 0.70.

Table 2 Measurement model

Variables/ constructs	Items name	Factor loadings	Variance inflation factor (VIF)	Composite reliability	Cronbach’s alpha	Avg. variance extracted (AVE)
PEOU	PEOU1	0.704	1.324	0.842	0.728	0.573
	PEOU2	0.742	1.432			
	PEOU3	0.736	1.543			
	PEOU4	0.805	1.432			
PU	PU1	0.885	2.876	0.921	0.801	0.744
	PU2	0.878	2.822			
	PU3	0.880	2.454			
	PU4	0.804	1.643			
ST	ST1	0.767	1.420	0.853	0.724	0.659
	ST2	0.823	1.415			
	ST3	0.843	1.504			
PR	PR1	0.643	1.398	0.839	0.734	0.517
	PR2	0.546	1.655			
	PR3	0.668	1.544			
	PR4	0.833	1.223			
	PR5	0.856	1.345			
BI	BI1	0.839	1.868	0.861	0.765	0.675
	BI2	0.866	1.909			
	BI3	0.756	1.457			
UB	UB1	0.804	1.808	0.861	0.774	0.609
	UB2	0.754	1.917			
	UB3	0.820	1.544			
	UB4	0.740	1.437			

Table 3 HTMT (Heterotrait-Monotrait ratio)

	BI	PEOU	PR	PU	ST
BI					
PEOU	0.801				
PR	0.198	0.249			
PU	0.594	0.557	0.263		
ST	0.497	0.609	0.309	0.335	
UB	0.640	0.726	0.215	0.526	0.411

Source Prepared by authors

The average variance extracted from the constructs (AVE) for all items is used to evaluate the convergent validity. The constructs should be able to explain at least 50% variations in the items; thus, AVE of 0.50 or above is acceptable.

The study evaluates the internal consistency reliability using the composite reliability scores (Joreskog, 1971). Between 0.60 and 0.70, reliability levels are considered “acceptable,” whereas 0.70 and 0.90 reliability levels are considered “satisfactory to good.” Composite reliability values above 0.95 are seen as problematic since they may indicate item redundancy (Diamantopoulos et al., 2012). The study used Cronbach’s alpha and composite reliability (CR) to assess the internal consistency reliability. Table 3 gives the CR and Cronbach’s alpha values for each construct. The average variance extracted for all the constructs are more than 0.6 and composite reliability values are higher than 0.70, suggesting high reliability. Also, the HTMT values are all below 0.90 (Gold et al., 2015; Teo et al., 2008) which shows that constructs are different from each other, i.e., discriminant validity is established.

4.2 Structural Model Assessment

By analyzing the structural model, researchers can explain how the latent constructs relate to one another (Hair et al., 2017). The structural model with the newly included constructs is shown in Fig. 2, along with each path coefficient and *p*-value. Two key metrics that may be used to evaluate the structural model are the path coefficients between the variables and coefficient of determination (*R*²). Table 4 presents the findings of the hypothesis testing. *R*² is equivalent to 0.258 for use behavior and 0.45 for behavioral intention. Therefore, the construct in the structural model can only predict 45% of the variation in behavioral intention and 25.8% of the variation in use behavior toward smart home services in India. R-squared values frequently denote impacts of moderate to small significance (Zikmund et al., 2013). In general, it’s challenging to forecast how people will act, especially when that behavior is based on a poor understanding of a novel technology. But it was found that there was a strong relation between all the proposed criteria.

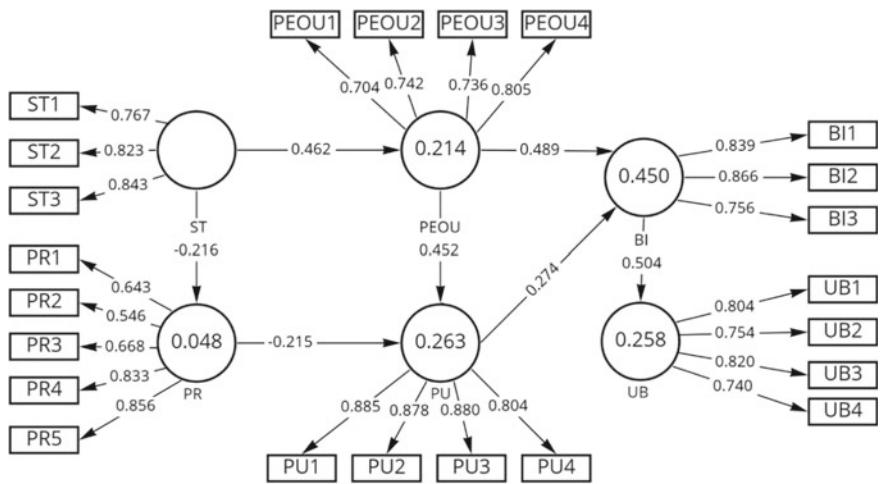


Fig. 2 Path diagram (Smart PLS 4.0). Source Prepared by authors

Table 4 Summary of hypothesis

No #	Hypothesis	Beta	T-value	p-value	Decision
H1	BI → UB	0.504	9.882	0.000	Supported
H2	PEOU → BI	0.489	9.537	0.000	Supported
H3	PEOU → PU	0.452	6.729	0.000	Supported
H4	PR → PU	-0.215	0.879	0.379	Not supported
H5	PU → BI	0.274	4.813	0.000	Supported
H6	ST → PEOU	0.462	7.906	0.000	Supported
H7	ST → PR	-0.216	1.780	0.075	Not supported

Source Prepared by authors

5 Conclusion and Implications

Using TAM as a base model, this study helped in understanding the effect of social trust and perceived risk on adoption of smart homes in India. The adoption model is based on trust theory and TAM in order to forecast how users would react to smart homes. The study’s major goal was to determine the main factors that influence a person’s behavioral intention and use behavior toward smart home services in India. The study also added two significant antecedents, namely social trust and perceived risk to the TAM model with the goal of determining their contribution to the acceptance of smart home services. The dimensions of perceived usefulness, perceived ease of use, social trust, and perceived risk had a major influence on behavioral intention. The T-values for all relationships were found to be positive except for the relationships between social trust and perceived risk, perceived risk

and perceived utility. This suggests that any improvement in those constructs will have a major favorable impact on people's intentions or actions regarding smart home services. However, a rise in social trust will result in a decrease in perceived risk, and an increase in perceived risk will result in a decrease in the user's perception of the technology's utility.

5.1 Theoretical Contributions

This study found the TAM constructs (PU, PEOU) to be significant (Davis, 1989). Since a system that requires the user to trust with its information on a day-to-day basis may raise anxiety, perceived ease of use had a higher impact on behavioral intention than perceived usefulness. Fully integrated smart homes in India are thus, people might consider them to be difficult to use. Since most customers have exposure on smart lights, speakers, locks, etc., and nothing advanced. Social trust and perceived risk, two newly introduced constructs, had a considerable impact on the TAM components, which in turn affected BI and UB. Due to the lack of complete knowledge about a fully integrated smart home service, users may view it as unsafe and put their lives in danger by putting their confidence in a system which can be controlled remotely and promises to safeguard the house.

Social trust in smart house functionality is positively related with their attitude toward smart homes (Luor et al., 2015). Also, since knowledge about the smart homes are limited to consumers in India, they ought to make decisions based upon social trust, i.e., information gathered from others who they trust. Past research in social psychology has found negative correlation between perceived risk and perceived usefulness (benefit) (Siegrist & Cvetkovich, 2000) which is in direct corroboration with the findings of this study.

5.2 Managerial Implications

The current study highlighted the need for an extensive adoption model, by merging elements from acceptance, risk theories, and trust models in order to research sophisticated, multifunctional technologies like smart home services. The acceptance of smart home services in India will be strongly influenced by social trust and perceived risk. Only having advanced features and further technological progress are not enough to ensure adoption of smart homes services. The study suggests practitioners on how they can build social trust among the consumers for faster adoption of smart homes services. Thus, manufacturers should pay attention to provide enough cognitive psychological cues to its target customers to build social trust.

Perceived risk was considered by consumers as a factor which is of concern to them. The study found risk perception as a major impediment to smart homes' acceptance and uptake. Due to its indirect impact through PU, risk perceptions appear

to predominantly function as an indirect inhibitor of behavioral intention. In the past, we have observed barriers to technological adoption and utilization brought on by risk apprehension related to the technology, such as vaccines, fusion power reactors, etc. Therefore, the makers should launch messaging right away to lessen the perception of risk.

5.3 Future Research Directions

Although the study attempted to address a set of independent variables influencing the adoption of smart home services and suggested an expanded social trust linked with TAM model, it does not pinpoint the elements that contribute to the development of social trust. In order to effectively connect with their target audience, practitioners may benefit from further study on the factors that contribute to social trust and acceptance. To understand the effects of societal and demographic changes on the adoption of new technology, a meta-analysis of UTAUT and its extensions suggests a larger need for taking into account moderating characteristics including age, gender, and prior experience in information technology. Few topics, such as comparing adoption variables in various emerging nations or comparing emerging nations to developed nations, which may be useful for future research, were not included in the study. Additionally, because the study is only conducted in one country, it must be broadened to include additional countries, bringing the cultural dimension into play as a moderating factor affecting behavioral intention. Given that household systems and consumption patterns vary with cultures, comparing developed and developing nations may also be a fascinating subject of study.

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Instruments Music Composition in Different Genres and Techniques Using AI: A Review



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Abstract Music and technology may seem like two disparate fields, but their interdependence can be remarkable. Through the aid of computer machines, technology can facilitate musical endeavors in various ways. This paper aims to explore the literature on how technology can aid in learning to play music and contribute to the creation of music, through the use of different instruments that correspond to specific genres. The literature review is divided into several sections, the first being music information retrieval, which deals with audio processing and how music can be classified into different genres. The following section discusses how transformers can be used to create music, while the last part focuses on the latest trends in platforms that generate music.

Keywords Music · Genre · Transformers · Sound · Algorithms · Classification

1 Introduction

The music in general is a sound that is formed by combining different frequencies to express different emotions and ideas. Many times, music does not only serve to listen to it, but it plays a very special role in other forms as well, starting that it can be used as therapy and up to other points that can be transformed by filling the demands of people as you need (Martineau, 2008). Organization of notes in music means which sounds are created by combining the frequencies for each note (each note has its own frequency) which affect the melodic tone, the text to be written and the harmony.

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Adaptation of musical notes being executed, for example at certain times, creates a rhythm or beat which can otherwise be called tact, which is very important not to say that it has the main role in music in general because without having this everything would be but just not music (Gatti, 2017). One of the most fascinating projects in artificial intelligence and multimedia is creating machines that can compose music like humans. Among the techniques that have been studied, neural sequence models which see music as a language, stand out as a noteworthy technique with a lot of potential. This transforms a digital representation of a musical score into a time-ordered series of distinct tokens, like the NOTE-ON events. With the help of this technique, MIDI files of classical piano music can be produced that feature expressive changes in note density and velocity. (Choi, 2020; Oore, 2018; Payne, 2019). The method by which music is converted into discrete tokens for language modeling and the machine learning algorithm used to generate the model are the two key elements of the technique, as we observe. Regarding the second part, there has been significant advancement and for instance, in recent years, “sparse attention” has improved self-attention in Transformers, and Transformer-XL has included a recurrence mechanism to teach longer-range reliance (Child, 2019). Computer science and music in the first sense seem to be two completely different fields, but the connection between them is very close when it comes to the help that has provided and continues to provide technology, both hardware and various software to solve many problems and simplification of work. Music in everyday life plays an important role in people. It is an important component that keeps people connected and tells communities what they are, in terms of what music they listen to can be (Anand et al., 2020). The development of computer science and technology also helps in the field of music, especially in the case of classification of genres. Programming, algorithms and other computer methods have a special connection in the help they can provide in this regard by providing a good product quickly and accurately when it comes to music and its classification and connection with man (Peterson & Haynes, 2017). Many musicians and many young artists launch their songs every day using different styles and sometimes even interweaving between different world styles to bring something new to the market. As far as music is concerned, nowadays we notice that most of the songs are commercial and sometimes they lose their value so much that it is very difficult to distinguish its genre, all this for benefits faster while its value is probably very down (Silla et al., 2017). The classification of the music genre is constantly done by many authors in many works, some of them building algorithms and methods for their countries for their music and genres and their national values. The reason for using classifications within a country lies in not losing these values by introducing the songs of that country into the genres of the same country, making their music not to mix with other genres that may be intertwined and remain as a foreign genre. In the continuation of the work, we will do a review of terms like MUSIC Information Retrieval where we will see its main parts which will help us in other parts such as genre classification and the use of transformers. The rest has to do with the new technique with transformers where it is now being used a lot in the development of ideas in the music industry, but we continue to see stagnation of papers by other authors. We will look at how music is created through musical

instruments or rather by emitting the sound of the instrument through technology, and then seeing which parameters are very important and care must be taken in creating the sound. Comparisons will be made between the papers and the last part will be the conclusions and the idea of what to do in the future in this direction.

2 Music Information Retrieval

Nowadays, the line between technology and the art world is gradually disappearing. The creators of art and in our case music like composers or instrumentalists do not need to work with conservative thoughts, but can use different tools for signal processing in different fields to create what is intended (Dittmar, 2012). Designers of applications and tools for music in general should start and have knowledge in a very special branch called music information retrieval (MIR), which deals with audio processing (Carmine-Emanuele, 2020). Among the main points of MIR are these two: music source separation techniques (MSS) and automatic music transcription (AMT), but it should be understood that everything related to audio and signal processing regardless of whether it is related to the genre of music or instruments, etc., they are part of MIR (Myna et al., 2020). During the 1980s and 1990s, materials for music education saw a significant increase in popularity. Students have access to a variety of CDs, VHS tapes, DVDs and, in modern times, online content with accompanied music.¹

In the paper by (Kasak, 2021) offers a summary and explanation of some music information retrieval concepts, such as musical source separation (MSS) and automatic music transcription (AMT) and discuss how these components impact the tools for music education. In (Castellon, 2021; Islama et al., 2021) paper were explained in detail about MSS and AMT showing the achievements in these points over the years and also below we will present some of the main points that need to be worked on in the future, according to this paper. Models which are separations are strictly conditioned by different data models and only for a certain number of sources. This is also the first part where research can be done in the future, trying to find bigger divisions for a larger number of resources. As a result of using MSS, it is possible to create more advanced VR applications for music. One idea given in this regard is that a divider can be created which simulates playing music by an orchestra with all members or playing solo. For the AMT part, the authors show that it is still a long way in automatic transcription of complex audio signals toward a higher level of abstraction. The main challenge of the future here is to implement multiple transactions for multiple instruments simultaneously (Kim, 2021).

¹ Retrieved from: Alfred Music Publishing available on: <http://www.alfred.com/Browse/Formats/DVD.aspx>.

3 Music Genre Classification

The music industry has undergone great changes in recent years, affecting its creative form as well as its expression. Music not only offers the opportunity to unite individuals, but it offers knowledge of different cultures, therefore the classification of musical genres is very important for the explanation of what we mentioned above and to satisfy the needs of people categorically.

In their work (Ghildiyal et al., 2020), they have created a new model for CNN by comparing some other models which were created for the classification of the genre. Using the GZTAN dataset, model was presented which in its inputs has many different models along with the audio mel-spectrogram being transferred to CNN. This project achieved quite high accuracy allowing users to classify the music genre with an accuracy of 91%. It should be borne in mind that some genres were not easily distinguishable and were confused with other genres such as country and rock, but other traditional and blues genres were the ones that were given the most importance and therefore their classification was easier.

In the next paper, the authors (Zhuang et al., 2020) show that the classification of the music genre is an important and practical field of MIR. Deep learning is being applied more and more in the classification of the music genre for two main reasons, show the authors of this article: The first is to avoid manual selection of audio signal, while the second reason is that the hierarchy of topology is always consistent with the stratification of musical structure in two domains, that of time and frequency. The challenge in this case is in understanding the relationships between distant points within a sequence. The authors demonstrate how several existing works and projects employ CNN or RNN or a mix of both to perform genre categorization. Based on NLP, the authors designed a classification transformer. To improve the performance of music genre classification, it should analyze the relationship between various audio frames.

Regarding some ways how the classification of the genre can be done based on the text of a music, according to the authors of this work (Foleis & Tavares, 2020) musical songs are described as a group of texts whose sound is inspired by the timbre. Often, the entire process is represented by a small collection of sound samples. The authors show how the selected textures within the music influence the automatic selection of the musical genre. The texture selection according to this article is based on K-means which has the task of identifying different textures within a sound in each part of it. This study confirms and concludes that the selection of textures according to this presented model enables to increase the performance of genre selection.

The authors of the other paper (da Silva et al., 2020) show that in the entertainment sector, the problem of creating models to identify musical similarities in audio media files is expanding. The fundamental objective of the authors' suggested novel genre categorization model, which is based on metric learning, is to learn a customized measure for each customer. This model uses a structured prediction approach on a set of MP3 audio files, where there are several different genres of music according to the taste of their holder or user. The extraction of information which is in acoustic

form, according to this paper, is done by using Mel-Frequency Cepstral Coefficient (MFCC), making a reduction of dimensions after the use of PCA analysis components. By examining the outcomes of fundamental algorithms like K-means and soft margin, the validity of this work is often confirmed through a large number of experiments.

In the next study, the authors (Folorunso et al., 2022) make the classification of the musical genre for Nigerian music, it means that it has to do with traditional music within a country and to perform this model, the authors present a new musical set, which is called ORIN date set, where are the songs of this state. With a collection of 478 traditional Nigerian songs with a total of five genres. To classify the genre, the songs that were part of the ORIN data set were trained in four classifiers such as: k-nearest neighbor, support vector machine, extreme gradient raising and random forest. The results of the model created according to the authors of the classifier called XGBoost show that it is a better model with an accuracy of 81.94% and withdrawal of 84.57%. The model was analyzed and tested by man where further analyses on individual genres found similarities in timbre properties between several genres.

On the other hand, the authors (Lima et al., 2020) make the classification with the help of genre labels. According to this article, this is a new presentation of the style to make the classification of the music genre, experimenting with Brazilian songs and contributing to that country. The authors consider this type of classification a challenge in the field of NLP, with a dataset of 138,368 songs which were distributed in 14 genres. SVM, random forest and short-term double direction memory network combined with different words with embedded techniques were used to make this classification. This technique used according to the results of this article surpasses other models with an average of 0.48.

The next article made by (Ying et al., 2012) show the use of speech feature (POS) which were extracted from the texts by combining with three different techniques such as: k-closest-neighbor, Naive Bayes and support vector machines to classify 600 different songs divided by genre and humor, and these were English songs. While on the other hand two terms are used: document frequency and reverse frequency for statistical measurements, the use of which would be used as a feature for the classification of the genre with an accuracy of 70%.

In the next article (Cheng et al., 2020) talk about CNN technique which is being applied more and more in the fields of different types, also in the multimedia world specifically in the use for the classification of the musical genre. According to this article, they applied CNN in combination with neural recurrent network (RNN) architecture for the purpose of classifying the genre. Mel-frequency Cepstrum (MFC) was used as the vector for sound samples, and then Librosa was used to convert audio files to MFC to achieve a sensor model that is close to what humans hear. These coefficients as well as the CNN method gave results with an accuracy of 43%, so with the hope that it can be continued and improved in the future.

In the next work by the authors (Budhrani et al., 2020), their work appears where they show that for the classification of the musical genre, they use deep learning. The reasons why they contributed to this direction are related to the need of people to classify their music and to understand where they belong, given the great growth

Table 1 Authors’ verifications according to the review

Papers	Genre clasification	CNN model	Acurracy above 80%	Accuracy above 90%	Sound to vector (wav2vec)	Using: KNN or SVM or ANN algorithms
1	+	+	+	+	+	+
2	+	+	+	—	—	+
3	+	—	+	—	+	+
4	+	—	+	—	+	+
5	+	—	+	—	+	+
6	+	—	+	—	+	+
7	+	—	—	—	+	+
8	+	+	—	—	—	+
9	+	—	+	—	—	+
Total	9/9	3/9	7/9	1/9	7/9	9/9

of songs around the world and the great addition of other values in this field. The technique used in this paper is word2vec, the skip gram model is used to identify the song of similar context for recommendation (Table 1).

4 Instrument Composition with Transformers

Recent neural network-based techniques for autonomous music composition can be divided into two broad areas. A matrix of time steps and MIDI pitches is used by two image-based methods, named MidiNet and MuseGAN to encode a score. Then, utilizing convolution-based techniques, these algorithms produce music. Since that, the time steps corresponding to the beats and bar lines are obvious in such matrices, it is simpler for these algorithms to pick up on the rhythmic structure of music (Dong, 2018; Yang, 2017). However, language-based methods such as the Music Transformers, which may be more effective at teaching students about the temporal relationship between musical events like NOTE-ONs, like CTRL (Keskar, 2019), which offered more explicit controls for text generation, the concept of defining events for music information is novel. The MIDI-like event encoding described by its extensions is largely adopted by current work in neural sequence modeling of music. To create multi-instrument music, MuseNet employs events to define the NOTE-ON and NOTE-OFF of multiple instruments, as well as other events to denote the composer, instrumentation and overall tempo. Nowadays, we have some papers which use transformers for music modeling. These from many authors of many articles give better results in this regard. In a work by the authors (Huang, 2020), that in addition to showing the advantages of modeling with transformers, they try to create a transformer for PoP music which can be used to create piano music in that genre. These results were achieved using REMI and a novel MIDI. The achievement

was the creation of a new transformers to turn PoP music into a PoP piano which play this kind of music, all of which went into the components of MIR. In the future, it tends to be created for other instruments such as the guitar, drums and so on to function as an orchestra (Fruhauf, 2013; Yang, 2016). In the following papers, the authors have shown the difficulty and how far they have reached these.

The authors of this paper (Wu, 2020) present the style of jazz music using transformers, which uses a neural sequence model called Transformer-XL, which is used to model the main sheets of this type of music. Automatic composition as we mentioned above by other authors but also by this article shows the difficulties it has in creating musical performance properly. For the meaning of a style of music (in our case Jazz), it is worked in three directions: voice class, grooving and chord. According to the authors, these are the three cases when attention should be paid because they are decisive in musical interpretation. This paper shows why there is stagnation so far in this regard and what steps should be followed to improve in the future.

Music transcription, on the other hand, has made great strides in recent years. In this paper, (Hawthorne, 2021) the authors have made a sequence-to-sequence piano transcription using transformers and its type is called encoder-decoder. Through this model it has been achieved to translate spectrum inputs directly into MIDI outputs for some transcription tasks. The method presented in this paper simplifies transcription by modeling audio features and language-like output dependencies, thus eliminating the need for bowl-specific architectures.

The next paper from (Chen, 2020) shows the achievement of compositions through algorithms using guitar sound. For this operation Transformer-XL are used, which in this case creates guitar files which are very different from MIDI. The neural network should be utilized in the case of the guitar to create notes whose pairings are meaningful, then to produce cohesive rhythmic groove compositions and finally to assess how enjoyable is that sound from this creation.

The next work from (Ens, 2020) shows the way of creating or composing melodies through the violin. Like the previous case, Transformers-XL are used for sound modeling, which show once again the importance and role of its use in this regard. The accuracy of the melodic line emphasizing that the violin is a very difficult instrument to play then it is not great, but the groove and sound composition is at a high level which according to the authors can be continued in the future by increasing the level of this.

In this paper, unlike the above authors, they have created a package (Grachten, 2022) in Python for the treatment of musical symbols, whereas it is known the treatment of these is one of the musical challenges in this regard, especially in music information retrieval (MIR). Modern music differs from past music and for this purpose in the meantime, new methods or codes for the treatment of musical evolution must be updated or discovered. Usually, all these start from the musical notes made with the piano instrument, because it is easier to formulate them and then forward them to the following methods for further procedures.

In the next paper (Hernandez-Olivan, 2021) tells that for learning to create music in the form of MIDI files, deep learning algorithms are being created more and more. These algorithms are effective for creating guitar tabs, which are extremely

different from MIDIs, remain relatively unexplored. To address this, we build a model for composing fingerstyle guitar tabs with Transformer-XL, a neural sequence model architecture. With this model, we investigate the following research questions. First, whether the neural net generates note sequences with meaningful note-string combinations, which is important for the guitar but not other instruments such as the piano. Second, whether it generates compositions with coherent rhythmic groove, crucial for fingerstyle guitar music and finally, how pleasant the composed music is in comparison with real, human-made compositions. Most CNN-based models used in earlier studies on music genre categorization accept as inputs spectrograms that have been altered from music, such as Mel-spectrograms. In the music categorization challenge, some researchers used various sub-optimal spectrogram settings according to a given domain. Mel-spectrograms with 128 bins, for instance, are frequently used. Song et al. suggested a deep recurrent neural network (RNN) with scattering altered inputs for a music automated labeling system. They pointed out that using a stack of RNNs may have helped to lessen the phase fluctuation in the time-domain convolution (Song et al., 2018).

Observing the different algorithms and techniques in the reviewed papers, we notice that deep learning has been used a lot for the classification of genres (Chap. 3), but the use of transformers as seen in the authors' papers (Chap. 4) shows that the accuracy is much greater comparing with other methods, also based on the author (Briot, 2020). In the table below, we will make a comparison between several methods, noting the last method which is Pitch2vec, which is used to convert the sound into a vector, and then the accuracy of the work is achieved through transformers. The author who used this method in his work to achieve an accuracy of 97% is Qiu (2021) (Table 2).

5 Trends in Music Generation Today

Generating music through open AI is done to achieve development in the creative industry to facilitate new music ideas.

5.1 *Magenta*

According to (DuBreuil, 2020), Magenta is an open AI which was created by Google to generate music based on their special techniques. Their creation is based on machine learning and deep learning. The prediction of the following notes, which are based on the largest dataset of music created called MAESTRO, is done in such a way that the melodic line fits as much as possible with the chosen genre and the result is as close as possible to those notes. As for Magenta, this platform has given very good results and continues to modify and advance it more and more. Naturally,

Table 2 Author analysis

Research contents	CRNN	Sample-CNN	MIDI classification by machine learning	Deep RNN	CNN-based attention model	The proposed method
Input feature	Mel-spectrogram	Raw-waveform	MIDI to string	Scattering transformed	STFT spectrograms	Pitch2vec preprocessing
Neural network	CRNN	Very deep CNN	Normalized compression distance	Deep GRU	Bidirectional RNN based on CNN attention	Deep bidirectional transformers- based MPE

this also has its limitations and ideas for the future. As a usual limitation are the few noises that are created and normally it is not 100% accurate in its work.

5.2 *Musenet*

According to Musenet official web page,² Magenta's book (DuBreuil, 2020) and (Colton, 2022) it is an open AI which also generates music in different genres. It uses the MAESTRO dataset just like Magenta to perform the generation. The main part is in the transformers used to create new notes. The advantage of Magenta is that it can use 2–3 different genres combined to mix notes to create something new. Musenet is very precise as it pertains to any certain genre and the creation that is done helps the producers of those musical genres a lot. It has its limitations too, starting that combining of different genres do not give very good results.

5.3 *Jukebox*

According to Jukebox official web page,³ it is another open AI that enables the generation of music by processing audio files. The difference between this platform and those mentioned above is that they and most other platforms use MIDI files. Jukebox aims to create music based entirely on what is used within the music or a certain song. A lot of work has been done with this platform, but due to the limitations of its use, it is not always ranked very high. The reason lies in the processing of the audio files because then in the generation, there is a lot of noise and sometimes it is impossible to hear all the components and instruments. The other limitation is that it is too slow, and it takes about 9 h to get 1 min of audio music. On the other hand, the authors of the works (Dhariwal, 2020; Kim et al., 2019) show the importance of vocals in this direction, trying to generate clean and easy-to-understand vocals through their models, obtaining satisfactory results, but not to the extent expected.

6 Conclusions and Future Work

This paper is a review of the literature in terms of the relationship between music and technology. In our case the interconnection of these two fields points to the composition of music through technological machines, foreshadowing how a tool can compose to play instruments as if they were real. The field we reviewed was MIR which is related to audio processing. As part of it we saw its two main parts

² Retrieved from: <https://magenta.tensorflow.org/music-transformer>.

³ Retrieved from: <https://openai.com/research/jukebox>.

as AMT and MSS. The conclusion for these two points has already been made in the part where we reviewed for these points. The connection with the musical genre made us reconsider the classification of the genre, trying to mix the different countries and the techniques they used to achieve such a thing. What we managed to notice at this point is that the accuracy that these papers have is not so great and here is the obstacle, because we found a paper that has over 90% accuracy, while one that has 40% accuracy but on average, they have above 80%. During the review, we did not notice that we have classifiers for the Albanian language and a very large lack of datasets in this language. The other part of the interconnection of these points is the composition through the instruments using the new transformers technique. Here we noticed a considerable number of articles which explained the importance of how a machine can learn by using the sound of a certain instrument to play a certain music. Most papers use Transformers-XL, seeing good results.

6.1 *In Conclusion*

As we looked at different instruments, we concluded that the one whose sound can be played more easily to have a greater accuracy is piano. Some other papers show that wind instruments are the ones that are more difficult to have with greater accuracy. In terms of this technique in recent years, it is being used a lot and is giving many good results, and let's not forget that they have begun to be used in the classification of the musical genre with which they are giving greater accuracy than 90% where we saw a paper that had an accuracy of over 97% and this further demonstrates the importance of utilizing transformers.

6.2 *Limitations and Future Research Directions*

According to the literature reviewed, there are certain limitations to music generation. These limitations include the inability to generate music in a completely pure manner and the unsuitability of some world genres, such as Albanian melodies. Future research should focus on constructing a vast corpus of Albanian music, encompassing songs, authors and composers, in order to develop a melodic generator that is specific to this genre and language.

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A3C: Albanian Authorship Attribution Corpus



Arta Misini, Arbana Kadriu, and Ercan Canhasi

Abstract The process of authorship attribution (AA) examines previous works by authors to identify the correct writer. The primary objective of this study is to compile an Albanian corpus that will aid AA research. The novel corpus consists of newsroom columns scraped from online sources. We conduct experiments using two machine learning (ML) algorithms—the MNB and SVM classifiers. The model is fed with the TF-IDF feature vector. Compared to the MNB classifier, the SVM algorithm performed better. The results demonstrate that the corpus performs well on the AA task.

Keywords Authorship attribution · Corpus · Feature vector · ML classifier · Albanian

1 Introduction

In authorship attribution, the goal is to attribute the proper authorship of a given text. Information extracted from people’s writings is the focus of this task. Feature extraction is essential and plays a crucial role. Using the extracted features, classifiers can determine the identity of an author from a piece of writing.

A successful AA system relies heavily on the design of the corpus. Training datasets play a critical role in defining authors’ writing style. The way each person uses linguistic structures, vocabulary, and punctuation is unique. In order to correctly

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attribute a text's authorship, an AA system must be able to recognize the author's unique pattern of language use.

Even though various studies have already been done for English (Alonso-Fernandez et al., 2020; Raafat et al., 2021; Ramezani, 2021; Wu et al., 2021; Zhao & Zobel, 2005) and other languages (Ahmed Chowdhury et al., 2019; Nazir et al., 2022; Saygili et al., 2017), this is still an area in progress in Albanian (Paci et al., 2011). When dealing with content written in Albanian, authorship attribution might be challenging due to a lack of widely used reference datasets. In this study, we present the first Albanian corpus consisting columns from online sources written by several Albanian authors. On top of this corpus, an AA model based on machine learning is developed and tested to prove the corpus effectiveness.

The remainder of this paper is organized as follows. In Sect. 2, we take a look at different language corpora. The process of data collection is presented in Sect. 3. Section 4 describes the experiments and the obtained results. The paper concludes in Sect. 5.

2 Related Work

In the authorship attribution task, the author of the unknown work is determined from a closed group of possible writers. This is done using a collection of sample texts to make the determination. Various data types are used for text analysis in authorship-related tasks, including literary works (Paci et al., 2011; Raafat et al., 2021), tweets (Alonso-Fernandez et al., 2020), news articles (Nazir et al., 2022; Ramezani, 2021; Saygili et al., 2017; Wu et al., 2021; Zhao & Zobel, 2005), blogs (Ahmed Chowdhury et al., 2019), and other web material. Currently, only a small number of publicly available benchmark datasets and data repositories are available.

While many studies of this kind have previously been conducted for English, research in this area is still in progress for some languages with limited resources. Table 1 summarizes several corpora used for the AA task in different languages. The comparison is based on three factors: the document type, the number of authors (classes), and the number of samples. Some of these datasets are publicly available resources.

Some researchers performed text cleaning and data preprocessing in their corpora. Raafat et al. (2021) removed stopwords, cleaned extra spaces, and lemmatized words. The authors in (Alonso-Fernandez et al., 2020) discarded the authors with less than 1000 tweets. They also removed URLs and hashtags. Another study (Nazir et al., 2022) deleted punctuation marks, numbers, special characters, spaces, and HTML tags. In addition, diacritic marks were removed.

For a more in-depth exploration of the authorship attribution topic, readers are encouraged to refer to the research paper by Misini et al. (2022). This work provides a comprehensive overview of the state-of-the-art in the field and presents the different methods that have been used for authorship attribution task.

Table 1 Corpora used for authorship-related tasks from various languages

Reference	Dataset	Document type	Language	# of authors	# of samples
Raafat et al. (2021)	Gungor 50	Literary works	English	45 authors	25,636 records
Alonso-Fernandez et al. (2020)	SMF	Tweets	English	3957 users	7.8 M tweets
Wu et al. (2021)	CCAT10	News stories	English	10 authors	1000 documents
<i>Available online datasets</i>					
Wu et al. (2021)	<i>IMDB62</i>	Movie reviews	English	62 users	62,000 reviews
Ramezani (2021)	<i>Reuters C50</i>	News stories	English	50 authors	5000 documents
Zhao and Zobel (2005)	<i>TREC</i>	News articles	English	7 authors	5600 documents
<i>Datasets for low-resource languages</i>					
Ahmed Chowdhury et al. (2019)	<i>BAAD6</i>	Online posts	Bengali	6 authors	2100 texts
Nazir et al. (2022)	<i>UNAAC-20</i>	News articles	Urdu	94 authors	21,938 articles
Paci et al. (2011)	Albanian dataset	Literary works	Albanian	4 authors	43 books
Saygili et al. (2017)	Milliyet dataset	News articles	Turkish	9 authors	450 articles

Given the overview of different datasets used for author attribution in terms of document types, document length, and the number of classes, the next section describes our data collection process.

3 Data Collection

The compilation of a corpus of attributed texts used to train the model is crucial to authorship attribution. In this section, we present the Albanian Authorship Attribution Corpus (A3C), a novel Albanian corpus containing newsroom columns from online sources. By newsroom columns, we refer to the written work that journalists and editors generate, such as news articles, opinion pieces, analyses, and other editorial material.

We chose newsroom columns to create the authorship attribution corpus for some reasons. First, news columns are a reliable place to find a diverse vocabulary for corpora since they cover a range of themes and topics from different fields. Second, they are usually available to the public without charge and with fewer restrictions

on their use. Furthermore, a number of previously conducted research (Nazir et al., 2022; Ramezani, 2021; Saygili et al., 2017; Wu et al., 2021; Zhao & Zobel, 2005) have used news columns to generate AA corpora.

In addition, news articles were used in the construction of an Albanian corpus with the purpose of text classification (Kadriu, 2017; Kadriu et al., 2019) and detecting fake news (Canhasi et al., 2022).

3.1 Web Scrapping

Due to the lack of a standardized AA dataset, we developed our web scraper to collect the data. We gathered texts from various websites containing newsroom columns written by different authors. We used a semi-automatic method to extract columns from online newspapers and news portals that contained digital versions of columns written in Albanian. The method requires manual source searches, while the automated component utilizes Python modules to scrape data. We use the *selenium* library.

To begin, we compiled a list of the newspapers whose content may be accessed online. Some of the more prominent ones include *javanews.al*, *shenja.tv*, *telegrafi.com*, *koha.net*, and *syri.net*. First, we extracted a list of column links from the online newspapers mentioned above. Then, we scrape these web pages and save them in text files with UTF-8 encoding compatible with Albanian text. It was also noted that the meta-information (title, author, date, full text) used by the electronic sources varies.

3.2 Data Preprocessing

Some of the authors in this dataset have only posted a few columns. It is challenging to run AA on these authors because they have insufficient linguistic variables to capture the writer's style. In the same way as in (Alonso-Fernandez et al., 2020), we filter out writers who have produced works of fewer than 60,000 words. The final dataset includes only authors who have published at least 70 columns each.

As many different handwritings as possible are retained in the text, so no additional normalization is performed. There is no change to the case of lowercase letters, punctuation, or any other special character. All completed data are saved as a text file and labeled with the authors' names.

Table 2 Corpus size and authorship statistics

Number of samples	2564
Sentence count	60,060
Word count	2,227,949
Character count	10,861,321
Unique words	118,363
Average word per sample	868.9349
Average word per sentence	37.09539
Max. length word	41
Number of authors	30
Average sample per author	85.46667
Average word per author	74,264.97
Average unique words per author	3945.433

3.3 Corpus Description

After preprocessing the retrieved columns, 30 authors remained on the list, and 2,564 newsroom columns were collected, with an average of 86 articles per user. Table 2 shows some descriptive statistics of the dataset. The table shows two-level information about the dataset: corpus size and authorship statistics.

This table shows that the corpus contains 2,227,949 words from 2564 columns written by 30 different authors, with a total vocabulary size of 118,363 unique tokens. Given these token counts, it is clear that the A3C corpus has a sizable amount of text from each author that is useful for authorship attribution research in Albanian.

By using Word cloud, we can easily visualize the most popular keywords in the corpus. Word clouds graphically represent the frequency distribution of tokens obtained after preprocessing, as shown in Fig. 1. The figure demonstrates that political news makes up the majority of the columns.

In Fig. 2, we see the distribution of the total number of unique words written by each author. We can see a maximum of 45,000 distinct tokens within this range.

We may conclude that the corpus has a moderate level of balance by looking at Table 2 and Fig. 2. Because all the columns came from digital content, the corpus is more realistic and less dense, which also accounts for the sparseness. The next section describes experiments conducted on the corpus and the results obtained.

4 Experiments and Results

Experts in NLP can determine the authorship of a text based on its features using the author’s previous works. To identify the author’s distinctive writing habits and particular linguistic structures, traits like the use of syntax, lexicon, or punctuation marks come into consideration, among others.

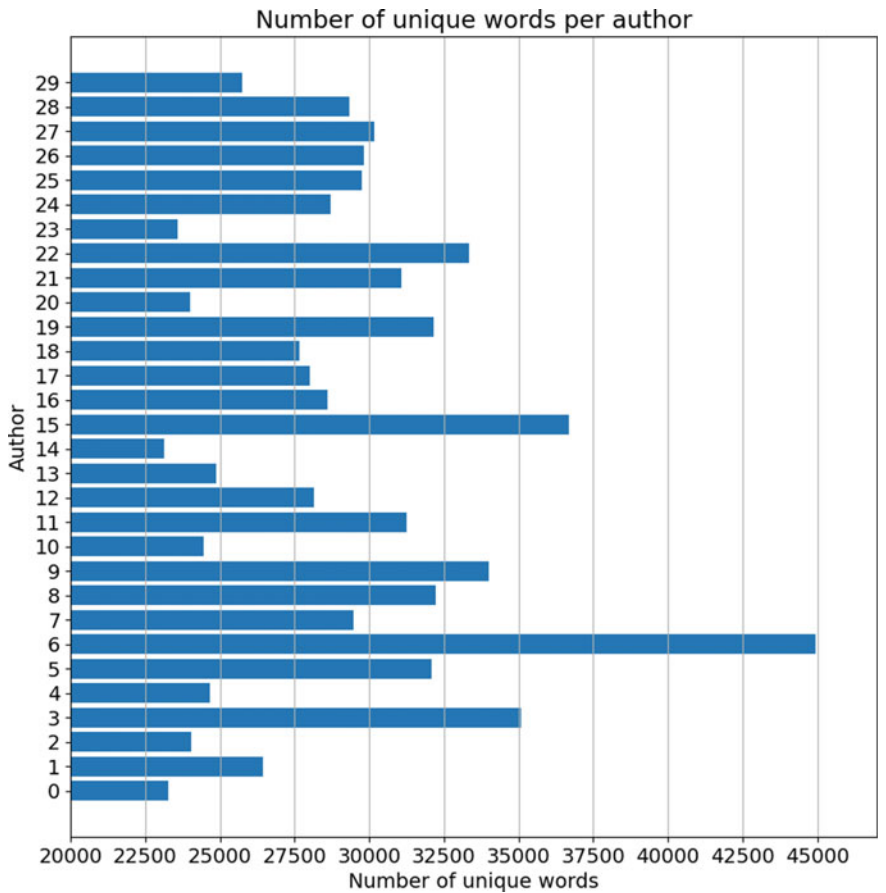


Fig. 2 Distribution of the total number of unique word per author

Table 3 Results of classification algorithms in the A3C corpus

Classifier	Macro average			Weighted average			Accuracy
	Precision	Recall	F1-score	Precision	Recall	F1-score	
MNB	0.89 (2)	0.76 (2)	0.81 (2)	0.81 (2)	0.76 (2)	0.77 (2)	0.76 (2)
SVM	0.90 (1)	0.89 (1)	0.89 (1)	0.87 (1)	0.87 (1)	0.87 (1)	0.87 (1)

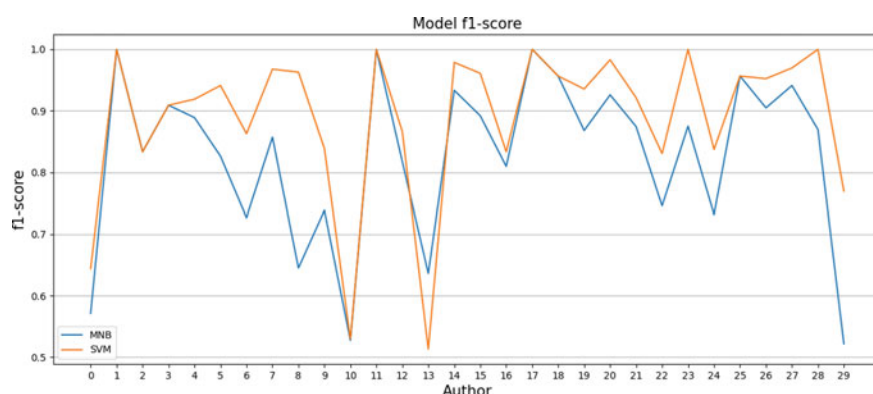


Fig. 3 Model F1-score for each author using MNB and SVM classifiers

5 Conclusion

The first dataset of Albanian newsroom columns, A3C, has been introduced. We have compiled the digital content of 2564 columns written by 30 authors. To facilitate future use, each article has been stored in text format. Stylometric studies, including those on authorship attribution, linguistic forensics, determining a person's gender based on textual data, etc., might benefit from this dataset. We conducted several experiments with two classification algorithms. The model takes the TF-IDF feature vector as input. The MNB and SVM algorithms were used for classification. The SVM classification algorithm outperformed the MNB classifier. The experimental results demonstrate the corpus efficiency in the AA task. In the future, we will examine the opportunities for designing and analyzing a large, diverse corpus.

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Artificial Intelligence and Public Governance: Citizens Perspective in the Context of a Developing Nation



Nandini Borah  and Bhaswati Adhikary

Abstract The term AI has gained considerable currency over the last few years due to its ability to revolutionize the way things are done. Studies in AI implementation in public governance are far and few and the present study makes an attempt to empirically examine factors that impact privacy concerns of citizens and in turn impact their privacy disclosures. Data was collected from 714 respondents and results of the study indicated that awareness of implications and perceived risk have a positive impact on privacy concerns, and in turn privacy concern has a negative impact on self-disclosure accuracy and positive impact on self-disclosure concern. This paper is among the few empirical papers attempting to understand privacy issues of AI in public governance.

Keywords Artificial intelligence · Public governance · Privacy concerns · India

1 Introduction

Due to its vast potential, artificial intelligence (AI) has gained a great prominence over the last decade, and everyone witnessed a rapid surge in the adoption of AI in the major private sectors across the globe for commercial purposes. With the proven benefits of using AI-based system, AI gradually became a topic of interest for different governments and policymakers from across the world and they started exploring the scope of integrating AI for better governance. Some countries have even incorporated some specific AI techniques into some of their government processes.

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In light of this AI emergence, so far, several studies were carried out by various stakeholders from various standpoints.

Considering the capacity of AI, there are several public sectors which can benefit from adopting an AI-based system or some AI technique for upgrading their services delivery. Healthcare is one such sector (Ho et al., 2019), and now with rapid advancement in terms of technology, anticipations are also growing. But in this sector, the room for error is very less as it could put the humans' life at stake (Sun & Medaglia, 2019). According to Jung and Padman (2015), there are several areas where AI can be applied, but the progress is very slow. AI could also play a very significant role in data management in the public sector, but along with that comes the issue of vulnerability against the cybersecurity concerns (Kankanhalli et al., 2019). Milano et al. (2014) claimed that AI could be used in the policymaking process as well, for improving optimization, through techniques such as decision support, opinion mining, data mining, individual-based modeling, and game theory. AI implementation has been witnessed in multiple areas of transportation industry as well, one such application is predicting traffic congestion for many developed countries (Mrowczynska, 2017). Other such applications like path prediction for riders, development of self-driven cars is working toward ensuring the road safety of the people by reducing the accidents (Anthony, 2017). According to Rauch (2018), AI could also contribute toward sustainable developments by focusing areas like energy conservation, agricultural production, and protection of environment. The financial industry has witnessed the gradual development of AI-based systems and its integration into the banking, insurance, and capital market over the years. This is that sector that has the highest number of AI-based applications since the beginning (Fethiand Pasiouras, 2010; Hinge, 2019; Caron, 2019). Academicians have identified several other areas as well, where AI application can be extended further like government capital budgeting (Hollander & Icerman, 1991), financial fraud detection (Choi & Lee, 2018), and management of finances of collaborative projects such as public-private partnership projects (Sharafi et al., 2016).

The implications of integrating AI into public governance are still not very clear and unexpected and there are high chances of negative results like "algorithmic bias" of AI in the decision-making process (Valle-Cruz et al., 2019). However, according to the meta-analysis carried out by Valle-Cruz and Sandoval-Almazan (2018), AI still could be as beneficial for the government in different domains such as better decision-making, cost reduction, bio-medics, handling issues regarding environmental change and disaster management, education, and various customized service delivery to the population. In particular, governments can improve service delivery by deploying artificial intelligence (Montoya & Rivas, 2019; Toll et al., 2019); improve the efficacy of service delivery (Gupta, 2019); generate forecasts with higher accuracy, and allow for experimentation with policies by simulating scenarios (Margetts & Dorobantu, 2019).

While AI is expected to bring about revolutionary changes in governance, policymaking, and delivering services to the public (Montoya & Rivas, 2019; Ojo et al., 2019; Gupta, 2019), it is also feared that use of AI in public governance might reduce citizens trust due to privacy issues and concerns of citizens (Gupta, 2019;

Sun & Medaglia, 2019). Furthermore, most studies of AI implementation in public governance are qualitative in nature (Zuiderwijk et al., 2021) and research in this area remains nascent in the Indian subcontinent.

This premise leads to the contextual need to study privacy concerns of citizens with respect to deployment of AI in public governance in India. India is a developing nation and has not yet fully implemented AI systems in public governance. According to a report by NASSCOM (2020), India is yet to realize the true economic potential of AI which is pegged at \$500 billion for India's GDP by 2025. Deloitte (2021) in its report on "State of AI in India" indicates that governments and companies have made investments in AI technology. However, the report also indicates that average number of business functions where AI is used is 8.7, whereas the AI embedding in government and public services is the lowest which stands at 4.3 (Deloitte, 2021). The present study was therefore, necessary keeping in mind the potential use of AI and its implications in public governance, and resulting delivery of services. The objective of this research is to broaden our understanding of the constructs which impact concerns regarding privacy in individuals and resulting behaviour of privacy disclosure. The present study surveys the existing literature to develop and propose a conceptual model explaining privacy disclosure behaviour of citizens and how privacy concerns affect them.

The study specifically proposes the following ideas: (a) awareness of AI implications influences privacy concerns; (b) perceived control of over information influences privacy concerns; (c) trust influences privacy concern; (d) privacy concerns influence self-disclosure accuracy; (e) privacy concerns influence self-disclosure concerns; (f) perceived risks influence privacy concern; and (g) perceived benefits influence privacy concern.

From the research perspective, the study makes contribution to the scant literature available regarding the implementation of AI in public governance and concerns of privacy and disclosure. While several papers have been written focusing on AI and its use cases in public governance, much of these are conceptual and qualitative in nature and does not capture the perspective of the citizens (Zuiderwijk et al., 2021). More specifically, an empirical research contributes to the existing knowledge on the quantitative front. The outcomes of this research also contribute to practice as the results highlight and focus on the factors which might emerge as bottlenecks during AI implementation in public governance systems. Government can specifically benefit by analyzing the perception of its citizens toward AI and AI-based administration.

The paper is presented in five sections: (a) research background; (b) theoretical framework and hypothesis formulation; (c) methodology; (d) results; and (e) discussion and conclusion.

2 Research Background

The term artificial intelligence is almost 60 years old; however, it has spiked the interest of business owners and public administrators alike in recent times (Sharma et al., 2020). The turning point for AI began with the introduction of Turing machine in 1937 by Turing which was an intelligent computer capable of developing automata theory (Russell & Norvig, 1995). Since then, the interest in AI has remained and due to advances in technology in recent times, the interest in AI and its application has further intensified.

AI has several definitions and these definitions depend on the discipline and the phase of the life cycle of AI. For the purpose of this paper, the following definition has been adopted by the researchers which is common among policymakers: “AI are systems that display intelligent behaviour by analyzing their environment and taking actions—with some degree of autonomy—to achieve specific goals” (European Commission, 2020; High-Level Expert Group on Artificial Intelligence, 2019).

3 Theoretical Framework and Hypothesis Formulation

Smith et al. (2011) examined different literature to identify the association between privacy and other relevant constructs. The authors considered the privacy concerns at the individual level as a measurable proxy of privacy. While evaluating the relationship with various other constructs, the authors treated the construct of privacy concern as dependent as well as independent variable. Based on the findings, Smith et al. (2011) proposed the antecedents-privacy-concerns-outcomes (APCO) model and according to the model, the construct of privacy concerns is likely to act as a mediator among antecedent constructs such as personality, privacy awareness, privacy experience, demographic constructs and climate/culture, and behavioural outcomes such as disclosure, risks, benefits, trust, regulation, and privacy notice. Figure 1 is the pictorial representation of APCO model. The dotted lines in the diagram represents tenuous relationships (i.e., relationship not confirmed through repeated studies).

AI-based systems focus collecting the personal information of the users to provide customized solution to the various tasks and that raises privacy concerns among the users. On the basis of the APCO model, this study proposes to develop a conceptual model in order to determine the privacy concerns of citizens and the resulting behaviour of privacy disclosure on AI-based public platforms for better governance. The various constructs considered for the developing the hypotheses for the study are described as follows (refer to Table 1):

- (a) Privacy Concerns (PrC): Privacy concerns is a widely recognized proxy for measuring privacy (Hong & Thong, 2013). According to Smith et al. (1996), privacy concerns stand for the perceptions of an individual regarding his/her

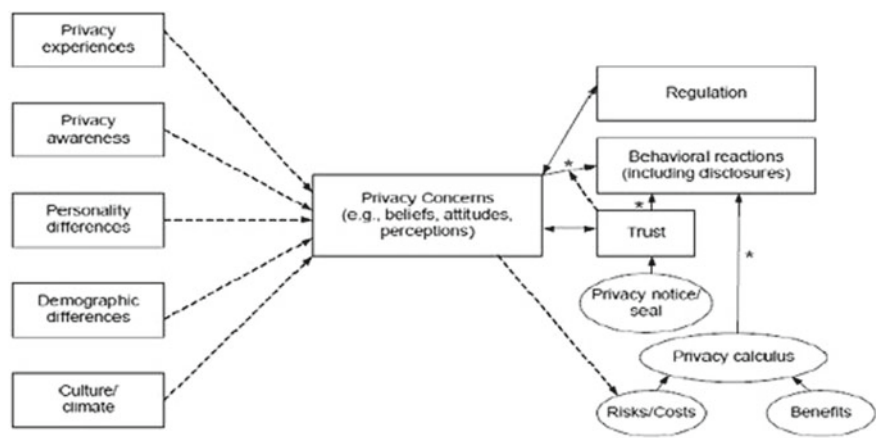


Fig. 1 APCO macro model. Source Smith et al. (2011)

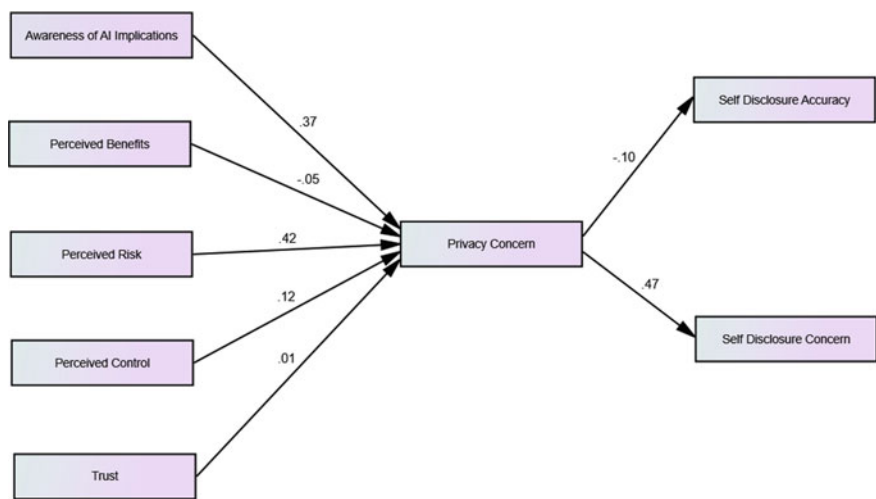


Fig. 2 Structural model

loss of privacy or an inadequate level of protection of privacy on online platforms. According to Dinev and Hart (2006), privacy concerns refer to the concern of the user regarding a probable loss of their privacy in the future due to either a voluntary or an involuntary disclosure of personal information. In a broader perspective, privacy concerns are users' subjective view regarding the fairness in the handling of personal data (Malhotra et al., 2004). In the context of this study, we have used the concern for information privacy (CFIP) construct, comprising of concerns related to collection, unauthorized secondary

Table 1 Constructs and hypotheses for the study

Construct name	Construct definition	Hypothesis
Privacy concerns	User concerns about a probable loss of privacy in the future due to disclosure of personal information whether voluntarily or involuntarily (Dinev & Hart, 2006)	–
Awareness of AI implications	Users' awareness level regarding the AI implications (authors)	H ₁ : AAII has a negative association with PrC
Perceived control	Users' right to possess control over information that is personal (Dinev & Hart, 2004)	H ₂ : PC and PrC are negatively associated
Trust	A predictor of behavioural reactions, as determinant of disclosure outcomes and as a mediator and moderator of relations between privacy concerns and behavioural reactions (Buck et al., 2022)	H ₃ : PrC has a negative association with TR
Self-disclosure accuracy	Is the willingness of a person to submit complete and accurate information in online platforms (Alashoor et al., 2017)	H ₄ : PrC and SDA are negatively associated
Self-disclosure concerns	Concerns of a person regarding the degree to which personal information is revealed in online platforms (Alashoor et al., 2017)	H ₅ : PrC and SDC are negatively associated
Perceived risk	The possibility of negative consequences and the probable impact of such consequences (Peter & Tarpey, 1975)	H ₆ : PrC and PR are positively associated
Perceived benefits	The expected favorable outcomes that influence human behaviours (Stone & Stone, 1990)	H ₇ : PrC and PB are positively associated

use concern, inappropriate access which reflects users' concerns and errors, for measuring informational privacy concerns (Smith et al., 1996).

- (b) Awareness of AI Implications (AAII): According to Malhotra et al. (2004), privacy awareness refers to the users' knowledge about organizational privacy practices, and it has been found that when users become aware that the companies used their personal data without their permission, it triggers a sense of concern about the security of their privacy (Cespedes & Smith, 1993). Nowak and Phelps (1995) further reported that when firms seek permission from the users before collecting and using their information, the measured privacy concern is relatively less. The concept of AI is still evolving and hence, just being aware of the AI might not be best predictor for privacy concerns. Hence, the

current study specifically focuses on the influence of awareness level regarding the AI implications on the privacy concerns.

H₁: AAI has a negative association with PrC.

- (c) Perceived Control (PC): According to Dinev and Hart (2004), it is the right of the user to possess control over their own personal data and information, and the organizations should provide it to their consumers. It is seen that with some degree of control over the disclosure, users are less concerned about privacy invasion (Nowak & Phelps, 1995). Existing literature shows that perceived control has mitigating effect on privacy concerns in various contexts (Cavusoglu et al., 2016; Krasnova et al., 2010, 2014; Wisniewski et al., 2016; Xu et al., 2013). Therefore, it is hypothesized that sense of control over disclosure reduces privacy concerns among users.

H₂: PC and PrC are negatively associated.

- (d) Trust (TR): According to Buck et al. (2022), trust is an important variable in the privacy concern framework, but the nature and direction of the relationship between trust and privacy concerns is yet to be established. They have also stated that, in different studies, researchers have presented trust as a predictor of behavioural reactions, as determinant of disclosure outcomes and also as a construct which mediates and moderates the relationship of privacy concerns with behavioural outcomes. Researchers therefore, hypothesize that higher levels of trust can reduce privacy concerns to a great extent.

H₃: PrC has a negative association with TR.

- (e) Self-disclosure Accuracy (SDA) and Self-disclosure Concerns (SDC): AI-based systems demand self-disclosure of various information regarding the users to avail the proposed benefits. However, studies demonstrate that privacy concerns have a negative impact on the self-disclosure outcomes in various platforms (Dinev & Hart, 2006; Keith et al., 2015; Malhotra et al., 2004; Tow et al., 2010; Xu et al., 2013; Smith et al., 1996). It is believed that users concerned about their privacy are less than willing to disclose their information which is personal and are also concerned about such disclosures (Malhotra et al. 2004; Xu et al. 2005).

H₄: PrC and SDA are negatively associated.

H₅: PrC and SDC are negatively associated.

- (f) Perceived Risk (PR) and Perceived Benefits (PB): According to the APCO model, perceived risks and benefits are predictors of users' behavioural intentions, and the trade-off between them is termed as privacy calculus in the model. The perceived risk represents the possibility of negative consequences and the probable impact of such consequences (Peter & Tarpey, 1975). Findings from a number of studies claimed that privacy risk has a positive impact on privacy concerns (Dinev et al. 2006; Dinev & Hart 2004). As per the privacy calculus, it is belied that individuals' behaviour is influenced by their expected favorable

outcomes” (Stone & Stone, 1990). In simple words, when users receive personalized benefits, they more likely share personal information, i.e., perceived benefits can minimize privacy concern.

H₆: PrC and PR are positively associated.

H₇: PrC and PB are positively associated.

4 Methodology

4.1 Participants

The study population consisted of all Indian citizens. Due to the lack of a ready-made sampling frame, the researchers used judgment as well as snowball sampling technique to approach respondents and obtain their responses. The following three conditions were to be fulfilled by the respondents to be considered for the study: (i) respondents must be citizens of India; (ii) respondents must be 18 years of age or above; and (iii) respondents must be aware of artificial intelligence.

4.2 Measures

To measure the constructs, items corresponding to them were adapted from previous research, wherever possible and some were developed by the researchers. To measure self-disclosure accuracy and self-disclosure concern, two items each were adapted from the scales developed by Son and Kim (2008) and Turow and Hennessy (2007), respectively. Awareness of AI implication was adapted from Krasnova et al. (2009) which included three items. Perceived risk and perceived benefits were measured using four items, each developed by the researchers. Measure for perceived control was done using two statements created by Dinev and Hart (2004). In order to measure trust, three items were used from the measures created by Dinev and Hart (2006). Three items from Dinev and Hart (2004) were used to estimate privacy concern. The final questionnaire consisted of 23 items measured on a five-point Likert scale (1 = strongly disagree and 5 = strongly agree).

4.3 Procedure and Data Analysis

Respondents fulfilling the above three conditions were identified and approached by the researchers for filling up of the questionnaire. The respondents were first educated about the objectives of the research and were assured about confidentiality of information and their consent was obtained. The survey was conducted online and

survey link was sent to 1000 respondents out of which a total 714 questionnaires were found to be complete in all respects and used for the study (71.4% response rate). The final sample comprised of 46.2% females, 52.7% males, and 1.1% respondents preferred not to indicate their gender.

Data was examined using SPSS 23.0 and AMOS 23.0.

5 Results

The following section describes the results and findings from the present study. The data was checked for common method bias and then reliability and validity were determined. It was then subjected to structural equation modeling.

5.1 *Common Method Bias (CMB)*

Harman's single factor test was conducted using exploratory factor analysis to rule out the presence of common method bias. All the items were loaded on to a single factor using principal components analysis. Results from the test indicated that explained variance percentage was 42% which is less than 50% (Mishra, 2016; Podsakoff et al., 2003), indicating absence of CMB.

5.2 *Reliability and Validity*

Cronbach's alpha was calculated from the collected data and the data was then subjected to CFA in order to test the reliability and validity (refer to Table 2). It can be observed that all scores of Cronbach's alpha are higher than the value of 0.70. Average variance extracted (AVE) values are also higher than 0.50 and composite reliability (CR) scores are higher than 0.70 (Hair et al., 2010). Also, values of the square root of AVE have been found to be greater than the correlation values which establish the discriminant validity of the scale (Table 3).

5.3 *Structural Model*

The fit indices were studied to determine the fitness of the data with the model proposed for the study. Based on the chi-square result, the model indicated overall misfit. However, as the value of chi-square tends to increase with an increase in the sample size (Hair et al., 2010), other fit measures such as GFI, AGFI, CFI, and TLI should be used to determine model fitness (Kline, 2011). As the sample size is high

Table 2 Reliability and validity

Construct name	No. of items	Cronbach's alpha	Average variance extracted	Composite reliability
Self-disclosure accuracy	2	0.797	0.640	0.877
Self-disclosure concern	2	0.773	0.636	0.874
Awareness of AI implication	3	0.862	0.612	0.825
Perceived risk	4	0.852	0.663	0.887
Perceived benefits	4	0.876	0.765	0.754
Perceived control	2	0.876	0.873	0.789
Trust	2	0.787	0.678	0.824
Privacy concern	3	0.863	0.748	0.856

and a large number of indicators are involved in the present study, chi-square value obtained was high and so were the degrees of freedom. In order to assess model fitness, combination rule was used which suggests the RMSEA should be below or equal to 0.06 and CFI is above or equal to 0.95 (Hu & Bentler, 1999). In this case, CFI was found to be 0.95 and RMSEA was found to be 0.038 indicating the fitness of the model.

5.4 Hypothesis Testing

Model path coefficients were analyzed in order to determine whether the hypotheses are supported or not (Table 4). The path scores and the significance values against them support the following hypotheses proposed by the researchers:

H₁: AAI has a negative association with PrC ($\beta = 0.704, p = 0.000$);

H₄: PrC and SDA are negatively associated ($\beta = -0.104, p = 0.000$);

H₅: PrC and SDC are negatively associated ($\beta = 0.472, p = 0.000$);

H₆: PrC and PR are positively associated ($\beta = 0.419, p = 0.000$).

6 Discussion and Conclusion

The present study attempted to determine the implications of use of AI for public governance system in India. Results of the study revealed that citizens who are aware of the use of AI in public governance and its implications become more concerned about their privacy. It was found that as the perception of risk increases, privacy concern also increases. Additionally, privacy concern was found to be negatively

Table 3 Correlation matrix and discriminant validity scores for study constructs

	Self-disclosure accuracy	Self-disclosure concern	Awareness of AI implication	Perceived risk	Perceived benefits	Perceived control	Trust	Privacy concern
Self-disclosure accuracy	0.810							
Self-disclosure concern	0.736	0.797						
Awareness of AI implication	0.754	0.742	0.782					
Perceived risk	0.647	0.755	0.649	0.815				
Perceived benefits	0.742	0.685	0.731	0.632	0.845			
Perceived control	0.675	0.764	0.685	0.721	0.662	0.785		
Trust	0.722	0.657	0.724	0.685	0.713	0.611	0.765	
Privacy concern	0.634	0.645	0.636	0.664	0.685	0.755	0.612	0.813

Table 4 Summary of hypothesis testing

Hypotheses	Relationships			Path	C.R	<i>p</i> -value	Result
H ₁	PrC	←	AAII	0.373	10.632	0.000	Supported
H ₂	PrC	←	PC	0.117	3.776	0.241	Not supported
H ₃	PrC	←	TR	0.009	40.046	0.271	Not supported
H ₄	SDA	←	PrC	−0.104	−1.901	0.000	Supported
H ₅	SDC	←	PrC	0.472	10.967	0.000	Supported
H ₆	PrC	←	PR	0.419	14.129	0.000	Supported
H ₇	PrC	←	PB	−0.048	−1.108	0.268	Not supported

related with self-disclosure accuracy and positively associated with self-disclosure concern implying that citizens may provide information which is inaccurate or incomplete in order to safeguard their privacy. The findings from this study resonate with the APCO model.

The study findings have important theoretical implications as well as important practical implications as well. Governments should be aware that citizens may falsify their own personal data which will eventually lead to mistakes and errors in delivery of public services. The fact that the data of individuals may potentially last with the authorities over and above their lifetime might discourage citizens to provide information if they are not given control over their own data. Accumulation of data, storage, and dissemination of the same might reduce citizens' trust on governments. Unexpectedly, the results of this study found no support for trust, perceived control and perceived benefits, and their impact on privacy concerns. The same might be attributed to the fact that AI implementation for public governance is still at a very nascent stage in India. Future research may focus on replicating this model in other geographical areas of the country to increase generalizability. Additionally, studies may sample citizens who have been direct beneficiaries of public services where AI has been deployed in order to capture the experience of such citizens.

Appendix

Items used in the questionnaire.

Construct	Items
Self-disclosure accuracy	I shall accurately disclose my personal information if asked by government authorities for AI-based public governance in the next three years
	I shall provide accurate personal information if it would be used for AI-based public governance in the next three years
Self-disclosure concern	I would be nervous about AI-based public governance systems having sensitive information about me

(continued)

(continued)

Construct	Items
	I am concerned about providing information that is sensitive to AI-based public governance system than about providing such information in some other way
Awareness of AI implication	I am aware that information about me can be obtained and stored for years in AI-based public governance systems
	I am aware that information about me can be utilized in different ways in AI-based public governance systems
	I am aware information about me can be analyzed in different ways through AI-powered public governance systems
Perceived benefits	AI-powered public governance systems will make information easily available to users based on their predicted needs
	Using AI in public governance will help in targeted delivery of services
	Using AI in public governance will help in removing biased decision-making
	Using AI in public governance will help in removing human errors in governance
Perceived control	I would submit accurate personal information to AI-based public governance systems if they allow control over the information I share
	I would provide accurate personal information to AI-based public governance systems if they allow me to control how they use my personal information
Trust	AI-based public governance systems will be secure environments to exchange sensitive information
	AI-based public governance systems will be reliable environments in which to share personal information
	AI-based public governance systems will be able to handle personal information in a competent fashion
Privacy concern	I have concerns regarding information I shall be submitting to AI-based public governance systems that could potentially persist for a long period of time
	I have concerns regarding information I share in AI-powered public governance systems that could be indefinitely repurposed
	I have concerns about sharing information to AI-based public governance systems because data once entered may potentially last for a longer period of time
Perceived risk	The decision to use the state e-government service is risky
	I believe that using Internet services of state government is risky
	I believe that information I share will be captured and could be used against me in my future life
	There is a risk of identity theft in AI-based public governance

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Predicting Road Accidents with Web Scraping and Machine Learning Techniques



Luan Sinanaj and Lejla Abazi Bexheti

Abstract In recent decades, with the rapid growth of urbanization, the use of vehicles has increased and urbanization has not always been adapted to road infrastructure. This, in turn, has led to an increase in traffic and road accidents, especially in the most populated areas. Regarding these problems, there is a need to focus on accident prevention by predicting the accident areas. Knowing the accident areas can facilitate the study of why they occur and improve policies to prevent them. The primary purpose of this research is to build an application using Python to identify accident areas in the state of Albania. Accident information is extracted through the application and Web Scraping techniques from some selected servers of the top media in Albania and it is processed to find the areas/cities where it happened. As a result of this research, an application is implemented. From the results obtained from this application, its accuracy (precision) in finding accident areas turns out to be 67%. The result is good and hopeful for further work in the future and for the improvement of this application. The predicted results of our application for the number of accidents are a little closer to the results of the accident reports published by the state of Albania.

Keywords Accident areas/cities · Accident area prediction · Python application · Web scraping

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1 Introduction

In the last 2 or 3 decades, there has been a rapid increase of urbanization in cities and consequently there has also been an increase in road accidents and various crimes. In recent decades, the use of vehicles has increased and urbanization has not always been adapted to road infrastructure. This, as a result, has led to an increase in traffic and road accidents. However, for road accidents we cannot leave aside the culture and the way citizens use vehicles.

Given the above-mentioned problems, there is a need to focus on the prevention of accidents or crimes by knowing in advance the areas of accidents and crimes. Studying the areas of accidents or crimes can facilitate the study of the reasons why they are happening and improve policies to prevent them.

Rapid analysis of various accident or crime data can provide important information for the Police of the State, the Ministry of Interior, or the Ministry of Transport to improve security at the operational or strategic level. Information on accidents and crimes is necessary not only for state institutions but also for citizens. Citizens want or need to be informed about accident and crime areas to be more careful or make decisions about the quietest areas to live, do business, or work.

From a review of the literature or information on possible applications to show the areas of accidents/crimes in the state of Albania, there are no publications or applications that discuss the issue of providing the results of accidents or crimes as soon as possible.

Since we are in a time of increasing urbanization phenomenon, especially in major cities, the problem of this research lies in identifying areas of accidents. Knowing the areas of accidents can help inform citizens to be more careful in these areas and to undertake awareness campaigns by relevant entities or civil society. Recognition of these areas can also help state institutions such as the Police of the State, the Ministry of Interior, or the Ministry of Transport to prevent, plan and make decisions regarding the causes of accidents in these areas. For example, in an ISTAT report in the state of Italy, it turned out that the causes of accidents are listed as: distraction from driving, disrespect of priority and very high speed (38.2% of cases), followed by, then the Violations of the Highway Code among the most sanctioned are non-compliance with road signs, use of mobile phones while driving and driving under the influence of alcohol (Automobile Club D'Italia, 2020; ISTAT, 2020). Unlike the state of Italy, Albania is weaker in presenting statistics of road accidents where information is scarce and does not indicate their causes (INSTAT, 2022).

So, the focus of this research is in recognizing and designing on a relatively fast time these areas of accidents. Given the above issues, the primary purpose of this research is to build a Web Data Mining application using Python to identify and design accident areas in a relatively short period of time. The information will be extracted through the application from some selected servers of the top media in Albania and it will be processed to find the specific area/city where it happened and the type (cause) of the accident that occurred. In the end, the results obtained from the application will be compared with the results of reports issued by INSTAT (2022)

and the Ministry of Interior in Albania (2022) to study the accuracy and difference between the results.

Referring to the purpose of this research and the defined topic, the research questions are:

- **RQ1:** Is it possible to read and extract data on accident areas from the top media portals?
- **RQ2:** Are the reports published in Albania about accident areas in the same trend and close to the information extracted with Web Scraping techniques by the main top media portals?
- **RQ3:** Which are the areas with the highest risk of accidents related to the data extracted from top media portals with Web Scraping techniques?

The raised hypotheses are related to the main questions:

- **Hypothesis 1:** The accident data extracted from top media portals with Web Scraping techniques are in the same trend and close to the results of the accident reports published by the state of Albania.
- **Hypothesis 2:** Road accident areas are extracted with Web Scraping techniques from the top media portals, showing the areas with the highest accident risk.

The contribution of this study will be the implementation of an application in the Python programming language for locating the accident zones in Albania based on the processing of articles received from the main media portals in Albania. In order to achieve the best possible results, two corpus with Albanian language words were built, which will be used by our application.

The structure of this paper is as follows: Section 2 includes a review of the literature on accident reports in Albania and previous studies on locating and presenting accident zones. In Sect. 3, we have the methodology followed for conducting this research and the ways and stages of application implementation. In Sect. 4, we have the explanation of the results and achievements of our application. Whereas in the last sections we have the conclusions and lastly the references of this paper.

2 Literature Review

From the literature review, it resulted that in Albania there is very truncated information regarding detailed statistics on accidents that occur and their causes (INSTAT, 2022), unlike countries like Italy where ISTAT provides more detailed information on accidents (ISTAT, 2020).

Research to find areas of road accidents has been done since a little earlier and it is found in articles like (Ogden, 1995; Sawalha, 2002), or in articles like (Kononov, 2002) where to diagnose the cause of accidents is performed using a pattern recognition algorithm and direct diagnostic.

Early research has also been done to study the causes of accidents. In article (Larsen, 2004) are used methods of multidisciplinary analysis of road traffic accidents.

According to research (Xu & Tao, 2018), it has been proposed a method for identifying accident hotspots based on the component-clustering model. This method uses the Canopy K-means ensemble clustering algorithm to extract accident hotspots. This presented method can be used to perform scientific analysis of accident statistics, to effectively identify accident hotspots and to reflect the real traffic safety situation.

In the research (Lu et al., 2015), it is presented the model of predicting hotspots of road accidents. The results of the forecast model in this paper are able to predict the outcome of the accident, and the accuracy of the forecast is approximately 86.67%.

In the research (Lnenicka et al., 2016), the authors present an application for extracting information from mass media servers about the crimes that occurred to find the most problematic areas of the crime by presenting them on a map and in tabular form. The application scans selected media servers for words related to the type of crime and the specific municipality.

Research in reference (Al-Dogom et al., 2019) has used two Machine Learning techniques to discover the most important characteristics that affect accidents. The two algorithms used are Extreme Gradient Boosting (XGBoost) and Extra Trees Classifier (ETC).

Whereas in article (Shetty & Indiramma, 2021), the method used is Clustering Analysis of Traffic Accidents using Canopy K-means. Finding Road Accident Hotspots is given to the relevant authorities to prevent accidents in areas with high-risk coefficients.

The next research (Patil et al., 2020) aims to analyze road accidents in one of the metropolitan cities through the algorithm K-means and Machine Learning by examining the areas prone to accidents (accident hotspots) and the causes of accidents. Other research using Machine Learning techniques to present a predictive model to solve the problem of road accidents can be found in Patil et al. (2021) and Puertas et al., (2013).

Article (Ayyappan & Matilda, 2020) uses Machine Learning, Face Recognition, and Web Scraping techniques to find missing criminals or children by comparing images. The displayed results are about 90% accurate.

In article (Abdullah & Emam, 2015), an application is introduced that consists of several functions and services on the Internet to analyze and visualize traffic accident information. The developed application stores traffic data in Hadoop with a parallel computing framework for processing and mining based on the Map-Reduce technique.

3 Methodology

This section explains the methodology that will be followed for this research and contains the methods, the way of data collection, the stages of creating the application, etc.

So, the purpose of this research is to build an application using the Python language to identify accident areas in the state of Albania in a relatively good time.

For the realization of this research, an application will be created in the Python programming language for the identification of accident areas in the state of Albania. The methodology that will be followed to realize this project will be divided into 5 main phases:

1. Identification of the top media in the state of Albania for reading information related to accidents (like *Balkanweb.com*, *panorama.com.al*, etc.). Web Scraping techniques have been used to read and retrieve information (Ayyappan & Matilda, 2020) and this is best done with the Python language and BeautifulSoup library (Richardson, 2022). The needed data is retrieved from the HTML code of top media websites through a “parsing” process with the Python program and BeautifulSoup library (a module used to simplify Python-based programs to extract data from HTML or XML pages). The articles selected by media servers have been analyzed to find references to the type of accident, city, (area) and cause.
2. The information that has been extracted with Web Scraping techniques from the portals has been saved in a CSV file type.
3. Reading the information from the CSV file and classifying those related to accidents by area (city), type, and cause (Text Mining techniques have been applied with the Python library of natural language processing (NLP) like NLTK) (Pedraza, 2020).
4. Analysis and visualization of accident area statistics, as well as their presentation by area of occurrence.
5. The extracted data have been compared with data statistics reported by INSTAT (INSTAT, 2022) and the Ministry of Interior in the state of Albania (2022).

So, our application (Fig. 1) implemented in Python for locating accident areas in the state of Albania has included the processes listed below:

1. There have been created two corpus with Albanian language words; one of the corpus (CORP1) contains Albanian language words for accidents, the other (CORP2) contains all possible areas/cities of Albania. CORP1 and CORP2 have been used by the implemented application to find out if an article published by top media portals in Albania talks about an accident and the area where it occurred.
2. Data collection (reading articles from top media portals) is done through Web Scraping techniques, the Python programming language with BeautifulSoup libraries and natural language processing (NLTK). The number of articles which have been read from the portals and stored in the file is about 30,000.

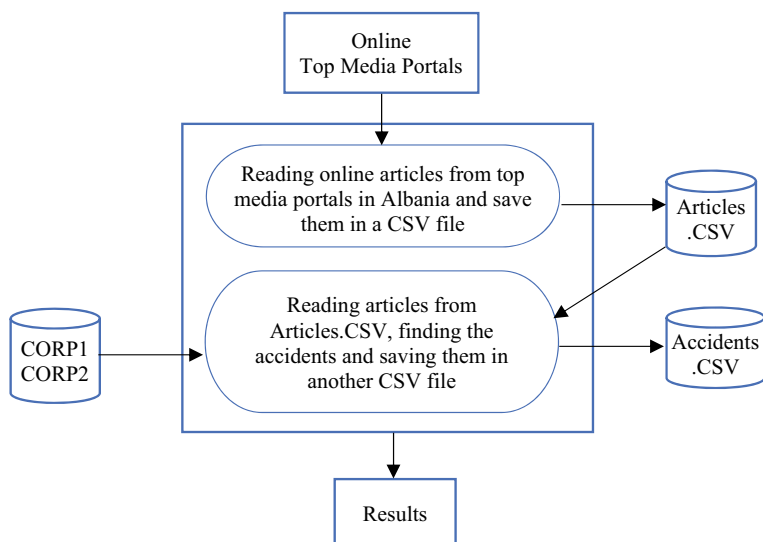


Fig. 1 Application design

Below is the pseudocode (Algorithm 1) of the application implemented in Python for reading articles from top media portals and saving them in a CSV file (called Articles):

Algorithm 1 Reading and Store Articles from Top Media Portals

```

import BeautifulSoup, requests, writer                                ▷ Import required libraries
nrPage = 1                                                            ▷ Set the number of pages to scrape
Open "Articles.csv" AS file                                          ▷ Open a new CSV file to store the scraped data
writeInCSVFile = writer(file)                                         ▷ Create a writer
headerOfTable = [Nr, Title, Date, Text]                               ▷ Create a header of the table
writeInCSVFile.writerow(headerOfTable)
while nrPage < 5000 do
    url = "link-of-the-page" + nrPage                                ▷ Build URL to scrape
    page = requests.get(url)                                           ▷ Make HTTP GET request to the URL
    lists = get-article-links                                          ▷ Find all the relevant divs containing articles
    for each articleList in lists do
        info-article = [articleList.Nr, articleList.Title, articleList.Date, articleList.Text]
        writeInCSVFile.writerow(info-article)                         ▷ write a article in "Articles.csv" file
    end for
end while
  
```

3. The data collected in point 2 (articles) have been stored in a CSV file, which will be used by the application in the next step.

4. Articles stored in the CSV file are read and processed by the application to identify accidents and the area where they may have occurred, and all recorded accidents have been stored in another CSV file which will contain the date of the accident and the area where it occurred. At this point of the system implementation was important the use of two previously created corpus (CORP1 and CORP2).
5. Below is the pseudocode (Algorithm 2) of the application made in Python for reading the articles previously stored in the file Articles.csv, finding the articles that talk about accidents and saving them in another file (called Accidents):

Algorithm 2 Reading Articles.scv file and select the Articles with Accident

```

import pandas as pd, nltk, writer                                ▷ Import required libraries
dtFrame-from-CSV-file = pd.read-csv("Articles.csv")              ▷ reading a csv file with pandas
arr-Articles = dtFrame-from-CSV-file.to_numpy()                  ▷ converting a dataframe to a numpy array
Open "Accidents.csv" AS file                                     ▷ Open a new CSV file to store the accidents
writeInCSVFile = writer(file)                                    ▷ Create a writer
headerOfTable = [Nr, Date, Area, Type-Accident]                 ▷ Create a header of the table
writeInCSVFile.writerow(headerOfTable)
numberOfArticles = len(arr-Articles)                             ▷ Get number of Articles in a file
i = 0                                                            ▷ Counter of Articles
while i < numberOfArticles do                                  ▷ for each Article in array of Articles
    if Accident ∈ arr – Articles(i) then                          ▷ if we find a Accident in a array of Articles
        info-accident = [Accident.Nr, Accident.Date, Accident.Area, Accident.Type]
        writeInCSVFile.writerow(info-accident)                  ▷ write a Accident in "Accidents.csv" file
    end if
end while
Close "Accidents.csv" file

```

Figure 1 shows the implementation design of the implemented application in the Python programming language. In the next section IV, the results of the application implemented are presented, comparing them with the results of the reports of the Ministry of Interior and INSTAT regarding the accidents that occurred in the state of Albania during 2021.

4 Results and Discussion

After the implementation of the application, another important phase was the testing of its results compared to the results of the reports of the Ministry of Interior and INSTAT to see the percentage of accuracy (precision) in finding accident areas in Albania based on reading articles of the main media in Albania. A quantitative descriptive method was used to calculate the accuracy of our application by comparing the results of our application with those of the reports of the Ministry of Interior and INSTAT. The precision of our application turned out to be 67%, a good and promising result for the continuation and improvement of this application. The

followings Table 1 and Fig. 2 present the results of the application and the statistics of the reports issued by the state of Albania:

Regarding the research questions **RQ2** and hypothesis **H1**, from the experiments performed with the implemented application and the interpretation of the results (refer to the Table 1 and Fig. 2), it results that the accuracy of our application reaches 67% (with 1240 cases of accidents evidenced by the application against 1862 cases reported by the state of Albania). 67% accuracy is good and hopeful for its improvement in the future. However, it is worth noting that our system presents data on the areas/cities of accidents and the reports of the state of Albania do not provide such information but only on the number of accidents occurred as in Table I. Although graphically it seems as if there is a closeness between the values of our system and those reported by the state of Albania, **H1** is not verified because according to the Chi-Square Test of two variables, the results are not significant (refer to Table 2).

Through the SPSS program, it was also studied if there is a correlation between the two variables and it turned out to be a good value of 0.630, and sig. (2-tailed) is < 0.05 (refer to Table 3).

Table 1 Application results versus results/statistics in the state of Albania

Number of accidents in year 2021													
Months	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Report/statistics in the state of Albania	162	103	153	134	166	163	155	184	162	179	138	163	1862
Application results	103	87	86	71	121	120	109	126	94	103	108	112	1240
Precision													67%

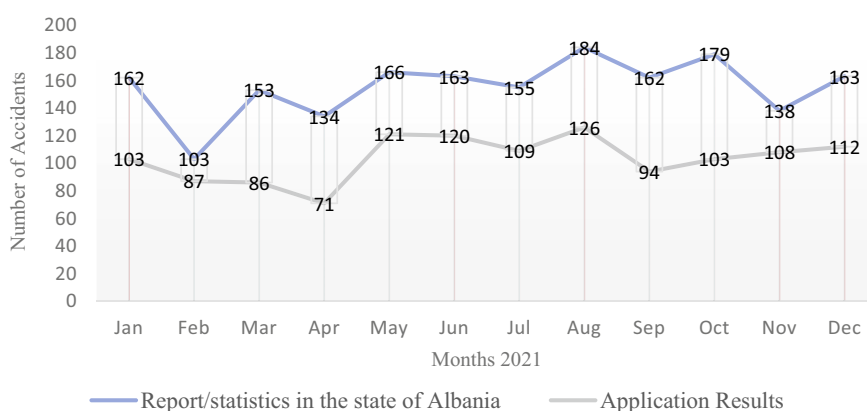


Fig. 2 Charts of application results and statistics in the state of Albania

Table 2 Chi-square tests

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	99.000 ^a	90	0.242
Likelihood ratio	51.320	90	1.000
Linear-by-linear association	4.372	1	0.037
N of valid cases	12		

^a 110 cells (100.0%) have expected count less than 5. The minimum expected count is 0.08

Table 3 Correlations

		Reports/statistics in state of Albania
Application results	Pearson correlation	0.630*
	Sig. (2-tailed)	0.028
	Sum of squares and cross-products	2462.333
	Covariance	223.848
	N	12

* Correlation is significant at the 0.05 level (2-tailed)

Referring to the research questions RQ1, RQ3, and hypothesis H2, we can say that our implemented application was successfully finalized, which finds from the top media portals in Albania the accidents that occurred, presented them by area/city and number of accidents (refer to Table IV). So, the second hypothesis is confirmed and the results are presented in the following table:

Table 4 shows the areas/cities of Albania ranked according to the highest number of accidents in 2021. The table does not show a small part of the areas that result in less than 4 accidents. As you can see on the table, the areas with the highest risk of accidents are those in Tiranë, Elbasan, Durrës, in the direction of Shkodër, and in the direction of Vlorë. The information about accidents can be useful for citizens to be informed and more careful in these areas.

Table 4 Accidents results from implemented application

Area and number of accidents in Albania (2021)					
Area	Nr. accidents	Area	Nr. accidents	Area	Nr. accidents
Tiranë	280	Milot	20	Laç	7
Vlorë	102	Sarandë	18	Maminas	7
Durrës	94	Gramsh	13	Peqin	7
Elbasan	89	Kamëz	13	Velipojë	7
Fier	65	Rrogozhinë	13	Maliq	6
Lezhë	63	Kukës	10	Rubik	6
Berat	61	Rrëshen	10	Sukth	5
Korçë	40	Bulqizë	9	Vorë	5
Gjirokastër	33	Kavajë	9	Belsh	4
Krujë	28	Mamurras	9	Kashar	4
Shkodër	27	Pukë	8	Klos	4
Lushnjë	22	Shijak	8	Patos	4
Librazhd	21	Divjakë	7	Shëngjin	4

5 Conclusions

In recent decades, there has been a rapid increase in the urbanization phenomenon and as a result, there has also been an increase in road accidents and various crimes. Seeing the mentioned problems, the focus needs to be on the prevention of accidents by knowing in advance the areas of accidents with the highest risk. Rapid analysis of data on various accidents or crimes can provide important information for the Police of the State, the Ministry of Interior, the Ministry of Transport and citizens to improve security at the operational or strategic level. From a review of the literature, for the state of Albania there are not found scientific articles or applications that give results of accidents as fast as possible.

The purpose of this research is to build an application using the Python language to identify and report accident areas in Albania in a relatively good time. As a result, an application for finding and reporting accident areas in Albania was implemented based on reading articles from the top media portals in Albania. So, accident data will be extracted from the top media portals in the state of Albania using Web Scrapping techniques in the Python language. The data that will be extracted with the Web Scrapping technique from the portals will be stored in a file and classified according to the area/city. The results are presented on a table according to the area of occurrence of accidents. And finally, the reports published in Albania on accident areas will be compared with the reports extracted with Web Scrapping techniques from the top media portals to verify which are more accurate and how close they are.

In answering the research questions and hypotheses (refer to Sect. 1), we can conclude that the implemented application managed to have an accuracy (precision)

of 67% against the results reported by the state of Albania (refer to Table 1). Promising and hopeful results for future works. Another important aspect of answering the research questions and hypotheses was the presentation of a table of accident areas in Albania and this was successfully achieved by our implemented application (refer to Fig. 2, Tables 1 and 4).

A future work would be to upgrade the implemented application to improve its accuracy (precision) and to present the specific addresses of the accident areas.

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Cloud-Based Healthcare Architecture for Diabetes Patients Using Machine Learning



Edmira Xhaferra, Florije Ismaili, and Agron Chaushi

Abstract With the rapid expansion of technology, healthcare sector is highly influenced by digitization. In this regard, the term, electronic health records (EHRs), is extremely used by researchers in the clinical domain. The EHRs are considered the best source for detecting various diseases, such as diabetes. The current study proposes a cloud-based healthcare framework using ML for diabetes patients. The framework consists of mainly three components/layers: IoT layer, fog layer, and cloud layer. Each layer has its duties for developing final outputs regarding the early detection of diabetes in patients. The study shows the proposed framework has several benefits over conventional diabetes diagnosis systems.

Keywords Diabetes · Machine learning · Electronic health records · Diagnosis · Health care

1 Introduction

The use of EHRs to make a timely diagnosis of diabetes in patients has progressively evolved into a method that is successful in preventing the disease. Cost is a major consideration in illness detection and treatment in today's rapidly expanding society, where people live in close quarters. As a result, rapid medical practices such as smart medical care and mobile health care, among others, are transforming how individuals think about and approach their lives. In our day-to-day lives, wearable technologies and electronic health devices brought about by technological advances

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have become essential components of every home. This enables the collection of a substantial quantity of EHR data. We can determine whether prospective patients have diabetes by using the data from EHR systems. Compared to the traditional method of diagnosing diabetes (e.g. blood glucose levels), this method saves time and money and retains a high accuracy. The traditional way of diagnosing diabetes calls for a professional medical laboratory to take blood samples from a human body using cutting-edge medical technology, which is then evaluated by a skilled physician using their professional expertise and experience. The early identification of diabetes using data from EHR systems that are user friendly, easy to access, and free is a treatment method that is both straightforward and convenient.

Diabetes mellitus (DM) is a serious illness that affects people all over the world. It has a high penetrance rate, which is a trend that is continually continuing to develop (Sun & Zhang, 2019). Because the body's blood glucose level is difficult to manage, this may result in an imbalance in the body's sugar levels, a range of unstable changes to the body, and will create a series of difficulties. Because of this, controlling diabetes may be challenging. Diabetes is a condition that often results in various consequences when present in a patient. It is not diabetes itself but rather the patient's many problems that cause their physical state to deteriorate.

Diabetes is a long-term condition that affects the majority of people all over the globe. Diabetic patients have sustained amounts of glucose in their blood, and they also risk acquiring medical illnesses that might be life threatening. According to one piece of research (Cho et al., 2018), there will be 693 million individuals living with diabetes by 2045. Diabetes may be classified as type I, type II, gestational diabetes, variant diabetes, and maturity-onset diabetes of the young (MODY), among other subtypes. Type I and Type II are the most prevalent types, despite a wide number of variants being discovered. Diabetes type I develops when an individual's immune system attacks the beta cells in the body that are responsible for producing insulin. It manifests itself in one's younger years but also impacts their more mature years. Diabetes mellitus type 2, sometimes referred to as adult-onset diabetes or non-insulin-dependent diabetes mellitus (NIDDM), is another name for type 2 diabetes. People in the middle years of their lives are most likely to develop type II diabetes, which renders their bodies resistant to the effects of insulin. Insulin resistance is a condition in which the body's cells cannot take up the glucose that is present in the blood. The most common causes of type II diabetes include being overweight and not getting enough exercise and other hereditary risk factors. People who stick to an unhealthy food routine and do not get enough exercise (Bogatyrev, 2016) are more likely to develop type II diabetes than those who maintain a good diet and stick to an exercise regimen. [Note: renal failure, blindness, bleeding disorders, high blood pressure, delayed wound healing, cardiovascular disease, stroke, and neurodegeneration are some of the consequences that may result from having type II diabetes (Bonds et al., 2016)]. It is critical for people with type II diabetes to be diagnosed earlier to reduce the risk of and delay the onset of chronic problems throughout their lives. Monitoring undiagnosed individuals at risk of developing type II diabetes is made easier by identifying risk factors for the condition.

In recent years, efforts have been made to address the prospect of diagnosing type II diabetes at an earlier stage and boosting the accuracy of categorization using machine learning algorithms (Hassan, 2021; Hassan & Rashid, 2020; Nilashi et al., 2017). To detect type II diabetes, a diverse collection of machine learning (ML) algorithms (Yang et al., 2017) have been presented. Predictive modelling is the result of machine learning, a strategy that involves the development of a mathematical model to provide accurate predictions (Kuhn & Johnson, 2013). This method may be realizable on a global scale due to the copious amounts of medical data produced every day. Patients may benefit from improved healthcare solutions thanks to clinical data analysis, which also contributes to improvements in both financial and operational areas. Early prediction of type II diabetes may be achieved by integrating machine learning algorithms using cloud-based data solutions. In this study, we propose a cloud-based framework for the diagnosis of diabetes using ML algorithms.

2 Literature Review

There is a plethora of research regarding diabetes detection using machine learning, although a few studies are discussed in this section. Azbeg et al. (2022) proposed an IoT-based architecture for collecting diabetes data to determine the prognosis of diabetic illnesses that are severe, then protected the data using distributed ledger technology (blockchain) and the IPFS, and they used statistical methods to generate predictions based on the data. After collecting data from several Internet of things devices, it was organized into a single dataset using IPFS. After that, a noise-insensitive data expansion was used to scale and filter the findings. After using an adaptive random forest approach to train data on the training dataset, the researchers' model was utilized to classify diabetic patients into the appropriate categories. The diabetes dataset from Frankfurt Hospital, the diabetes dataset from the Pima Indians, and a synthetic mixture of the data from these two datasets were all used in this study.

Additionally, they examined its accuracy and contrasted it with methods that were comparable to it. According to the experiment's findings, the accuracy levels of the three datasets were, in ascending order, 84.9 per cent, 99.5 per cent, and 99.8 per cent, correspondingly. The algorithm could foresee and alert hospitals or physicians to life-threatening circumstances needing quick care.

Kocbek et al. (2022) created a system for undiagnosed T2D prediction that incorporates LRFE, LAS, and SOBP modelling. The area under the ROC curve (AUC) and confidence intervals were employed to assess the models' execution. Models that are easier for healthcare professionals to understand result from using logic regression-based feature extraction techniques, particularly in instances with many binary features. When all characteristics were used to build a prediction model, the AUC was compared to the AUC of 0.816 (95% confidence interval (CI): 0.812–0.823) when utilizing the recommended framework, which is equivalent to more sophisticated models (i.e. more features). However, the difference in the number of utilized traits was substantial. Healthcare professionals may have more confidence in

prediction models when built using their study's approach for creating interpretable ones.

To diagnose diabetes mellitus, Gourisaria et al. (2022) used a range of deep learning, data dimensionality reduction, and machine learning algorithms. This research relied heavily on data from Germany's Frankfurt Hospital, the Irvine repository, and the University of California. Classification methods such as support vector machines, random forests, and Naive Bayes were employed to discriminate between diabetic and non-diabetic individuals. A comparison study was done following hyperparameter adjustment, and the best model was promoted. A similar method was used for datasets with lower dimensionality, using principal components and linear discriminant analyses. On the Frankfurt, Germany, dataset, K-nearest neighbours got an accuracy of 98.2%.

In contrast, the random forest classifier at the University of California and Irvine dataset had a precision of 99.2%. Therefore, the authors propose a statistical strategy for the early detection of diabetes with this level of expertise. They want to alleviate the problem of people with diabetes being untreated in countries without a basic healthcare infrastructure. Moreover, Hossain et al. (2022) studied diabetic prediction methods and the recommended architecture of the proposed system. Faster diagnosis is made possible by the diabetes prediction approach, which uses a new technology called the light gradient boosting machine (LightGBM).

Regarding diabetes, the suggested system architecture recommends employing a natural language processing Chabot. Free care for diabetics is made possible via the Doctor Consultation Module. A 90% accuracy rate was achieved by running K-fold cross-validation ahead of the KNN algorithm and LightGBM in this experiment. Their model's performance was evaluated by ROC and AUC curves with 0.948 and 0.93 values to determine receiver operating characteristics (ROC). Finally, the authors revealed that a diabetic patient's daily routine might be accommodated by the solution presented in their study.

The intelligent models were included in the stacking approach presented by Kalagotla et al. (2021). PIMA Indian diabetes data was obtained from the University of California/machine Irvine's learning repository (UCI). First, a correlation technique was developed for feature selection; second, the AdaBoost technique was implemented on selected features for classification; and third, a novel stacking technique was designed and developed for the selected features, resulting in improved model performance and overcoming the issue of generalization. Compared to AdaBoost, the proposed novel stacking method outperformed all other models. As an illustration of their wider usefulness, the suggested models were evaluated on datasets for identifying Cleveland heart disease and Wisconsin breast cancer. Compared to alternative tactics established using the PIMA Indian Diabetes dataset, stacking may outperform other models.

3 Proposed Framework and Expected Outcomes

This section provides information about the framework proposed by this study. An effective healthcare system is one of the most important applications directly connected to the objectives of the Internet of things. In this respect, many different considerations need to be taken into account, such as the amount of time, the confidentiality of the data, and the precision. Always available and dependable service should be the hallmark of our nation’s healthcare system. As a result, the primary objective of this study is to develop an Internet of things and fog-based healthcare system, as seen in Fig. 1. The IoT layer, the fog layer, and the cloud layer comprise the three components that comprise the framework that has been suggested. The IoT layer integrates several devices, such as pulse oximeters and ECG monitors, to monitor the user’s condition. The fog layer is in charge of processing incoming requests and sending them to the relevant fog node. The fog layer consists of many fog areas, and the cloud data centres are in the third tier. The next subsections explain the duties each of the suggested levels would play.

The first layer, the IoT layer, is responsible for monitoring patients using IoT sensors and sending the monitored data to the fog layer for further processing. Moreover, the IoT layer interacts with the UI-based user-friendly application that shows the processed outcomes to the patients and, at the same time, sends reports to health-care professionals/doctors for suitable treatment. Various health sensors could be

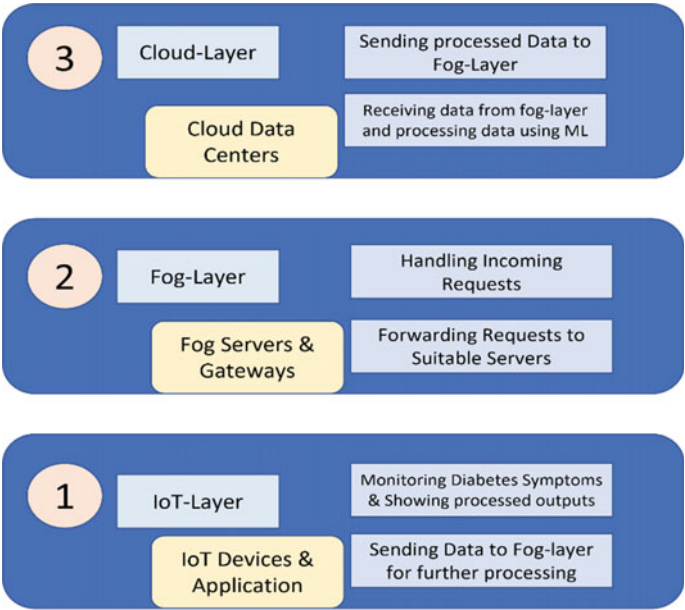


Fig. 1 Proposed framework

used for the early detection of diabetes. For example, suppose a person exercises daily. In that case, the chances of diabetes are less, as discussed previously.

In contrast, if a person is lazy or does not involve proper exercise in the daily routine, the chances of getting diabetes are high. This can be detected using GPD systems on mobile, as many healthcare applications do (Polease et al., 2019). Moreover, blood glucose level monitors can also be used as IoT sensors to collect useful raw data sent to the fog layer. The role of IoT devices is vital as they allow a broad variety of flexibility. For instance, if a patient needs continual care, rather than being sent to a hospital, they may stay at home and be monitored often using IoT technology. Noise may be detected in the data as it travels from the sensor to the control device and then to the monitoring centre. This causes the data to be of lower quality. The storage and infrastructure requirements for monitoring many users on the Internet of things may be reduced or eliminated by storing data in the cloud.

High latency results from data centres for the cloud being placed at great distances from the devices that make up the Internet of things. This problem significantly impacts the reaction time for real-time applications such as vital health monitoring systems, emergency fire monitoring, and traffic monitoring. In addition, IoT sources may be distributed over a wide geographic area and create a substantial amount of data that is then sent to the cloud for processing, which can cause the cloud to become overloaded. The computing capabilities available at the edge may help overcome the issues in IoT systems that have been outlined before. The user application that uses the proposed GDM module receives the patient data produced by the IoT sensors. The data generated by the application are sent to the fog layer to be processed there. As seen in Fig. 1, the implementation of the primary module, known as the GDM module, takes place in the fog layer. To anticipate GDM with a low latency, the GDM module is used.

A computer paradigm that carries out Internet of things applications at a network's periphery is called fog. The fog helps to enhance the quality-of-service measures like bandwidth efficiency and energy usage, and it also helps to cut latency. The primary objective of fog computing is to distribute data and provide it to the user more quickly.

The proposed framework is expected to be a cost-effective solution and use machine learning models. It could detect diabetes at its early stages in an automated manner. Thus, it would generate alerts for both doctor and patient for timely patient treatment. Furthermore, early detection would enable healthcare professionals to prevent patients from serious illnesses caused by diabetes or high glucose level. The proposed framework can save many lives.

4 Conclusions

The world's population is a major victim of diabetes, as the research reveals that there will be 693 million individuals living with diabetes by the year 2045. Thus, it is crucial to investigate techniques useful for detecting diabetes at early stages for successful prevention and timely treatment. This study proposes a cloud-based

architecture for detecting diabetes using ML. The framework consists of three layers: IoT, fog, and cloud. Each layer has its functionality and role, from gathering data to generating reports using ML algorithms. The proposed framework is most beneficial in this domain and thus provides several benefits, including cost efficiency, timely/early detection of diabetes, using the controllable application, etc.

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The Role of Information Systems in the Decision-making Processes of the Enterprises in Kosovo



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Abstract This study aims to investigate the significance of utilizing information systems in various organizational contexts. In alignment with global research trends, the primary objectives of this study are to assess the impact of information systems usage on the speed of problem identification, the expediency of decision-making, and the overall quality of decisions made. A total of 150 respondents participated in this research, representing a diverse array of enterprises. Participants completed a self-reporting questionnaire designed to measure the importance of information systems in the decision-making process. Additionally, the study seeks to explore potential differences in the perceptions of managers across various hierarchical levels concerning the role of information systems in the decision-making process. The results of this study indicate that there are significant differences in managers' perceptions of the importance of information systems in problem identification speed, speed of decision-making, and the quality of decisions made based on their managerial level. Specifically, operational managers tend to identify problems at a slower rate compared to tactical and executive managers. Tactical and executive managers tend to have better speed in decision-making than operational managers. Furthermore, the quality of decisions made was found to be higher among tactical and strategic managers than operational managers.

Keywords Information systems · Decision-making · Management · Enterprises

1 Introduction

Information systems are constantly evolving and improving to better support the myriad of enterprises processes they serve (Hendershott, 2006; Joshi, 2013). The management of information and processes by information systems has influenced

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several aspects of enterprises, including decision-making, which is accelerated by process automation (Aina & Mohammed, 2016). As noted by Turban et al. (2005) and Lucey (2005) automation enables the rapid generation of more accurate, real-time information, while simultaneously helping to store large quantities of data. Information systems have a significant impact on company performance by facilitating the retention of existing customers and the acquisition of new ones. Lipaj and Davidavičienė (2013) note that the use of information systems enables quick problem identification, rapid decision-making, qualitative decisions, satisfaction with the decisions made, and monetary benefits, among other variables. All of these capabilities are enabled by the ability of information systems to manage large volumes of data, therefore, several different information systems models, fitting for different purposes are currently available (Babaei & Beikzad, 2013).

The use of information systems is often associated with multiple variables, such as problem identification speed, decision-making speed, qualitative decision-making, user satisfaction, productivity, financial gain better planning, and so on (Kim et al., 2010; Lipaj & Davidavičienė, 2013; Patterson, 2005). However, the current paper will focus on information systems as decision-making support and, consequently, will analyze the relationship between the use of information systems and decision-making processes in enterprises. In this aspect, as essential parts of qualitative decision-making, the variables of problem identification speed and decision-making speed will also be integrated.

It is believed that the influence of information systems on today's enterprise is significant and multi-dimensional, even though the aspect of financial perks cannot always be quantified in financial means (Bakis et al., 2006). Since information systems convert data into information, it is thought that this information will contribute to effective decision-making (Patterson, 2005). The more information managers have at their disposal, the easier it is for them to access that information, and the more accurate it is, the easier the decision-making process becomes. Adequate information systems enable swift and qualitative decision-making. Hence, their use is now widely recommended, particularly to adapt to the dynamic nature of today's enterprise. This dynamic often affects the ability of enterprise to keep up with relevant developments, and the use of information systems is considered a competitive advantage among different enterprises.

2 Literature Review

Numerous studies have identified information systems as essential for making quality decisions (Mohammed & Hu, 2015). Findings support the hypothesis that the use of information systems improves decision-making and the general firm performance (Laudon & Laudon, 2016). The most common measures of decision quality are accuracy, completeness, and relevance (Shamsuddin & Aziati, 2013). Thus, the more accurate, complete, and relevant the information generated by information systems, the more it is believed to influence higher-quality decision-making.

According to Leonard and Valacich (2008), information systems provide us with the necessary information for the decision-making process and help control, planning, and operational processes be carried out more effectively. Each institution “grows, develops, or even fails” based on the decisions made by its management (Ada, 2015). Therefore, it is crucial to investigate the variables that influence and improve the decision-making process within companies. Various studies have already confirmed that information systems have a positive impact on fast and secure decision-making.

What characterizes modern enterprises is dynamism. According to Tripathi (2010), enterprises must generate the necessary information from various sources in minimal time and with a wide range of potential characteristics for that information. Therefore, information systems enable enterprises to make decisions based on real and relevant data, rather than speculation. Jahangir (2005) posits that the quality of decisions made depends heavily on the availability of information, so managers should create an environment that encourages the availability of information systems. However, recent research indicates the need to consider the satisfaction level of information system users regarding the decisions made based on these systems. Vaezi (2013) believes that information quality, system quality, and service quality are the three main prerequisites that information systems must meet in order for their users to be satisfied. Usefulness measures from information systems are primarily qualitative and declarative, such as: “Information systems affect productivity growth” (Nasri & Charfeddine, 2012).

A study conducted by Azeez and Yakuub (2019) aimed to investigate the impact of information systems on the performance of an oil company in Iraq. A total of 201 respondents participated in this study, responding to a self-report questionnaire, and their data were analyzed quantitatively. The results showed that information system indicators, or the quality of information generated by them, were directly related to user satisfaction and the company's net profit.

In another study conducted in China by Aina and Mohammed (2016), the importance of information systems in decision-making processes was also examined. This study aimed to raise hypotheses related to various factors concerning information systems. The variables included in this research were as follows: problem identification speed, decision-making analysis, user satisfaction, information quality content, decision-making speed, and the quality of the decision made. To test these variables, the researchers examined the existing literature globally. The results confirmed the hypotheses that the use of information systems is crucial for decision-making processes and that these systems are believed to strengthen decision-making capabilities.

Many other studies have empirically tested the impact of information systems on higher-quality decision-making. According to Chaffey and White (2011), information systems are essential because they enable the rapid generation of necessary information, its analysis, evaluation, selection of the most suitable alternative, and ultimately its monitoring. Adebou (2007) also emphasized that the use of information systems is particularly important for organizations in relation to human and material resource-related decision-making.

On the other hand, another study that demonstrates a positive and significant relationship between these two variables was conducted by Neziraj and Shaqiri (2018). This study aimed to analyze the impact of information systems on the pharmaceutical industry. According to the researchers, the pharmaceutical industry in Kosovo faces many challenges in its decision-making processes. The study found that the lack of information systems usage in Kosovo's pharmaceutical industry affects the quality of decision-making. Moreover, the study discovered a positive and significant link between decision quality and overall enterprise performance.

2.1 The Impact of Information Systems on Decision-making

Decision-making is a complex, sometimes risky process with a high impact on a company's performance. Today, information systems are considered a competitive advantage because they enable data analysis and facilitate quick and efficient decision-making (Kostetsky, 1966). Decision-making is the act of making choices by considering a set number of factors and evaluating various alternatives (Lunenborg, 2010). The specific factors to consider will depend on the type of decision being made and the information available. According to Neziraj and Shaqiri (2018), since every decision entails certain changes that can translate into potential progress or regression, decision support systems like information systems are crucial as they enable these changes to be reflected in the short term. This undoubtedly provides the opportunity to react more quickly to undesirable outcomes and, consequently, maintain control over the overall enterprise performance.

2.1.1 Identifying Problems Through IS

Decision-making is often preceded by problem identification. The sooner a problem is identified, the sooner it can be eliminated. The use of information systems has a direct impact on the speed of problem identification. This is because these systems can collect large amounts of data and information that can be used to support decision-making. In particular, data can speed up the problem identification process. Numerous studies have confirmed a positive and statistically significant relationship between the use of information systems and problem identification. Among them, Marchand-Maillet (2003) in a study conducted for this purpose confirmed the hypothesis that the use of information systems helps decision-making processes through easier and faster identification of enterprise problems.

2.1.2 Fast Decision-making Through IS

Aina and Mohamed (2016) argue that, particularly for managers who must make frequent decisions, the use of information systems is crucial, as it reduces the time

required for decision-making. Consequently, they suggest that information automation directly impacts the reduction of time needed to make decisions, which in turn influences the speed of obtaining feedback regarding the quality of those decisions. By decreasing the decision-making time, managers can more quickly comprehend the effects of specific decisions on their enterprises and simultaneously react according to the outcomes. The current study also aims to investigate whether the use of information systems reduces decision-making time. This variable will be analyzed in relation to potential differences among managers at various levels concerning the importance of information systems usage in reducing decision-making time.

2.1.3 Quality Decision-making Based on IS

Enterprises depend on the quality of operational and strategic decisions. Each manager faces situations where they must make difficult and crucial decisions for the enterprise they lead or operate. Information systems provide accurate, timely, fast, easy, and large amounts of information (Poëer, 2002). Information systems also facilitate the sharing of information between sectors and managerial levels and provide managers with a more comprehensive and accurate perspective on various enterprise issues. Given that decisions within an enterprise are so important that they can completely change its development direction, it is very important that they are not based on speculation but are based on accurate information (Xu & Quaddus, 2013). Information systems largely enable this. Consequently, decisions made based on this information are more likely to be of high quality and yield positive results compared to decisions made based on speculation and potentially subjective calculations.

2.1.4 Research Questions

Based on the literature review, this paper aims to answer the following research questions:

Research Question 1: Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the speed of problem identification?

Research Question 2: Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the speed of decision-making?

Research Question 3: Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the quality of the decisions made?

3 Methodology

3.1 *Research Model and Methods*

Statistical tests such as chi-square have been applied to see if there is an association between managerial levels (categorical levels) and the impact of information systems on (1) the speed of problem identification, (2) the speed of decision-making, and (3) the quality of decisions made. The reason for using the chi-square test is explained below:

One of the most well-known theoretical models in the field of decision-making processes is the model developed by researcher Simon (1955). According to this theoretical model, decision-making goes through three main phases: intelligence, design, and choice. A more detailed perspective on the decision-making process states that it begins with problem definition, continues with information gathering, alternative identification, alternative evaluation, alternative selection, alternative implementation, and outcome monitoring (Berisha-Namani & Berisha, 2013). The use of information systems is essential to perform all these processes in minimal time and with accuracy. Information systems provide accurate, timely, fast, easy, and large amounts of information. Thus, information systems also facilitate information sharing between sectors and managerial levels and provide managers with a more comprehensive and accurate perspective on various enterprise issues (Aina & Mohammed, 2016; Neziraj & Shaqiri, 2018; Sherifi, 2016). Based on this theoretical model and earlier studies in this field, we can understand that the independent variable is the use of information systems, while the dependent variable is decision-making. In other words, the dependent variable “decision-making” and its accompanying processes can be influenced or dependent on the use or non-use of information systems as an independent variable.

The dependent variable is related to the use of information systems and is based on the questionnaire question: (1) Do you use information systems? The variables are built based on questions from the questionnaire:

- Speed of problem identification means the percentage of cases where problems are identified by the available reports provided by IS. This variable is built considering the questions posed in the questionnaire as follows: (1) In what percentage of cases do managers quickly identify an enterprise problem and (2) How easy is it to extract the necessary information for problem identification?
- Speed of decision-making refers to the amount of time it takes for a person or a group to make a decision from the moment the decision-making process starts until a decision is reached. This variable is built considering the questions posed in the questionnaire as follows: The use of IS reduces decision-making time, and I can make faster decisions when using IS.
- The quality of decision-making depends on the accuracy of the information provided by information systems. This variable is built considering the questions posed in the questionnaire as follows: (1) The decisions I make are effective; (2)

the decisions I make are usually correct; (3) experience shows that I can trust my decisions; (4) experience shows that my decisions are of high quality; (5) experience shows that my decisions bring the desired results; (6) I am satisfied with the quality of the decisions I have made.

3.2 Research Instrument

To generate relevant data, two self-reporting questionnaires were designed to measure the following variables: (1) the level of use of information systems, (2) the speed of problem identification, and (3) the quality of decisions made. The first questionnaire is dedicated to companies that use information systems during decision-making, while the second questionnaire is dedicated to companies that do not use information systems. These two questionnaires enable the generation of comparative data between companies that use IS and those that do not. These self-reporting questionnaires contain various statements with “Yes” or “No” response options and Likert scales ranging from “Strongly Disagree” to “Strongly Agree”. The questionnaires were applied in person.

3.3 Sample

The data for this study were obtained through a survey of 150 respondents and managers of companies operating in Kosovo. Respondents were purposively selected within the framework of companies that use information systems and companies that do not use information systems; small, medium, and large companies; and different management levels. These participants were surveyed regarding their direct experience of using or not using information systems and their decision-making process. Participants were purposively selected based on the aim of this study to demonstrate the role or importance of using information systems in decision-making. Consequently, in line with the theoretical concept or previous studies in this field (Aina & Mohammed, 2016; Neziraj & Shaqiri, 2018; Sherifi, 2016), the current study included participants who use information systems to support decision-making processes. The study also, based on previous studies conducted (Karim, 2011), compared managers at different managerial levels in relation to the importance of using information systems.

Thus, most of the companies using IS that participated in this study can be categorized as medium or large companies, specifically, 25% of companies have 10 to 50 employees, 29% have 50 to 100 employees, and about 41% of companies have more than 100 employees. On the other hand, regarding companies that do not use IS, 65% of participants reported working in companies with fewer than ten employees, 33% reported having ten to 50 employees, and only 1% reported having more than 50 employees. This representative structure of the sample was selected to create the

Table 1 Description of the sample characteristics

Question	Frequency	Percentage
<i>Usage</i>	<i>N</i>	%
Use	75	50
Don't use	75	50
<i>Age</i>	<i>N</i>	%
18–25	1	0.67
26–35	61	40.67
36–44	61	40.67
45–55	25	16.67
>55	2	1.33
<i>Activity</i>	<i>N</i>	%
Products	61	40.67
Services	67	44.67
Both	22	14.67
<i>Employees</i>	<i>N</i>	%
<10	52	34.67
10–50	44	29.33
51–100	23	15.33
>100	31	20.67

possibility for representation/representation of companies of different sizes within this study.

3.4 Descriptive Data

See Table 1.

4 Findings and Discussion

4.1 Reliability Analysis

To determine the reliability of the instrument, Cronbach's alpha indicator was used (Table 2).

Cronbach's alpha is a measure of the internal consistency or reliability of a scale or test. It assesses how well a set of items that are intended to measure the same construct are interrelated. The coefficient ranges from 0 to 1, where a higher value indicates greater reliability or consistency among the items. The current Cronbach's

Table 2 Reliability of the questionnaire

Cronbach's alpha	Value
<i>Average interitem covariance</i>	0.389
Number of items in the scale	16
Scale reliability coefficient	0.8636

alpha value of 0.8636 indicates a high level of internal consistency and reliability for the 16-item scale being measured. This value suggests that the items are highly interrelated and consistently measure the same construct.

4.2 Findings for the Research Questions

This section presents the main results related to the three research questions outlined at the beginning of this paper. The results for each research question are presented both visually in the form of tables generated from STATA and narratively. Regarding the first research question “Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the speed of problem identification?” findings suggest the following (Table 3).

The table shows the results of a chi-square analysis examining the relationship between managerial level and problem identification speed, with the significant difference level set at three ranges of percentages (less than 20%, 20–50%, and 50–80%). The analysis reveals that there is a statistically significant difference in problem identification speed among managers at different levels. The chi-square value of $P = 0.000$ indicates that the observed differences in problem identification speed are not due to chance. Looking at the table, we can see that the highest proportion of operational managers (36 out of 66) identified problems in the 20–50% range, while the highest proportion of tactical and executive managers identified problems in the 50–80% range (23 out of 50 and 23 out of 34, respectively). Overall, the results suggest that there are significant differences in problem identification speed among managers at different levels, with operational managers tending to identify problems at lower rates compared to tactical and executive managers.

Table 3 Speed of problem identification

Managerial level	Identification speed			Significant difference
	>20%	20–50%	50–80%	Chi-square
Operational	21	36	9	$P = 0.000$
Medium (tactical)	3	24	23	
Executive (strategic)	2	9	23	

Regarding the second research questions “Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the speed of decision-making?” findings suggest the following (Table 4).

The table presents the results of a chi-square analysis examining the relationship between managerial level and speed, with the significant difference level set at three ranges of speed (poor, satisfactory, and acceptable). The analysis reveals that there is a statistically significant difference in speed among managers at different levels. The chi-square value of $P = 0.000$ indicates that the observed differences in speed are not due to chance. Looking at the table, we can see that the highest proportion of operational managers (30 out of 66) had poor speed, while the highest proportion of tactical and executive managers had acceptable speed (30 out of 50 and 28 out of 34, respectively). However, it should be noted that there were also significant proportions of tactical and executive managers with poor or satisfactory speed.

Regarding the third research question: “Are there differences between managers at different managerial levels regarding their perception of the importance of information systems in the quality of the decisions made?” findings suggest the following (Table 5).

The table presents the results of a chi-square analysis examining the relationship between the quality of decisions made and managerial level. The quality of decisions made was classified into three categories: acceptable, satisfactory, and very good. The numbers in the table represent the count of managers at each level that fall into each of the decision quality categories. The analysis reveals that there is a statistically significant relationship between the quality of decisions made and managerial level. The Pearson chi-square value of 101.75 and the probability of 0.0000 indicate that the observed differences in decision quality are not due to chance. Looking at the

Table 4 Speed of decision-making

Managerial level	Poor	Satisfactory	Speed	Significant difference Chi-square
			Acceptable	
Operational	30	24	12	$P = 0.000$
Medium (tactical)	7	13	30	
Executive (strategic)	2	4	28	

Table 5 Quality of decision-making

The quality of the decisions made	Managerial level		
	Operational	Tactical	Strategic
Acceptable	57	14	0
Satisfactory	7	31	27
Very good	2	5	7
Pearson chi-square = 101.75 Prob = 0.0000			

table, we can see that the highest proportion of managers at the operational level made acceptable decisions (57 out of 66), while the highest proportion of managers at the tactical and strategic levels made satisfactory decisions (31 out of 50 and 27 out of 34, respectively). However, it is also worth noting that there were significant proportions of managers within each level who made decisions in each of the three quality categories.

4.3 Discussion

The results of this study indicate that there are significant differences in managers' perceptions of the importance of information systems in problem identification speed, speed of decision-making, and the quality of decisions made based on their managerial level. Specifically, operational managers tend to identify problems at a slower rate compared to tactical and executive managers. Tactical and executive managers tend to have better speed in decision-making than operational managers. Furthermore, the quality of decisions made was found to be higher among tactical and strategic managers than operational managers. These findings are important because they suggest that managers at different levels perceive the role of information systems differently and have varying abilities to use them effectively.

The findings suggest that higher-level managers (tactical and strategic) perceive information systems to be more important than lower-level managers (operational) in terms of problem identification, decision-making speed, and the quality of decisions made. This could indicate that tactical and strategic managers have a better understanding of the value of information systems in the organization's overall strategy and long-term success.

Furthermore, the results could also suggest that operational managers may not fully recognize the potential benefits of information systems in their day-to-day work. This may be due to a lack of training or exposure to the use of information systems or limited resources available to them. Addressing this knowledge gap and providing necessary resources could improve the effectiveness and efficiency of operational managers in problem-solving and decision-making processes.

Operational managers may benefit from training and support to improve their problem identification and decision-making skills. On the other hand, tactical and strategic managers may need to focus on utilizing information systems more effectively to make high-quality decisions. Organizations can use these findings to identify areas for improvement and tailor training and support programs to meet the needs of managers at different levels. Overall, the results highlight the importance of understanding the varying needs and capabilities of managers at different levels to effectively leverage information systems and make high-quality decision.

5 Conclusion

Based on the results presented, it can be concluded that there are significant differences in how managers at different levels perceive the importance of information systems in various aspects of organizational decision-making. Operational managers tend to identify problems at lower rates compared to tactical and executive managers, and they also have a lower speed of decision-making. On the other hand, tactical and executive managers tend to find information systems more beneficial for decision-making and strategic planning, and they tend to make better quality decisions compared to operational managers.

5.1 Implications

These results highlight the importance of information systems in improving decision-making processes and strategic planning, especially for higher-level managers. It also suggests that there is a need for further training and development of operational managers in utilizing information systems to improve their decision-making abilities. The findings could have practical implications for organizations, as they can utilize information systems to improve the efficiency and effectiveness of their decision-making processes and to enhance the quality of decisions made at all levels of the organization.

5.2 Limitations and Future Research

The study did not examine the actual use of information systems in decision-making processes, only the perceived importance of information systems. Therefore, other studies aiming to further investigate these research questions are encouraged to explore other research methods, allowing to assess the real impact on information system in the speed of problem identification, speed of decision-making, and quality of the decision taken. It would be very important to investigate the actual use of information systems in decision-making processes and to determine if there is a gap between perception and practice.

The study also was only focused on the perceived importance of information systems in problem identification, decision-making speed, and the quality of decisions made. Other factors that may affect decision-making, such as personal characteristics and situational factors, were not considered. Therefore, future studies might examine other factors that may influence decision-making, such as individual differences and situational factors.

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Online or On-site?—Lessons Drawn from the Pandemic in Technology Adoption: The Case of South East European University



Adrian Besimi, Blerta Abazi Chaushi , Lulzime Nuredini-Mehmedi, and Veronika Kareva

Abstract The lockdown during the pandemics affected organizations all around the world. Many industries experienced significant change, including the educational sector. Maintaining high-quality instruction and ensuring student satisfaction and successful learning has always been the key priority of the South East European University (SEEU) in North Macedonia. This paper aims to highlight the major challenges related to teaching and learning and showcase the continuous quality of institutional work by comparing and contrasting data obtained from student course evaluation when teaching on-site and online. A total number of 1360 course evaluations have been included in the study, conducted over eight (8) semesters, starting from academic 2018/19 to 2022/23. The assumption made is that high-quality instruction, if embedded in the system and properly measured, remains the same regardless of the delivery mode. Students' perceptions of the quality of teaching and services when taught online and on-site have been analyzed in study. Findings suggest that online learners gain the same amount of knowledge as those taking traditional on-site classes, and they are just as satisfied with the curriculum and instructors. As a result, the adoption of technology in the classroom as a tool to improve student learning and student happiness remains the key benefit in the post-pandemic era.

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1 Introduction

Higher education (HE) has been greatly influenced by the COVID-19 pandemic. Due to the quick transition to online learning that followed the closing of colleges, the digital gap and unequal access to technology and Internet connectivity were brought to light. Significant learning was also lost because of this change, especially for underprivileged students who had access to insufficient resources and support. Universities have also been affected financially by the pandemic; with many findings, it is difficult to deal with the crisis' financial effects (Estermann et al., 2020; Kooli, 2021; Witze, 2020). Also, the pandemic has sped up the adoption of cutting-edge teaching techniques and technological advancements, forcing colleges to reconsider their use of the conventional model of instruction (Besimi & Shehu, 2020; Kooli, 2021; Uleanya, 2022; Witze, 2020). Some of the adjustments made in reaction to the crisis are probably going to have an impact on higher education for a while.

This study aims to examine the effects of pandemics and the switch to online learning on student teaching and learning, specifically at South East European University (SEEU). The study seeks to investigate the long-lasting effects of technology adoption that have altered the environment in which SEEU operates, even in the post-pandemic era. By focusing on student satisfaction, the study aims to shed light on the impact of pandemics and online learning on higher education institutions. The pandemic has accelerated the adoption of new technologies and innovative teaching methods and has forced universities to rethink the traditional model of education. Through a study of student satisfaction at SEEU, this research aims to provide insights into the long-term effects of these changes and their implications for the future of higher education.

2 Literature Review

The COVID-19 pandemic has had a significant impact on the education sector, causing widespread disruptions in teaching and learning across the globe (UNESCO COVID-19 Education Response—Education Sector Issue Notes—Issue Note No 7.1 School Reopening—April 2020—World | ReliefWeb, 2020). As institutions scrambled to adapt to the new reality, many turned to online and hybrid delivery modes as a means of maintaining continuity in instruction (Hodges et al., 2020). While these modalities provided a means of keeping students engaged in their coursework, they also presented significant challenges for instructors and students, leading to significant changes in the way instruction is delivered and received (Hodges et al., 2020). As a result, universities and colleges around the world have had to adjust their

teaching methods and pedagogies in order to maintain high-quality instruction and ensure that students continue to learn (Jang et al., 2022).

While online and hybrid learning environments have become increasingly popular in recent years, the pandemic has accelerated their adoption and highlighted their advantages and challenges (Pokhrel & Chhetri, 2021). According to some studies, online learning can offer a number of benefits over traditional on-site classes, including greater flexibility, personalized instruction, and access to a wider range of resources (Allen & Seaman, 2017; Campbell et al., 2002; Hew & Cheung, 2014).

However, online learning also presents a number of challenges for students and instructors alike, including issues related to technology, engagement, and communication (Dabbagh & Kitsantas, 2012; Hrastinski, 2008). Students in online classes may experience feelings of isolation and disconnectedness from their peers and instructors (Chuan et al., 2022; Richardson & Swan, 2003). Advantages and challenges of online learning compared to traditional on-site classes have been a topic of research for years. Online learning offers several potential benefits, such as increased flexibility, accessibility, and scalability (Allen & Seaman, 2017). However, online learning can also present challenges, such as a lack of social interaction, difficulty with time management, and issues with technology (Elshareif & Mohamed, 2021).

Despite these challenges, research has shown that the quality of instruction can be maintained, and student learning outcomes can be achieved in online and hybrid learning environments (Allen & Seaman, 2017; Hew & Cheung, 2014). In fact, some studies have found that online learners can perform just as well as, or even better than, their counterparts in traditional on-site classes (Arsenijević et al., 2023; Jiang et al., 2021).

Moreover, recent research has suggested that the adoption of technology in the classroom can have a positive impact on student learning outcomes and satisfaction, regardless of the delivery modality (Dennen & Jones, 2022; Nadi-Ravandi & Batooli, 2022; Oliveira et al., 2023). By leveraging technology tools and platforms, instructors can create engaging and interactive learning experiences that cater to diverse learning styles and needs.

In summary, while the COVID-19 pandemic has posed significant challenges for higher education institutions, it has also highlighted the potential of online and hybrid learning environments and the role of technology in improving student learning outcomes and satisfaction. This paper's purpose is to shed light on the efficiency of technology adoption in the pandemic era and its effect on college students' contentment. In particular, we want to show that the use of technology has improved teaching in the post-pandemic age, according to tools that measure student satisfaction with the course and instructor. We hope to demonstrate that the characteristics of high-quality instruction remain the same regardless of the delivery modality by contrasting the results from data acquired from various instruments used in on-site and online teaching. We believe that this study will add to the current conversation about the advantages of technology in the classroom, particularly in the post-pandemic period where online and blended learning are still fundamental components of the educational system.

3 Background Information

Among the other factors, the planning and execution of the succession process have a substantial impact on the longevity of family businesses.

The COVID-19 pandemic has had a significant impact on educational institutions worldwide. Schools and universities had to quickly adapt to the new reality of lockdowns, social distancing, and remote learning (UNESCO COVID-19 Education Response—Education Sector Issue Notes—Issue Note No 7.1 School Reopening—April 2020—World | ReliefWeb, 2020). The pandemic has created challenges in providing high-quality instruction and ensuring that students continue to learn effectively. The shift to online learning has been a necessary response to the pandemic, but it has also posed a number of difficulties in the education sector, such as the lack of access to reliable Internet, lack of engagement, and inadequate student support (Kavitha & Jaisingh, 2019). Arsenijević et al. (2023) suggest that student satisfaction with online learning is an essential factor in determining the effectiveness of online education during the pandemic. This paper aims to investigate the challenges faced by the South East European University (SEEU) in North Macedonia in maintaining high-quality instruction and ensuring student learning during the pandemic. Additionally, this study explores the impact of technology adoption on student satisfaction and learning outcomes, as measured by student evaluations. The findings of this study have significant implications for institutions worldwide as they seek to improve their online and blended learning offerings in the post-pandemic era.

Due to the pandemic, South East European University (SEEU) as many other educational institutions moved fast to remote teaching. Moving to the so-called new normal changed everything, and this included teaching and learning by leveraging the latest technological advancements. Besimi and Shehu (2020) claim that “the society adopted the latest technology, faster, only because of the pandemic situation, or simply because of the necessity”. This brings up the main concern that this paper is tackling—the necessity to deliver good teaching and learning during pandemics and the challenges that are faced in this regard. The “hybrid mode” that was applied in SEEU was a combination of teaching on campus with online teaching. This practice showed that moving to online teaching and leveraging IT to deliver lectures was immediate and without major issues. The teaching component that is evaluated every semester showed good results as per student’s point of view that will be elaborated later in the paper.

The pandemic increased the demand for integration of technology in the teaching and learning process not only as a source of information but as a tool for enhancing learning. Innovative online methodologies have been needed in order to promote learner’s autonomy as despite the expansion of technology use in all spheres of life, “it was estimated that in 2018 only about 15% of the market share belonged to online education” (Tartavulea et al., 2020).

Universities did not seem well prepared to rely on the online delivery mode completely, which is evidenced by the fact that the largest proportion of research publications during the pandemic worldwide dealt with the challenges faced by

higher education institutions (Vijayan, 2021). Universities have been forced to look for ways to keep students really and not formally present online, motivated, engaged in meaningful tasks, well informed, and assessed. This has not been an easy task at all.

The SEEU approach is based on the principles of constructivism (Koohang et al., 2009) for designing online learning activities, assessment, and instructor's role. The existing techniques for evaluating teaching and learning (student satisfaction surveys, course evaluations from students, and peer teaching observation) have been changed and adjusted to the newly generated conditions, frequently administered, and trends have been closely monitored to compare results. This has made it possible for university management to spot areas in need of improvement and look for solutions to deal with them in order to stay on course.

4 Research Methodology

South East European University (SEEU) places a high value on the collection and analysis of data. There are nine main categories in which the Student Services Department (SSD) divides up its more than 40 standard reports that are produced annually. The most often used of these are operational reports, data on faculty operations, reports, and analyses for executive leadership and decision-making, and legally necessary institutional reports. In addition, SEEU performs yearly teaching observation by peer teachers for all teachers. The teaching observation is carried out once a year by peers who have been assigned to watch over and assess the assigned staff member. Chaushi et al. (2015) study provides a comprehensive analysis of all the data SEEU is collecting and how they use them to support decision-making in this institution. The Office of Quality Assurance and Management (OQAM) at SEEU collects data, conducts analysis, and disseminates information about students' feedback for their experience with the university services, with faculty staff, and with specific courses using yearly questionnaires that each student is required to complete for each course. The purpose of the student evaluation is to ensure objectivity and anonymity throughout this procedure. It can only be completed once for a course and is fully anonymous. The teaching observations were eliminated from the report, and this study is solely concentrated on student assessments because it was difficult to quantify them given the nature of the data (Chaushi et al., 2015).

In collaboration with the student advisors and student services, the Quality Office manages the yearly Student Evaluation Surveys. Students undertake the academic survey, which is computerized, during the last month in each semester in an anonymous manner. This is predicated on each professor receiving one assessment and maybe two if they teach at other campuses or cycles. Every course presented is reviewed as of 2020. Only the evaluation with significant number of students filling it is taken in this study. The findings are examined. Each professor gets their own results. Results are given to the faculty deans, and university-level data analysis is done on the information. Individual data must be considered as part of each staff

Table 1 Total courses evaluated in university level

Faculties	Terms/ Metrics	Fall 18/19	Fall 19/20	Spring 19/20	Fall 20/21	Spring 20/21	Fall 21/22	Spring 21/22	Fall 22/23
<i>SEEU</i> *	N	119	116	132	93	185	292	117	306
	%	100	100	100	100	100	100	100	100
<i>BE</i>	N	25	22	23	23	33	48	24	50
	%	21.00	19.00	17.40	24.70	17.60	16.44	20.51	16.34
<i>CST</i>	N	19	22	23	15	37	74	31	106
	%	16.00	19.00	17.40	16.10	17.60	25.34	26.50	34.64
<i>LAW</i>	N	16	14	24	11	23	35	11	30
	%	13.40	12.10	18.20	11.80	17.60	11.99	9.40	9.80
<i>CSS</i>	N	12	12	17	6	23	30	12	28
	%	10.10	10.30	12.90	6.50	13.00	10.27	10.26	9.15
<i>LCC</i>	N	22	16	19	14	47	42	18	39
	%	18.50	13.80	14.40	15.10	14.50	14.38	15.38	12.75
<i>LC</i>	N	18	20	20	17	20	51	16	42
	%	15.10	17.20	15.20	18.30	15.30	17.47	13.68	13.73
<i>ELC</i>	N	7	10	6	7	2	12	5	11
	%	5.90	8.60	4.50	7.50	4.60	4.11	4.27	3.59

* Cumulative data for the University

member's annual evaluation, and faculty members should also take their personal data into account.

The table below displays the replies that students provided for each course during the evaluation for a given department. Course evaluation is carried out twice a year, as we only service two semesters per year in SEEU. The total number of courses evaluated each semester ranged from 93 to 306 for the semesters from Fall 2018 to Fall 2023 (Table 1). As students become more interested in reviewing their courses, the sample size has grown over the semesters. For instance, in contrast to the 1425 and 3188 university-wide pre-COVID respondents, we had 5013 respondents in our most recent semester (Table 2). The tables' distributions by semester and faculty are shown in Figs. 1 and 2.

The abbreviations in the tables and following the paper are as follows:

Abbreviation	Name
SEEU	South East European University
BE	Faculty of Business and Economics
CST	Faculty of Contemporary Sciences and Technologies
LAW	Faculty of Law
CSS	Faculty of Contemporary Social Sciences

(continued)

(continued)

Abbreviation	Name
LCC	Faculty of Languages, Cultures and Communication
LC	Language Center
ELC	E-Learning Center

Before presenting the research questions, it is important to note that this study is based on a good sample of courses evaluated as well as good number of student evaluation responses from the South East European University (SEEU) in North Macedonia, as depicted in Tables 1 and 2. With this in mind, we can now proceed to the research questions that aim to investigate the effectiveness of technology in high-quality teaching and learning. The following are the main questions addressed in this study:

- RQ 1: Did we manage to deliver high-quality teaching and maintain learning at the desired level?
- RQ 2: What are the key findings in terms of teaching and learning of SEEU University during the pandemic period?

In addition to the initial research question, we raise the following question to address the future needs of the university in teaching and learning:

- RQ 3: Looking beyond the trend of the moment, how can new technologies really enhance learning and teaching?

By delving more into the data from student assessments, we will expound on the study questions in the section that follows.

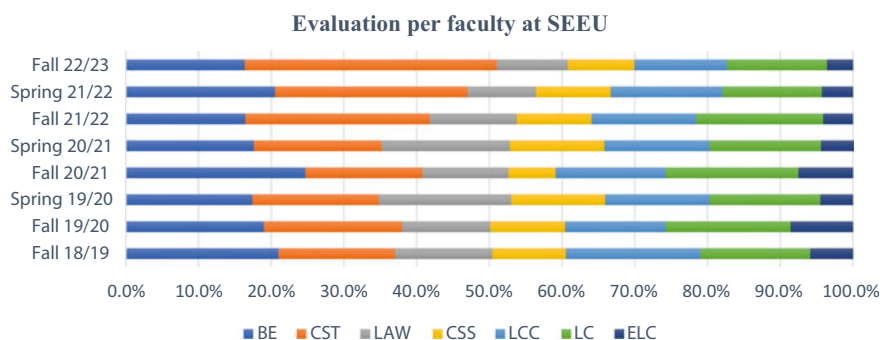
5 Findings

As mentioned in the previous section, the focus is on the student perspective for the academic year’s pre-COVID-19 2018/2019 (note: “Spring 18/19” evaluation not done), when the study was carried out face-to-face on campus on both semesters. Then in 2019/2020, the winter semester was on campus, starting on March 17, the summer semester shifted to online studies due to the COVID-19 lockdown. During the academic year 2020/2021, studies were conducted mostly online with a possibility for on campus during some weeks of the semester. Then the analysis continues for the semester 2021/2022 and onward when the studies went back face-to-face.

The analysis done here is using cumulative data to obtain average rating (on a scale 1–5, 5 being best) given by the students per course, per professor, and then that summarized per faculty and per degree. The evaluation consists of several questions but the ones that we are going to concentrate here and look at to answer the raised research questions are 4 in total: Google classroom professor–student interaction, the

Table 2 Total number of student evaluation responses throughout semesters

Faculties	Terms/ Metrics	Fall 18/19	Fall 19/20	Spring 19/20	Fall 20/21	Spring 20/21	Fall 21/22	Spring 21/22	Fall 22/23
SEEU*	N	1425	3188	2611	2267	4999	5125	711	5113
	%	100	100	100	100	100	100	100	100
BE	N	273	784	767	670	1039	873	131	738
	%	19.20	24.60	29.40	29.60	20.80	17.03	18.42	14.43
CST	N	345	602	494	386	1238	1436	250	1897
	%	24.20	18.90	18.90	17.00	24.70	28.02	35.16	37.10
LAW	N	257	355	318	297	698	621	62	549
	%	18.00	11.10	12.20	13.10	13.90	12.12	8.72	10.74
CSS	N	76	148	136	100	311	224	45	226
	%	5.30	4.60	5.20	4.40	6.20	4.37	6.33	4.42
LCC	N	219	368	267	258	648	553	90	362
	%	15.40	11.50	10.20	11.40	12.90	10.79	12.66	7.08
LC	N	195	728	530	415	982	1181	97	1123
	%	13.70	22.80	20.30	18.30	19.60	23.04	13.64	21.96
ELC	N	60	203	99	141	83	237	36	218
	%	4.20	6.40	3.80	6.20	1.70	4.62	5.06	4.26

**Fig. 1** Percentage of evaluations per faculty in overall number of evaluations

professor feedback to students on work done during course, overall course rating, and overall professor rating.

The first question that shows the student satisfaction about online learning is “The Instructor Interaction with students” which refers to online usage of Google Classroom to conduct professor–student interaction. As seen in Table 3, there is a drop in satisfaction from Fall 19/20 to Spring 19/20, which was the semester that the COVID-19 was spread in North Macedonia and the university moved to online studies, but then there is a rise in the student satisfaction from the Spring 19/20 to

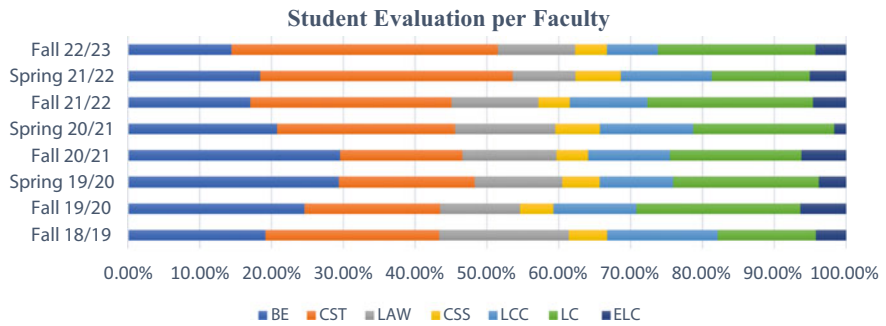


Fig. 2 Faculty evaluation percentage in overall university evaluations

Fall 20/21, and it continues to increase into Spring 20/21 in all the faculties and the centers, besides a small drop in LCC faculty.

To further visualize and support this finding, we use a chart (see Fig. 3), where the boxplot shows the gap between responders of different faculties and the average evaluation through the semester that are a matter of this study. In the chart, the drop in the rate of evaluation is seen in Spring 19/20, the crucial semester when the lockdown started. The fear of pandemics, the challenges that the students and the staff had to deliver the lectures, and at the same time the expectations clearly show discrepancy and lower evaluation results. The following terms of pandemics have improvements that are supported by more concise results and better average rate of evaluation on the topic of “instructor interaction with students”.

For the question “The instructor provided regular feedback on the assignments” (Table 4), BE, CST, and LC show a steady increase from one semester to the next, whereas LAW, CSS, and ELC show a fluctuation with as the previous question with a fall in the Spring 19/20 and then a rise again, whereas LCC has a better result in Spring 19/20 than the following semesters.

Table 3 Student evaluation responses on “the instructor interaction with students”

Faculties/ Terms	Fall 18/ 19	Fall 19/ 20	Spring 19/20	Fall 20/ 21	Spring 20/21	Fall 21/ 22	Spring 21/22	Fall 22/ 23
SEEU	4.56	4.70	4.57	4.61	4.65	4.69	4.62	4.64
BE	4.52	4.60	4.50	4.57	4.66	4.70	4.63	4.61
CST	4.35	4.60	4.48	4.43	4.52	4.56	4.55	4.55
LAW	4.61	4.80	4.54	4.67	4.76	4.71	4.90	4.79
CSS	4.70	4.80	4.55	4.63	4.63	4.69	4.69	4.64
LCC	4.68	4.70	4.72	4.67	4.63	4.74	4.40	4.64
LC	4.72	4.70	4.70	4.72	4.73	4.80	4.72	4.78
ELC	4.58	4.80	4.61	4.70	4.81	4.72	4.89	4.77

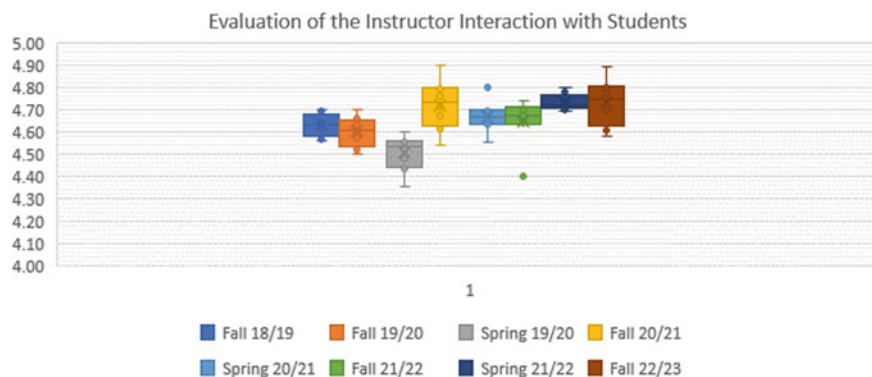


Fig. 3 Boxplot of student evaluation responses on “the instructor interaction with students” by semesters

Table 4 Student evaluation responses on “the instructor provided regular feedback on the assignments”

Faculties/ Terms	Fall 18/ 19	Fall 19/ 20	Spring 19/20	Fall 20/ 21	Spring 20/21	Fall 21/ 22	Spring 21/22	Fall 22/ 23
SEEU	4.34	4.50	4.48	4.57	4.61	4.61	4.47	4.51
BE	4.23	4.40	4.39	4.52	4.62	4.64	4.61	4.48
CST	4.01	4.40	4.44	4.44	4.49	4.44	4.23	4.39
LAW	4.49	4.70	4.45	4.71	4.79	4.66	4.90	4.73
CSS	4.67	4.70	4.50	4.70	4.61	4.68	4.62	4.58
LCC	4.49	4.60	4.53	4.51	4.52	4.66	4.32	4.56
LC	4.48	4.50	4.59	4.64	4.72	4.70	4.58	4.64
ELC	4.55	4.70	4.59	4.70	4.65	4.63	4.83	4.63

The next chart (Fig. 4) using the boxplot clearly shows the gap between responders of different faculties and the average evaluation through the semester that are a matter of this study. In the chart, the drop in rate of evaluation is seen again in Spring 19/20, the crucial semester when the lockdown started, which shows a bigger gap than the previous question evaluated. This question goes more to the preparation of staff and their ability to agilely approach the new assessment methods using online tools imposed by the lockdown. Following terms of pandemics, the staff showed improvements by organized training and guidelines on the matter of online assessment, which are therefore supported by more concise results and better average rate of evaluation.

The other question from the questionnaire that showed student satisfaction was the “overall course” rating. From the (Table 5), BE, LAW, LCC, and ELC again show the worst satisfaction in Spring 19/20 and then followed by better ratings, whereas CST, CSS, and LC are about the same with the other semesters. From all the faculties and

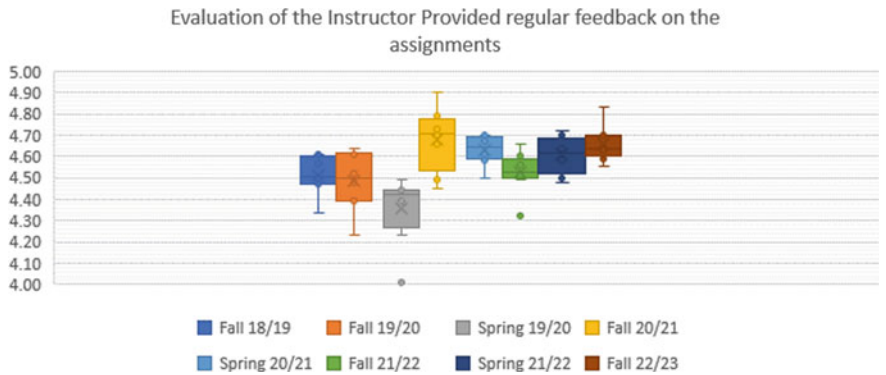


Fig. 4 Boxplot of student evaluation responses “the instructor provided regular feedback on the assignments” by semesters

centers, CSS shows decreasing satisfaction regarding overall course rating among the semesters.

In the next chart (Fig. 5), where through the boxplot we show the gap between responders of different faculties and the average evaluation through the semester on the question of “overall course content rating”. The drop in the rate of evaluation is seen in Spring 19/20, but not a huge gap as previous questions evaluated. This question goes more to the readiness of staff and their content sharing ability using online tools. There is a steady satisfaction rate on the matter of course content which is mainly because SEEU has been using LMS and other tools for more than 15 years, and in this case, this issue was not a major challenge for us.

The last question regarding the student satisfaction was the “overall instructor rating” (Table 6). Again, here we see that BE, CST, LAW, CSS, and ELC show less satisfaction in Spring 19/20 than the other semesters. LCC and LC are better in spring than in the following semesters.

Table 5 Student evaluation responses on “overall course content rating”

Faculties/ Terms	Fall 18/ 19	Fall 19/ 20	Spring 19/20	Fall 20/ 21	Spring 20/21	Fall 21/ 22	Spring 21/22	Fall 22/ 23
SEEU	4.45	4.60	4.49	4.55	4.60	4.60	4.57	4.50
BE	4.37	4.50	4.40	4.47	4.58	4.59	4.58	4.47
CST	4.19	4.40	4.39	4.40	4.45	4.50	4.47	4.57
LAW	4.53	4.70	4.48	4.64	4.75	4.64	4.84	4.71
CSS	4.80	4.70	4.69	4.70	4.65	4.65	4.73	4.57
LCC	4.61	4.60	4.52	4.59	4.61	4.68	4.31	4.53
LC	4.57	4.50	4.63	4.67	4.68	4.67	4.70	4.64
ELC	4.63	4.70	4.54	4.65	4.72	4.65	4.81	4.63

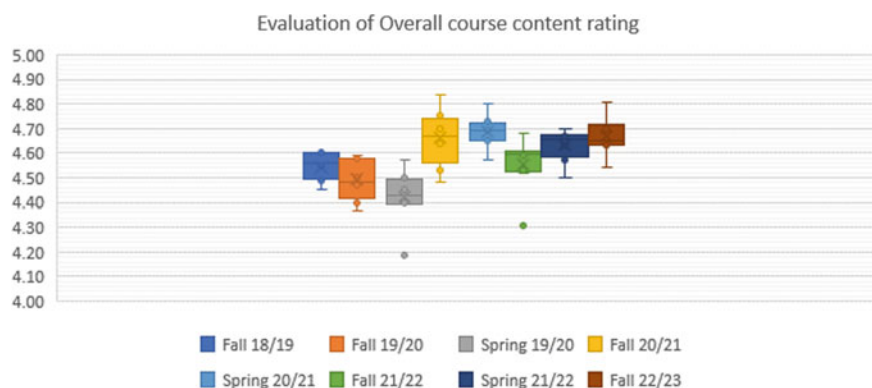


Fig. 5 Boxplot of student evaluation responses on “overall course content rating” by semesters

Table 6 Student evaluation responses on “overall instructor rating”

Faculties/ Terms	Fall 18/ 19	Fall 19/ 20	Spring 19/20	Fall 20/ 21	Spring 20/21	Fall 21/ 22	Spring 21/22	Fall 22/ 23
SEEU	4.51	4.70	4.57	4.61	4.64	4.68	4.58	4.60
BE	4.46	4.60	4.47	4.53	4.64	4.67	4.65	4.56
CST	4.19	4.50	4.46	4.48	4.50	4.52	4.43	4.46
LAW	4.66	4.80	4.60	4.69	4.78	4.70	4.89	4.78
CSS	4.84	4.80	4.71	4.76	4.68	4.74	4.76	4.61
LCC	4.64	4.70	4.66	4.60	4.65	4.75	4.34	4.66
LC	4.65	4.70	4.71	4.70	4.73	4.78	4.63	4.76
ELC	4.67	4.80	4.70	4.78	4.75	4.77	4.92	4.72

Once more, in the last chart (Fig. 6), we better visualize the gap between responders of different faculties and the average evaluation through the semester on the question of “overall instructor rating”. The average movement throughout the semesters does not show a significant drop in the rate of evaluating instructors, which is encouraging since the staff, according to this data, did the job correctly and as they are supposed to. But there is a huge gap among faculties on what they consider a good instruction, with emphasis on the lockdown period, and this is a matter of study to see if it must do anything with the staff ability to use digital tools to deliver the lecture in the best possible way. Still, at the end, this gap is further reduced, and the last spring semester clearly shows this.

The above findings give an answer to our initial research question “Did we manage to deliver high-quality teaching and maintain learning at the desired level?” SEEU did manage to deliver high-quality teaching and learning which is supported by the data in previous tables. The challenges of pandemics seem to have impacted at large the lockdown period of Spring 19/20 semester, but improvements are seen immediately in the following semesters. The next research question was to see whether this is the

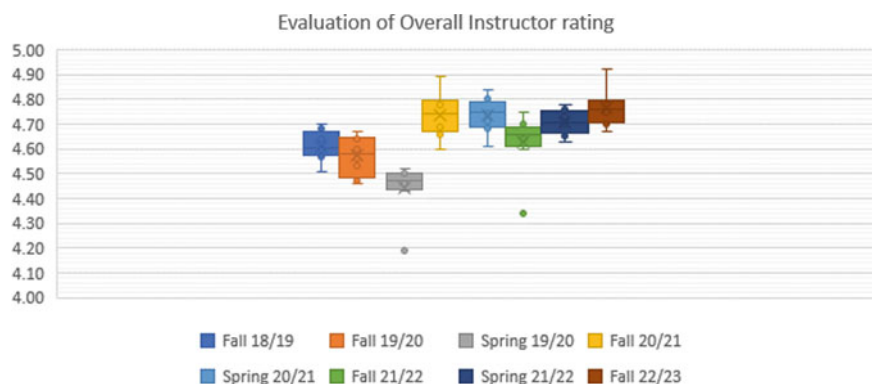


Fig. 6 Boxplot of student evaluation responses on “overall instructor rating” by semesters

desired level of delivery, and based on the student evaluation, we are pleased that SEE University did continue to deliver high-quality instruction and maintain learning at the desired level, with a slight decline in the Spring of 19/20 that shocked the entire society, let alone the teaching.

6 Conclusions

Being on point during immediate disruption of the educational process because of pandemic lockdowns was our main concern. The management had to take a series of actions to ensure a continuous, inclusive, and collaborative teaching process. The long history of digitalization at the university was a key factor when in the Spring 2020 semester they had to move to mandatory online learning. Fortunately, 20 years of experience in using E-mail communication, file sharing later substituted by a Learning Management Systems made the transition fast and easy, immediately the next day. The data shown earlier in the paper supports the fact that the university decisions were on point and on time. The slight decline in the evaluation of students during Spring 2020 was anticipated because the fear of the unknown and uncertainty had its desired effect.

The other period, including the Fall 2020 and Spring 2021 semesters, the university had the time needed to prepare for the online and hybrid teaching process. Therefore, a series of training related to digital content, course organization, use of LMS (Google Classroom) for assessment and interaction, digital HD cameras, and additional equipment upgrade were going toward improvements. The data shown earlier in the paper supports this fact that following the first lockdown and slight decline in the evaluation of courses by students, the respective semester did have improvements in ratings as seen from the perspective of students. SEEU did manage to deliver high-quality teaching and learning which is supported by the data in previous tables.

SEEU's practice showed that moving to online teaching and leveraging IT to deliver lectures was immediate and without major issues. The future needs of the university in teaching and learning are focused on looking beyond the trend of the moment and focusing on new technologies that are available out there and that can support learning and teaching. We are looking for detailed opportunities to enable online interactive assessment through digital means, to move beyond classical pen and paper exams into more self-guided learning and online examination. The pool of available resources for this digital learning and digital transformation is enormous; therefore, best practices are welcomed to assist us and other universities on future trends.

Based on the findings of this study, it can be concluded that high-quality teaching can be delivered, and learning can be maintained at a desired level even amid a pandemic, if institutions adopt effective technologies and teaching methods. The study found that online learners gain the same amount of knowledge as those taking traditional on-site classes, and they are just as happy with the curriculum and instructors. Moreover, the findings suggest that technology adoption in the classroom as a tool to improve student learning and student happiness remains a key benefit in the post-pandemic era.

Institutions should spend money on staff and student training and resources to help them become more proficient and confident users of online and blended learning tools, since this is a recommendation for future research and practice in the field. The study also emphasizes the necessity for universities to set up efficient support systems for online students, including technical assistance and accessibility to learning resources.

In conclusion, this study provides a helpful road map for future research and practice in the area of online and blended learning as institutions continue to navigate the difficulties of the epidemic and the changing higher education landscape.

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Measuring the Acceptance and Fitness of Digital Mailing System Usage in University Environment



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and Muthya Rahmi Darmansyah

Abstract The usage of ICT in university is commonly to be found recently. For instance, the traditional means of mailing process has been shifting into a digital way. As a new method of mailing, SUSITAO was built to assist the academic community to communicate more efficient and quickly deliver the messages. Nevertheless, the acceptance and technology fit for the task are necessary to be explore. The study scrutinizes the acceptance and fitness of the digital mailing system by combining the technology acceptance model and task-technology fit. The variable used are perceived usefulness, perceived ease of use, attitude, behavioral intention, task-technology fit, and actual use. The result found that usefulness is the strongest variable among others. However, task-technology fit is only affecting the acceptance predictor. The theoretical and practical implications are presented and discussed further.

Keywords Digital mailing system · Technology acceptance model · Task-technology fit · Technology usage · University

1 Introduction

Nowadays, Information and Communication Technology (ICT) roles as the “treasure” in many sectors. The rapidness and handiness of this technology drive the community to depend on it. The usage of ICT neglected the users’ age, gender, educational level, and even economic level. The usage is often proven to increase the

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effectiveness and ease of doing various exertions (Nikoloski, 2014). ICT has accurate in processing; it also has larger storage capacity and in rapid accessibility rather than traditional ways. Besides, ICT proposes vast communication around the globe among massive users (Sharma & Nagpal, 2021). Moreover, ICT offers a great impact on sustainability in an organization or institution. In higher education institutions, ICT becomes an aid in the continuity of the teaching and learning process, academic and non-academic administrative matters, long-distance communication media, and extensive information facilities (Sutrisno et al., 2021). Additionally, the use of ICT in a higher education institution is also able to increase knowledge acquisition, improve communication quality, and make better decisions for the stakeholder (Isaac et al., 2017). As one of the academic administrative activities, the mailing is an assignment that is performed in an organization or institution, especially higher education institutions. In this case, there are a usually large number of letters sent and received by the administration; consequently, it takes time and much effort using a manual or traditional system (Farell et al., 2018). Hence, a robust mailing administration system is crucial in considering the important role of mailing in an institution. The word “robust” must-have advantages such as being more structured, having a large storage capacity, and being able to run online, in order to speed up the creation of letters, namely the correspondence application (Agboje & Momoh, 2019).

As one of the largest private universities in Medan, Indonesia, Universitas Medan Area (UMA) has developed ICT implementation in the learning process and administration services by providing 46 software applications (Sutrisno et al., 2021). One of the known applications is called as the SUSITAO, a digital-based mailing application that is useful for minimizing paper use in the campus environment. In addition, this application has the advantage of its speed in sending letters. The SUSITAO is usually employed for all employees, the functionaries in campus environment from sending letters, validating mail by leaders, and receiving incoming letters. Besides its ability to support a higher education institution, several things need to be considered in the application of ICT itself. The architecture of the IT infrastructure and the quality of IT service management are very important to pay attention to from the supervisor or policymakers (Hermanto & Supangat, 2018). In addition, users’ acceptance is quite pivotal in the use of technology. Acceptance or rejection from users is very important. Given that, technology is impossible to design or build if there is no interest from its users (Marangunić & Granić, 2015). As stated by Mallya and Lakshminarayanan (2017), the implementation of ICT on a campus or higher education institution must be in line with the acceptance of its users to achieve the maximum utilization. The acceptance of the application of ICT can be influenced by several factors such as attitudes, behavior, ease of use, and perceived usefulness. Furthermore, Isaac et al. (2017) also stated that the use of ICT will be successful in a higher education institution by increasing awareness of its usefulness to users. In other words, with a high level of acceptance from users in using ICT, it will encourage the successful implementation of ICT. However, some researchers do not just stop at the acceptance of technology to illustrate that it runs optimally. There is one other important thing that plays an important role in the application of ICT, namely the suitability or fitness of the technology used in a certain task. An appropriate or suitable technology for a

particular activity for users must be able to improve their performance and be additional support for them (Howard & Rose, 2019). Thus, a technology without a fit is just a design mismatch. This is in line with Cheng (2019), namely the suitability of an ICT product is very influential on the level of utilization.

Furthermore, Isaac et al. (2017) also stated the similar thing. The application of an IT product cannot be separated from the suitability of the technology used with the work carried out by its users. Therefore, the acceptance and fitness of technology are important from the user aspect. Technology with no compatibility to the task brings up the resistance from users and makes it possible to be not utilized optimally. Hence, it can be concluded that the acceptance and fitness of technology are things that need to be considered in the use of technology in a higher education institution.

The capabilities and advantages of SUSITAO must be accepted and suitable by its users, which in this case are employees. The availability of a digital mailing system in a university environment offers substantial impacts on academic administrative activities including the rapidness and precision of the correspondence process. Yet, the acceptance and fitness of this technology are essential to be deliberated to ensure its maximum usage.

2 Literature Review

2.1 *Digital Mailing System*

The Internet provides a new architecture for building applications that anyone can access across enormous number of computers. Over the past few years, web services have established themselves as an important prototype in the development of applications and business processes for future integration of heterogeneous applications. Internet is based on open standards and focuses on communication and collaboration between people and applications (Eteng et al., 2017). The role of ICT and the Internet brings the development of vast communication among users, electric mail (Email) for instance. The information was spread constantly shifting from paper to electronic form where online communication tools are necessary (Aswathy & Devi, 2018). Besides, the digital mailing system is also the part of the development of communication technology. The existence of a system that maintains efficient communication in a company or institution is necessary.

In a campus environment, the communication is built between the employees and the academic functionaries to keep them notified of the status of the resources in the university environment so that they could plan the activities or demand urgent actions as per his/her need. A mailing system has been designed to automate the notifications among employees and academic functionaries. It allows its cloud-based platform for developing and administering the mailing system. By the means of a digital mailing system, the process of notification was executed smoothly, powered by an approval system helped to save a lot of time and a simpler process (Chaturvedi, 2020). As

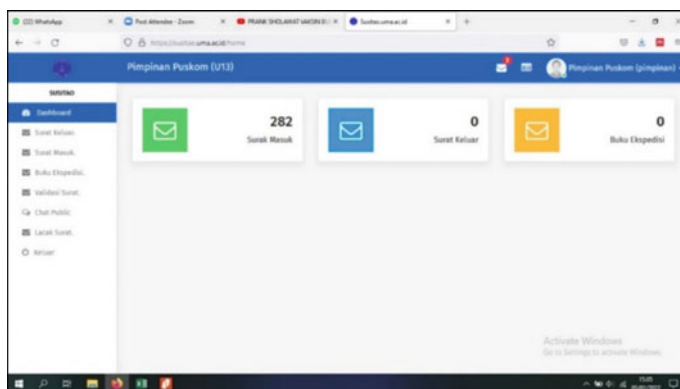


Fig. 1 SUSITAO software application

referred to the Total Quality Management (TQM), service quality is an important part of enabling organizations to prevail in rapid environmental changes and increased awareness of consumers (Al-Maamari et al., 2017). In this case, a university provides beneficial management to improve all departments and processes and create a new organizational culture endorsed by the stakeholders in terms of values, systems, and administrative style (Msallam et al., 2020). In the TQM dimension, an institution emphasizes the importance of employees' role in activating and achieving certain organizational goals. A comprehensive effort is required to strengthen and retain employees. Starting with recruitment, training, and development become the attribution to the human side of the organization depends on achieving its goals (Hamoud & Al-Sheikh, 2010) (Fig. 1).

SUSITAO is a product of software application that serves the mailing process among employees and academic functionaries in UMA. The emergence of the application aims to impede the amount of paper used in the campus neighborhood. This application offers a smooth mailing mechanism by utilizing the Internet as the bridge, computer server as the storage, with a paperless procedure, and ability to perform on many platforms. SUSITAO also offers security of the mails by providing straight authentication to access the system. Hence, the system assures the users privacy in clandestine way.

2.2 Technology Acceptance Model

The technology acceptance model (TAM) is a popular method to dealing kind of technology acceptance field in general. TAM offers a conclusive model for facilitating assessment of diverse learning technologies (Granić & Marangunić, 2019). TAM by the researchers is claimed as the powerful means to learn the technology acceptance in educational sector rather than other theoretical models (Al-Qaysi et al., 2020).

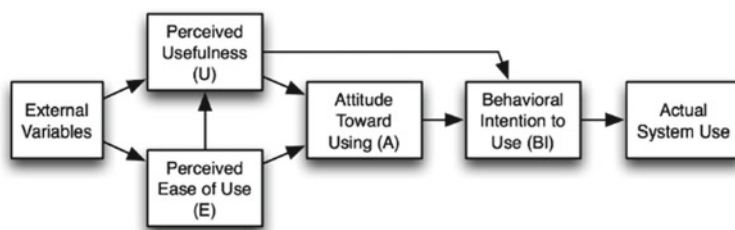


Fig. 2 TAM model (Davis, 1989)

The theory speaks of that there are two particular variables that are affected by external and system-specific factors, namely perceived usefulness and perceived ease of use. Then, those variables are used to predict the attitude toward using a technology. Moreover, the attitude itself influences the behavioral intention to use a certain technology, which, in turn, predicts the actual system use (Salloum et al., 2019). The TAM model is shown in Fig. 2.

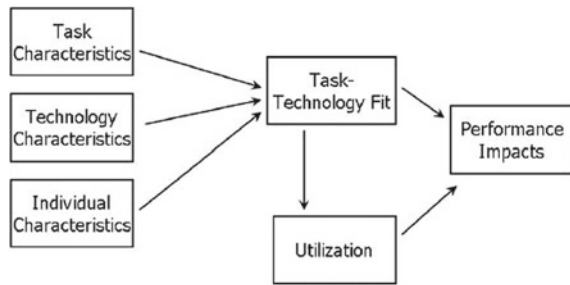
Perceived usefulness (PU) interprets the users perceive that technology to be useful for what they want to do. Then, the variable of perceived ease of use (PE) expresses the users believe that certain technology drives them to minimize the endeavor in doing tasks. These two constructs act as the influencing factor to the attitude toward using (AT), which is the variable that explains the user's positive or negative feelings toward the technology. However, Barzakar et al. (2019) stated that only PU has a significant impact on the AT, while there is no significant effect of PE on AT. This is in line with Brandon-Jones and Kauppi (2018). The study revealed that AT is only affected by PU, while PU also contributes to the behavioral intention to use (BI) along with AT. In the same way, Diop et al. (2019) also stated that PU and AT are positively affected the BI, while PE has a positive impact on PU. Similarly, Weng et al. (2018) stated that AT is a factor affecting BI to use technology.

Moreover, according to Ahmed et al. (2018), perceived ease of technology use (PE) will be positively associated with its perceived usefulness (PU), while PU directly affects the actual system use (US). On the other hand, Martono et al. (2020) confirmed that both PU and PE are affecting the BI, which is defined as the degree of users' intention to perform a certain technology. Moreover, BI is influencing the actual system use (US) (Fearnley & Amora, 2020), which is measured by the accumulated amount of time users spent interacting with technology.

2.3 Task-Technology Fit

The task-technology fit (TTF) was firstly introduced by Goodhue and Thompson (1995) and used to explain how technology affects an individual's task and improves his/her performance when the IT fits for them. In other words, a suitable technology

Fig. 3 Task-technology fit model (Goodhue & Thompson, 1995)



for the users’ task is able to increase their performance and becomes additional support for them (Fig. 3).

The model explains that task-technology fit (TTF) is affecting the utilization (US) and performance impact (PI). TTF is described as how far technology endorses an individual’s work in order to accomplish a certain task. Similar to the TAM model, utilization (US) refers to the intensity of the technology used by users and the advantages gained from using a system. On the other hand, PI is defined as the achievement of a task by an individual regarding effectiveness, productivity, and performance in their job (D’Ambra et al., 2013; Goodhue & Thompson, 1995). Notwithstanding, several researchers debated the relationship among variables in the model. Both TTF and TAM models have been tested for various purposes with the heterogeneous connection among variables. According to Vanduhe et al., (2020), TTF is acted as the external variable for the TAM model. The study proposed that TTF only has a significant impact on PE. In contrast, Pal and Patra (2021) suggested that both PE and PU are affected by TTF. Moreover, Gangwar (2020) revealed that PE and PU are the moderating variables between TTF and US. Meanwhile, Navarro et al. (2021) stated that the variable BI of TAM model is influenced by TTF.

2.4 Hypothesis Development and Framework

Dealing with the SUSITAO acceptance and fitness, the study employs both mix of TAM and TTF models. The combination between TAM and TTF model brings a sharpened assess the variation in technology use. Both models give the wider explanation how the users’ behavior is on certain technology and is able to measure its suitable to user’s task (Ajayi et al., 2017). Researchers inspect how each variable from the models is affecting others. PU is proposed as the construct that is influencing AT (Barzekar et al., 2019; Brandon-Jones & Kauppi, 2018), BI (Diop et al., 2019; Martono et al., 2020), and US (Ahmed et al., 2018). Furthermore, PE is arranged as the construct is that influencing PU (Diop et al., 2019) and BI (Martono et al., 2020). In terms of attitude, variable AT has a positive impact on BI (Diop et al., 2019; Weng et al., 2018). Moreover, the construct BI is proposed as the factor that explains the US (Fearnley & Amora, 2020). TTF acts the external variable of TAM model. Both

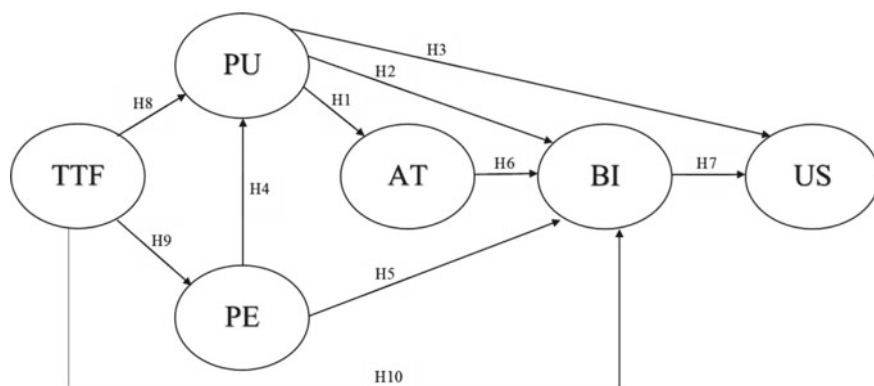


Fig. 4 Research framework

constructs of PE and PU (Gangwar, 2020; Pal & Patra, 2021; Vanduhe et al., 2020) are explained by TTF. Then, TTF is also proposed to be predictor of BI (Navarro et al., 2021). From these perspectives, the study suggested the following:

- H1:** PU has a positive impact on AT to use SUSITAO.
- H2:** PU has a positive impact on BI to use SUSITAO.
- H3:** PU has a positive impact on US of SUSITAO.
- H4:** PE has a positive impact on PU of SUSITAO.
- H5:** PE has a positive impact on BI to use SUSITAO.
- H6:** AT has a positive impact on BI to use SUSITAO.
- H7:** BI has a positive impact on US to use SUSITAO.
- H8:** TTF has a positive impact on PU of SUSITAO.
- H9:** TTF has a positive impact on PE to use SUSITAO.
- H10:** TTF has a positive impact on BI to use SUSITAO.

The study proposed ten hypotheses, and their relationship within the framework has been gathered from the previous studies. The research framework is shown in Fig. 4.

3 Methodology

3.1 Population and Sample

The study explores the utilization of a digital mailing system in the campus environment. The application was built for employees and academic functionaries to become the support for mailing purposes. The total population of the study are involving all the users of the SUSITAO application, i.e., as many as 155 users that spread all over the department and faculty. However, due to the relatively small population (Etikan

et al., 2016), the study uses the total population sampling method, in which the entire population is selected as the sample.

3.2 Research Instrument

The study adopted the instruments from several researches with total of 19 items. In the first section of the questionnaire, respondents are requested to share their demographic information, including gender, age, and working experience. Then, the next section of the instrument consisted of six parts, so as to examine responses on six constructs from the framework. Participants were asked several questions from each item of the questionnaire based on the Likert-type scale (1–5), namely strongly disagree, disagree, neutral, agree, and strongly agree. Table 1 shows all of the questionnaire items.

Table 1 Items in questionnaire

Construct	Item	Indicators	Sources
PU	PU1	Improve the performance	Sukendro et al., (2020)
	PU2	Increase the productivity	
	PU3	Effectiveness	
PE	PE1	SUSITAO makes task easier	Ishfaq and Mengxing (2021)
	PE2	SUSITAO is easy to learn	
	PE3	SUSITAO is easy to use	
AT	AT1	Using SUSITAO is a good idea	Ishfaq and Mengxing (2021)
	AT2	Using SUSITAO is convenient	
	AT3	Using SUSITAO is valuable	
BI	BI1	I intend to use SUSITAO services, when I was given the access	Kamal et al., (2020)
	BI2	I would gladly use SUSITAO services	
	BI3	I intend on informing my relatives and friends about SUSITAO	
US	US1	I use the SUSITAO frequently	Mezhuyev et al., (2019)
	US2	I use the SUSITAO in daily practice	
	US3	My commitment to the SUSITAO is high	
TTF	TTF1	Necessary for mailing process	Isaac et al., (2019)
	TTF2	Fits for mailing process	
	TTF3	Relevance for mailing process	

4 Findings and Discussion

The research employs the structure equation model (SEM) as the data analysis technique to test the hypotheses in the proposed framework. The method runs split in two steps, namely measurement models and structural models (Hair et al., 2010). Besides, respondents' demographic overview and descriptive analysis are determined at the first of procedure. SEM is analyzing the goodness-of-fit model along with validity and reliability of the measurement model through the confirmatory factor analysis (CFA). Then, the path coefficient is employed to test the proposed hypothesis as the structural models in the second step along with determine the value of R^2 . Table 2 draws the overview of respondents' demographic.

Table 2 illustrates that most of the respondents are male (70.3%) with a total of 109 participants, while 46 of them are female (29.7%). More than half of respondents (61.3%) are young age employees with 95 participants and then, followed by a range age of 31–40 years old with a total of 31 respondents (20%). Older respondents are minor, with a total of 15 participants (9.7%) from 41 to 50 years old and 14 (9.5%) of them are more than 50 years old.

In terms of working experience, majority of respondents came from relatively new employees, namely those who have worked for 1–3 years (34.8%) and up to 5 years (26.5%). This is proportional to the number of respondents who have worked more than 9 years (27.1%). Besides, total of nine (5.8%) respondents claimed that they have been working for 5–7 years. The same thing comes from participants who have worked for 7–9 years with total of nine respondents (5.8%).

Table 2 Respondents' demographic

Demographic item	Category	Frequency	Percentage (%)
Gender	Male	109	70.3
	Female	46	29.7
Age	21–30 years old	95	61.3
	31–40 years old	31	20.0
	41–50 years old	15	9.7
	More than 50 years old	14	9.0
Working experience	1–3 years	54	34.8
	3–5 years	41	26.5
	5–7 years	9	5.8
	7–9 years	9	5.8
	More than 9 years	42	27.1

Table 3 Summary of goodness-of-fit indices

Goodness-of-Fit Indices	Cutoff Value	Result
DF	>0	125
Chi-square (χ^2)	< α . DF	306.476
CMIN/DF	<2	2.975
AGFI	≥ 0.90	0.964
CFI	≥ 0.90	0.907
GFI	≥ 0.90	0.977
IFI	≥ 0.90	0.908
NFI	≥ 0.90	0.967
RMSEA	≤ 0.08	0.013
Goodness-of-fit indices	Cutoff value	Result
DF	>0	125

4.1 Measurement Model

Cronbach's alpha is advised for testing the reliability of the Likert scale to assess the internal consistency of the variables when the Likert scale is used. The study firstly employs CFA to test the relationships between different constructs in the model. CFA process starts to determine the fit measurement model and then estimate the validity and reliability of the measurement model. The study arranges certain criteria to measure the compatibility between the hypothesized model and the observed covariance matrix, including chi-square (χ^2), CMIN/DF (normed chi-square), adjusted goodness fit of index (AGFI), comparative fit index (CFI), goodness fit index (GFI), incremental fit index (IFI), normed fit index (NFI), and root mean square error of approximation (RMSEA) (Hair et al., 2010). Table 3 shows the requirements for fit model criteria.

Based on Table 3, each criterion of the measurement of model fit (i.e., goodness-of-fit) has passed its threshold value. Thus, the model has met the recommended levels and the structural model provided a good fit for the data.

4.2 Validity and Reliability

Validity of the instrument is determined by comparing the square root value of average variance extracted (AVE), while its reliability checked through the construct reliability (CR). According to Hair et al. (2010), a good CR value should have greater value or equal to 0.70, whereas AVE value is greater than 0.5.

Cronbach alpha test in the research was performed for the each variable and resulting a good level of reliability ($\alpha > 0.80$). The model assessment is listed in Table 4.

Table 4 Validity and reliability of items

Construct	Item	Standardized Loading	Construct reliability (CR)	Average variance extracted (AVE)
PU ($\alpha = 0.813$)	PU1	0.796	0.725583	0.887701
	PU2	0.917		
	PU3	0.838		
PE ($\alpha = 0.888$)	PE1	0.763	0.755309	0.901912
	PE2	0.926		
	PE3	0.909		
AT ($\alpha = 0.859$)	AT1	0.889	0.716542	0.882973
	AT2	0.885		
	AT3	0.759		
BI ($\alpha = 0.870$)	BI1	0.887	0.746989	0.898491
	BI2	0.871		
	BI3	0.834		
US ($\alpha = 0.915$)	US1	0.809	0.797254	0.921559
	US2	0.936		
	US3	0.928		
TTF ($\alpha = 0.905$)	TTF1	0.864	0.797254	0.921559
	TTF2	0.870		
	TTF3	0.881		

Table 4 shows that each item has the factor loading value greater than 0.5, each construct has the CR values greater than 0.7, and the AVE values are more than 0.5 for every construct. Additionally, a suitable of AVE value should come with proper coefficient correlation value among variables (<0.90). Table 5 depicts that the sufficient validity of instrument with correlation score among variables is below than 0.90.

Table 5 Correlation among constructs

	PU	PE	AT	BI	US	TTF
PU	1	0.789**	0.765**	0.804**	0.749**	0.844**
PE		1	0.784**	0.734**	0.666**	0.696**
AT			1	0.794**	0.724**	0.700**
BI				1	0.749**	0.774**
US					1	0.719**
TTF						1

Double asterisk means that is a strong correlation

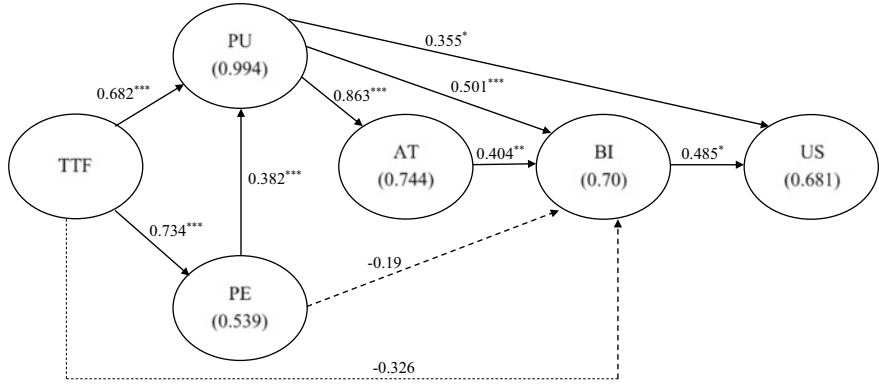


Fig. 5 Path analysis

The study employs the structural model to determine the value of R^2 , which is used to explain the amount of variance explained by the independent variable. In addition, the study also expresses the path coefficient estimates to describe the strength of the relationship between the dependent and independent variables. Figure 5 shows the value of R^2 and the resulting path coefficients of the proposed research model.

As illustrated in Fig. 5, perceived usefulness is found to be significantly determined by the task-technology fit and perceived ease of use with the R^2 value of 0.994. Thus, both variables explain almost variance in the perceived usefulness (99.4%). Besides, the figure also shows that the variable of perceived ease of use significantly determined by the task-technology fit with the R^2 value of 0.539 and explains 53.9% of the variance in the perceived ease of use. Likewise, the variable of perceived usefulness appears to determine the attitude toward using with the R^2 value of 0.744. So, it can be concluded that perceived usefulness explains the attitude about 74.4% of the variance. According to Fig. 5, behavioral intention appears to be explained by task-technology fit, attitude toward using, perceived ease of use, and perceived usefulness ($R^2 = 0.70$). Hence, it is found that all mentioned variables explain 70% of the variance in the behavioral intention. Lastly, the actual use variable has an R^2 value of as much as 0.681. In other word, variables of behavioral intention and perceived usefulness explain 68.1% of the variance in the actual use. The paper summarizes the hypotheses testing results of the standardized path coefficients and path significances in Table 6.

Hypotheses 1 to 7 address the relationship in the TAM, which is related to perceived usefulness, perceived ease of use, attitude, behavioral intention, attitude, and actual use, and all except Hypothesis 3 are supported. The result expresses that perceived ease of use has no significant effect on behavioral intention to use, which is contrary to a previous study by Martono et al. (2020); behavioral intention to use is supposed to be impacted by perceived ease of use. Despite SUSITAO being able to reduce their effort to perform a certain task, users have a low intention to use that application. Moreover, hypotheses 8 to 10 address the relationship between TAM

Table 6 Hypothesis test result

Hypothesis	Relationship	Path coefficient	p-value	Support
H1	PU → AT	0.863	***	Yes
H2	PU → BI	0.501	***	Yes
H3	PU → US	0.355	0.046*	Yes
H4	PE → PU	0.382	***	Yes
H5	PE → BI	-0.19	0.287	No
H6	AT → BI	0.404	0.002**	Yes
H7	BI → US	0.485	0.012*	Yes
H8	TTF → PU	0.682	***	Yes
H9	TTF → PE	0.734	***	Yes
H10	TTF → BI	-0.326	0.452	No

Notes $p^* < 0.05$; $p^{**} < 0.01$; $p^{***} < 0.001$

and TTF, which is related to perceived usefulness, perceived ease of use, and behavioral intention. Hypothesis 10 is rejected; task-technology fit has no significant effect on behavioral intention to use. Even though the technology is suitable for mailing purposes, users are unwilling to use SUSITAO. Yet, the findings posit that the other two hypotheses are accepted.

4.3 Discussion

The result of the study pointed out that the task-technology fit is positively affecting both perceived usefulness and perceived ease of use of SUSITAO. Users assume that a fit technology to their tasks may bring easiness to use it. Additionally, the compatibility of SUSITAO to perform the mailing process presents benefits to users. Again, the task-technology fit is relevant to become the extended variable of the TAM model as claimed by other studies (Gangwar, 2020; Pal & Patra, 2021; Vanduhe et al., 2020). However, the study has not found any effect of task-technology fit on users' behavioral intention to use SUSITAO. In this case, users' intention is not affected by the technology compatibility to mailing process. The research declares that the behavioral intention to use the technology is affected by both perceived usefulness and attitude. This is in line with the previous studies (Diop et al., 2019; Martono et al., 2020; Weng et al., 2018). Users have a positive attitude toward the SUSITAO application. They claimed that the application is gratifying; it becomes an aid for them in the mailing process digitally and drives their intention to use it. SUSITAO's usefulness also brings them to expect that technology to be utilized. In other words, the intention to use the application will be increased if the users perceived the effectiveness. Besides affecting the intention, perceived usefulness is

also found to have an impact on the attitude itself that is to be in accordance with other studies (Barzekar et al., 2019; Brandon-Jones & Kauppi, 2018).

Furthermore, the study also reveals that perceived usefulness and user's intention are affecting the actual use of SUSITAO. The result is in line with the previous study (Ahmed et al., 2018; Fearnley & Amora, 2020). The high intention of users leads to the high intensity of the application use. Nevertheless, perceived usefulness has still become the key of the model.

It plays the role to influencing the actual use of the technology. To be specific, users will use SUSITAO if the application is able to improve their performance and productivity in the mailing process. Despite perceived usefulness and perceived ease of use which are important factors that influence one's acceptance upon a new system (Rahmat, 2019), the perceived ease of use is only affecting the perceived usefulness which is similar to Diop et al. (2019). The study expressed that perceived ease of use has no effect to the users' intention to use the SUSITAO. To put it another way, even though SUSITAO is easy to be utilize, yet is not establish the users intend to use the application.

5 Conclusions

The acceptance and fit of technology use are the factors to be emphasized in developing a software application, especially a digital mailing system. Transformation of the traditional way into a technology-based mechanism surely will face several barriers (Loonam et al., 2018). Users should have skills or knowledge to apply the "ICT things", also positive attitude toward them. Likewise, it also brings a myriad of efficiency gains in the operations (Westerman et al., 2019). A digital mailing system offers the vast storage and structure of mailing process in a rapid way. The study proposed that the usefulness of a system is the most significant factor to affecting the attitude, the behavior, and the usage. However, technology fit for the mailing process does not have any effect on the users' behavior instead it is influencing the system's acceptance.

5.1 Implications

The study examines the acceptance and fitness of a digital mailing system. Perceived usefulness and perceived ease of use are the constructs to explain the acceptance, whereas the task-technology fit acted as the technology fit's contributor. The result accounts the perceived usefulness as the strongest construct to affecting the others, including attitude, behavioral, and actual usage of the system.

Perceived usefulness describes the extent to which an individual believes that using technology will improve his or her job performance. In other words, the more useful a technology is, the more users will want to use it. Administratively, SUSITAO offers

potential benefits to its users that drives the mailing process can be managed effectively through enabling technology. From the research results, users find SUSITAO useful, so this increases their level of intention to use it. The perception of utility directly affects the intention to try and actually use the SUSITAO system.

Furthermore, users feel the benefits, then it brings the user to have positive attitude toward the system. In contrast, the users are not considering the perceived ease of use as the booster to use the system. Despite the system is easy to use, it does not lead the user to intend to utilize the system. Thus, regarding the acceptance, a digital mailing system should focus on the usability rather than the easiness.

In terms of the fitness of the technology, the study pointed out that task-technology fit is only affecting on the acceptance but not the intention to use it. Task-technology fit describes the extent to which technology assists an individual in performing his or her tasks. If the technology is reckoning to be a booster for doing certain tasks, then it brings users to consider the technology is simply and useful. The study pointed out that SUSITAO proved to be suitable for mailing process digitally. The fitness of SUSITAO directly affects the easiness and usefulness. Hence, the development of a digital mailing system should emphasize to the fit between the task and the technology used. SUSITAO is one of the software applications that used to elaborate the administration activity. The study proposes that the usefulness and fitness of technology use is the significant issue to be highlighted in case of developing similar software application.

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