
THE ECONOMIC COSTS OF YOUTH UNEMPLOYMENT IN NORTH MACEDONIA

Daniela Bojadjieva

University “Ss. Cyril and Methodius”-Faculty of Economics – Skopje, Republic of North Macedonia,
danielam@eccf.ukim.edu.mk

Predrag Trpeski

University “Ss. Cyril and Methodius”-Faculty of Economics – Skopje, Republic of North Macedonia,
predrag.trpeski@eccf.ukim.edu.mk

Gunter Merdzan

University “Ss. Cyril and Methodius”-Faculty of Economics – Skopje, Republic of North Macedonia,
gjunter.merdzan@eccf.ukim.edu.mk

Abstract: Youth unemployment is an issue that seriously concerns many countries, both developed and developing countries. Youth unemployment rates (as % total labor force ages 15-24) in North Macedonia is (36.9% in 2020), and despite recent improvements in labor market indicators, it has remained relatively high in comparison with the rest of Western Balkans countries (35.08% in 2020) and the EU average level (14.4% in 2019).

High youth unemployment and inactivity provoke many negative consequences both for young individuals and for the whole society. For young people the long-term unemployment status negatively affects their prospects to find decent jobs, increase the social exclusion by losing of their skills and qualifications; and have negative impact on health status. For society the costs of youth unemployment and inactivity include higher fiscal costs due to unemployment benefits, forgone earnings, and taxes; increase poverty and income inequality; and reduce the aggregate consumption. Also, the high rates of youth unemployment provoke migration process of young population from a country, which may jeopardize the prospects of country's future economic growth.

Facing with the problem of high youth unemployment rates, in the several past years, North Macedonia have proposed and implemented different policies and measures to decrease the youth unemployment rates (National Youth Strategy 2016-2025, Youth Employment Action Plan 2016-2020, Youth Guarantee plan (2020-2022, and etc). In that context, North Macedonia was the first country, outside from the European Union, that has implemented the Youth Guarantee program in 2018, as a pilot project. And since 2019, the Youth Guarantee program has become a regular part of the youth labour policy. All these policies put the focus on improving education and working skills because it is expected that education increases chances for employment of young people, especially for those that belong to NEET category.

Output and unemployment commonly move together. There are a number of empirical research with focus on the link between the output change and change in the unemployment. The most prominent one is the empirical research of Okun (1962) who defined the relationship between the change in the unemployment rate and the change of output growth rate. Therefore, the concept of the Okun's Law is often used as a basis for developing of econometric models for estimation of the cost of unemployment in the economy. Calculation of economic costs is very useful for policy makers as a tool for evaluation of the costs and benefits of policy measures for increasing the employability in the economy.

Thus, the focus of this research is to calculate the costs of GDP from youth unemployment in North Macedonia in the period from 2010 to 2021. For that purpose, based on the MakStat database of the State Statistical Office of the Republic of North Macedonia (SSO), authors developed an econometric model to calculate the loss of GDP from youth unemployment. From the obtained results, costs from total unemployment are on average 1.62% from potential GDP over the period 2010-2020, while the costs from youth unemployment varies from 0.57% in 2011 to 0.14% in 2020. Also, authors discuss results and give some recommendations for overcoming the challenges of high youth unemployment.

Keywords: youth unemployment, economic growth, Okun's law, growth rates, youth unemployment rates

1. INTRODUCTION

One of the most serious macroeconomic problems for a country is unemployment. It is associated with the wasting of human resources, the weak performance of labour market, the potential risk of inflationary pressures in the economy, and etc. Economic costs from unemployment can be estimated by calculating the unmanufactured volume of gross domestic product (GDP) in the given year (Fiti et al. (2013). Economic costs arise because resources are not fully exploited due to unemployment (Grinevica and Rivza (2017)).

Maybe the most serious aspect of the problem of unemployment is the high rates of youth unemployment. High youth unemployment and inactivity provoke many negative consequences both for young individuals and for the whole

society. For young people the long-term unemployment status negatively affects their prospects to find decent jobs, increase the social exclusion by losing of their skills and qualifications; and have negative impact on their health status. For society the costs of youth unemployment and inactivity include higher fiscal costs due to unemployment benefits, forgone earnings, and taxes; increase poverty and income inequality; and reduce the aggregate consumption. Also, the high rates of youth unemployment provoke migration process of young population from a country, which may jeopardize the prospects of country's future economic growth.

In the recent economic crisis unemployed young people aged 15-24 were hardest hit. The recent statistics suggest that the youth unemployment rate is twice as much higher than the average rate of unemployment in the European Union. Negative effects of the problem with youth unemployment have been felt differently in different EU's regions (Putun et al (2017)). Countries from South and Eastern Europe persistently recorded youth unemployment rates significantly higher than the EU average level (14.4% in 2019).

North Macedonia is not an exception case. Youth unemployment rates (as % total labor force ages 15-24) in North Macedonia is 36.9% in 2020, and despite recent improvements in labor market indicators, it has remained relatively high in comparison with the rest of Western Balkans countries (35.08% in 2020) and the EU average level. Duality of the problem of youth unemployment depicts the weak capacity of the Macedonian economy to grow and create new and decent jobs from one hand, and the high rates of youth unemployed persons slowing the economic development in the country from the other hand. The economic growth rates are anemic. In the last fifteen years the average yearly growth rate has varied from 3 to 5%.

During the period 1990-2009, the labour market in North Macedonia is characterized with modest rates of employment (50% to 60% from active population) and very high rates of unemployment (36% on average). Trpeski (2012) explained that the problem with unemployment in North Macedonia is largely structural. The total rate of unemployment can be explained by changes in long-term unemployment (87.16%), and with 13.24% through changes in short-term unemployment. Another problem is the high rates of informal economy. A part of unemployed persons is engaged in the informal economy, which makes the foggy situation with the real number of both unemployed and employed persons. Fiti et al. (2013) estimated the rate of informal employment during the whole (transition and post transition) period is 26%-30% of GDP. In 2009 the Employment service agency (ESA) changed the procedure and rules for registration of unemployed persons. A direct consequence was the sharp decline of the unemployment rates (for 12.5%) after 2010. The new methodology creates a clearer picture about the number of unemployed people. The rates are still high compared with unemployment rates in the EU's countries, but the trends in changes of unemployment rates are more consistent with the changes in the GDP growth rates during the period 2010-2020. However, the problem with youth unemployment is still very urgent. The average rate of youth unemployment (of persons aged 15-24) over the period 2010-2020 is 45%. The high level of youth unemployment is a motive and consequences for massive emigration of skilled youth persons. In the empirical research, Petreski (2021) found that during the last 10 years around 32% of the high-skilled workers have left the country. The massive emigration of youth and skilled persons jeopardizes the prospects of growth and development of domestic economy in the upcoming period. The need for a comprehensive approach to solving the problem with the low level of youth employability is more than urgent. Therefore, calculation of economic costs of youth unemployment should help in the process designing and evaluating the active and passive labour measures.

The rest of the research paper is organized as follows: after the literature review about the relevance of the Okun's law and potential GDP as a two component of the concept of calculation of economic costs of youth unemployment, in the third part the research methodology is explained. The fourth part discusses the obtained result and in the last authors present their inferences.

2. LITERATURE REVIEW

The empirical literature regarding the economic cost of unemployment is based on models on the concept of Okun's law and calculation of potential GDP, as a main research framework (Grinevica and Rivza (2017), An et al. (2021), Anderton (2014), Fiti et al. 2013).

Economic literature is abundant with empirical studies regarding the relationship between the changes in the rates of unemployment and economic growth rates. Among them, the most influential is that of Okun (1962) which defines the basic relation between unemployment and output and gives the vital link between the market of goods and services and the labour market. Okun's law, typically expressed as a negative linear association between the cyclical component of the unemployment rate (the difference between the actual and natural unemployment rates) and the output gap (the difference between the real output and potential output). It states that if the rate of unemployment falls to 1% then the output (gross domestic product) will be increased by 3%. Okun's law derives a stylized fact that real GDP must grow faster than potential GDP to decrease the rate of unemployment.

The following studies on the empirical testing of relationship between unemployment and output confirm the validity of Okun's law (Lee 2000, Moosa 2008, Anderton 2014), but they found that Okun's coefficient can change over time and across countries and regions, and its value depends on labor laws, technology, preferences, social customs, and demographics. Moosa (2008) found that Okun's coefficients for Arab countries is statistically insignificant because the output growth does not transform into employment gains. Sadiku et al (2015), analyzed the relationship between unemployment rate and economic growth in Macedonian economy during the period 2000-2012 and didn't find statistically insignificant relation between unemployment and output growth. They conclude that a cyclical recovery is not accompanied by a reduction in unemployment. Unemployment analysis for that period reveals some specific aspects of the economy: the collapse of some economic activities, the lack of dynamism of emerging of new sectors, low export, low inflow of foreign direct investment, large informal economy, and may be the most important the inefficient labour market policies.

An et al. (2021) analyzed the relevance of the Okun's law in advanced and emerging and less developed economies. Their findings suggest that in emerging and less developed economies the cyclical sensitivity of unemployment is lower than in the advanced economies. Lower income countries tend to have more informal labour markets, which reduces the sensitivity of the unemployment gap to the business cycles. Workers in these countries can more easily switch between formal and informal employment, rather than between employment and unemployment. Another important empirical result of their study is finding that Okun's law in advanced economies is more important for the youth population than for the adult. Intuition behind this result they found in the labour market policies and employment protection regulations, where the youth are typically more likely to be employed under temporary contracts, which tend to have lower hiring and firing costs.

Calculation of potential GDP is very challenging, both for developed and developing economies (Fiti et al. 2013). However, the concept of potential GDP and the natural rate of unemployment are two crucial macroeconomic concepts with indispensable importance in designing macroeconomic policies (monetary, fiscal, labour policies and etc.) Fiti et al. (2013) pointed out the analytical values of these concept for Macedonian economy. Analysis and calculation of potential GDP gives inside of the allocative efficiency of the economy, the effects of international trade on the economic activity, the link between the markets of good and services with the labor market. Also, by applying the concept of potential GDP and natural rate of unemployment can be explained atypical movements in relations between output growth and unemployment rates in the transition and post-transition period in the country (for instance: public sector is the key absorber of newly employed persons, high rates of informal economy, weak business sector with slow dynamic of new job creations, rigid labor protection policies and etc). Therefore, calculation of the economic costs of youth unemployment based on the concept of calculation of Okun's coefficient and potential GDP gives a reliable analytical framework for policy makers to design labor policies and to evaluate the effects of labor market measures.

3. RESEARCH METHODOLOGY

The concept for the design of the research methodology is based on the approach used by Grinevica and Rivza (2017), Balan (2014), and stylized facts for the potential GDP calculated by Fiti et al. (2013). The methodology approach for calculation consist of two parts. In the first part the Okun's coefficient is calculated and in the second part the potential GDP levels are calculated. After this, by using data for youth unemployment aged (15-24) authors calculated the economic costs of youth unemployment for the period from 2010 to 2020.

To analyze the Okun's law and to calculate the Okun's coefficient in the case of North Macedonia, the paper uses data for the unemployment rates and the real GDP growth rates during the period from the first quarter of 2010 to the last quarter of 2020. The period after 2020 is not considered in the analysis due to unfavorable circumstances caused by several economic and non-economic factors (pandemic health crisis and crisis with energy prices and supply) which provoke spurious results for the Okun's coefficients. As a main source of data was used the MakStat database of the State Statistical Office of the Republic of North Macedonia (SSO). Table 1 provides explanations of the variables used in the model.

Table 1. Explanation of the variables included in the empirical research

Type	Name	Label	Description	Source
Dependent	Unemployment rate	u_t	Indicator of the participation of unemployed persons in the total labour force. Unemployed persons are those who did not work during the reporting week, were actively looking for work and were ready to accept employment in the following two weeks after the reporting week.	SSO
Independent	The growth rate of real GDP	g_t	Indicator of the growth of produced final goods and services in a country during one year with constant prices since 2005.	SSO

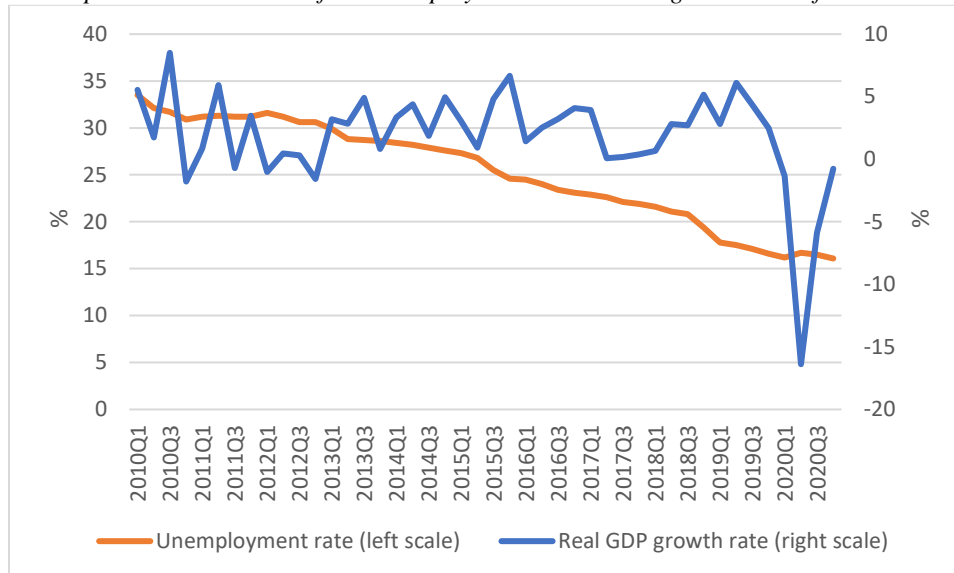
Table 2 and Graph 1 depicts the specific descriptive statistics for the unemployment rate and the real GDP growth rate for the period 2010Q1 -2020Q4. The average value for the rate of unemployment over the analyzed period is 25.3%, while the Macedonian economy grew by an average rate of 1.9% in the same period. Another characteristic is the constant downward trend of the unemployment rate with a maximum value in the first quarter of 2010 (33.5%) and a minimum value in the last quarter of 2020 (16.1%). During the examined period, the real GDP growth rate recorded a highest negative value of 16.4% in the second quarter of 2020, due to well-known reasons with the health crisis caused by the disease Covid-19, while in the third quarter of 2010, the real GDP had a maximum growth rate of 8.5%.

Table 2. Descriptive statistics of the empirical data

Variable	Observations	Mean	Std. Dev.	Min	Max
Unemployment ratio	44	25,3	5,4	16,1	33,5
The growth rate of real GDP	44	1,9	3,9	-16,4	8,5

Source: Author's calculations.

Graph 1. The movement of the unemployment rate and the growth rate of real GDP



Source: SSO.

For analyzing the relevance of Okun's Law in Macedonian economy (i.e., to examine the impact of the change in real GDP growth rate on the unemployment rate) and to calculate the Okun's coefficient it was used a modified version of the model applied by Sadiku et al. (2015). The mathematical formula for testing Okun's law is as follows:

$$u_t = \alpha + \beta_1 g_t + \beta_2 u_{t-1} + \varepsilon_t, \quad (1)$$

where u_t is the unemployment rate, g_t is the real GDP growth rate, u_{t-1} is the one-period lagged unemployment rate and ε_t represents the error term. β_1 and β_2 are coefficients for an estimation of the impact of growth rate (i.e., Okun's coefficient) and lagged unemployment rate on the unemployment rate, respectively. The following hypothesis were tested:

Hypothesis 1:

H₀: $\beta_1 \geq 0$, the relationship between the change in unemployment rate and the change in real GDP growth rate is non-negative

H₁: $\beta_1 < 0$, the relationship is negative.

Hypothesis 2:

H₀: $\beta_2 \geq 0$, the relationship between the change in unemployment rate at time t and its first order lag is non-negative

H₁: $\beta_2 < 0$, the relationship is positive

Before proceeding with the evaluation of the equation (1), it is helpful to make a seasonal adjustment of the data, since we are dealing with quarterly data for both variables for the period 2010Q1-2020Q4. Furthermore, since time series is used, it is necessary to check the properties of the series to determine the testing technique of the above equation. Therefore, the Augmented Dickey-Fuller test contains the unit root of the time series. After checking the time series, a trend component is also determined; therefore, the trend component is included in the calculations of the stationarity in the equations and the intercept. The results of the unit root test are shown in Table 3.

Table 3. Results of the unit root test

Variable	ADF-Test (Trend and Intercept)	Stationarity
Unemployment rate	-3,936517**	I(0)
Real GDP growth rate	-4,658166***	I(0)

*** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$

Source: Author's calculations.

Obtained results show that both variables are integrated from zero (0) order, which means that both variables are stationary in level. According to this situation, since both variables are integrated into the I(0) level, applying the ordinary least squares method is the best and most straightforward. The results of testing Okun's law through the ordinary least squares technique are given in Table 4.

Table 4. Results of the model estimation

Dependent variable: Unemployment rate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Real GDP growth rate	-0,042220**	0,018219	-2,317330	0,0257
Unemployment rate (-1)	1,011314***	0,013511	74,84955	0,0000
Constant	-0,613615*	0,343583	-1,785928	0,0817
R-squared	0,993323			
Adjusted R-squared	0,992989			
F-statistic	2975,269			
Prob. (F-statistic)	0,000000			

*** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$

Source: Author's calculations.

The obtained results show that for the analyzed period (2010Q1-2020Q4), the Okun's law is relevant for the Macedonian economy. The coefficient before the real GDP growth rate has a negative sign and it is statistically significant at the 5% significance level, which means that a decrease in the real GDP growth rate causes an increase in the unemployment rate. In the case of the Macedonian economy, for the analyzed period, a decrease of 1% in the real GDP growth rate causes an increase in the unemployment rate by 0.04 percentage points. These findings are opposite to the conclusions of Sadiku et al. (2015). The difference in the results is due to the different analyzed period and the change in the labour regulation (June 2009) when the Employment Services Agencies (ESA) has changed the methodology for recording of the unemployed persons. Also, it should be noted that the calculated Okun's coefficient is relatively low, but the result is in accordance with the findings of An et al. (2021) i.e. the lower income countries (emerging market and developing economies) tend to have more informal labour markets, which may reduce the sensitivity of the rate of unemployment to the business cycle of the economy. Also, the lower sensitivity of the rate of unemployment in the case of North Macedonia, and its constant decreasing trend can be explained by the very intensive wave of migration of youth and active population in the last fifteen years.

According to the results of the research study made by Fiti et al. (2013) the average growth rate of potential GDP for Macedonian economy is on average 4.4%. Also, they noted that in 2005 the GDP gap was zero, which implies that actual GDP and potential GDP are equal. In 2005 the level of GDP was higher than the level of GDP in 1991, for the

first time after the beginning of transition processes. Therefore, we used GDP level 2005 as a base for calculation of the potential GDP level for the period 2010-2020. For calculation of economic costs from youth unemployment, we used the data for youth unemployment rate (aged 15-24) during the period 2010-2020, from the MakStat database of the SSO. In the calculation of the economic costs of youth unemployment we extract the impact of the natural unemployment. Due to the specific characteristics of the structure of unemployment in the Macedonian labour market, changes in the methodology for recording the unemployed persons by the ESA it is difficult to calculate the long-term natural rate of unemployment. Therefore, we will use the average rate for natural unemployment rate characteristic for the transition economies and emerging market economies which is around 6% - 7%. Calculations for economic costs made by Grinevica and Rivza (2017) are based on 6% natural unemployment rate. Considering the characteristics and dynamics of changes of unemployment and 30% of informal economy in Macedonian economy, we assumed that natural unemployment rate in North Macedonia is about 7%.

4. RESULTS AND DISCUSSION

Macedonian economy has significant costs from unemployment and from youth unemployment in particular, during the period 2010 -2020. The loss in potential GDP from unemployment from 2010 to 2012 was 1.02% on average. It was a period of economic history when Macedonian economy suffered from high rates of unemployment (above 30%). Due to the high rates of long-term unemployment (a direct consequences from transition process), high rates of informal economy, and old methodology for registration and recording the unemployed persons in the country, the unemployment rates were persistently high. After 2010, when ESA changed the methodology for registration and recording of unemployed persons, the data for the unemployed persons has become more realistic and depicts the real trends of unemployment on the labour market. Consequently, the rates of unemployment were decreasing, and the losses of potential GDP have decreased too. In 2020, the lost potential GDP due to unemployment dropped to 0.39 %. Applying the methodology explained above, we calculated costs of youth unemployment and presented them in Table 5

Table 5: The costs of youth unemployment over the period 2010 -2020

year	Potential GDP with 4.4% growth per year (in million EUR)	unemployment rate (in %)	unemployment rate - natural employment rate (estimated on 7%)	Lost potential GDP due to unemployment (in %)	Lost potential GDP due to unemployment (in million EURO)	youth unemployment rate (15-24) (in%)	Lost potential GDP due to youth unemployment (15-24) (in million EURO)	Lost potential GDP due to youth unemployment (15-24) (in %)
2010	6,241	32	25	1.05	65.53	53.7	35.19	0.56
2011	6,515	31.4	24.4	1.02	66.77	55.3	36.92	0.57
2012	6,802	31	24	1.01	68.57	53.9	36.96	0.54
2013	7,101	29	22	0.92	65.62	51.9	34.06	0.48
2014	7,414	28	21	0.88	65.39	53.1	34.72	0.47
2015	7,740	26.1	19.1	0.80	62.09	47.3	29.37	0.38
2016	8,081	23.7	16.7	0.70	56.68	48.2	27.32	0.34
2017	8,436	22.4	15.4	0.65	54.57	46.7	25.48	0.30
2018	8,807	20.7	13.7	0.58	50.68	45.4	23.01	0.26
2019	9,195	17.3	10.3	0.43	39.78	35.6	14.16	0.15
2020	9,599	16.4	9.4	0.39	37.90	35.7	13.53	0.14

Regarding the costs of youth unemployment (aged 15-24), the trend is similar as the trend in the rate and costs of overall unemployment during the analyzed period. During the period 2010 -2012, the losses in potential GDP from youth unemployment were on average 0.55% and they were significantly higher than the costs in 2019 and 2020. After 2013, the losses in potential GDP from youth unemployment were continuously decreasing and reached the minimum value in 2020 (0.14%).

However, the costs of youth unemployment are relatively high. Almost half of the total costs of unemployment are the costs of youth unemployment. The high rates of youth unemployment negatively affect the prospects of economic growth of the country. There are two channels of negative influence on the future economic growth and development. First channel, the long-term of youth unemployment increases the risks of social exclusion of youth and decreasing their chances to find a decent job. Secondly, because of long-term status of unemployed persons, youth are highly motivated to emigrate from the country. Consequently, Macedonian economy are losing their human capital, increasing the economic inefficiency, and narrowing down the capacity of economic growth in the

upcoming period. Interesting insides gives results from the field research of Bartlett et al. (2021). Their findings are complementary with the results of our research. Namely, as a key problem of fast integration of young people in the labour market is a skills mismatch between labour demand and labour supply. Employers are more interested in hiring experienced workers than young and newly graduated persons. So, young people are caught in the 'experience trap'. In addition to this long transition period from school to work (approximately this period is 2.5 years).

Facing with the problem of high youth unemployment rates, in the several past years, North Macedonia have proposed and implemented different policies and measures to decrease the youth unemployment rates (National Youth Strategy 2016-2025, Youth Employment Action Plan 2016-2020, Youth Guarantee plan (2020-2022, and etc). In that context, North Macedonia was the first country, outside from the European Union, that has implemented the Youth Guarantee program in 2018, as a pilot project. And since 2019, the Youth Guarantee program has become a regular part of the youth labour policy. All these policies put the focus on improving education and working skills because it is expected that education increases the chances for employment of young people.

5. CONCLUSION

Economic costs of youth unemployment in North Macedonia are significant portion of the economic costs of total unemployment. Youth unemployment has a negative impact on youth professional careers and as well as on economic growth and development of domestic economy. Long-term unemployment of young people increased the problem with negative 'experience trap' and increase the social exclusion of this population.

However, the problem of high rates of unemployment and youth unemployment in particular, is a direct consequence of the weak growth potential of the domestic economy and the weak rates of new jobs creation in the business sector. Therefore, in line with the need for a new strategy of economic development, stronger efforts are needed to further develop labour market measures, especially of active labour measures (ALM) and increasing their effectiveness. This is particularly important for the young unemployed population. Calculation of economic costs of unemployment can help to policymakers in the process of creating and evaluation of the effectiveness of applied labour measures.

REFERENCES

- An Z., A., Bluedorn, J. & Ciminelli, G. (2021). Okun's Law, Development, and Demographics: Differences in Cyclical Sensitivities of Unemployment Across Economy and Worker Groups, IMF working paper WP/21/270
- Anderton, R., Aranki, T. Bonthuis, B. & Jarvis, V. (2014). Disaggregating Okun's Law: Decomposing the Impact of the Expenditure the Impact of the Expenditure Components of GDP on Euro Area Unemployment, Working Paper Series, No. 1747, December, European Central Bank
- Balan M. (2014). "Analysis of Unemployment among Young Individuals from Romania by Econometric Methods", *Journal of International Auditing & Risk Management*, 3 (35), 90-97
- Bartlett W., Guxholli, S. & Jovanovski, P. (2021). Study on Youth employment in the Republic of North Macedonia, Ramhorst Amira (editor), Regional Cooperation Council
- Fiti T., Filipovski. V., Bogoev. J., & Trpeski. P. (2013). Potential GDP and natural rate of unemployment in Republic of Macedonia., Academy for sciences and Arts of Republic of Macedonia
- Grinevica L. & Riva B. (2017). Economic Costs of Youth Unemployment in Latvia, Research for rural development Vol.2 (pp.270-275)
- Lee, J. (2000). "The Robustness of Okun's Law: Evidence from OECD countries", *Journal of Macroeconomics*, 22, 331-356
- Moosa, I.A. (1997). "A cross – Country Comparison of Okun's Coefficient", *Journal of Comparative Economics*, 24(3), 335-56
- Okun A. M . (1962). "Potential GDP: Its measurement and significance", *Proceedings of the Business and Economics Section*, 98-103, American Statistical Association
- Petreski, M. (2021). How Migration, Human Capital and The Labour Market Interact in North Macedonia, Report drafted for the European Training Foundation under the supervision of the Vienna Institute for international Economic Studies
- Putun M., Karatas A.S., and Akyildiz I.E. (2017). "The Economic Consequences of the Youth Unemployment Case in EU Countries: A Critical Analysis", *International Journal and finance studies*, 9 (1), 77-99
- Sadiku M., Ibarimi, A. & Sadiku, Lj. (2015). "Econometric Estimation of the Relationship between Unemployment Rate and Economic Growth of FYR of Macedonia", *Procedia Economics and Finance*, 19, 69-81