

# **Economic Development**

# **Економски развој**

**JOURNAL OF THE INSTITUTE OF ECONOMICS - SKOPJE**

**Year. 24 No. 2/2022**

**Special issue, Papers presented at the Scientific conference:  
Contemporary challenges of economic growth and sustainability of  
businesses, for the 70th Anniversary of the Institute of economics-Skopje**

**Skopje, October, 2022**

## **Economic Development**

### **Published by:**

Institute of Economics-Skopje, University “Ss. Cyril and Methodius”,  
Republic of North Macedonia

### **Editor in chief:**

Zoran Janevski, Ph.D (Institute of Economics-Skopje, University “Ss. Cyril and Methodius”, Skopje, North Macedonia)

### **Editorial Board:**

Zoran Janevski, Ph.D (Institute of Economics-Skopje, University "Ss. Cyril and Methodius", Skopje, North Macedonia)

Marija Takovska, Ph.D. (Institute of Economics-Skopje, University "Ss. Cyril and Methodius", Skopje, North Macedonia)

Elena Davitkovska, Ph.D. (Institute of Economics-Skopje, University "Ss. Cyril and Methodius", Skopje, North Macedonia)

Katerina Hadzi Naumova - Mihajlovska, Ph.D. (Institute of Economics-Skopje, University "Ss. Cyril and Methodius", Skopje, North Macedonia)

Jovan Zubovic, Ph.D. (Principal Research Fellow at the institute of Economic Sciences, Belgrade, Serbia)

Angelo Manaresi, Ph.D. (Alma Mater Studiorum-University of Bologna, Bologna, Italy)

Ivan Tchalakov, Ph.D. (University of Plovdiv, Plovdiv, Bulgaria)

Umit Gucenme Gencoglu, Ph.D. (Uludag University, Bursa, Turkey)

Irena Vodenska, Ph.D. (Metropolitan College, Boston University, Boston, USA)

**Technical editor:** Cvetanka Stefanovska, (Institute of Economics-Skopje)

**Cover design:** Koco Fidanoski

**Computer preparation and printing:** MAR-SAZ, Skopje

**UDC-CIP** Catalogue record from National and University Library

“St.Kliment Ohridski”-Skopje

### **Address:**

Institute of Economics- Skopje, University “Ss. Cyril and Methodius” -Skopje

Prolet 1 1000 Skopje Republic of North Macedonia

Phone: ++ 389 23115 076 Fax: ++ 389 23226 350

E-mail: [EconomicDevelopment@ek-inst.ukim.edu.mk](mailto:EconomicDevelopment@ek-inst.ukim.edu.mk)

Published **three times per year**

**Available on the websites:** [www.ek-inst.ukim.edu.mk](http://www.ek-inst.ukim.edu.mk)

**Abstracted/indexed in:** *EBSCO Business Source Complete, EBSCO Discovery Service (EDS) in EBSCO Publishing Database, (Ipswich USA); CEEOL Central and Eastern European Online Library, (Frankfurt, Germany)*

**Copyright © 2022 Institute of Economics - Skopje - All rights reserved**

## CONTENTS

**Zoran Janevski, Tea Josimovska:**

DETERMINANTS OF PRICE EXPECTATIONS OF MANAGERS AND ENTREPRENEURS IN THE SERVICES SECTOR IN THE REPUBLIC OF NORTH MACEDONIA.

(Original scientific paper) ..... 6

**Angela Zafirova, Biljana Angelova:**

THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION AND GROSS DOMESTIC PRODUCT: POTENTIAL IMPACT OF ENERGY CRISIS ON ECONOMIC GROWTH OF REPUBLIC OF NORTH MACEDONIA.

(Original scientific paper) ..... 19

**Elizabeta Djambaska, Aleksandra Lozoska, Irina Piperkova:**

PRODUCTIVITY AS A SOURCE OF ECONOMIC GROWTH - CURRENT SITUATION AND PROSPECT IN THE REPUBLIC OF NORTH MACEDONIA.

(Original scientific paper) ..... 31

**Diana Boshkovska, Tatjana Petkovska Mirchevska, Natasha Daniloska:**

THE CONTRIBUTION OF BUSINESS IN THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS (SDGs)-CHALLENGES AND OPPORTUNITIES.

(Original scientific paper) ..... 46

**Aleksandra Lozoska, Verica Janeska, Elizabeta Djambaska:**

CHALLENGES OF THE DEMOGRAPHIC AGEING IN THE REPUBLIC OF NORTH MACEDONIA – CURRENT SITUATION AND PROSPECTS

(Original scientific paper) ..... 61

**Katerina Hadzi Naumova-Mihajlovska, Neda Petroska Angelovska, Marija Takovska:**

GREEN ECONOMY IMPLEMENTATION IN AGRICULTURE SECTOR – EMPIRICAL RESEARCH IN REPUBLIC OF NORTH MACEDONIA

(Original scientific paper) ..... 76

<b>Vladimir Petkovski, Iskra Stanceva Gigov:</b> MATERIAL LIVING CONDITIONS AND ECONOMIC SECURITY OF THE POPULATION IN THE REPUBLIC OF NORTH MACEDONIA (Original scientific paper) .....	91
<b>Irina Piperkova, Vasil Popovski, Elena Davitkovska:</b> THE IMPACT OF ECONOMIC DOWNTURN ON HUMAN RESOURCE POLICIES IN SMALL BUSINESSES: THE CASE OF NORTH MACEDONIA (Original scientific paper) .....	106
<b>Jasna Tonovska, Predrag Trpeski:</b> INTERNATIONAL CAPITAL FLOWS MANAGEMENT MEASURES AMID THE CHANGING GLOBAL ENVIRONMENT (Original scientific paper) .....	122
<b>Samoil Malcheski, Blagoja Spirkoski, Risto Malcheski:</b> MACROECONOMIC ANALYSIS OF SOME INDICATORS OF MACEDO- NIAN ECONOMY IN THE PERIOD OF 2000-2020 (Original scientific paper) .....	136
<b>Authors' guidelines and Editing instructions</b> .....	156

**Dear reader,**

“Economic Development”, published by the Institute of Economics – Skopje, is an academic journal in the field of economic development and has been an important medium for 20 years. The main goal of “Economic Development” is to provide intellectual platform to the wider academic and professional publics, and to promote the development of economic thought in the country and the world.

The interest and need for publishing of the journal were continuously increased all these years. It covers theoretical and empirical researches in the field of economic and social development, demography, education, corporate governance, international economics, international management, administrative management, corporate and public finance, economics and tourism management, agricultural policy and agricultural management, marketing and marketing management, entrepreneurial management and other areas in the field of social sciences.

The journal “Economic development” has an open approach in accepting and publishing the papers reviewed by an international editorial board consisting of domestic and foreign experts from different countries. The journal is available in online form, through the database of academic papers published by the Institute. On the path of development of the economic thought and building a wide network of research and professional cooperation with other countries, new criteria has been implemented in order to improve the journal’s quality and it’s recognition. In this regard, during last years, significant changes have been made in the design and editorial policy for it’s international positioning among other scientific journals worldwide.

Skopje, October, 2022

***Zoran Janevski, PhD***  
***Editor-in-chief***

**ZORAN JANEVSKI<sup>1\*</sup>**  
**TEA JOSIMOVSKA<sup>2\*\*</sup>**

**338.516.47:338.46]:303.724(497.7)**  
**(Original scientific paper)**

## **DETERMINANTS OF PRICE EXPECTATIONS OF MANAGERS AND ENTREPRENEURS IN THE SERVICES SECTOR IN THE REPUBLIC OF NORTH MACEDONIA**

**Abstract:** In this paper, we investigate the determinants of price expectations of managers and entrepreneurs in the services sector in the Republic of North Macedonia. The services sector is an important sector for the domestic economy, and inflation has a direct influence on the economic stability. In the last few months, we have witnessed significant price increases all over the world, and similarly, prices have also been rising significantly in the Republic of North Macedonia in recent months. In this paper, we try to investigate the drivers of price expectations that managers and entrepreneurs in firms in the services sector in North Macedonia have. By constructing an OLS regression model, we find that the price level from the previous month, demand expectations for the next three months, employment expectations for the next three months, and employment in the past three months are statistically significant, and have the expected positive sign, meaning that they are positively associated with the expectations for the future price level. However, after implementing the HAC Newey-West correction, we find that only the variable employment expectations for the next three months remains statistically significant.

**Keywords:** services, inflation, managers, entrepreneurs.

**JEL Classification:** E31, L26.

---

<sup>1</sup> \* Director, full-time Prof., PhD., Institute of Economics, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, e-mail: zoran.janevski@ek-inst.ukim.edu.mk

<sup>2</sup> \*\* MSc student, Institute of Economics, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, e-mail: tea.josimovska@gmail.com

## 1. Introduction

The services sector is one of the most important sectors for the economy of the Republic of North Macedonia, alongside sectors such as trade, manufacturing, construction, etc. In 2020, the services sector was severely hit by the COVID-19 pandemic and as of 2022, it still continues to gradually recover, just like the overall domestic economy. An interesting feature of the services sector is that it is primarily consisted of micro and small business, in which most often the owner of the business serves as its manager and main entrepreneurial force. It is widely known that small businesses are in fact the engine of the economy and economic growth. Additionally, one of the most important conditions for a stable economic environment is a low and stable inflation rate. Past research has shown that high inflation has a negative effect on economic growth (Barro, 1995; Sarel, 1996; Akinsola & Odhiambo, 2017). On the other hand, low and stable inflation is perceived to be stimulating demand in the short-run and therefore is thought to have a positive impact on the economy, at least in the short-run. As a result of the global economic crisis caused by the pandemic, supply and demand forces have both contributed to a sharp rise in prices on a global scale. Similarly, in the last several months, inflation has been significantly increasing in the Republic of North Macedonia. For example, the annual inflation rate in North Macedonia was measured to be 6.7%, 7.6%, 8.8%, and 10.5% in January, February, March and April 2022 respectively, which indicates that inflation has been continuously increasing so far in 2022, while in 2021 and 2020, the annual inflation rate was 3.2% and 1.2% respectively<sup>3</sup>. Now, the questions which policymakers should answer are how to control this rise in prices and what measures should be taken in order to mitigate the negative effects of the rise in prices.

Understanding the behavior of economic agents is of crucial importance when designing and implementing economic policies. Having in mind that the behavior of economic agents depends on their perception of current trends and also expectations for the future, it is especially important to understand the determinants of their expectations. In other words, understanding what drives the expectations of economic agents for a certain aspect of the economy can help us gain a better insight into their behavior, hence their decision making process, which can then help us to understand the economy better. Moreover,

---

<sup>3</sup> Official data from the State Statistical Office of the Republic of North Macedonia. <https://www.stat.gov.mk/>

inflation expectations are of great importance for conducting monetary policy (Cunningham, Desroches, & Santor, 2010). Perhaps the most useful way of capturing economic agents' expectations regarding inflation is by conducting surveys. For example, Armantier et al. (2013) highlight the importance of expectations surveys. Moreover, Carlson and Parkin (1975) explore methods of estimating inflation expectations based on qualitative data from surveys.

In this paper, we are primarily interested in analyzing the drivers of the price expectations that managers and entrepreneurs in the services sector in North Macedonia have. Therefore, the research question that we attempt to answer is: *What are the determinants of the price expectations of managers and entrepreneurs in the services sector in the Republic of North Macedonia?* In the next section of the paper we elaborate the research method in more detail. Then, we present the empirical findings, and then we conclude with our final remarks and suggestions for future research.

## **2. Research method**

This section of the paper is divided in two parts. The first part describes the variables and data that we use for our empirical investigation, while the second part describes the econometric approach that we employ in order to investigate the research question.

### **2.1 Variables and data**

Based on our research question, the variable which we try to understand in more detail is in fact the *price expectations* of managers and entrepreneurs in the services sector in North Macedonia. Therefore, our dependent variable is *price expectations* and we try to explain it with a series of independent variables, such as: the price level in the domestic economy, business developments in the past three months in the services sector, demand in the past three months in the services sector, expected demand in the upcoming three months in the services sector, employment in the past three months in the services sector, and expected employment in the upcoming three months in the services sector.

We obtain the data for these variables from two sources. The first source is the main database of the State Statistical Office of the Republic of North Macedonia, and we obtain the data for the Consumer Price Index (CPI) from this database. The second source that we use is the website of the European Commission (EC), and we obtain the data for the rest of the variables (includ-

ing the dependent variable) from this site<sup>4</sup>. The EC conducts surveys across the European Union (EU) and the applicant countries on a monthly basis. The surveys are answered by representatives of different business sectors, and predominantly these representatives are in fact managers and entrepreneurs of companies which operate in the specific sectors. In this way, the EC can monitor and assess the perception of managers and entrepreneurs for the business situation in the most important business sectors in each of the EU and applicant countries. Specifically for our paper, we obtain the data from the survey results for the services sector in North Macedonia, for the period May 2008 – March 2022. Although the time series for the CPI is larger than the survey results, we take May 2008 as our initial observation in order for the different time series to be compatible for the regression analysis. All the data that we use is seasonally adjusted.

**Table 1: Descriptive statistics**

Date: 04/15/22 Time: 12:14  
Sample: 2008M05 2022M03

	BUS_PAST_3M	CPI_SA	DEMAND_EXP_NEXT_3M	DEMAND_PAST_3M	EMPL_EXP_NEXT_3M	EMPL_PAST_3M	PRICES_EXP_NEXT_3M
Mean	-0.122754	109.0055	22.17605	2.046707	7.253293	2.004192	1.716168
Median	2.300000	109.8349	22.40000	5.300000	7.900000	2.000000	-0.100000
Maximum	19.80000	126.8382	47.00000	25.10000	23.10000	22.60000	33.50000
Minimum	-58.40000	97.88372	-43.10000	-64.10000	-8.900000	-17.90000	-9.600000
Std. Dev.	13.18170	6.090320	10.69308	14.23673	5.631953	6.521118	7.313936
Skewness	-2.050067	-0.074331	-1.503675	-2.323111	-0.324754	-0.027131	1.948021
Kurtosis	8.130092	2.871600	10.75124	9.705644	3.655432	5.078940	7.519822
Jarque-Bera	300.1055	0.268501	481.0008	463.0983	5.924691	30.09435	247.7719
Probability	0.000000	0.874371	0.000000	0.000000	0.051698	0.000000	0.000000
Sum	-20.50000	18203.92	3703.400	341.8000	1211.300	334.7000	286.6000
Sum Sq. Dev.	28843.69	6157.273	18980.76	33645.64	5265.336	7059.147	8879.946
Observations	167	167	167	167	167	167	167

<sup>4</sup> Link to the website: [https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series\\_en](https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en)

**Table 2: Correlation between the variables**

Covariance Analysis: Ordinary  
 Date: 04/15/22 Time: 12:17  
 Sample: 2008M05 2022M03  
 Included observations: 167

Correlation Probability	BUS_PAST_3M	CPI_SA	DEMAND_EXP_NEXT_3M	DEMAND_PAST_3M	EMPL_EXP_NEXT_3M	EMPL_PAST_3M	PRICES_EXP_NEXT_3M
BUS_PAST_3M	1.000000 ----						
CPI_SA	-0.234846 0.0023	1.000000 ----					
DEMAND_EXP_NEXT_3M	0.677289 0.0000	-0.057164 0.4631	1.000000 ----				
DEMAND_PAST_3M	0.957410 0.0000	-0.185815 0.0162	0.658354 0.0000	1.000000 ----			
EMPL_EXP_NEXT_3M	0.687995 0.0000	-0.001266 0.9870	0.668927 0.0000	0.674466 0.0000	1.000000 ----		
EMPL_PAST_3M	0.656085 0.0000	-0.466848 0.0000	0.533283 0.0000	0.652208 0.0000	0.559922 0.0000	1.000000 ----	
PRICES_EXP_NEXT_3M	0.157188 0.0425	0.265646 0.0005	0.310285 0.0000	0.173020 0.0254	0.358805 0.0000	0.173790 0.0247	1.000000 ----

Tables 1 and 2 show the descriptive statistics and correlation between the variables, respectively. Since the data for the variables (except for the CPI) is based on survey results, their interpretation is relatively simple: a higher value for each of the variables indicates perception of higher expected prices, better past business developments, bigger past and expected demand, and higher past and expected employment, respectively.

In table 2 we see that there is a very high correlation coefficient (0.96) between the variables *business developments in the past three months* and *demand in the past three months*, and this coefficient is statistically significant at all three levels of 0.1, 0.05, and 0.01 (p-value = 0), which makes sense since the variables are substantially similar to one another. Therefore, in order to avoid the possibility of multicollinearity in the regression model, we decide to exclude the variable *business developments in the past three months*, whereas we include the variable *demand in the past three months* in the model because there is a slightly higher correlation between this variable and the dependent variable (correlation coefficient of 0.17, statistically significant at the levels of 0.05 and 0.1), compared to the correlation between the dependent variable and the variable *business developments in the past three months* (correlation coefficient of 0.16, statistically significant at the levels of 0.05 and 0.1). Although the difference between the two coefficients is relatively small, we decide to continue our analysis with the variable *demand in the past three months*, because the higher correlation could indicate a slightly stronger relationship with the dependent variable compared to the variable *business developments in the past three months*. For the rest of the independent variables, the coefficients of

correlation are lower than 0.7, indicating that there does not exist high correlation between any of them, and thus, all of them can be included in the regression model.

## 2.2 Econometric model

In order to explore the research question in detail, we construct an Ordinary Least Squares (OLS) regression model, where the dependent variable is *price expectations for the next three months*, while the independent variables are *CPI, demand in the past three months, demand expectations for the next three months, employment in the past three months, and employment expectations for the next three months*. The regression model takes the following form:

$$\begin{aligned}
 & \text{Price expectations in the next } 3m_t = \beta_0 + \beta_1 * CPI_{t-1} + \beta_2 * \\
 & \text{Demand expectations in the next } 3m_t + \beta_3 * \text{Demand in the past } 3m_t + \beta_4 * \\
 & \text{Employment expectations in the next } 3m_t + \beta_5 * \text{Employment in the past } 3m_t + \varepsilon_t
 \end{aligned} \tag{1}$$

In equation 1, we see that only the variable *CPI* is lagged for one period. The reason for that is that at the moment when the respondents answer the survey, they only know the price level of the previous month and they do not know the price level for the current month. In this way we also avoid reverse causality, in the sense that we investigate the causal effect of the past price level on price expectations, which helps us prevent potential endogeneity problems in our model.

## 3. Results

In this section of the paper we discuss the results of the regression and the diagnostics test which are necessary to be performed in order to assess the properties of our model.

**Table 3: Regression results**

Dependent Variable: PRICES EXP NEXT 3M

Method: Least Squares

Date: 04/16/22 Time: 18:23

Sample (adjusted): 2008M06 2022M03

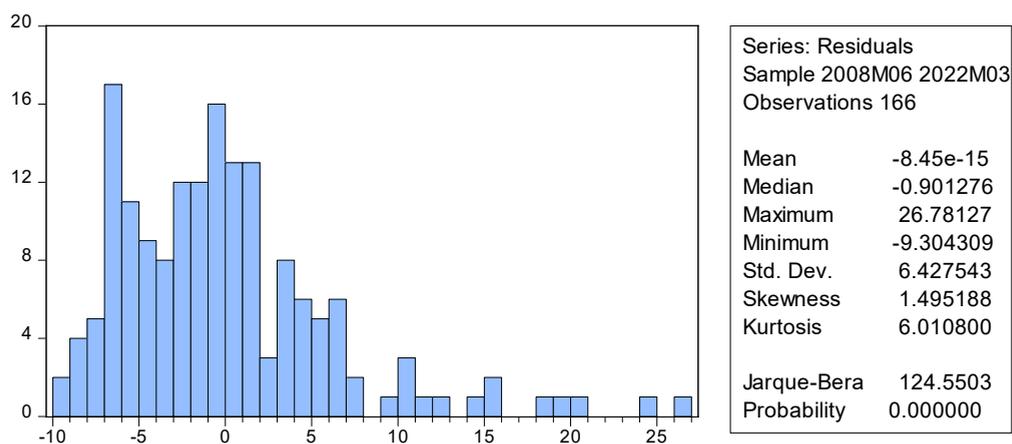
Included observations: 166 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-45.42641	10.99955	-4.129843	0.0001
CPI SA(-1)	0.385546	0.102578	3.758562	0.0002
DEMAND EXP NEXT 3M	0.120147	0.069446	1.730088	0.0855
DEMAND PAST 3M	-0.091291	0.056833	-1.606310	0.1102
EMPL EXP NEXT 3M	0.307290	0.140989	2.179537	0.0308
EMPL PAST 3M	0.206897	0.124475	1.662159	0.0984
R-squared	0.212859	Mean dependent var		1.627108
Adjusted R-squared	0.188261	S.D. dependent var		7.244671
S.E. of regression	6.527201	Akaike info criterion		6.625309
Sum squared resid	6816.696	Schwarz criterion		6.737790
Log likelihood	-543.9006	Hannan-Quinn criter.		6.670966
F-statistic	8.653445	Durbin-Watson stat		0.383232
Prob(F-statistic)	0.000000			

In table 3 we see the results from the regression model estimated with the OLS estimator. All of the parameters have the expected positive sign and are statistically significant at least at the 0.1 level of significance, except for the parameter of the variable *demand in the past three months*, which has a negative coefficient, but at the same time is not statistically significant for any of the three levels of significance (p-value = 0.11). The results indicate that a higher price level in the previous month, higher demand expectations for the upcoming three months, higher employment expectations for the upcoming three months, and higher employment in the previous three months are all associated with higher prices expectations for the upcoming three months, meaning that all of these independent variables have a positive effect on the price expectations in the services sector in North Macedonia. However, the adjusted R-squared has a relatively low value of around 0.19, indicating that only around 19% of the variability of the dependent variable is explained by the included independent variables in the model, meaning that there are probably other variables which could additionally explain the dependent variable better. In the next phase of the research, we check the main Gauss-Markov assumptions in order to make sure that the OLS estimator is the best linear unbiased estimator (BLUE) that can be applied to our dataset.

The first assumption which states that the model should be linear in the parameters is satisfied (equation 1). Another assumption which is satisfied is that the data we obtain is randomly selected from the population. Then, as we see in Table 2, there is no high degree of correlation between the independent variables that we include in the model, which indicates that the assumption that the independent variables should not be highly collinear is also satisfied.

**Graph 1: Test for normality of the residuals**



The next assumption is that the residuals follow a normal distribution. However, as Graph 1 shows, it is evident that the residuals do not have a normal distribution. In fact, the Jarque-Bera statistic has a p-value of 0, meaning that we reject the null hypothesis of normality of the residuals. Although this could potentially be a problem, it is something that happens quite often, especially when dealing with financial data. One way of solving it is by introducing additional observations for each of the variables. However, since we use all the observations that were available in the databases of the EC, we are unable to introduce additional observations for the period before May 2008. Therefore, we continue working with the data as if the error term had a normal distribution.

**Table 4: Test for serial correlation**

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	145.5022	Prob. F(2,158)	0.0000
Obs*R-squared	107.5863	Prob. Chi-Square(2)	0.0000

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 04/16/22 Time: 18:23

Sample: 2008M06 2022M03

Included observations: 166

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.732789	6.597226	-1.020548	0.3090
CPI SA(-1)	0.070066	0.061592	1.137580	0.2570
DEMAND EXP NEXT 3M	-0.014815	0.041481	-0.357162	0.7214
DEMAND PAST 3M	0.044681	0.034085	1.310870	0.1918
EMPL EXP NEXT 3M	-0.077148	0.084449	-0.913540	0.3624
EMPL PAST 3M	0.023286	0.074374	0.313099	0.7546
RESID(-1)	0.682709	0.079659	8.570370	0.0000
RESID(-2)	0.200984	0.081794	2.457216	0.0151
R-squared	0.648110	Mean dependent var	-8.45E-15	
Adjusted R-squared	0.632520	S.D. dependent var	6.427543	
S.E. of regression	3.896383	Akaike info criterion	5.604967	
Sum squared resid	2398.725	Schwarz criterion	5.754943	
Log likelihood	-457.2123	Hannan-Quinn criter.	5.665843	
F-statistic	41.57205	Durbin-Watson stat	1.912855	
Prob(F-statistic)	0.000000			

The next assumption states that the residuals are not serially correlated. If they are, then there is a chance that the OLS estimator is not BLUE. The null hypothesis in the Breusch-Godfrey Correlation LM test states that the residuals do not have a serial correlation. However, both statistics in this case have a p-value of 0, meaning that we reject the null hypothesis of no serial correlation, which translates into the notion that the residuals in our model are serially correlated. Since serial correlation usually affects only the efficiency of the estimator, this means that there is a chance that the OLS estimator is not the most efficient one. This means that we would have to correct the standard errors of the estimated parameters, which would then change the t-statistics and p-values for each of the estimated parameters accordingly. On the other hand, since serial correlation does not affect the property of unbiasedness of

the OLS estimator, the values of the estimated parameters remain the same. Before making any changes to the standard errors, we first check the last assumption which states that the residuals should not have heteroscedasticity, but in fact should be homoscedastic. In other words, the residuals should have a constant variance.

**Table 5: Test for heteroscedasticity**

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.003046	Prob. F(5,160)	0.0003
Obs*R-squared	22.44425	Prob. Chi-Square(5)	0.0004
Scaled explained SS	52.24034	Prob. Chi-Square(5)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 04/16/22 Time: 18:21

Sample: 2008M06 2022M03

Included observations: 166

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-525.6290	146.7295	-3.582298	0.0005
CPI_SA(-1)	5.021123	1.368349	3.669476	0.0003
DEMAND_EXP_NEXT_3M	-0.504985	0.926375	-0.545120	0.5864
DEMAND_PAST_3M	-0.842977	0.758124	-1.111924	0.2678
EMPL_EXP_NEXT_3M	3.790860	1.880735	2.015627	0.0455
EMPL_PAST_3M	2.912870	1.660446	1.754270	0.0813
R-squared	0.135206	Mean dependent var		41.06443
Adjusted R-squared	0.108182	S.D. dependent var		92.20011
S.E. of regression	87.07023	Akaike info criterion		11.80678
Sum squared resid	1212996.	Schwarz criterion		11.91926
Log likelihood	-973.9629	Hannan-Quinn criter.		11.85244
F-statistic	5.003046	Durbin-Watson stat		0.702554
Prob(F-statistic)	0.000276			

The null hypothesis for the Breusch-Pagan-Godfrey test for heteroscedasticity states that the residuals have a constant variance, or in other words they are homoscedastic. However, the three statistics of this test have a p-value of 0, indicating that we reject the null hypothesis, which means that the residuals in our model do not have a constant variance, or in other words, they are heteroscedastic. This means that there is a chance that the OLS estimator is not BLUE. Similar to serial correlation, heteroscedasticity affects the efficiency of

the estimator, while it does not affect the unbiasedness, meaning that we would have to correct only the standard errors of the estimated parameters.

Since we find that both serial correlation and heteroscedasticity are present in our model, we correct the standard errors of the estimated parameters by using the HAC Newey-West correction technique. After implementing that correction, we obtain the following regression results.

**Table 6: Regression results with the HAC Newey-West correction**

Dependent Variable: PRICES\_EXP\_NEXT\_3M  
 Method: Least Squares  
 Date: 04/16/22 Time: 18:17  
 Sample (adjusted): 2008M06 2022M03  
 Included observations: 166 after adjustments  
 HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-45.42641	26.40029	-1.720678	0.0872
CPI SA(-1)	0.385546	0.253063	1.523518	0.1296
DEMAND EXP NEXT 3M	0.120147	0.079786	1.505866	0.1341
DEMAND PAST 3M	-0.091291	0.077319	-1.180702	0.2395
EMPL EXP NEXT 3M	0.307290	0.165625	1.855342	0.0654
EMPL PAST 3M	0.206897	0.188176	1.099488	0.2732
R-squared	0.212859	Mean dependent var		1.627108
Adjusted R-squared	0.188261	S.D. dependent var		7.244671
S.E. of regression	6.527201	Akaike info criterion		6.625309
Sum squared resid	6816.696	Schwarz criterion		6.737790
Log likelihood	-543.9006	Hannan-Quinn criter.		6.670966
F-statistic	8.653445	Durbin-Watson stat		0.383232
Prob(F-statistic)	0.000000	Wald F-statistic		3.548884
Prob(Wald F-statistic)	0.004531			

As evident from Table 6, after introducing the HAC Newey-West correction, we obtain different standard errors for each of the parameters, although the estimated parameters remain the same, as already discussed. Hence, the t-statistics and the p-values for the estimated parameters are now different, and the only variable which remains statistically significant at the level of 0.1 is the variable *employment expectations for the next three months*, while the rest of the independent variables are now statistically insignificant at each of the three levels of statistical significance (0.01, 0.05, and 0.1). This means that after correcting for the presence of both serial correlation and heteroscedasticity, the only variable which has an effect on the *price expectations for the upcoming*

*three months* is the variable *expectations for the employment in the upcoming three months*, and that effect is positive. The practical interpretation of this result is that in the services sector in North Macedonia, the only determinant of price expectations of the managers and entrepreneurs is their expectations for the employment in that sector. In other words, when managers and entrepreneurs in the services sector expect higher employment, they also expect rise in prices.

## Conclusion

In this paper, we attempt to determine the drivers of price expectations of managers and entrepreneurs in the services sector in North Macedonia. By relying on monthly data obtained from the State Statistical Office of North Macedonia and the European Commission, we construct an OLS regression model with which we try to explain the dependent variable *price expectations*. Although the initial results suggest that the *lagged price level*, *demand expectations*, *employment expectations*, and *past employment* are statistically significant and have a positive influence on the *price expectations*, the residuals exhibited both serial correlation and heteroscedasticity. After introducing the HAC Newey-West correction, the only variable that remained statistically significant was the variable *employment expectations*. Hence, the only determinant of *price expectations* is *employment expectations*.

This paper has a few drawbacks. For instance, the adjusted R-squared is around 0.19, meaning that we should probably focus on finding additional independent variables that would have bigger explanatory power. Furthermore, this type of research can be done for the other sectors of the economy and that would help us form a more general understanding of what drives the price expectations at the country-level. Additionally, this research can also be done in a more international setting which would enable us to see differences and similarities between the drivers of price expectations in different countries.

## **References**

- 1 Akinsola, F.A. and Odhiambo, N.M., 2017. Inflation and economic growth: A review of the international literature.
- 2 Armantier, O., Bruine de Bruin, W., Potter, S., Topa, G., Van Der Klaauw, W. and Zafar, B., 2013. Measuring inflation expectations. *Annu. Rev. Econ.*, 5(1), pp.273-301.
- 3 Barro, R.J., 1995. Inflation and economic growth.
- 4 Carlson, J.A. and Parkin, M., 1975. Inflation expectations. *Economica*, 42(166), pp.123-138.
- 5 Cunningham, R., Desroches, B. and Santor, E., 2010. Inflation expectations and the conduct of monetary policy: A review of recent evidence and experience. *Bank of Canada Review*, 2010 (Spring), pp.13-25.
- 6 Sarel, M., 1996. Nonlinear effects of inflation on economic growth. *Staff Papers*, 43(1), pp.199-215.

ANGELA ZAFIROVA<sup>1\*</sup> 330.55]:620.9:330.576.2(497.7)"2008/2020"  
338.121:[338.124.4:620.9497.7]"2008/2020"  
BILJANA ANGELOVA<sup>2\*\*</sup> (Original scientific paper)

## THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION AND GROSS DOMESTIC PRODUCT: POTENTIAL IMPACT OF ENERGY CRISIS ON ECONOMIC GROWTH OF REPUBLIC OF NORTH MACEDONIA

**Abstract:** Energy is a key source of economic growth for any economy because of the fact that many consumption and production activities involve energy as a basic input. Energy is one of the most important inputs for economic development. The aim of this paper is to examine the relationship between gross domestic product and energy consumption on the sample data taken for the period from 2008 to 2020 for Republic of North Macedonia. Energy consumption measured in kilo tons of oil equivalent is taken as an independent variable, whereas gross domestic product measured in millions of denars is taken as dependent variable. In the performed statistical tests descriptive statistics, correlation and regression analysis were primarily involved. The conclusion of this paper is that there is a positive relationship between energy consumption and gross domestic product in the Republic of North Macedonia. The existence of a positive relationship between growth level and energy consumption in Republic of North Macedonia suggests that any disruption in production or in consumption of the energy caused by price fluctuations or possible shortages of energy will have a negative impact over the country's GDP.

**Keywords:** energy consumption, GDP, energy crisis, economic growth

**JEL Classification:** E2

---

<sup>1</sup> \* Assistant, MSc, Institute of Economics - Skopje, Ss. Cyril and Methodius University, Skopje, Republic of North Macedonia, E-mail: [angela.zafirova@ek-inst.ukim.edu.mk](mailto:angela.zafirova@ek-inst.ukim.edu.mk)

<sup>2</sup> \*\* Full-time Professor, PhD, Institute of Economics -Skopje, Ss. Cyril and Methodius University, Skopje, North Macedonia, E-mail: [b.angelova@ukim.edu.mk](mailto:b.angelova@ukim.edu.mk)

## **Introduction**

The energy is considered as a backbone of any economy. The use of energy drives economic productivity and is essential to the operation of any modern economy. If there are not sufficient energy resources, industrialization will not take place; it is crucial for running output units, for residual and commercial use and for transportation. Production and consumption of energy and GDP interact with each other, because energy determines economic and social development, and GDP growth leads to an increase in energy demand. Due to the nature of the relationship between the energy consumption and the GDP, a general consensus over the relationship between these two variables has still not been reached.

In the literature which examines the relationship between gross domestic product and energy consumption we can find four different aspect of viewing the same relationship, although many latest studies conducted in the recent decades confirm positive correlation between GDP and energy consumption. These discrepancies were one of the reasons why we decided to address the aforementioned issue as part of this paper. Additionally, we were not able to find any paper which relates to the discussed topic for the Republic of North Macedonia. This deficiency leaves space for conducting a research regarding the relationship between energy consumption and gross domestic product in Republic of North Macedonia. The third reason, supporting the importance of this paper, is the fact that the world has entirely been changed by globalization, financial and economic crisis, Covid-19 pandemic and the most recent energy crisis. Many issues have emerged among which the energy got sufficient attention of researchers.

The aim of this paper is to examine the relationship between gross domestic product (GDP) and energy consumption (EC) on the sample data taken for the period from 2008 to 2020 for Republic of North Macedonia and based on existence or non-existence of the examined relationship to comment on the potential impact of energy crisis on the economic growth of Republic of North Macedonia.

To study the relationship between the two variables in the present paper implies descriptive statistics, correlation and regression analysis followed by some additional analysis of the energy sector in Republic of North Macedonia.

The rest of this paper includes a literature review regarding the relationship between gross domestic product and energy consumption, the research methodology, the results and the concluding remarks.

## 1. LITERATURE REVIEW

The impact of energy usage on the economic growth of a country is discussed in various studies, but a general consensus over the relationship between gross domestic product and energy consumption has still not been reached.

In the literature which examines the relationship between gross domestic product and energy consumption we can find four different aspect of viewing the same relationship. The first group of authors states that there is a relationship directed from energy consumption towards economic growth of a country (growth hypothesis). The second group, has an opinion which implies a relationship directed from economic growth towards energy consumption of a country. The third group of authors supports the existence of a so-called feedback loop, where economic growth affects energy consumption, but at the same time the energy consumption affects the economic growth. The last group of authors concludes that there is no relationship between economic growth and energy consumption.

Narayan and Popp (2012), examined the relationship between gross domestic product and energy consumption on a sample of 20 European economies and 73 economies from all around the world in the period 1980–2006. Narayan and Popp used the Granger causality approach. In their study, the relationship between gross domestic product and energy consumption was confirmed only in five countries out of the total sample.

Destek and Aslan (2017) analyzed whether there is a relationship between economic growth and consumption of renewable energy versus the relationship between economic growth and the use of non-renewable energy. They analyzed a sample consisting of 17 emerging economies in the period from 1980 to 2012. In their study Bootstrap panel causality test was used. When they analyzed the relationship between the use of renewable energy and GDP they confirmed a positive relationship only in Peru, while in Greece and South Korea the feedback loop between the variables was confirmed. When they analyzed the relationship between the use of non-renewable energy and GDP, they confirmed a positive relationship in almost all of the countries in the sample, whereas the two-way relationship was confirmed in Turkey.

Smolowic et al. (2020), investigated the link between the use of renewable energy consumption and gross domestic product for a different sample composed of the Member States of the European Union for the period from 2004 to 2018. In order to check whether a relationship exists between the two

variables they used dynamic panel models and regression analysis. The authors concluded that, in the long run the consumption of renewable energy has a statistically significant impact on the economic growth of the Member States of the European Union for the given period.

Coers and Sanders (2013) analyzed the relationship between energy consumption and gross domestic product on a sample of 40 OECD countries. In their study they analyzed the period between 1960 and 2000. For the purpose of the study an error correction model was used. The conclusion was that in the short run the relationship between energy consumption and gross domestic product was directed from production to consumption of energy, but in the long run the relationship was opposite, they found a positive relationship directed from energy consumption towards gross domestic product.

Although a lot of research has been done on the topic regarding the relationship between energy consumption and economic growth, the results are still inconclusive. Frequently the reason is that the researchers analyze this relationship between energy consumption and gross domestic product using different research methods, testing very different samples, and in different time periods. These discrepancies were one of the reasons why we decided to address aforementioned issue as part of this paper. As it can be seen from the studies cited above, the relation is analyzed for countries which are different in many aspects compared to Republic of North Macedonia. We were not able to find a paper which relates to the discussed topic for the Republic of North Macedonia. This deficiency leaves space for further analysis of the relationship between energy consumption and gross domestic product in Republic of North Macedonia.

## **2. METHODOLOGY**

In order to study the relationship between gross domestic product (GDP) and energy consumption (EC) in Republic of North Macedonia, we use two variables: GDP measured in millions of denars and EC measured in thousands of tons of oil equivalent. For the purpose of this research we gathered secondary data from the official website of the State Statistical Office in Republic of North Macedonia. A sample of time series data is taken from 2008 to 2020 since these are the last available data. After the collecting stage, we conducted a statistical analysis by using SPSS statistical software package. The purpose of statistical analysis is to test whether the final energy consumption in Republic of North Macedonia measured by EC (energy consumption) relates to the

level of economic growth in Republic of North Macedonia measured by GDP (gross domestic product). The statistical tools that were used in this research are Descriptive Statistics, Pearson correlation and regression analysis. For this research, we define a linear regression model in order to test the effect of independent variable, the energy consumption on dependent variable measuring the growth level in Republic of North Macedonia:

$$GDP_t = \alpha + \beta(ECT) + \epsilon_t$$

where GDP represents the dependent variable, determinant of the country's growth level,  $\alpha$  represents unobserved, invariant, productivity factor;  $\beta$  represents a coefficient of energy consumption, as independent variable in period  $t$ ;  $\epsilon$  is the error term; and  $t$  is the year.

### 3. RESULTS AND DISCUSSION

This part summarizes all the results regarding GDP level and energy consumption of Republic of North Macedonia. At first the descriptive analysis is conducted. Then we proceed with the correlation and linear regression analyses to examine the relationship between GDP and energy consumption and at the end of this section some additional analysis of the energy sector in Republic of North Macedonia will be performed which may be beneficial for us to draw conclusions.

**Table 1. Descriptive Statistics**

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Energy	13	288,326,00	1,677,099,00	1,965,425,00	1,839,477,6923	67,109,87070
GDP	13	278,061,00	414,622,00	692,683,00	539,120,4615	98,090,77017
Valid N (listwise)	13					

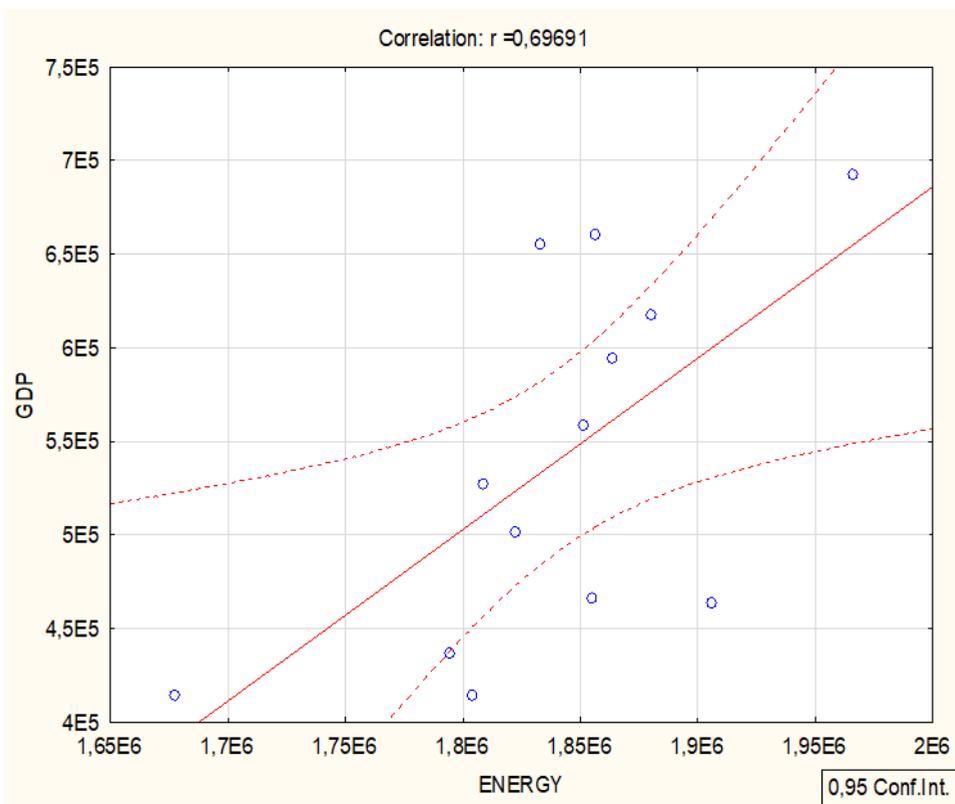
Source: Author's calculations

From the results obtained in Table 1 it can be noted that the arithmetic mean (M), or the average GDP in the Republic of North Macedonia for the period under study is 539,120 million of denars with a minimum value of 414,622 million of denars in 2009 and the maximum value of 692,683 million of denars in 2019. Additionally, from the results obtained in Table 1 it can be

noted that the arithmetic mean (M), or the average EC in the Republic of North Macedonia for the period under study is 1,839,478 thousand of tons of oil equivalent with a minimum value of 1,677,099 thousand of tons of oil equivalent in 2009 and the maximum value of 1,965,425 in 2019.

At the very first stage of the analysis and the results presented in Table 1, we can conclude that the minimum and the maximum values for both variables occurred at the same period. In 2009, Republic of North Macedonia had the lowest level of GDP and the lowest amount of energy consumed, while in 2019 Republic of North Macedonia had its highest GDP level so far, which was supported by the highest amount of energy consumed during the same year.

**Figure 1. Scatter Plot Graph**



Source: Author's calculations

The scatter plot graph presented in Figure 1, shows the correlation between energy consumption and economic growth in the Republic of North

Macedonia for the period between 2009 and 2020. On the graph presented in Figure 1 we can see a pattern of the dots. They are positioned in a way that it is possible to draw a line by connecting them and going upwards. To conclude, the graph shows a positive correlation between GDP and energy consumption in the Republic of North Macedonia in the given period.

**Table 2. Pearson Correlation**

		Energy	GDP
Energy	Pearson Correlation	1	,6969*
	Sig. (2-tailed)		,022
	N	13	13
GDP	Pearson Correlation	,6969*	1
	Sig. (2-tailed)	,022	
	N	13	13

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: Author's calculations

The results which were obtained from analyzing the Scatter Plot Graph presented in Figure 1 are confirmed with Pearson Correlation test. As we can see from Table 2, the Pearson's  $r$  correlation coefficient for the relationship between energy consumption and GDP is 0.6969, and is statistically significant at a 0.05 level of significance ( $p=0.022$ ). This means that there is positive relationship between energy consumption and GDP, and changes in one variable are related to changes in the other variable. Because the Pearson's correlation coefficient is positive ( $r=0,6969$ ), there is positive correlation between energy consumption and GDP and it means that increase in one variable will increase the other variable's value. From the results presented in Table 2, we can conclude that there is statistically significant correlation between energy consumption and GDP in Republic of North Macedonia. In the following table, Table number 3, you can see the coefficients of determination and the results from the regression analysis where GDP appears as a dependent variable and energy consumption as an independent variable. According to the results obtained using correlation analysis and linear regression, the relationship between GDP and energy consumption is positive and statically significant. It means that if the energy consumption increases by 1 unit or 1 thousand of ton of oil equivalent, GDP will increase by 1.9 million of denars.

**Table 3. Coefficients**

Model	Unstandardized Coefficients			Standardized Coefficients	t	Sig.
	B	Std. Error	Beta			
1	(Constant)	-1146418,780)	631970,499		-1,814)	,097
	Energy	1,916	,343	,6969	2,669	,022

a. Dependent Variable: GDP

Source: Author's calculations

From the results presented in Table 4, we can see that 59% of the changes in GDP level are explained with the changes in energy consumption.

**Table 4. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,6969 <sup>a</sup>	,593	,338	79820,17494

a. Predictors: (Constant), Energy

Source: Author's calculations

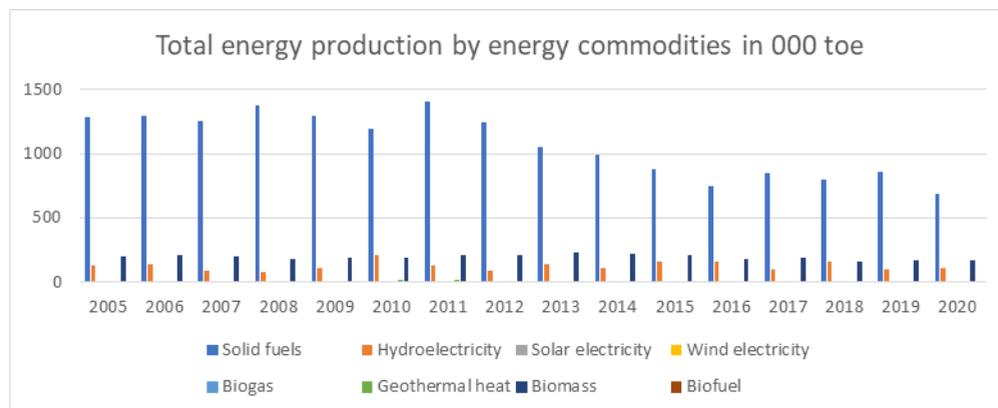
From all the analysis performed so far, we can conclude that there is a positive relationship between GDP and energy consumption in Republic of North Macedonia. The positive relationship between GDP and energy consumption means that as energy consumption increases GDP level increases as well, but if for some reason the energy consumption decreases or there are not sufficient energy resources, this will result in lower GDP or at least reduced GDP growth in our country.

Since the analysis showed that energy consumption is useful as a predictor of the growth level in Republic of North Macedonia, we will next briefly analyze the energy sector in our country to see what may impede the growth level in a period of an energy crisis or period where the overall energy resources price rises or there is a great shortfall in the energy resources supply.

From Figure 2, we can see the total energy production in Republic of North Macedonia by different energy commodities and we can see that solid fuels are dominant source of energy in our country, especially coal as the most used one. Starting from 2016 these numbers begin decreasing, mainly because of the lack of coal in our country and the need for an increased amount of imported energy which can be seen on the next graph presented in Figure 3.

In both cases, the exploitation of coal as a non-renewable source of energy and the imported energy resources can have a significant negative impact over GDP growth in our country in an energy crisis period.

**Figure 2. Total energy production in RNM**

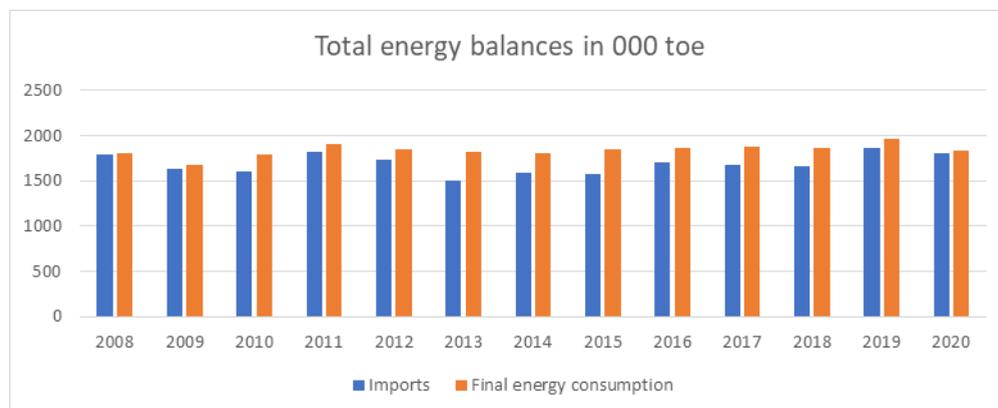


Source: State Statistical Office

On the next graph, presented in Figure 3, you can see the share of imported energy in the total energy consumption over the years in Republic of North Macedonia. If we take into account final energy consumption, we can see that imports almost equal energy consumption needs in our country. This means that our country is very dependent on regular imports of energy components. In a country where there is a positive relationship between GDP and energy consumption, such dependence on imports may lead to a decreasing country's growth in a period of energy shortfall or price rise of the imported energy resources. Additionally, in our country natural gas is imported mainly from Russia through an entry point at the Bulgarian border which may be disrupted given the circumstances<sup>1</sup>.

<sup>1</sup> (Bankwatch, 2022)

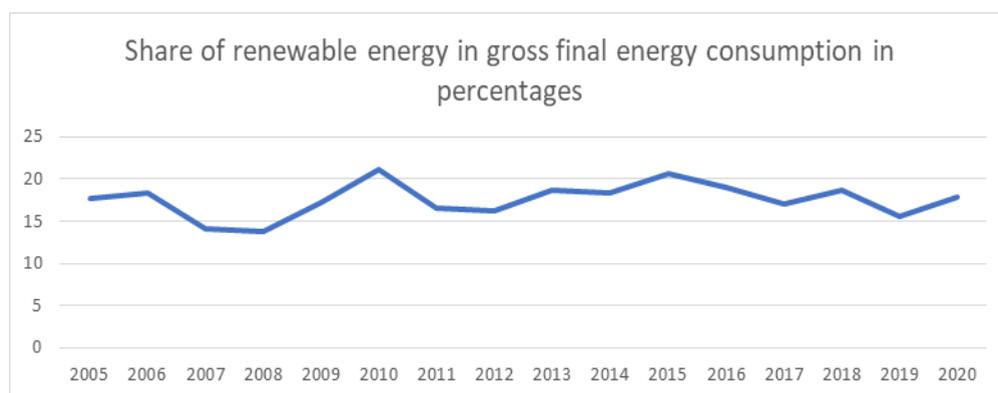
**Figure 3. Total Energy balance in RNM**



Source: State Statistical Office

On the following graph, presented in Figure 4, we can see the share of renewable energy in the final energy consumption. As it can be seen from Figure 4, the use of renewable energy in Republic of North Macedonia is low with an average value over the years of 17.5%. In January 2020 the government adopted new Energy Development Strategy 2020-2040 which elaborates different scenarios which are all mainly related to the moderate transition and green scenarios and they all foresee coal phase-out in 2030; and Under Energy Community commitments to increase the share of renewable energy in its mix, Republic of North Macedonia has a target of 28% in gross final energy consumption in 2022.

**Figure 4. Renewable energy in RNM**



Average value: 17,5%

Source: State Statistical Office

## **Conclusion**

This paper intended to determine the relationship between energy consumption and gross domestic product in Republic of North Macedonia for the period 2008-2020. In order to do this, the research was designed as a correlation study where the relationship between gross domestic product as a dependent variable and energy consumption as an independent variable was tested. The conclusion of this paper is that there is a positive relationship between energy consumption and gross domestic product and the relationship is directed from energy consumption towards gross domestic product which is in line with the conclusion of the first group of authors who confirmed the so-called growth hypothesis.

We can conclude that because of the existence of a positive relationship between growth level and energy consumption in Republic of North Macedonia any disruption in the production or in the consumption of energy may lead to changes in the level of GDP in the country.

Having seen that our country is very dependent on regular imports of energy components, it is at the same time exposed to price fluctuations and possible shortages of energy, we expect that the energy crisis will have a negative impact over the country's GDP. The analysis in this paper will continue once the energy crisis is over in an attempt to estimate the consequences.

Our country must try to find a way to reduce the import of energy and increase the percentage of renewable energy in the total production as anticipated in the Energy Development Strategy of Republic of North Macedonia for the period 2020-2040.

Additionally, this paper suggests that the Government of Republic of North Macedonia should focus on utilization of energy resources which in turn will smooth the way for economic development. Additionally, the Government should support projects which will enable a shift from oil usage to other renewable energy resources such as hydro energy, wind and solar energy, and to furthermore encourage domestic energy production rather than import.

We should encourage campaigns for the citizens to become more aware of the energy crisis gravity for our country and to try to alter their attitude in a way to increase energy efficiency, which manifests itself in stagnation or even reduction of at least electricity consumption. The results of this study should constitute energy and environmental policy basis by being authorized and implemented.

## **References**

- 1 **Bankwatch.** 2022. *The energy sector in North Macedonia - Bankwatch.* [online] Available at: <<https://bankwatch.org/beyond-fossil-fuels/the-energy-sector-in-macedonia>> [Accessed 28 June 2022].
- 2 **Coers, R.; Sanders, M.** The energy–GDP nexus; addressing an old question with new methods. *Energy Econ.* 2013, 36, 708–715
- 3 **Destek, M.A.; Aslan, A.** Renewable and non-renewable energy consumption and economic growth in emerging economies: Evidence from bootstrap panel causality. *Renew. Energy* 2017, 111, 757–763.
- 4 **Narayan, P.K.; Popp, S.** The energy consumption-real GDP nexus revisited: Empirical evidence from 93 countries. *Econ. Model.* 2012, 29, 303–308.
- 5 **Smolović, J.C.; Muhadinović, M.; Radonjić, M.; Đurašković, J.** How does renewable energy consumption affect economic growth in the traditional and new member states of the European Union? *Energy Rep.* 2020, 6, 505–513. [

**ELIZABETA DJAMBASKA,<sup>1\*</sup>**

**338.31:330.62(497.7)**

**ALEKSANDRA LOZANOSKA,<sup>2\*\*</sup>**

**331:338.31|:330.62(497.7)**

**IRINA PIPERKOVA,<sup>3\*\*\*</sup>**

**334.72:338.31|:330.62(497.7)**

**(Original scientific paper)**

## **PRODUCTIVITY AS A SOURCE OF ECONOMIC GROWTH - CURRENT SITUATION AND PROSPECT IN THE REPUBLIC OF NORTH MACEDONIA**

**Abstract:** Productivity is an indicator of the use (exploitation) of the potential of inputs for creating new value added in the economy. In the long term, productivity growth is dependent upon innovation, investment in physical capital, and investment in human capital. These immediate factors are shaped by the environment in which enterprises operate: market structures, infrastructure, the institutional framework and the quality of governance. The main objective of this paper is to study productivity growth in the Republic of North Macedonia and to analyse and propose measures that can be taken to stimulate productivity.

The analysis include: labor productivity, total factor productivity (TFP) and the level of enterprise productivity. Labour productivity in North Macedonia is low, and in the past five years even negative. The calculations of the total factor productivity using the Solow's growth model and Cobb-Douglas production function for the past twenty years, shows that GDP average growth is 4,97% and the TFP contribute by 1,69%. The level of enterprise productivity is also low. Therefore, the expectations for the increase of the GDP and reaching economic growth that can be sustainable is possible with increasing total factor productivity in the North Macedonia.

**Key words:** productivity, labour productivity, total factor productivity (TFP), enterprise productivity, North Macedonia

**JEL Classification:** O1, O12, O47

---

<sup>1</sup> \* Associate professor, Institute of Economics – Skopje, Ss. Cyril and Methodius University, [beti@ek-inst.ukim.edu.mk](mailto:beti@ek-inst.ukim.edu.mk)

<sup>2</sup> \*\* Associate professor, Institute of Economics – Skopje, Ss. Cyril and Methodius University, [sandra@ek-inst.ukim.edu.mk](mailto:sandra@ek-inst.ukim.edu.mk)

<sup>3</sup> \*\*\* Associate professor, Institute of Economics – Skopje, Ss. Cyril and Methodius University, [irina@ek-inst.ukim.edu.mk](mailto:irina@ek-inst.ukim.edu.mk)

## **Introduction**

Today's world situation challenges the economies in their functioning. Economies continue to struggle with the impacts of the COVID-19 pandemic, first to protect people's health and also to ensure the recovery of the economy. This current process has been interrupted by the war in Ukraine and all countries must find ways to ensure macroeconomic stability. So, the insurance of economic growth is paramount. Productivity growth is the one of the most important sources and a key factor for sustained economic growth.

There are two primary ways of measuring productivity: labor productivity and total factor productivity (TFP). Throughout this paper, productivity is considered as output (gross domestic product - GDP) per input of a unit of labour. This concept takes into consideration the number of economic engaged people, rather than the number of working hours as the measures of labour input in the economy. Therefore, the indicator of labour productivity in the Republic of North Macedonia that is calculated yearly and quarterly, is a weighted sum of sector-level productivity as a ration between the value added of a sector and the number of employed persons. The analysis uses the database of State Statistical Office and National Bank of Republic of North Macedonia.

The total factor productivity (TFP) is also considered in this paper. Productivity calculations use the Solow growth model of economic growth as a function of labour, capital and productivity. As such, TFP measures the effectiveness of combined factor inputs and is often used to represent technological progress. TFP may also incorporate wider factors such as organizational and institutional characteristics. TFP is widely known as a Solow' residual. The calculations of the TFP for the previous period of 2000-2020 are presented in this paper.

These two aspects cover the productivity in macroeconomic contexts. The other crucial aspect in the analysis of productivity is the level of productivity of the enterprise.

The Enterprise Survey conducted by the World Bank in 2009, 2013 and 2019 include 360 enterprises in North Macedonia. The Survey covers the question about labour productivity growth by year. This measure that explains the performance of the enterprises is essential to the conclusions about the productivity in firms.

## 1. LABOUR PRODUCTIVITY IN THE REPUBLIC OF NORTH MACEDONIA

As it was mentioned earlier, the indicator of labour productivity in the Republic of North Macedonia is a weighted sum of sector-level productivity as a ratio between the value added of a sector and the number of employed persons. It is calculated yearly and quarterly. This methodology of the indicator of labour productivity has several disadvantages. First disadvantage is its comprehensiveness. Labour productivity indicator intended to capture all of those involved in the production process. The informal employment is not included. Total employment includes self-employment, which accounts for a large proportion of informal employment in developing economies. Difficulties in measurement of the informal sector create uncertainty and increase the potential for inconsistency. Nonetheless, many national statistics offices estimate the size of the informal sector and adjust their GDP estimates accordingly.<sup>4</sup>

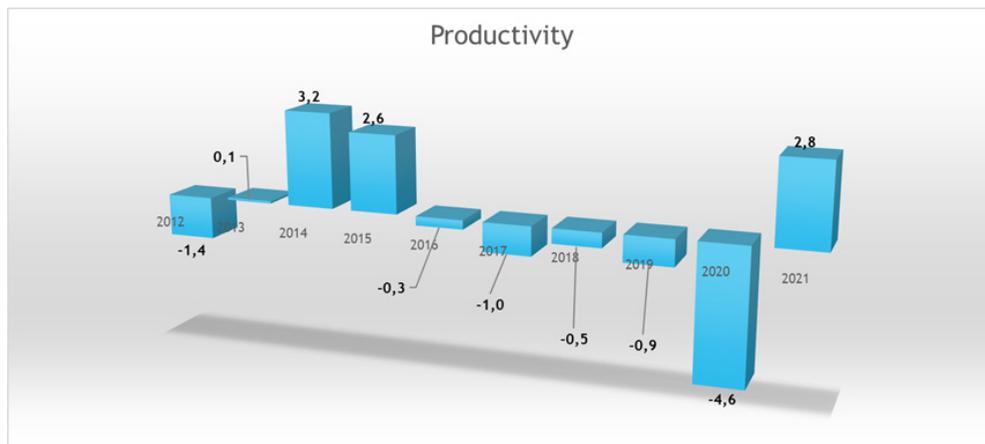
Second disadvantage rests in the failure to account for the quality of labour input. The effectiveness of labor input may be influenced by the level of education, training, and health of workers. These aspects of human capital can be addressed by estimating the average years of schooling of the workforce and life expectancy to proxy workforce health. However, the quality of formal education and health, and the effects of on-the-job training provided outside of the education system, is difficult to measure consistently.

The failure to account the intensity of labour input is third disadvantage. The number of people involved in the production process does not consider different work arrangements that vary the intensity of labor input. The intensity of labor input is, for example, better captured by hours worked, but these data are not available for many countries.

---

<sup>4</sup> Charmes Jacques, *The Informal Economy Worldwide: Trends and Characteristics*, Margin—The Journal of Applied Economic Research 6: 2 (2012): 103–132 SAGE Publications Los Angeles/London/New Delhi/Singapore/Washington DC DOI: 10.1177/097380101200600202 (12) (PDF) *The Informal Economy Worldwide: Trends and Characteristics*. Available from: [https://www.researchgate.net/publication/259331356\\_The\\_Informal\\_Economy\\_Worldwide\\_Trends\\_and\\_Characteristics](https://www.researchgate.net/publication/259331356_The_Informal_Economy_Worldwide_Trends_and_Characteristics) [accessed Jun 30 2022].

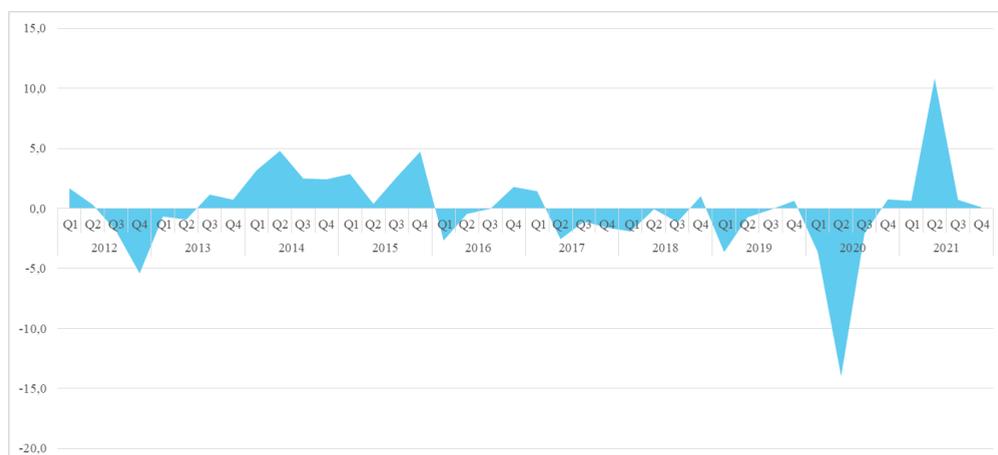
**Figure 1 Labour productivity in North Macedonia, yearly (2012-2021)**



Source: The source of the presented data for the employment is the Labour Force Survey (LFS) of the SSO. Additional information regarding the methodology of the survey can be found at the following link: <http://www.stat.gov.mk/labour market>

The figure 1 presents the indicator of labour productivity in the North Macedonia. The highest level in the analysed years is reach in 2014 and it is 3,2. The lowest value is evident in 2020, that is known as Pandemic year. If we exclude this 2020 and 2021 years as extraordinary, still the value of the labour productivity in all analysed years is low.

**Figure 2 Labour productivity in North Macedonia, quarterly (2012-2021)**



Source: The source of the presented data for the employment is the Labour Force Survey (LFS) of the SSO. Additional information regarding the methodology of the survey can be found at the following link: <http://www.stat.gov.mk/labour market>

The quarterly data of the labour productivity in North Macedonia are shown in figure 2. The highest negative values are evident in 2020. With 2021 the labour productivity shows positive values.

Historically, different factors impacts and increased labour productivity. Labour productivity growth has been driven by innovation, better education, and investment in physical capital. Innovation and private sector investment require a growth-friendly environment, with supportive institutions and policies, including policies that promote macroeconomic stability and the rule of law. Productivity growth also seems to benefit from expertise in producing relatively complex and sophisticated exports, which is associated with international technology diffusion. This finding complements past research and supports the argument that "what you export matters".<sup>5</sup> Important factor for the labour productivity are demographic factors. The notably changes in population age structure has huge influence on labour productivity. First of all, oldest workers have difficulties with the use of new technologies, so the digitalization working processes.

The Covid-19 pandemic imposed even more new challenges to labour productivity. Weaker investment and trade, erosion of human capital, slower labour reallocation, public and private debt burdens. Also, the widening inequality have negative impact on productivity. Yet the pandemic crates new productivity-enhancing opportunities such as lasting organizational and technological changes for business and education, diversifying global value chains, and changing social norms. These aspects are reflected in the data on labor productivity in North Macedonia.

## **2. TOTAL FACTOR PRODUCTIVITY – TFP CALCULATIONS IN THE REPUBLIC OF NORTH MACEDONIA**

Determination of the sources of economic growth and their contribution to the achieved growth are interesting segment for researchers. There are a lot of studies that are analyzing the source of growth of the economy and every study takes in consideration the basic Cobb - Douglas production function. The peculiarities for each study arise from the different structure of the factors of production in each analyzed country. Also, there are different aspects of the analysis of the total factor productivity. One of the negative aspects of using

---

<sup>5</sup> Hausmann Ricardo, Hwang Jason, Rodric Dani, "What you export matters", CID Working Papers Series 2005, Harvard University, Cambridge, MA, 2005

growth accounting is the fact that productivity residual (TFP) is unable to be decomposed.

The average growth of GDP (Y) decomposes the three basic components of the production function: labour (L), capital (K) and productivity (TFP).

The Cobb – Douglas production function used in this research is:

$$Y = AK^{1/3}L^{2/3}$$

According to this, the equitation can be written as:

$$\frac{dY}{Y} = \frac{dA}{A} + 0.33 \frac{dK}{K} + 0.67 \frac{dL}{L}$$

Where,  $dY/Y; dA/A; dK/K; dL/L$  represent the percentage rate of change for some time (1 year),  $dX/X = (X_t - X_{t-1})/X_{t-1}$  respectively. This formula measures the contribution of capital, labour and productivity residual (TFP). In this formula A represent the productivity residual according to Solow's growth model.<sup>6</sup>

The Solow – residual (TFP) is used as a measure of technical progress. Total factor productivity changes for various reasons. Very often the cause of the change is the growth of knowledge that leads to changes and improvements in the production methods. Many other factors, such as education and state intervention, raise the residual. For example, higher government expenditures improve the quality of education. Hence, this rises the qualifications of the labour force and their productivity, which leads to production increase.

The calculations use data from the State Statistical Office of the Republic of North Macedonia. So, the data for the real GDP (Y) are expressed in national currency, in millions denars. The labour (L) as factor of production is expressed as number of employees in the total working population old 15 years and more, using the data from the Labour Force Survey of the Republic of North Macedonia. Physical capital (K) is determined as GDP with a year of lag.

---

<sup>6</sup> Eftimoski, Dimitar – Petrevski Goran, Analysis of the source of economic growth in the Republic of Macedonia in transition period, Economic development, Journal of the Institute of Economics, year 5 no. 1-2-3, Skopje, 2003, p. 124

**Figure 3 Total Factor Productivity calculations in Republic of North Macedonia in the period 2000-2020**

Average growth rate of GDP	4,97%	Contributions of capital intensity	1,25%
Average growth rate of labour	1,86%	Contributions of labour composition	2,04%
Average growth rate of capital	6,17%	Total Factor productivity - TFP	<b>1,69%</b>
		<b>GDP</b>	<b>4,97%</b>

Source: own calculations

According to the analysis for the period 2000 - 2020, the average growth rate of GDP is 4,97%, the average growth of the employment rate is 1,86%, while of the physical capital is 6,17%. According the calculations, the contribution of the factors to the economic growth is the following: contributions of capital intensity is 1,25%, contributions of labour composition is 2,04% and productivity noted as TFP 1,69%.

"Low productivity points to the unsustainability of growth in the Republic of North Macedonia. Above all, the achieved economic growth rates are the result of the intensification of the labour and capital. Also, the real GDP growth are financed with the increased public debt in the last decade. Low productivity means reduced and insufficient investment in education and research and development that directly affects the quality of the human capital."<sup>7</sup>

### 3. THE LEVEL OF ENTERPRISE PRODUCTIVITY

The other crucial aspect in the analysis of productivity is the level of enterprise productivity. This paper presents and analyses the data about the enterprise productivity that are conducted with the Enterprise Surveys by World Bank.

The Enterprise Surveys (ES)<sup>8</sup> focus on many aspects of the business environment. These factors can be accommodating or constraining for firms

<sup>7</sup> E.Djambaska, A.Lozanoska, "Growth accounting in the Republic of North Macedonia", Economic Development, Journal of the Institute of Economics – Skopje, year.21, no. 3/2019, page 41

<sup>8</sup> North Macedonia, Enterprise Surveys, The World Bank Group, 2020, www.enterprisesurveys.org

and play an important role in whether an economy's private sector will thrive or not. An accommodating business environment is one that encourages firms to operate efficiently. Such conditions strengthen incentives for firms to innovate and to increase productivity — key factors for sustainable development. A more productive private sector, in turn, expands employment and contributes taxes necessary for public investment in health, education, and other services. Questions contained in the ES aim at covering most of the topics mentioned above. The topics include infrastructure, trade, finance, regulations, taxes and business licensing, corruption, crime and informality, access to finance, innovation, labor, and perceptions about obstacles to doing business.

The ES are conducted by the World Bank Group and its partners across all geographic regions and cover small, medium, and large firms. The size of the firm is determined by the number of employees: 5 to 19 (small), 20 to 99 (medium), and 100 or more (large). Firms with less than five employees are ineligible for the survey. Firms that are 100% state-owned are also ineligible. Partners for the ES have included the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the UK's Department for International Development (DFID).

The ES are repeated approximately every four years for a particular economy (or region). By tracking changes in the business environment, policy-makers and researchers can look at the effects of policy and regulatory reforms on firm performance. Repeated surveys aid in studying the evolution of the business environment and how it affects the dynamics of the private sector.

This document<sup>9</sup> summarizes the results of the Enterprise Survey for North Macedonia. Business owners and top managers in 360 firms were interviewed between December 2018 and October 2019.

According to this Surveys, real annual labour productivity growth, is the indicator that consider the enterprise productivity.

Annual labour productivity growth is measured by a percentage change in labour productivity between the last completed fiscal year and a previous period, where labour productivity is sales divided by the number of fulltime permanent workers. All sales values are deflated to 2009 using each country's GDP deflators.

---

<sup>9</sup> North Macedonia, Enterprise Surveys, The World Bank Group, 2020, [www.enterprisesurveys.org](http://www.enterprisesurveys.org)

**Figure 4 The level of enterprise productivity  
(The World Bank Enterprise Surveys – North Macedonia 2019)**

	Real annual labor productivity growth (%)	Manufacturing (All)	Manufacturing	Services (All)	Retail	Other Services
North Macedonia	-0,4	0,4	0,4	-0,8	-1,1	-0,7
Europe & Central Asia	-0,1	0,5	...	-0,5	...	...

Source: The World Data Bank, <https://www.enterprisesurveys.org/en/methodology> (access date 12.4.2022)

The annual labor productivity growth in 2019 is negative -0,4. Also the labour productivity growth in retail companies is -1,1. In other services -0,7. Compared to the Europe and Central Asia shows lower value. (Figure 4)

The productivity growth in enterprise included in the Enterprise Surveys in North Macedonia according to the sector, for the period 2009, 2013 and 2019 are presented in the Figure 5.

**Figure 5 The level of enterprise productivity in North Macedonia in 2009, 2013 and 2019 (by sector)**

Year	Real annual labor productivity growth (%)	Manufacturing (All)	Services (All)	Retail	Other Services
2009	0,1	3,4	-1,9	-5,8	0,2
2013	0,8	1,5	0,5	1,7	-0,3
2019	-0,4	0,4	-0,8	-1,1	-0,7

Source: The World Data Bank, <https://www.enterprisesurveys.org/en/methodology> (access date 12.4.2022)

Productivity level in manufacturing enterprises in the analyzed years shows decline and the annual level productivity growth from the 3,4 in 2009 drop to 0,4 in 2019. The increase in productivity growth is shown in services (from -1,9 in 2009, 0,5 in 2013 and -0,8 in 2019). According to this indicator the enterprises in the retail sector in North Macedonia evident positive fluctuating (-5,8 in 2009, 1,7 in 2013 and -1,1 in 2019).

**Figure 6 The level of enterprise productivity in North Macedonia in 2009, 2013 and 2019 (by size of the enterprise)**

Year	Small (5-19)	Medium (20-99)	Large (100+)
2009	1,9	-2,4	-5,4
2013	3,1	-5,4	/
2019	0,6	-4,1	4,8

Source: The World Data Bank, <https://www.enterprisesurveys.org/en/methodology> (access date 12.4.2022)

The interesting fact is the increase in productivity in the large enterprises (with 100+ employee). Labour productivity in these enterprises from -5,4 in 2009 has increased to 4,8 in 2019. This is due to the foreign direct investment in the North Macedonia, especially the entrance of the British company "Johnson Matthey" in 2010, Belgian company "Van Hall" German company "Kromberg and Schubert" in 2013.

**Figure 7 The level of enterprise productivity in North Macedonia in 2009, 2013 and 2019 (by export orientation)**

Year	Direct Export	Non-exporter
2009	8,4	-2,8
2013	4,7	0,2
2019	2,1	-1,0

Source: The World Data Bank, <https://www.enterprisesurveys.org/en/methodology> (access date 12.4.2022)

Figure 7 shows the data about the level of the enterprise productivity according to the export orientation of the enterprises that was include in the survey. The productivity is higher and positive in exporting enterprises. Therefore, in the 2009 it shows 8,4%, 4,7% in 2013 and 2,1% in 2019. The non-exporter enterprises have negative values of the real annual labour productivity growth (-2,8% in 2009, 0,2% in 2013 and -1% in 2019).

## CONCLUSION

Labour productivity in North Macedonia is low, and in the past five years even negative. Quarterly, the labour productivity shows the lowest values in the 2020 which is the year of the pandemic and cannot be referenced for comparison. Besides that, the labour productivity is with low level and mostly with negative values in the whole examined period (2012–2020).

The calculations of the total factor productivity using the Solow's growth model and Cobb-Douglas production function for the past twenty years, shows that GDP average growth is 4,97% and the TFP contribute by 1,69%.

The level of enterprise productivity is also low.

Therefore, the expectations for the increase of the GDP and reaching economic growth that can be sustainable is possible with increasing total factor productivity in the North Macedonia.

What is the reasonable explanation for the low productivity in North Macedonia?

Demographic trends in North Macedonia have negative impact on the productivity. First, as age structure of the labour force is unfavorable, new technologies can be faster adopted by younger labour force. Also, emigration abroad of young people has negative impact on the productivity.

The largest share in the creation of GDP in the Republic of North Macedonia has the traditional sectors that are based on the use of natural resources and are most labour-intensive activities, which have a dominant utilization of physical capital, with underrepresented new technologies and knowledge.

The largest share in GDP is created by wholesale and retail trade, together with transport and storage activities. Mining, quarrying, electricity supply, etc. is represented by shares around 17%. The contribution of industry (C) to GDP in the analyzed period ranges from 9% in 2000 to 12.9% in 2018. The industrial production comes from the most traditional industries in which new technologies and knowledge are not present. They are either predominantly capital-intensive or labor-intensive, such as mining and quarrying, electricity generation, food and beverage production, textile and clothing production. The products from these industries are in fact the main exporters of the Republic of North Macedonia.

Agriculture and forestry and fisheries have 10,9% (2000) to 7,2% (2018), while the share of construction in the analyzed period ranges from about 5% - 6%.

This traditional sector has a large share in total employment in North Macedonia. A significant proportion of them are unpaid family workers. (For example, the agriculture, forestry and fisheries sector have a large share in total employment, which is 12% in 2020. nearly 30.500 people or 32%, are unpaid family workers.)

The wholesale and retail trade sector, which employed almost 15% of the total labour force in 2020, can be seen as an important sector for maintaining current positive labour market trends. This situation with relatively low level of capital by employing, lower level of skills needed, low - paid jobs, with low value-added contribution in the GDP has minor effect on productivity in North Macedonia.

The recommendations are towards:

*A comprehensive approach is needed to facilitate investment in physical and human capital.* Innovations, technology transfer and research and development, investment in infrastructure can complement new technologies, and raise productivity and well-being. Also, Infrastructure needs in developing countries as North Macedonia, remain high and relate to transport, water and sanitation, power, and telecommunications.

The investment in human capital is important for the quality of labour. The productivity of an economy depends partly on the quality of its labor force, which can be improved in several ways. Other things being equal, a better-educated and healthier labor force will contribute more to economic activity.

Education can enhance not only skills but also the ability to adopt new technologies. In the long term, education may have wider positive effects, on the nature of civil society and the effectiveness of governments.

Healthy workers tend to be more efficient, faster learners, and more committed to improving their skills.

Encourage reallocation of resources toward more productive sectors and enterprises;

Foster firm capabilities to reinvigorate technology adoption and innovation, encouraging private investment in human capital, including management as well as technical training;

Strengthen institutions and government effectiveness; Productivity gains can stem from policies that limit market power and promote fair competition, simplified and transparent legal systems, governance reforms that lower political risk. Governments can also promote productivity growth by lowering transaction costs and increasing trust in institutions.

Promote an inclusive, sustainable, and growth-friendly macroeconomic and institutional environment.

The main obstacles in fulfilling these are the increased macroeconomic instability due to the Covid -19 pandemic and war conflict, less favorable demographics, demographic ageing of the population, emigration abroad of young people, gender issue, climate change and its effects on agricultural sector. Climate change is expected to continue too adversely affect productivity. The agriculture sector may be particularly affected.

## **REFERENCES**

- 1 Barro, J. Robert – Sala-i-Martin X, *Economic Growth*, McGraw-Hill, New York, 1995
- 2 Charmes Jacques, *The Informal Economy Worldwide: Trends and Characteristics*, Margin—The Journal of Applied Economic Research 6: 2 (2012): 103–132 SAGE Publications Los Angeles/London/New Delhi/Singapore/Washington DC DOI: 10.1177/097380101200600202 , (12) (PDF) *The Informal Economy Worldwide: Trends and Characteristics*. Available from: [https://www.researchgate.net/publication/259331356\\_The\\_Informal\\_Economy\\_Worldwide\\_Trends\\_and\\_Characteristics](https://www.researchgate.net/publication/259331356_The_Informal_Economy_Worldwide_Trends_and_Characteristics) [accessed Jun 30 2022]
- 3 Djambaska Elizabeta, Lozoska Aleksandra, *Theoretical approach of macroeconomic policy measures for solving economic consequences of Covid-19*, *Economic Development, Journal of the Institute of Economics – Skopje*, year 22 No.1-2, p. 38-51, June, Skopje, 2020
- 4 Dieppe Alistair, editor, *Global Productivity, Trends, Drivers and Policies*, International Bank for Reconstruction and Development / The World Bank, 2021
- 5 Eftimoski, Dimitar, *Economic Growth, theoretical concept and models*, St. Kliment Ohridski University in Bitola, Faculty of administration and management –Bitola, 2009
- 6 Eftimoski, Dimitar – Petrevski Goran, *Analysis of the source of economic growth in the Republic of Macedonia in transition period*, *Economic development, Journal of Institute of Economics*, year 5 no. 1-2-3, Skopje, 2003
- 7 Hausmann Ricardo, Hwang Jason, Rodric Dani, “What you export matters”, *CID Working Papers Series 2005*, Harvard University, Cambridge, MA, 2005
- 8 Janeska Verica, Lozoska Aleksandra, Djambaska Elizabeta, *Demographic Changes and Sustainable Demographic Development in the Western Balkans*, *Economics Analysis*, Vol. 5, No. 1-2, pp. 1-17, Belgrade, 2018

- 9 Lozoska Aleksandra, Djambaska Elizabeta, Piperkova Irina, Employment aspects related to quality of life in North Macedonia, *Journal of Sustainable Development*, Vol. 12, Issue 28, June 2022, page 38-55
- 10 UDK 330.59:331.5(497.7) <https://doi.org/10.54442/JSD2212280381>
- 11 Lozoska Aleksandra, Djambaska Elizabeta, Economic Growth and Unemployment: An Empirical Analysis (A Case Study on the Republic of Macedonia), *Economic Development, Journal of the Institute of Economics – Skopje*, year 16 No. 3 December, Skopje, 2014
- 12 Lozoska Aleksandra, Djambaska Elizabeta, Macroeconomic Assumptions for the Employment Policy in the Republic of Macedonia, *Journal of the Institute of Economics – Skopje*, year 17 No. 1-2 June 2015, p. 343-360, Skopje, 2015
- 13 Ministry of Finance of the Republic of North Macedonia <http://www.finance.gov.mk>
- 14 (access date 15.2.2022)
- 15 National Bank of Republic of North Macedonia <http://www.nbrm.mk> (access date 9.2.2022)
- 16 Piperkova Irina, Djambaska Elizabeta, Lozoska Aleksandra, Quality of education – the core value of human capital, *Economic Development, Journal of the Institute of Economics – Skopje*, year 24 No.1, p. 175-189 April, Skopje, 2022
- 17 State Statistical Office of Republic of North Macedonia. <http://www.stat.gov.mk> (access date 10.2.2022)
- 18 The World Data Bank, <https://www.enterprisesurveys.org/en/methodology> (access date 12.4.2022)
- 19 The World Bank Group, North Macedonia, Enterprise Surveys, 2020, [www.enterprisesurveys.org](http://www.enterprisesurveys.org) (access date 12.4.2022)

**Diana Boshkovska<sup>1\*</sup>**

**332.146.2:334.722(100)**

**Tatjana Petkovska Mirchevska<sup>2\*\*</sup>**

**(Original scientific paper)**

**Natasha Daniloska<sup>3\*\*\*</sup>**

## **THE CONTRIBUTION OF BUSINESS IN THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS (SDGS) - CHALLENGES AND OPPORTUNITIES**

**Abstract:** Business plays a key role in fulfilling the promises of sustainable development in many ways. Companies can integrate sustainability in their business and generate significant changes in recognizing their impact on the environment.

The Sustainable Development Goals (SDGs) are a wide range of 17 integrated goals for the environment, society and economy adopted by the UN in 2015. Their fulfilment is a universal call for action to end poverty, protect the planet and ensure that all people will enjoy prosperity by 2030.

Business have to understand the importance of SDGs and their connection with business goals. SDGs hold great possibilities, challenges and opportunities for businesses. Business should manage the environment burdened with huge global problems as uncertain energy costs, looming regulation on carbon emissions, access to raw materials, availability of natural resources etc.

In this paper, at the beginning we are discussing latest overview of the world's SDGs implementation efforts. We continue with discussion how businesses can engage with SDGs framework to drive business growth and productivity while contributing to the better world envisioned in 2030 Agenda. In the conclusion, we synthesize findings and suggest recommendations to align business strategies with the SDGs.

**Keywords:** Sustainable Development Goals, SDGs, business, challenges, opportunities.

---

<sup>1</sup> \* PhD, Full-time professor, Institute of Economics - Skopje at Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, email: diana@ek-inst.ukim.edu.mk

<sup>2</sup> \*\* PhD, Full-time professor, Institute of Economics - Skopje at Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, email: tatjana@ek-inst.ukim.edu.mk

<sup>3</sup> \*\*\* PhD, Full-time professor, Institute of Economics - Skopje at Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, email: natasha.daniloska@ek-inst.ukim.edu.mk

## INTRODUCTION

The implementation of SDGs is a process that has been more inclusive than ever, with involvement of different stakeholders including governments, business, civil society and citizens. The latest take an unprecedented effort by all sectors in society, and business has to play an important role in this process.

Global goals are divided into two categories: social and environmental. They include efforts to end extreme poverty and hunger, as well as to ensure universal access to healthcare, safe drinking water, and sanitation. Others work to advance other human rights by empowering people through quality education, gender equality, employment, reduced inequalities, and innovation, allowing people to prosper and feel valued. The wide range of environmental goals aims to keep the world within key planetary safety boundaries through changing how the economy works across the globe. They cover climate change, access to affordable and clean energy, sustainable consumption and production, biodiversity on land and below water, treating oceans as vital global commons. Global Goal describes the need for a “global partnership for sustainable development”.<sup>4</sup>

From business perspective, SDGs provide powerful lens through which private sector can translate evolving global needs and ambitions into business solutions. It can be challenging to interpret how this framework of 17 goals and 169 targets converts into business action.<sup>5</sup>

Achieving SDGs opens up \$12 trillion of market opportunities in the four economic systems: food and agriculture, cities, energy, materials, health and well-being. They present around 60 percent of the real economy and are critical in delivering SDGs. To capture these opportunities, businesses need to pursue social and environmental sustainability as avidly as they pursue market share and shareholder value.<sup>6</sup>

Companies, no matter how large or small, and regardless of sector, can contribute to the SDGs. While the scale and scope of the SDGs are unprec-

---

<sup>4</sup> [https://d306pr3pise04h.cloudfront.net/docs/news\\_events%2F9.3%2Fbetter-business-better-world.pdf/12/04/2022](https://d306pr3pise04h.cloudfront.net/docs/news_events%2F9.3%2Fbetter-business-better-world.pdf/12/04/2022)

<sup>5</sup> <https://www.wbcsd.org/contentwbc/download/12241/183149/1/15/12/2021>

<sup>6</sup> <https://www.peterfisk.com/2020/03/business-needs-the-sdgs-and-they-need-business-embracing-the-uns-17-sustainable-development-goals-is-a-12-trillion-opportunity-for-business-by-2030/01/05/2022>

edented, the fundamental ways in which business can contribute remain the same.<sup>7</sup>

Global challenges from climate, water and food crises to poverty, conflict and inequality need solutions that the business can deliver, representing a large and growing market for business innovation. In transforming business models, integrity and values will have a huge role. For companies, the job starts by acting responsibly – incorporating the Ten Principles of the UN Global Compact widely into strategies and operations, and understanding that good practices or innovation in one area cannot make up for doing harm in another.<sup>8</sup> Business needs SDGs (Global Goals), because they offer a compelling growth strategy for individual businesses and for the world economy. Also, Global Goals need business, because the promotion of the whole package of Global Goals by the companies contributes to their more successful realization. Businesses can contribute SDGs as employment, innovation and finance and embrace them as a part of their identity and strategic vision. Those companies recognizes risks of inaction or the opportunity in being proactive. Risks include operational risk, regulatory risk, reputational risk or risks of market disruption.<sup>9</sup> The objective of this paper is to discuss how businesses can help to achieve the SDGs. The aim is to consider that in order to achieve the SDGs, all actors in society must work together in the business planning process.

## **1. The Sustainable Development Goals (SDGs) after Covid-19**

The SDGs are various global sustainable development targets for environment, society and economy. Meeting the goals of 2030 Agenda for Sustainable Development requires the engagement of all stakeholders in society, including civil society organizations, business and citizens.<sup>10</sup>

SDGs are urgent call for action against poverty, peace, prosperity and planetary protection that enable social, economic and environmental sustainability by 2030. The 5Ps (people, prosperity, planet, peace and partnership) are

---

<sup>7</sup> <https://www.peterfisk.com/2020/03/business-needs-the-sdgs-and-they-need-business-embracing-the-uns-17-sustainable-development-goals-is-a-12-trillion-opportunity-for-business-by-2030/10/05/2022>

<sup>8</sup> <https://www.unglobalcompact.org/sdgs/about/14.03.2022>

<sup>9</sup> <https://www.greenbiz.com/article/what-do-sdgs-mean-business-now/14/03/2022>

<sup>10</sup> UNU-CS, October 2018. Engaging Citizens for Sustainable Development: A data Perspective, Making the Global Agenda the Citizens' Agenda, United Nations University, p. 8, [https://collections.unu.edu/eserv/UNU:6646/UNU-CS-Data\\_SD-Report-Engaging\\_Citizens-20181004-compressed.pdf/12/11/2019](https://collections.unu.edu/eserv/UNU:6646/UNU-CS-Data_SD-Report-Engaging_Citizens-20181004-compressed.pdf/12/11/2019)

intended for all countries in initiating integrated actions that should involve every individual in achieving these goals.<sup>11</sup> The role of education and communication in raising awareness is to empower citizens so that they can face the complex and key challenges of the 21<sup>st</sup> century, including enabling change, making informed decisions and collectively building a sustainable future.<sup>12</sup> The SDGs result from a process that has been more inclusive than ever, with Governments involving business, civil society and citizens. Fulfilling these ambitions will take an unprecedented effort by all sectors in society, and business has to play a very important role in the process.<sup>13</sup>

SDGs are designed to be a “blueprint to achieve a better and more sustainable future for all.” After the global pandemic with Covid-19, millions of lives have been lost, the human and economic toll has been unprecedented, and recovery efforts so far have been uneven, inequitable and insufficiently geared towards achieving sustainable development. The current crisis is threatening decades of development gains, further delaying the urgent transition to greener, more inclusive economies, and throwing progress on the SDGs even further off track.<sup>14</sup>

The local, national and global economies are being negatively impacted by unpredictable crisis of the pandemic with Covid-19. According to the latest available data, there are a many weaknesses caused by the pandemic that relate to the realization of the SDGs by 2030. According to the latest UN Report, after many years, progress has been halted or reversed (Chart 1):<sup>15</sup>

- global extreme poverty rate rose for the first time in over 20 years, so from 119 to 124 million people were pushed back into extreme poverty in 2020.

- Pandemic has interrupted one or more essential health services and poses major health threats beyond the disease itself.

- wreaked havoc worldwide on children’s learning and well-being. There is a risk of a generational catastrophe regarding schooling, where an

---

<sup>11</sup> Akinlolu G. Omisore, Grace M. Babarinde, Damilola P. Bakare, Esther O. Akesun-Olarinmoye, 2017. Awareness and Knowledge of the Sustainable Development Goals in a University Community in South-western Nigeria, *Ethiopian Journal of Health Science*, and Nov; 27(6): 669–676, DOI: 10.4314/ejhs. v27i6.12

<sup>12</sup> United Nations, 2017. The Sustainable Development Goals Report 2017, <https://unstats.un.org/sdgs/files/report/2017/thesustainabledevelopmentgoalsreport2017.pdf>. / 2/5/2019

<sup>13</sup> Global Goals for people and planet, <https://www.unglobalcompact.org/sdgs/about>.

<sup>14</sup> The Sustainable Development Goals Report 2021, <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf>

<sup>15</sup> Ibid

additional 101 million children have fallen below the minimum reading proficiency level, potentially wiping out two decades of education gains.

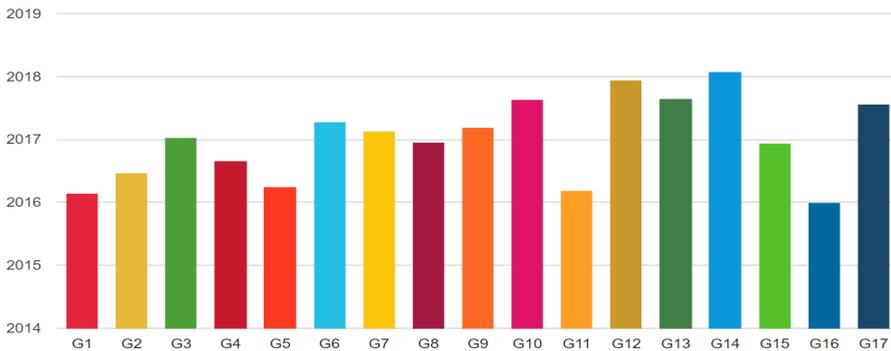
- Pandemic has exposed and intensified inequalities within and among countries.

The pandemic has also brought immense financial challenges, especially for developing countries – with a significant rise in debt distress and dramatic decreases in foreign direct investment and trade.

The climate, biodiversity and pollution crisis persist, despite the pandemic. Concentrations of major greenhouse gases continue to increase despite the temporary reduction in emissions in 2020 related to lockdowns and other Covid-19 response measures. Biodiversity is declining, and terrestrial ecosystems are being degraded at alarming rates. Around the world, 1 million plastic drinking bottles are purchased every minute, and 5 trillion single-use plastic bags are thrown away each year.

### Chart1. Achievement of the 17 SDGs in 2021

Data timeliness: the most recent year available (weighted average of the median country by indicator), by goal



Source: UN-The Sustainable Development Goals Report 2021, p. 4, <https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2021.pdf> November, 2021

In Chart, 1 it can be seen that under the influence of pandemic, there is a setback in all 17 SDGs. According to the latest data for climate change, indicator (Goal 13) is around 2015. The average of the latest available year for data on poverty (Goal 1) and education (Goal 4) is around 2016 year.

The pandemic causes many vulnerabilities and reflects deeply rooted problems in societies: insufficient social protection, weak public health systems and inadequate health coverage, structural inequalities, environmental degradation and climate change. The crisis demonstrates the interdependency

and interlinkages among various dimensions of sustainability – from health, well-being, and social and economic prosperity to climate and ecosystems.<sup>16</sup> To address the vulnerabilities exposed by Pandemic, governments and international community should make structural transformations and develop common solutions guided by SDGs. These include significantly strengthening social protection systems and public services (including health systems, education, water, sanitation and other basic services); increasing investments in science, technology and innovation; creating fiscal space in developing countries; taking a green-economy approach and investing in clean energy and industry; and transitioning to sustainable food system.<sup>17</sup>

In the face of enormous challenges, a positive impact of the pandemic is that governments, businesses, and universities respond quickly and with remarkable creativity in implementing new forms of collaboration. Between 1<sup>st</sup> February and 31<sup>st</sup> December 2020, Governments around the world announced more than 1,600 new social protection measures in response to the crisis.<sup>18</sup> Scientist across the globe have been working together to develop life-saving vaccines and treatments in record time. The pandemic has speed up the digital transformation of Governments and businesses, profoundly changing the ways in which business interact, learn and work.

## **2. Businesses contribution to SDGs achievement**

The global community and businesses play a vital role in recovery and implementation of 2030 Agenda and provides more equitable and sustainable post - Covid world. The SDGs framework has created an incentive for researchers, entrepreneurs and creative minds to work toward more sustainable world as one of the drivers of the global economic strategy.<sup>19</sup>

Many entrepreneurs and companies, sometimes without even knowing it, already contribute to sustainable development. For example:<sup>20</sup>

- Looking after the well-being and health of their employees (Goal 3)

---

<sup>16</sup> <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf/16/05/2022>

<sup>17</sup> Ibid

<sup>18</sup> Ibid

<sup>19</sup> Better Business for 2030: Putting the SDGs at the Core, OECD, 2018 p.10- 17

<sup>20</sup> <https://www.17goalsmagazin.de/en/the-relevance-of-the-sustainable-development-goals-sdgs-for-companies/>

- Knowing the conditions under which their supply chains operate (Goals 8, 12)
- Being aware of measures that reduce their company's carbon footprint (Goal 13)
- Paying employees fairly and in a gender-neutral way (Goals 5, 8)
- etc.

Pandemic has caused numerous problems in the planned implementation of SDGs, and influence new partnering among governments and business toward more sustainable and inclusive growth. In order to meet the commitments of 2030 Agenda, faced with many challenges and opportunities, business have critical role in realization of SDGs until 2030, especially when their implementation was slowed by the Pandemic.

There are many different ways in which business can integrate sustainability in their business. From the beginning of Pandemic, they are trying to counteract current situation with new sales and service solutions, in order to secure at least the minimum level of business by changing their business models.<sup>21</sup>

Business should take into consideration how to manage the environment, burdened with huge global problems as uncertain energy costs, looming regulation on carbon emissions, access to raw materials and availability of natural resources. Because of the increased social networking, faster and easier access of data, global business nowadays are faced with different challenge, as greater control from consumers, NGOs, media and their own employees and treatment, the sources, product standards, quality and their corporate culture.

Business support is a key driver in achieving the SDGs as broaden approach for good performance and business success. The environmental and social responsibility are becoming big concern, but at the same time a core driver of smart, modern business with opportunities to become market leaders.<sup>22</sup>

One of the challenges of Agenda 2030 is the connection among 17 SDGs to different business. The first step is to get to know different SDGs and their sub-goals in order to understand their connection with the business goals. Business should create strong interlinkages between different SDGs, bearing in mind their universal, integrated and indivisible nature. In that direction,

---

<sup>21</sup> Petkovska Mirchevska T., Daniloska N., Boshkovska D., Petkovski V., Change in Consumers' Behavior during the COVID 19 pandemic as an Opportunity to foster Digital Entrepreneurship in the Republic of North Macedonia: Economic Analysis: Applied Research in Emerging Markets, Vol 54 No 1 (2021), Belgrade, 2021, str. 61

<sup>22</sup> Working in an SDG economy Aligning business activity to the Global Goals, p. 2-10

companies should focus on different SDG staking into account their impacts on the specific business goals.

According to relevant data from Report for the Business & Sustainable Development Commission in 2016, the relevance of sectors to SDGs falls into three main categories: sectors with strong linkages to a single SDG, sectors with linkages to two or more SDGs and sectors that act as enabler across all SDGs. Also, certain sectors have strong linkages with specific SDG. For example, health care companies will need to play a prominent role in the delivery of SDG 3 (to achieve good health and well-being for all), working alongside government and civil society organisations. Oil & gas industry could contribute to SDG 7 which aims is to achieve affordable and sustainable energy for all and will be heavily influenced by the investment choices of energy companies.

There are also sectors that have strong relevance across two or more SDGs, as consumer goods, services and industrials. To deliver responsible consumption and production as set out in SDG 12, stakeholders will look to the Consumer Goods and Industrials sectors. Farming, fisheries & plantations (listed under Consumer Goods) will be expected to play a large role in SDG 2 to achieve zero hunger and SDG 14 to protect the marine environment. Also, there is a strong relevance in basic materials sectors, which could be closely linked to the delivery of SDG 15 which is about protecting the natural environment on land. These are also relatively large users of energy, water and waste, so SDG 12 on responsible consumption and production will also be highly relevant. The utilities sector could contribute to SDGs 6, 7 and 9. Finally, there are some sectors that are enablers across almost all the SDGs as Financials, Telecommunications and Technology can play a role in addressing challenges as diverse as healthcare access, pollution monitoring, smart agriculture to financial inclusion.

According to research, companies will only focus on a small number of Goals that are most relevant to their business operations or those to which they already make significant contributions, such as SDG 8 on economic growth. The study emphasizes that positive contributions to one goal do not compensate for negative consequences in other areas, such as human rights.<sup>23</sup>

Another challenge for business is the problem of the awareness. Raising SDGs awareness may enhance pro-sustainability behavior. However, little

---

<sup>23</sup> <https://media.business-humanrights.org/media/documents/files/Companies-contribution-to-the-SDGs.pdf/16/04.2022>

is known regarding the extent to which related information affects the perceptions of stakeholders toward supporting the implementation of the SDGs.<sup>24</sup>

The process of implementation of SDGs does not depend on one, or more different institutions, but it requires equal engagement of the state institutions and the contribution of each individual and business. While the business sector is expected to play a major role in achieving the 2030 Agenda, this will not happen without a higher level of global SDGs awareness among all relevant stakeholders. As the general public's awareness increases, the opportunity for business is effectively attracting and retaining better informed customers.

Increasing the awareness can be a way to incentivize a positive relationship between customers and businesses, where the importance of the SDGs is also recognized. According to a global survey conducted by PricewaterhouseCoopers, 71% of business respondents said they had started planning how they will engage with the SDGs, 13% had identified the tools they needed to assess their impact against the SDGs, while 41% said they will embed the SDGs into their strategy within five years.<sup>25</sup>

The strategic opportunity for business is to deliver sustainable development worldwide as a strategic approach to sustainability. Based on UN Global Compact annual survey, companies are performing when it comes to integrating the Ten Principles into their strategies and operations. The report also offers a review of current progress on each of the SDGs and considers impact measurement opportunities.<sup>26</sup> However, while all businesses value the relevance of the sustainability agenda, it sometimes remains a challenge actively putting the SDGs at the core of their strategies, and balancing sustainable development objectives with profitability.<sup>27</sup> To realize these possibilities, businesses must desire to engage with SDGs and to embrace them as part of their identity and strategic vision. Those companies are recognizing the risks of inaction or see the opportunity in being proactive.

Sustainability is an opportunity for companies to acquire new and retain loyal clients, penetrate new markets, promote innovation, explore new

---

<sup>24</sup> Tomomi Yamane, Shingi Kaneko, Impact of Raising Awareness of Sustainable Development Goals: A Research Experiment That Causes Stakeholder Behavior Preferences, *Journal of Cleaner Production*, Elsevier, 30.11.2020, <https://www.sciencedirect.com/science/article/abs/pii/S0959652620353361/13/04/2022>

<sup>25</sup> Make it your business: Engaging with the Sustainable Development Goals, [https://www.pwc.com/gx/en/sustainability/SDG/SDG%20Research\\_FINAL.pdf](https://www.pwc.com/gx/en/sustainability/SDG/SDG%20Research_FINAL.pdf) 2016/15/04/2022

<sup>26</sup> UN Global Compact, 2018, <https://www.unglobalcompact.org/library/5637/15/04/2022>

<sup>27</sup> Better Business for 2030: Putting the SDGs at the Core, OECD, 2018, p.7

business models, attract and keep talent and to gain a sustainable reputation. A study conducted by Nielsen shows that large majority of respondents are willing to pay premium price for products and services offered by sustainable businesses: among the 66% of global respondents willing to pay more, over 50% of them are influenced by key sustainability factors, such as a product being made from fresh, natural and/or organic ingredients (69%), a company being environmentally friendly (58%), and company being known for its commitment to social value (56%). The analysis is based on a survey of Corporate Social Responsibility and Sustainability conducted on the sample of 30,000 consumers in 60 countries throughout Asia-Pacific, Europe, Latin America, the Middle East, Africa, and North America. The findings shows that consumers across regions, income levels and categories have a preference for businesses that remain loyal to their values. The report also mentions that consumers in emerging markets, such as Latin America, Asia, Middle East and Africa, are almost 30% more willing to pay a premium for sustainable offerings than consumers in developed economies. Consumers in developing markets are physically closer to surrounding communities and more aware of the daily challenges.<sup>28</sup>

Another research from Mc Kinsey shows that customers are willing to pay more for a greener product with similar performance standards: 70% would pay a 5% premium in industries such as automotive, building, electronics, furniture and packaging, according to a survey assessing the sustainability of industry value chains. The most effectively a company can demonstrate commitment to environmental values, it will be easier to convince the consumers to channel their business to that company.<sup>29</sup>

The Business and Sustainable Development Commission estimates that the SDGs will open up USD 12 trillion of market opportunities by 2030 in areas ranging from food and agriculture, cities, energy and materials, and health and well-being. They also represent a significant market opportunity for business, estimated to be worth at least US\$12 trillion per year by 2030.<sup>30</sup>

Companies adopting environmental, social and governance practices toward clients, suppliers, employees and environment are more competitive

---

<sup>28</sup> The Sustainability imperative, new insights of customer expectation, Nielsen, October 2015, p.10

<sup>29</sup> Jay Conrad Levinson, Shel Horovitz, Guerilla marketing to heal the World, Morgan James, 2016, p.136

<sup>30</sup> WBCSD, 2018, in: Snežana Radukić, Marija Petrović-Randelović, Zorana Kostić, Sustainability-based Goals and achieved results in Western Balkan, p.11

in the long run.<sup>31</sup> Those business creates more jobs and employ more skilled and female, workers.<sup>32</sup> Evidence suggests that productivity gains generated by sustainable business conducts can outweigh the additional costs and in turn reduce overall unit labor costs. Employers that provide formal training for their employees, for example, pay 14% higher wages, yet are also 20% more productive.<sup>33</sup>

Putting SDGs at the heart of the global economic strategy can affect growth and productivity.<sup>34</sup> However, this will not happen without radical changes in business and the initiative to become a trusted partner in working with government and civil society to repair the economy.

## **Conclusion**

For successful implementation of 2030 Agenda, priorities have to be clearly define to mobilise global efforts among governments, civil society and business. The effectiveness of policy reforms in the implementation process requires more holistic and sweeping shifts and depends of strong public institutions. Governments and business have a role to play by partnering toward more sustainable and inclusive growth to meet the commitments of the 2030 Agenda for Sustainable Development.

The implementation of SDGs has been halted or reversed after Pandemic. Faced with a lot of challenges and opportunities, business have critical role in the implementation of SDGS until 2030, especially nowadays when it was slowed by Covid -19.

The following years will be decisive as to whether or not the world can make the transformations needed to achieve the SDGs by 2030. Citizens, NGO's, government and business have to be a part of the realization of SDGs. Bbusinesses must embrace the Global goals as important part in their strategic vision, and to recognize the risks of inaction or the opportunity in being proactive.

---

<sup>31</sup> Benhamou and Diaye, 2016 BO: Better Business for 2030: putting the SDGs at the core, OECD, 2018, p. 9

<sup>32</sup> Innovative firms are more competitive and create more jobs, ILO, 2017, [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_584358/lang--en/index.htm/18/04/2022](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_584358/lang--en/index.htm/18/04/2022)

<sup>33</sup> Better Business for 2030: putting the SDGs at the core, OECD, 2018, p.9

<sup>34</sup> Business & Sustainable Development Commission, 2017, <http://businesscommission.org/news/release-sustainable-business-can-unlock-at-least-us-12-trillion-in-new-market-value-and-repair-economic-system./18/04/2022>

The global community and businesses play an important role in the 2030 Agenda by laying out a strategy for a more equitable and sustainable post-Covid world. Companies should create strong interlinkages and focus on different goals while considering their impacts on the specific goals, according to the SDGs. They have the opportunity to acquire new and retain loyal clients, to enter new markets, to promote innovation, to explore new business models, to build a sustainable reputation, to increase productivity, and, as a result, to reduce overall unit labor costs.

By contributing and being impacted by challenges such as climate change and widening inequality, business should proactively define how to adopt and embed sustainability within their company strategy. The latest will contribute in creating new strategic opportunities, motivating employees, attracting new funding sources, strengthening stakeholder dialogue and boosting innovation in goods and service provision. Both large and small companies from different sectors, should contribute on SDGs achievement especially in the period after pandemic. The SDGs facilitate the alignment of corporate strategy with the needs of society. They highlight areas of innovation and can help to open up new markets. That is why the topic of opportunities is very relevant in the context of the 17 Goals.

SDGs can be considered an opportunity for business to demonstrate how they can help to achieve sustainable development by minimizing their negative impacts and maximizing positive contributions on the global level. Moreover, the SDGs have been found as useful framework under which businesses can operate and use to guide their investments, innovation and decisions. For businesses to really get engaged and contribute to the SDGs, they must change and create business opportunities in sharing their responsibilities to society.<sup>35</sup>

To summarize, the Global goals provide a comprehensive framework that enables companies to define and prioritize material issues and improve the quality of their reporting, sending a clear message to internal and external stakeholders alike.

---

<sup>35</sup> Mario Sinataoila, Onkila Tiina, Business in society or business and society: The construction of business-society relations in responsibility reports from a critical discursive perspective, [https://www.researchgate.net/publication/263335914\\_Business\\_in\\_society\\_or\\_business\\_and\\_society\\_The\\_construction\\_of\\_business-society\\_relations\\_in\\_responsibility\\_reports\\_from\\_a\\_critical\\_discursive\\_perspective/31/05/2021](https://www.researchgate.net/publication/263335914_Business_in_society_or_business_and_society_The_construction_of_business-society_relations_in_responsibility_reports_from_a_critical_discursive_perspective/31/05/2021)

## **References**

- 1 Akinlolu G. Omisore, Grace M. Babarinde, Damilola P. Bakare, Esther O. Akesun-Olarinmoye, 2017. Awareness and Knowledge of the Sustainable Development Goals in a University Community in South-western Nigeria, *Ethiopian Journal of Health Science*, and Nov; 27(6): 669–676, DOI: 10.4314/ejhs. v27i6.12
- 2 *Better Business for 2030: Putting the SDGs at the Core*, OECD, 2018
- 3 Jay Conrad Levinson, Shel Horovitz, *Guerilla marketing to heal the World*, Morgan James, 2016
- 4 Petkovska Mirchevska T., Daniloska N., Boshkovska D., Petkovski V., *Change in Consumers' Behavior during the COVID 19 pandemic as an Opportunity to foster Digital Entrepreneurship in the Republic of North Macedonia: Economic Analysis: Applied Research in Emerging Markets*, Vol 54 No 1 (2021), Belgrade, 2021
- 5 Radukić S, Petrović-Randelović M, Kostić Z, *Sustainability-based Goals and achieved results in Western Balkan*, WBCSD, 2018
- 6 *The Sustainability imperative, new insights of customer expectation*, Nielsen, October 2015
- 7 *Working in an SDG economy Aligning business activity to the Global Goals* <https://www.pwc.com/gx/en/sustainability/publications/assets/working-in-an-sdg-economy.pdf>,
- 8 [https://d306pr3pise04h.cloudfront.net/docs/news\\_events%2F9.3%2F-better-business-better-world.pdf/](https://d306pr3pise04h.cloudfront.net/docs/news_events%2F9.3%2F-better-business-better-world.pdf/)
- 9 <https://www.wbcd.org/contentwbc/download/12241/183149/1/>
- 10 <https://www.peterfisk.com/2020/03/business-needs-the-sdgs-and-they-need-business-embracing-the-uns-17-sustainable-development-goals-is-a-12-trillion-opportunity-for-business-by-2030/>
- 11 <https://www.unglobalcompact.org/sdgs/about/>
- 12 <https://www.greenbiz.com/article/what-do-sdgs-mean-business-now/>
- 13 <https://www.peterfisk.com/2020/03/business-needs-the-sdgs-and-they-need-business-embracing-the-uns-17-sustainable-development-goals-is-a-12-trillion-opportunity-for-business-by-2030/>

- 14 UNU-CS, October 2018. Engaging Citizens for Sustainable Development: A data Perspective, Making the Global Agenda the Citizens' Agenda, United Nations University, [https://collections.unu.edu/eserv/UNU:6646/UNU-CS-Data\\_SD-Report-Engaging\\_Citizens-20181004-compressed.pdf/](https://collections.unu.edu/eserv/UNU:6646/UNU-CS-Data_SD-Report-Engaging_Citizens-20181004-compressed.pdf/)
- 15 United Nations, 2017. The Sustainable Development Goals Report 2017, <https://unstats.un.org/sdgs/files/report/2017/thesustainabledevelopmentgoalsreport2017.pdf/>
- 16 Global Goals for people and planet, <https://www.unglobalcompact.org/sdgs/about>)
- 17 The Sustainable Development Goals Report 2021, <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf>
- 18 <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf/>
- 19 <https://www.17goalsmagazin.de/en/the-relevance-of-the-sustainable-development-goals-sdgs-for-companies/>
- 20 A Report for the Business & Sustainable Development Commission, March 2016, [file:///C:/Users/User/Downloads/SDG-Sectors.pdf/](file:///C:/Users/User/Downloads/SDG-Sectors.pdf)
- 21 <https://media.business-humanrights.org/media/documents/files/Companies-contribution-to-the-SDGs.pdf/>
- 22 Tomomi Yamane, Shingi Kaneko, Impact of Raising Awareness of Sustainable Development Goals: A Research Experiment That Causes Stakeholder Behavior Preferences, Journal of Cleaner Production, Elsevier, 30.11.2020, <https://www.sciencedirect.com/science/article/abs/pii/S0959652620353361/>
- 23 Make it your business: Engaging with the Sustainable Development Goals, [https://www.pwc.com/gx/en/sustainability/SDG/SDG%20Research\\_FINAL.pdf](https://www.pwc.com/gx/en/sustainability/SDG/SDG%20Research_FINAL.pdf) 2016/
- 24 UN Global Compact, 2018, <https://www.unglobalcompact.org/library/5637/>
- 25 Benhamou and Diaye, Better Business for 2030: putting the SDGs at the core, OECD, 2018

- 26 Innovative firms are more competitive and create more jobs, ILO, 2017, [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_584358/lang--en/index.htm/](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_584358/lang--en/index.htm/)
- 27 Business & Sustainable Development Commission, 2017, [http://businesscommission.org/news/release-sustainable-business-can-unlock-at-least-us-12-trillion-in-new-market-value-and-repair-economic-system./](http://businesscommission.org/news/release-sustainable-business-can-unlock-at-least-us-12-trillion-in-new-market-value-and-repair-economic-system/)
- 28 Mario Sinataoila, Onkila Tiina, Business in society or business and society: The construction of business-society relations in responsibility reports from a critical discursive perspective, [https://www.researchgate.net/publication/263335914\\_Business\\_in\\_society\\_or\\_business\\_and\\_society\\_The\\_construction\\_of\\_business-society\\_relations\\_in\\_respo\\_reports\\_from\\_a\\_critical\\_discursive\\_perspective/](https://www.researchgate.net/publication/263335914_Business_in_society_or_business_and_society_The_construction_of_business-society_relations_in_respo_reports_from_a_critical_discursive_perspective/)

ALEKSANDRA LOZANOSKA<sup>1</sup>

314.117-053(497.7)“2002/2021”

VERICA JANESKA<sup>2</sup>

(Original scientific paper)

ELIZABETA DJAMBASKA<sup>3</sup>

## CHALLENGES OF THE DEMOGRAPHIC AGEING IN THE REPUBLIC OF NORTH MACEDONIA – CURRENT SITUATION AND PROSPECTS

**Abstract:** The aim of this paper is to identify the changes in the period 2002-2021 and current situation related to population ageing and basic functional contingents of the resident population in North Macedonia. Based on the analysis the main challenges in terms of demographic and socio-economic development on mid and long term are determined and areas in which appropriate policies should be developed. The analyses show that resident population has declined for about 12% and the demographic ageing was accelerated. It results with decrease of the number of children for 27%, young population (32%), working-age population for (12.4%) and female fertile population (21.4%), while the population aged 65+ increased for 47.5%. In circumstances of extremely unfavorable demographic situation, the country is facing three major challenges referring to the necessity to mitigate the decrease of the resident population and of the young working-age population, as well as the rapid growth and aging of the elderly population. Each of them is equally complex and requires great attention and comprehensive activities of the policy makers in the country. Indisputable interrelation of the policies in all these areas requires creation and of a comprehensive strategy for family that should include all relevant aspects related to promoting its position and sustainability.

**Keywords:** demographic aging, fertile population, working-age population, old population, population policy

**JEL Classification:** J11, J20, J13, J14, J18

---

<sup>1</sup> PhD, Associate Professor, Institute of Economics-Skopje, “Ss. Cyril and Methodius” University in Skopje, Republic of North Macedonia, e-mail: sandra@ek-inst.ukim.edu.mk

<sup>2</sup> PhD, Professor, Institute of Economics-Skopje, “Ss. Cyril and Methodius” University in Skopje, Republic of North Macedonia, e-mail: verica@ek-inst.ukim.edu.mk

<sup>3</sup> PhD, Associate Professor, Institute of Economics-Skopje, “Ss. Cyril and Methodius” University in Skopje, Republic of North Macedonia, e-mail: beti@ek-inst.ukim.edu.mk

## **Introduction**

The demographic, economic and social implications of a population aging are becoming increasingly obvious in many countries worldwide. The policymakers are confronted with many challenges including a decline in young population and the working-age population, increased health care costs, unsustainable pension systems, and changing demand drivers within the economy.

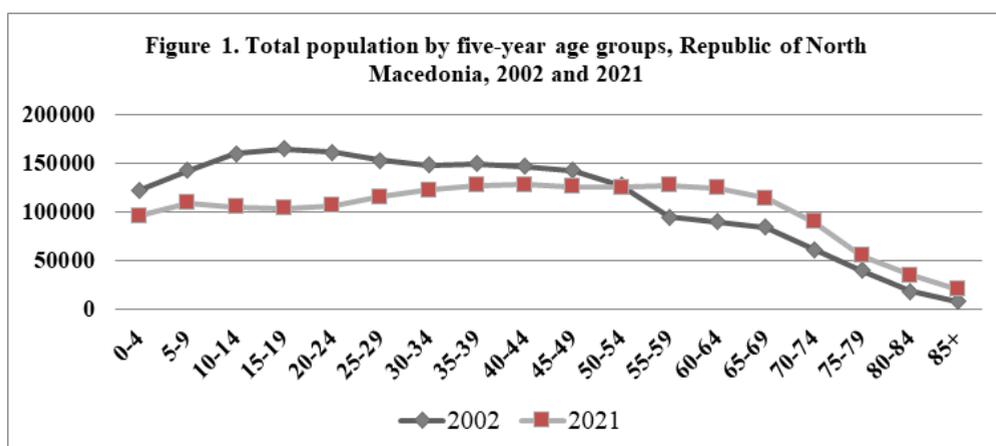
Demographic implications are manifested in narrowed reproductive base of the population and fertility decrease. The decline in the working-age population results in a supply shortage of qualified workers, making it more difficult for businesses to fill in-demand occupations. It can result in opposing consequences, including decline of productivity, higher labour costs, delayed business expansion, and reduced international competitiveness.

A country with a large senior population depends on a smaller group of people to pay for higher health costs, pension benefits, and other publicly funded programs. Considering that the demand for healthcare rises with age, countries with rapidly aging populations must allocate more money and resources to their health care systems. An economy with a significant share of seniors and retirees has different demand drivers than an economy with a higher birth rate and a larger young working-age population. Rapidly aging populations tend to have greater demands for health care services and retirement homes, challenging the markets to transit towards goods and services linked to older people.

This paper examines the challenges of the demographic aging in the Republic of North Macedonia, considering its specific demographic and socio-economic situation. Analysis is made on the changes in the total resident population and main functional contingents (children, working-age population, female fertile population, women on optimal reproductive age and the old age contingent) in the country in last two decades. The findings from this analysis are used to identify the challenges and possible outcomes and policies which can be undertaken in order to mitigate the unfavorable population aging situation. In the study the Population Census data 2002 and 2021, vital statistics and Labor Force Survey data from State Statistical Office of the Republic of North Macedonia are used, but also and other available data from relevant institutions are considered.

## 1. CHANGES IN THE TOTAL RESIDENT POPULATION

According to 2021 Census data, total resident population in North Macedonia amounts 1836713 inhabitants that is 9.2% less than in 2002 (Figure 1). Calculations according the vital-statistical method show that in this period the country has lost more than 240 thousand inhabitants due to emigration abroad, which includes the entire natural population increase (around 54 thousand persons) and more than 185 thousand persons of the resident population in 2002. It means that the total population in 2021 is lower, not for 9.2%, but for about 12%.



Source: State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021

Population changes are accompanied by accelerated population aging. This process in North Macedonia began in the mid-1990s when the population reached the **threshold of demographic age** (rank 4 out of 7).<sup>4</sup> According the 2002 Census data the total resident population had entered the stage of **demographic age** (rank 5), while in 2021 the resident population is in the stage of **deep demographic age** (rank 6) (Table 1).

<sup>4</sup> According the extreme values of the five indicators there are seven stages of demographic age: 1 – early demographic youth, 2 – demographic youth, 3 – demographic maturity, 4 – threshold of demographic age, 5 – demographic age, 6 – deep demographic age and 7 – deepest demographic age. Source: Population and households of SR Yugoslavia according the Census 1991, SZS and Centre for demographic researches of the Institute for social sciences, Population 47, p. 131

**Table 1. Indicators of demographic aging in North Macedonia**

	<b>Average age</b>	<b>Young population (up to 20 years)</b>	<b>Younger than 40 years</b>	<b>60 years and more</b>	<b>Aging index</b>	<b>Rank</b>
1994	32.9	33.2	64.5	13.0	0.392	<b>4</b>
2002	35.1	29.3	59.6	15.0	0.513	<b>5</b>
2021	40.8	22.6	48.4	24.0	1.060	<b>6</b>

Source: State Statistical Office of North Macedonia, Population Censuses 2002 and 2021, <https://www.stat.gov.mk/OblastOpsto.aspx?id=31>

All these changes show that North Macedonia is facing significant decline of the resident population, as well as intensified demographic aging. It has great influence on the scope of the basic functional contingents.

## **2. BASIC FUNCTIONAL CONTINGENTS OF THE POPULATION**

Accelerated demographic ageing in last two decades is complemented with great and very unfavorable changes in the basic functional contingents of the resident population in North Macedonia. They indicate that in 2021 compared to 2002 the number of children (0-14) is lower by 115 thousand persons, the number of young people (15-29) for 154 thousand and of the working-age population for about 171 thousand persons. Equally unfavorable are the changes in the reproductive base of the population (Table 2). The number of female fertile population in 2021 compared to 2002 is lower by 112 thousand persons and of women on optimal reproductive age for 57 thousand. At the same time great increase of older population and progressive demographic aging of this contingent has happened.

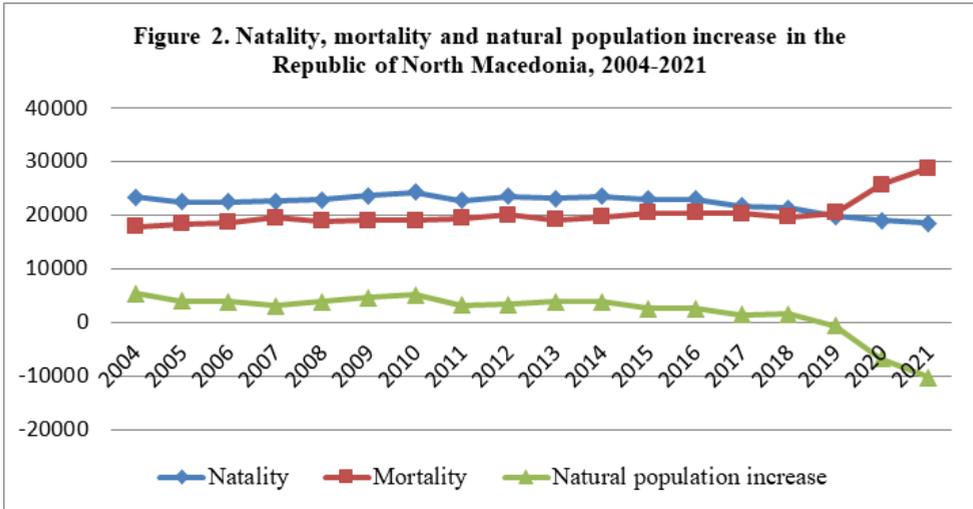
**Table 2. Main age-sex contingents of the population in North Macedonia, 2002 and 2021**

	Number		Increase / decrease (in %)	Share (in %) of total population	
	2002	2021		2002	2021
Children (0-14)	426280	311347	-27.0	21.1	17.0
Young population (15-29)	480828	326733	-32.0	23.8	17.8
Working-age population (15-64)	1381352	1210035	-12.4	68.3	65.9
Female fertile population (15-49)	522355	410739	-21.4	25.8	22.4
Women on optimal reproductive age (20-34)	226597	169232	-25.3	11.2	9.2
Population aged 65+	213712	315331	47.5	10.6	17.2
Population aged 80+	26916	56084	108.4	1.3	3.1

*Source: State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021.*

The great decrease of the resident population in the country mainly is caused by the intensified permanent emigration abroad, which in the last two decades took on the character of an exodus. The available data of international organizations shows that in 2020 the number of Macedonian citizens abroad amounts almost about 700 thousand persons.<sup>5</sup> Permanent emigration mainly includes the young population and young married couples, which caused a continuous increase in the number of children born abroad. Available data show that as of 2020, the share of children born abroad compared to live births in the country reached more than 25%. Since 2015, the impact of natural increase on the population growth has been increasingly emphasized, due to its declining trend and negative sign from 2019, caused by a large mortality increase (Figure 2). Compared to 2019, the mortality in 2020 is higher for 26%, while in 2021 for almost 41%.

<sup>5</sup> European Commission, Atlas of Migration 2021, <https://publications.jrc.ec.europa.eu/repository/handle/JRC127608>, EU, 2021, p. 100

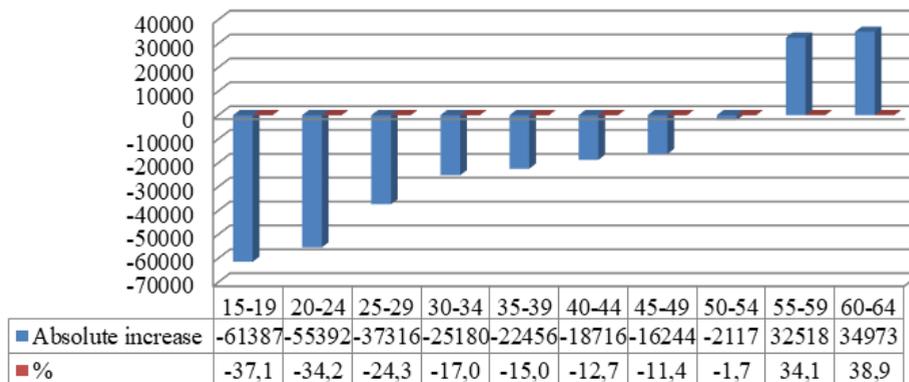


Source: State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021

In the period 2002-2021 the changes of the working-age population are most emphasized for the young population (15-29), that noticed decline of almost one third (32%). It means serious decline in the inflow of new generations of working-age population and young labour force, as well as their intensified demographic aging (Figure 3). In the observed period an increase is characteristic only for the working-age population aged 55-64 years (for almost 68 thousand persons, or for 36.5%).

The available human resources are and will remain a key determinant for the economic development of the country. The demographic aging, mainly caused by emigration of young and educated population, implies great changes and numerous challenges, in terms of lack of labour force and rising mismatch of the labour market’s supply and demand. They can be seen in two main segments. Firstly, the shrink of the new generations who will enter the educational process, will result in smaller number of skilled and educated working-age population who will enter the labour market if they stay in the country. Secondly, the aging of the existing labour force is reducing the opportunities for absorption of new knowledge and skills, necessary to raise the human capital level.

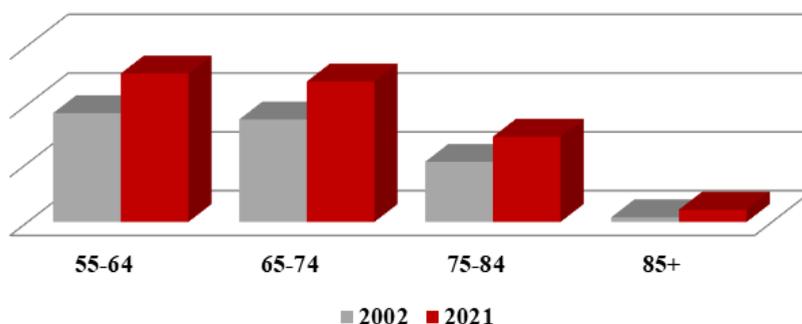
**Figure 3. Changes of the working-age population of the Republic of North Macedonia in the period 2002-2021, by five year age groups**



Source: State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021

In the inter-census period 2002-2021, the population aged 65+ increased by 47.5% and was complemented by significant changes in its age structure, due to a great increase in the age group 75-84 (for 41.7%) and more than doubled number of persons aged 85+, reaching 21 thousand persons in 2021 (Figure 4). The increase of the population aged 55-64 shows that this trend will be even more pronounced in the next decade.

**Figure 4. Changes of the population aged 55 and over in Republic of North Macedonia, 2002 and 2021**



Source: State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021

Changes in each of these contingents indicate that the country is already facing problems and challenges for its demographic and socio-economic development. They are imposing need for more comprehensive approach to policy-oriented data collection and analysis, which can help to develop appropriate policies.

### **3. CHALLENGES AND POLICIES RELATED TO DEMOGRAPHIC AGEING**

The current unfavorable demographic situation is implying numerous consequences related to the demographic and socio-economic development of North Macedonia, on mid and long term. Small number of children, due to the intensified emigration abroad and decreased natural population increase in the country, will imply narrowed reproductive base of the resident population and won't be able to replace the large cohorts that exit the labour market due to aging. At the same time rising old age contingent should be expected.

In these circumstances, the country is facing three major challenges related to: the enormous decrease of the resident population, the decline of the young working-age population, as well as the rapid growth and aging of the elderly population. Each of them is equally complex and requires great attention and comprehensive activities of the policy makers in the country.

**a) *Slowing down the resident population decrease.*** Population census 2021 confirmed that emigration abroad is a key determinant of large and very unfavorable demographic changes in North Macedonia. The reasons for the intensified emigration abroad correspond with the socio-economic development of the country. The increase of the highly educated persons' unemployment; underestimation of the expertise; limited possibilities to advance in the career have contributed to intensification of the intellectual emigration. The increase of the number of Macedonian citizens abroad is also a result of the rising second and third generations, as well as due to the transformation of the temporary emigration to permanent. Changes on the labour markets of the receiving countries and their immigration policies are one of the key determinants for increased emigration and of the older mid-age population and highly educated persons (engineers, medical staff and others).

The problem of emigration abroad is recognized in the *Resolution of the Migration Policy for the period 2021-2025*, where one of the strategic goals is to reduce the intensity of permanent emigration abroad, with special focus on persons with high level of education, through continuous addressing of the

reasons for emigration.<sup>6</sup> This strategic goal should be achieved through realization of two concrete objectives:<sup>7</sup>

- Minimizing unfavorable drivers and structural factors that force people to permanently leave their country of origin.
- Improving the accessibility and flexibility of ways for regular circular migration.

At the same time, it is necessary to mitigate the rapid and sharp decline in natural population increase, mainly determined by the large mortality growth, which in 2020 and 2021 has reached historically the highest level, since Second World War. Urgent and consistent action is required for both components of the natural population increase. Rising fertility and live births in the country should be achieved in the circumstances of a narrowed reproductive base of the population, through strong support of natality and family. Given the characteristics of low fertility and its consequences, then the main features and determinants of the fertility changes, the fertility policy should cover four areas of intervention: pro-natalist policies; financial incentives; marriage; work-life balance.<sup>8</sup> Great attention for reducing the growing mortality should be devoted, through comprehensive preventive activities of the health system in post Covid-19 period.

Most of the researches on the changes in the mortality, particularly from the start of the Covid-19 pandemic, show that the increase in the total mortality was mostly caused by Covid-19, but also by the growth of non-Covid deaths. It was accompanied with significant changes in the number and structure of non-Covid deaths by other diseases, seen in decrease of the share of previously most represented diseases. There are many determinants for such modifications in the mortality structure, including the public health policies, capacities of health systems and their overload, reduced possibilities for regular health controls, individual risk factors and attitudes to restriction measures, individual fears of contracting the disease, etc.<sup>9</sup>

---

<sup>6</sup> Government of the Republic of North Macedonia, Resolution of the Migration Policy for the period 2021-2025, Official Gazette of North Macedonia, No. 290/2021, 23.12.2021, p. 44

<sup>7</sup> Ibid., p. 50

<sup>8</sup> Janeska V., Lozoska A., Fertility Changes in the Balkan Countries - Main Features and Challenges of the Below-Replacement Fertility, Proceedings from the Fifth International Conference of the Balkans Demography: The Population of the Balkans at the Dawn of the 21st Century, Skopje, 2017, p.22

<sup>9</sup> Janeska V., Lozoska A., Impact of Covid-19 pandemic on the mortality in Republic of North Macedonia, Economic Development, Year. 24 No. 1/2022, Institute of Economics-Skopje, 2022, p. 56

***b) Mitigation of the consequences related to the working-age population decrease and lack of labour force.*** The impact of working-age population aging is negatively reflected on the volume and structure of the available labour force, imposing problems for the economic growth, competitiveness, etc. In current situation of the working-age population decrease and lack of labour force, the attention of North Macedonia should be focused on:<sup>10</sup>

- Reforms in all levels of educational process, in order to meet the labour market needs;
- Support of the lifelong learning process and continuous skill improvements of the employees;
- Investments in new technology and digitalization, as well as providing necessary labour force skills;
- Adjustment of labour market programmes, creation of flexible labour market policies and providing job security;
- Retention of young and educated labour force in the country, through appropriate talent management;
- Promotion of new management style and organizational culture.

In terms of the working-age population decrease and intensified aging of the existing labour force, technological changes can provide valuable help, stepping in some areas where human resources are lacking. The mutual effects of demographic and technological changes can be seen in the changes of labour supply, affecting the factor prices and altering the relative profitability of labour-intensive and automated sectors. Also, demographic changes influence the savings and the interest rate, shifting the amount of resources available for investment in capital accumulation, innovation, and automation. Based on these aspects it can be noted that a fall in fertility, accompanied with working-age population shrink, leads the economy to a new balanced growth path with lower GDP per capita growth, a higher degree of automation, and a lower labour income share.<sup>11</sup>

Another impact of population aging particularly on the economic development is the change of demand and consumption structure. Some economic sectors will develop (services for older people such as medical services and food services), while others (education, transport, recreation and consumer

---

<sup>10</sup> Janeska V., Lozanoska A., Impact of Digitalization on the Labour Market: The Case of North Macedonia, *Economic Analysis* (2021, Vol. 54, No. 1, 24-40), p. 38

<sup>11</sup> **Basso Henrique, Jimeno F. Juan**, Demographics and technology explain secular stagnation and more, <https://voxeu.org/article/demographics-and-technology-explain-secular-stagnation-and-more>, **2019**

goods, housing services) will stagnate. This may require significant shifts between sectors and increase occupational mobility (inside and outside national borders), which in turn can lead, at least in the short term, to productivity decreases, if most of the newcomers have a relatively low qualification in the new field.<sup>12</sup>

*c) Intercepting the implications of rapid growth and elderly population aging.* The significant increase in the number of older population imposes a burden on the sustainability of the pension system in North Macedonia. It will be a big challenge, particularly in terms of decrease of the young working-age population and unfavorable situation on the labour market. At the same time, there is a need to adapt the health care system to the growing number of elderly population. A current and expected change in the demographic profile of the older population implicates needs for social care of the elderly persons, particularly related to the capacities for their institutional accommodation and implementation of different forms for non-institutional care.<sup>13</sup>

Also, it is very important to note that ageing require use of the underused human potential in the country. It is very difficult to sustain the living standard when a rapidly growing proportion of the population is dependent on the contributions from others and when their possibilities to participate and contribute according to their abilities are limited. Older persons have accumulated expertise, knowledge and experience and can therefore contribute a lot. Therefore, one of the necessary steps is to integrate older persons into the policymaking process and to encourage those who wish and can stay in their jobs longer.

Population aging needs all service provisions and systems to be made more efficient, bigger support to families which are taking care for their older members (by adapting their work schedules, or compensating them for the caring time) and supporting family relationships. Therefore, it is necessary seriously to address the imposed challenges by: overcoming the lack of capacities for accommodation of the elderly persons in the public and private homes; consistent implementation of the norms and standards for founding and start of work of the institutions for social protection of elderly persons; improvement

---

<sup>12</sup> Serban Andreea Claudia, Aging population and effects on labour market, International Conference On Applied Economics (ICOAE) 2012, Procedia Economics and Finance 1, 2012, p. 361

<sup>13</sup> Janeska V., Lozoska A., Changes in the older population of the Republic of Macedonia and social protection challenges, Economic Development, Year.19 No. 1-2/2017, Institute of Economics-Skopje, 2017, p. 27-31

of the knowledge and skills of the personnel who work with the elderly persons; greater representation of different forms for non-institutional protection; further improvement and more coordinated cooperation among the institutions that settle elderly persons (on national and local level), the private sector and NGO's; profound studies for different aspects of the elderly population as pre-condition for identification of their specific needs.<sup>14</sup>

Efforts should be made to adapt social protection systems, labour market, health and care to the older population needs. These are the areas which are very directly related to the sustainability of public finances. However, it will be crucial to pay attention to issues that go beyond those motivated by fiscal concerns. It is important to achieve a change in the mindset, which means loosening assumptions on stereotypic roles for different stages of life, in favor of more flexible views that accommodate the active participation in society of people of all ages.<sup>15</sup> Therefore, it is very important to keep people of all ages integrated into society and to provide ways of their participation.

### **Conclusion:**

The 2021 Population census showed that North Macedonia is facing a very unfavorable demographic situation. The reduction of the resident population and the accelerated population aging are accompanied with significant decline of all basic functional contingents of the population, except population aged 65+. Intensified permanent emigration abroad of young and mid age population in last two decades is key determinant for manifested changes of the resident population with numerous and long-term consequences on the demographic and socio-economic development of the country.

In these circumstances, the country is facing three major challenges which refer to: slowing down the resident population decrease, mitigation the consequences related to the working-age population decrease and lack of labour force, as well as intercepting the implications of rapid growth and elderly population aging. Complexity and mutual conditioning of these challenges, determined by the accelerated population aging, imposes need for wide-ranging, comprehensive and coordinated activities of the policy makers in the country, on mid and long term. Therefore, it is necessary to have policy-oriented data collection and analysis, which can help to develop appropriate and feasible

---

<sup>14</sup> Ibid., p.32

<sup>15</sup> UNECE, Challenges and opportunities of population aging, [https://unece.org/DAM/highlights/what\\_ECE\\_does/English/0726054\\_UNECE\\_AGEING.pdf](https://unece.org/DAM/highlights/what_ECE_does/English/0726054_UNECE_AGEING.pdf)

policies. Due to their complexity these policies should be interconnected and related with each other, considering the identified necessary measures and actions in all of them.

Indisputable interrelation of the policies in all these areas require creation and of a comprehensive strategy for family. It should include all relevant aspects related to promoting the position and sustainability of the family, strengthening the role of the marital community, increasing the quality of child care, better educational system, increasing the employment and living standard, improving health and social care, enhancing family support, including care for older family members, etc. The implementation of such a strategy for family should contribute to improving the well-being of families and care for children and strengthening social cohesion in the family. They are important prerequisites for the increase of marriages and births, as well as the retention of young people in the country, leading to decrease of the emigration abroad and mitigation of its long-term and far-reaching consequences.

The strategy for the family of North Macedonia should be based on the principles of protection of human rights and freedom, solidarity, long-term macroeconomic benefit and historical responsibility. For that purpose, the country should continue to adapt the national legislation in the field of the family in accordance with international standards and the legislation of the European Union. In view of the complexity of the family issue, in the operationalization of the identified proposals in concrete activities and measures, it is necessary to coordinate the mutual cooperation of all competent authorities and institutions, as well as to specify the competences for particular aspects in the area of the family and the family life.

**References:**

- 1 **Basso Henrique, Jimeno F. Juan**, Demographics and technology explain secular stagnation and more, <https://voxeu.org/article/demographics-and-technology-explain-secular-stagnation-and-more>, **2019**
- 2 European Commission, Atlas of Migration 2021, <https://publications.jrc.ec.europa.eu/repository/handle/JRC127608>, EU, 2021
- 3 Government of the Republic of North Macedonia, Resolution of the Migration Policy for the period 2021-2025, Official Gazette of North Macedonia, No. 290/2021, 23.12.2021
- 4 Janeska V., Lozoska A., Impact of Covid-19 pandemic on the mortality in Republic of North Macedonia, Economic Development, Year.24 No. 1/2022, Institute of Economics-Skopje, 2022
- 5 Janeska V., Lozoska A., Impact of Digitalization on the Labour Market: The Case of North Macedonia, Economic Analysis (2021, Vol. 54, No. 1, 24-40), 2021
- 6 Janeska V., Lozoska A., Changes in the older population of the Republic of Macedonia and social protection challenges, Economic Development, Year.19 No. 1-2/2017, Institute of Economics-Skopje, 2017
- 7 Janeska V., Lozoska A., Fertility Changes in the Balkan Countries - Main Features and Challenges of the Below-Replacement Fertility, Proceedings from the Fifth International Conference of the Balkans Demography: The Population of the Balkans at the Dawn of the 21st Century, Skopje, 2017
- 8 Population and households of SR Yugoslavia according the Census 1991, SZS and Center for demographic researches of the Institute for social sciences-Belgrade, "Population 47"
- 9 Serban Andreea Claudia, Aging population and effects on labour market, International Conference On Applied Economics (ICOAE) 2012, Procedia Economics and Finance 1, 2012
- 10 State Statistical Office of the Republic of North Macedonia, Population Census data, 2002 and 2021

- 11 UNECE, Challenges and opportunities of population aging, [https://un-ece.org/DAM/highlights/what\\_ECE\\_does/English/0726054\\_UNECE\\_AGEING.pdf](https://un-ece.org/DAM/highlights/what_ECE_does/English/0726054_UNECE_AGEING.pdf)

**KATERINA HADZI NAUMOVA-MIHAJLOVSKA<sup>1\*</sup>**

**NEDA PETROSKA ANGELOVSKA<sup>2\*</sup>**

**MARIJA TAKOVSKA<sup>3\*</sup>**

**338.43:303.725.3(497.7)**

**(Original scientific paper)**

## **GREEN ECONOMY IMPLEMENTATION IN AGRICULTURE SECTOR – EMPIRICAL RESEARCH IN REPUBLIC OF NORTH MACEDONIA**

**Abstract:** Agriculture sector plays a significant role in the national economy in the Republic of North Macedonia and has strong linkages to other sectors. Its direct and indirect effect on people and environment additionally makes it important for implementation of principles of green economy. Agriculture can provide livelihoods and food security for population, reduce the risks from climate change and meet increasing demand for energy in terms of energy production shortage in the country. Although the pandemic further has complicated the situation in the Macedonian economy, it gives an advantage for development of the concept of green economy that is, by efficient use of resources and respect for the principles of natural laws to find new technological and innovative solutions that will contribute to production of food and agricultural goods on a sustainable basis, pollution reduction and maintaining and increasing farm production and profitability of agriculture sector.

Therefore, the main purpose of the paper is to analyze the agriculture sector of the Republic of North Macedonia in terms of the ability to implement the concept of green economy. Based on empirical research conducted among agricultural entities, recommendations are given with the aim of creating public policies for a better implementation of the principles of green economy in agriculture. The acceptance of paper recommendations in order to promote the implementation of the green economy concept will give an opportunity for agriculture sector to achieve its goals while protecting the environment, strengthening natural capital and energy efficiency of resources. In that context, prin-

---

<sup>1</sup> \*PhD, Associate professor, Institute of economics - Skopje, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, katerina@ek-inst.ukim.edu.mk

<sup>2</sup> \*PhD, Full-time professor, Institute of economics - Skopje, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, neda@ek-inst.ukim.edu.mk

<sup>3</sup> \*PhD, Full-time professor, Institute of economics - Skopje, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, marija@ek-inst.ukim.edu.mk

principles of green economy in agriculture sector should be a significant part of long-term strategy for sustainability in the Republic of North Macedonia.

**Keywords:** green economy, agriculture sector, Republic of North Macedonia

**JEL classification:** Q50, Q56, Q57

## **Introduction**

The main goal of the green economy is to find ways and methods that will ensure the most efficient use of resources to meet human needs and thereby preserve the environment unchanged. The concept of green economy is very attractive for countries and businesses because it aims to provide a simultaneous solution to unemployment, economic growth and environmental issues by introducing new green industries and tools to mitigate the damage caused to the environment. Responsibility for the environment and green work means sustainability to be incorporated in the work in all activities of the company. Renewable energy, green buildings, clean transport, water management, waste management, land management and green market are the main sectors in which green economy operates.<sup>4</sup> At the UN conference, Rio +20, was created a set of principles according to which the framework for application of the concept of green economy could be defined:<sup>5</sup> Principle of equitable distribution of wealth; Principle of economic equality and justice; Principle of conservation of natural resources; Principle of careful approach to the environment; Principle of the right to development; Principle of cost recovery; Principle of international cooperation; Principle of international responsibility; Principle of informing and participating; Principle of sustainable consumption and production; Principle of strategic cooperation and integrated management; Principle of fair transition; Principle of redefining wealth; Principle of gender equality and Principle of biodiversity and prevention of environmental pollution.

It's known that many agricultural activities could provide solutions to the social, economic and environmental challenges that the green economy aims to address. More specifically, it can provide livelihoods and food security for population, reduce the risks from climate change and meet increasing demand for energy in terms of energy production shortage in the country. Green economy implementation is complicated by the fact that agriculture is a primary sector which tends to be resource-intensive and generally has adverse impacts on the environment, which is counter to the principles of a green economy. Namely, current ways of agricultural production lead to the emergence of many environmental problems, social tension and reduction of the natural

---

<sup>4</sup> Brundland G., Jargon H., , Getting in the way of sustainable development, ECOURED, 2012, <http://ecoured.me/tag/green-economy/>, 10.8.2020

<sup>5</sup> Stoddart H., Riddlestone S., Vilela M., Principles for the Green economy, Earth Charter Initiative, Earthsummit 2012, London, 2012, p.3

capital. Overcoming those issues are possible upon the transition of the agrarian sector to the model of green economy.

The greening of agriculture refers to the increasing use of farming practices and technologies that simultaneously:<sup>6</sup>

- Maintain and increase farm productivity and profitability while ensuring the provision of food and ecosystem services on a sustainable basis;
- Reduce negative externalities and gradually lead to positive ones;
- Rebuild ecological resources (i.e. soil, water, and air and biodiversity natural capital assets) by reducing pollution and using resources more efficiently.

Farming practices and technologies that are instrumental in greening agriculture include:

- Restoring and enhancing soil fertility through the increased use of naturally and sustainably produced nutrient inputs; diversified crop rotations; and livestock and crop integration;
- Reducing soil erosion and improving the efficiency of water use by applying minimum tillage and cover crop cultivation techniques;
- Reducing chemical pesticide and herbicide use by implementing integrated and other environmental friendly biological pest and weed management practices;
- Reducing food spoilage and loss by expanding the use of post-harvest storage and processing facilities.

The greening of agriculture does not rule out technologies or practices on ideological grounds. If a technology works to improve productivity for farmers, and does not cause undue harm to society and the environment, then it is acceptable. Although natural methods of pest and weed management and organic sources of fertilizer and seed are at one end of a green agriculture spectrum, the highly efficient and precise use of inorganic fertilizers, pest controls and technological solutions may also be included in the broad spectrum of sustainable farming practices.

Many agricultural activities could provide solutions to the social, economic and environmental challenges that the green economy aims to address. Depending on how it is practiced, agriculture can directly contribute to meeting many of the green economy's social and environmental aspirations, such

---

<sup>6</sup> Transition of green economy in key sectors, p. 6 [https://www.un-page.org/files/public/module\\_4\\_transitioning\\_to\\_a\\_green\\_economy\\_in\\_key\\_sectors.pdf](https://www.un-page.org/files/public/module_4_transitioning_to_a_green_economy_in_key_sectors.pdf), 1.6.2022

as protecting biodiversity and ecosystems, and creating decent work and green jobs. To be in tune with a green economy, agriculture has to meet a number of requirements. These include producing food and agricultural goods and services on a sustainable basis; reducing pollution and using resources more efficiently; and maintaining and increasing farm productivity and profitability.

The agricultural sector is undoubtedly one of the most important in the Macedonian economy and there should be a priority for resource efficiency and green economy development. In addition to primary agriculture, with a contribution of up to 10% to GDP, the agro-production industry contributes an additional 6% to GDP in Republic of North Macedonia. Main goal in creating of agricultural policies in terms of economic development is to increase food security, reduce poverty, promote economic growth and create wealth through agricultural improvement.

Given this, the main purpose of the paper is to analyze the agriculture sector of the Republic of North Macedonia in terms of the ability to implement the concept of green economy, i.e. identify the opportunities and challenges it faces in the process of adopting green policies in its entities. For that purpose, a survey was conducted among entities (small and medium enterprises) in the Republic of North Macedonia, in order to perceive the current situation, awareness and knowledge of entities on environmental regulation and application of environmental practices and principles of green economy.

## **1. METHODOLOGY**

The methodology of research is based on primary data obtained from previously prepared, structured questionnaire, submitted to agriculture entities (small and medium enterprises) in the Republic of North Macedonia. In order to perceive the current situation, questions were referred to awareness and knowledge of entities on environmental regulation and application of environmental practices and principles of green economy. The analysis of the results is systematized in three areas:

- The application of environmental regulation and services,
- The current implementation of green practices by entities and
- The existing support for green practices in entities.

The questionnaire was distributed to more than 60 small and medium enterprises in the Republic of Northern Macedonia in the period November - December, 2020. The questionnaire covers 21 questions related to the possi-

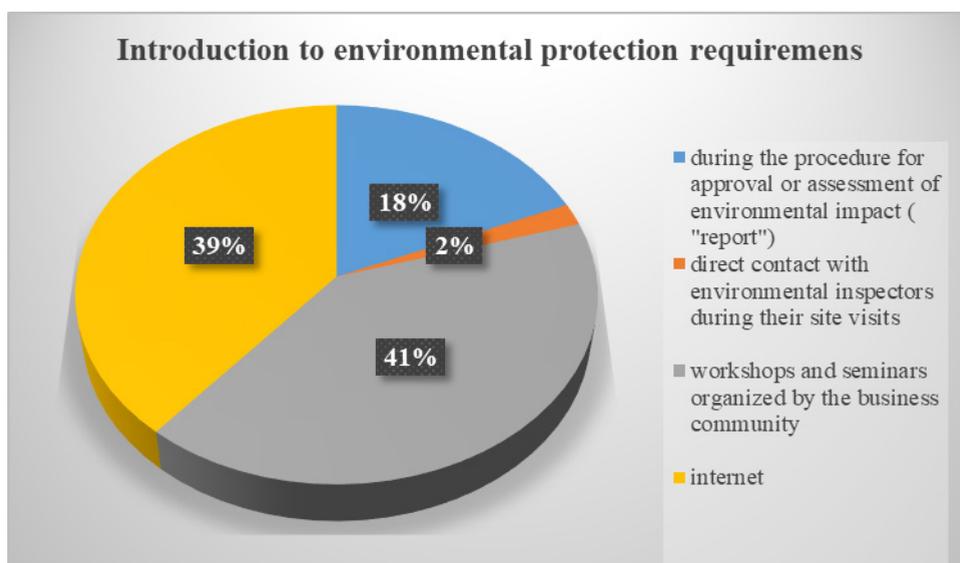
bilities of agriculture entities to apply the concept of green economy in their work.

The questionnaire was answered by a total of 54 micro, small and medium enterprises, of which 65% are micro enterprises, i.e. enterprises with up to ten (10) employees), 6% are small, i.e. enterprises with eleven (11) to fifty (50) employees and 29% are medium enterprises where the number of employees is from fifty one (51) to two hundred and fifty (250).

## 2. RESULTS AND DISCUSSION

The survey showed that agriculture entities have a lack of information on how entities can apply the concept of green economy and are facing with complex administrative procedure in implementing environmental practices and strict rules if they want to do more than the legally prescribed requirements. Asked about how your company meets the requirements for environmental protection, the highest percentage answered that it is the workshops and seminars organized by the business community and less that 39% said they introduced the Internet. (Graph 1)

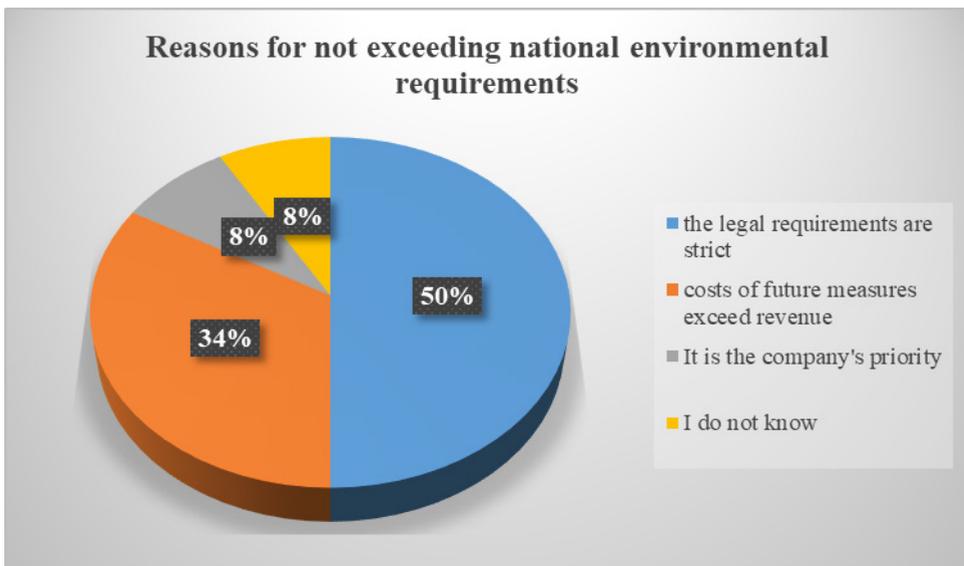
**Graph 1**



*Resource: Own research*

Graph 2 shows that half of the surveyed agriculture entities answered that the legal requirements are too strict, one third that the costs exceed the revenues, and the rest that it is not a priority in the operation of the company. They face a complex administrative procedure in enforcing environmental practices and strict rules if they want to do more (better) than legally prescribed requirements. It can be concluded that there are no concrete actions and measures to harmonize measures for growth and development of entities with environmental policies.

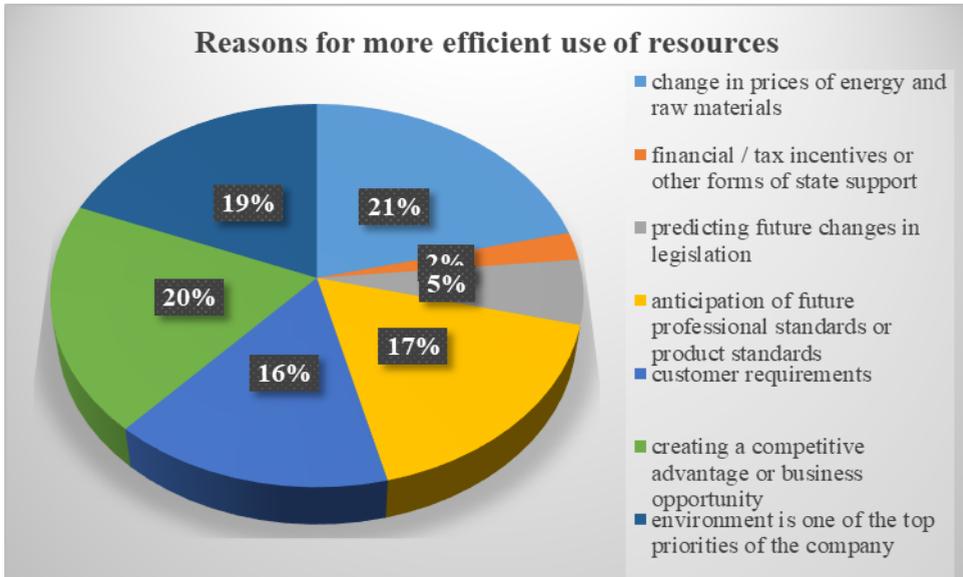
**Graph 2**



Resource: Own research

Most companies enter this market because they want to protect and preserve the environment, partly because of improving their market reputation, but there is a certain percentage who believe that offering green products or services will give them a competitive advantage. (Graph 3)

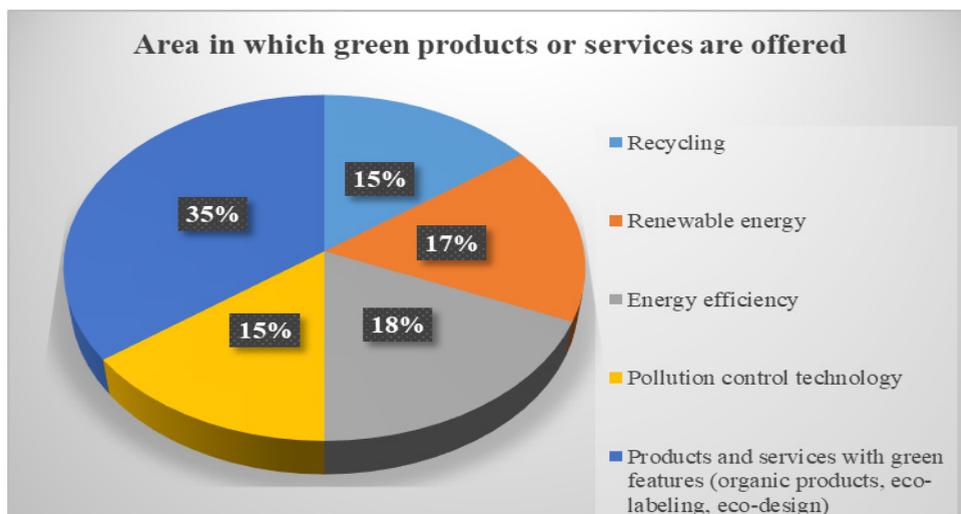
**Graph 3**



*Resource: Own research*

The largest percentage of companies cited waste minimization as an activity for more efficient use of resources, including recycling, approximately the same percentage saving of raw materials, energy and water, and less the use of renewable energy.

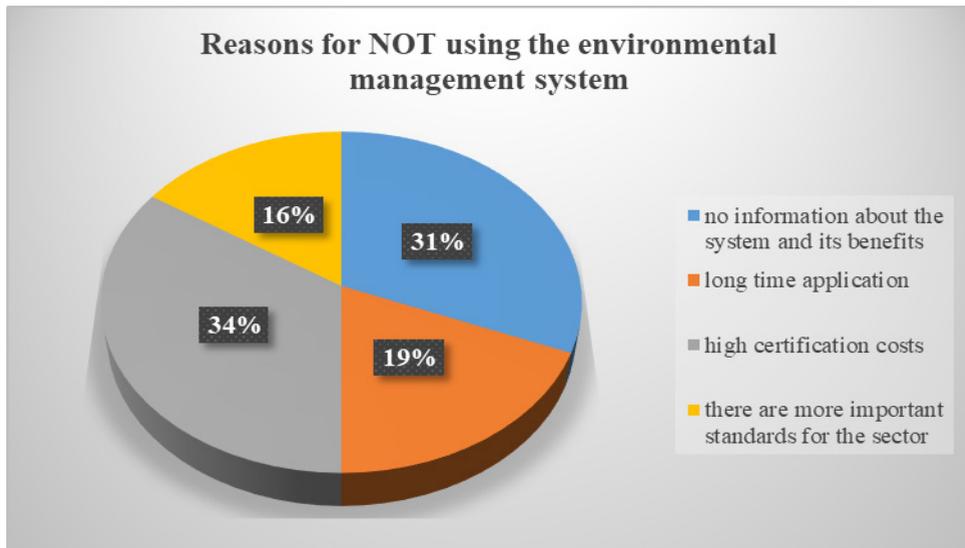
**Graph 4**



Resource: Own research

In order to find out whether the agriculture entities in the Republic of North Macedonia apply environmental practices in their operations, questions were asked about whether they use the ISO 14001 environmental management system or some other system that applies of environmental protection and the reasons why they use it or not. Graph 5 shows that the main reason for not using any system 34% of the surveyed companies answered that they are unfamiliar with the system, and 31% its benefits and costs for certification. Also, 19% of the surveyed entities answered that it is a long time to apply, but also that there are more important standards for the sector.

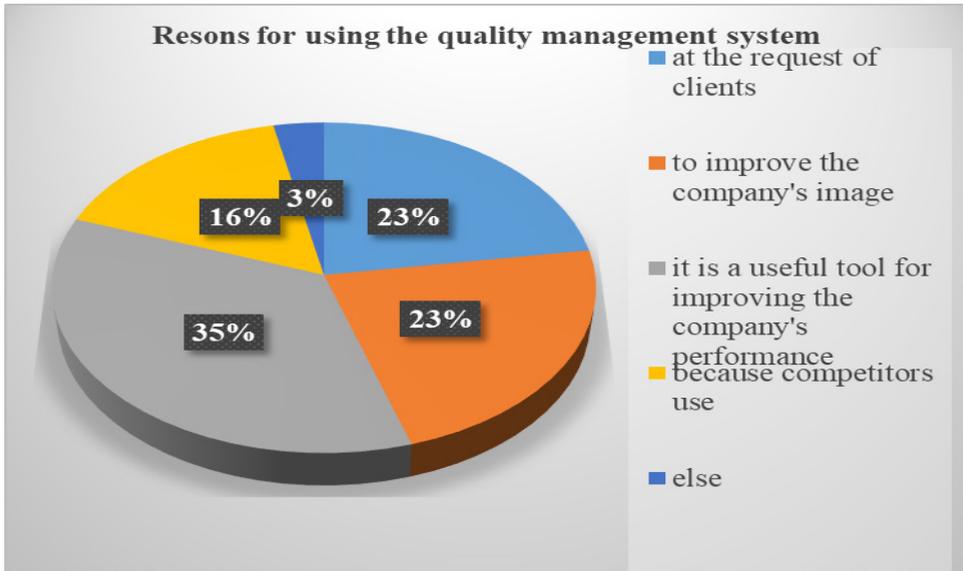
**Graph 5**



*Resource: Own research*

Of the surveyed companies that answered that they use an environmental management system, 35% singled out the improvement of the company's performance as the main reason, the improvement of the image - 23% and at the request of the clients - 23%. (Graph 6) This indicates lack of information, capacity or overload of time and costs for its implementation. First of all, there is very little market demand from business clients for the adoption of the system (such demand comes only from foreign companies), which means that the market benefits of investing in such a system are uncertain.

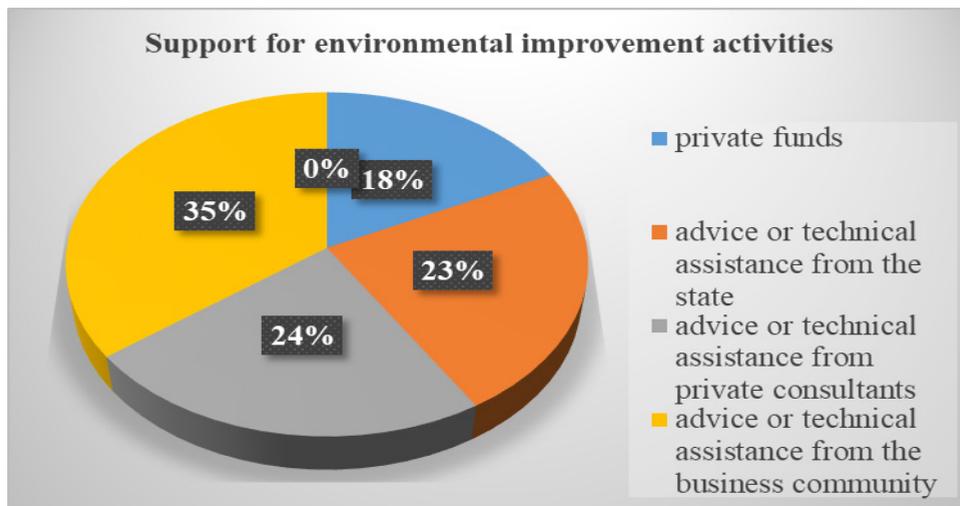
**Graph 6**



Resource: Own research

Despite the modest external support, most of the surveyed entities take measures for more efficient use of resources, in order to save and reduce costs. The main reason for such activities is purely economic, i.e. entities are already experiencing and expecting further increases in the prices of these resources, and it is known that the smaller the business, the more the impact of changes in resource prices is felt. The graph 7 shows that all types of support are present in agricultural sector.

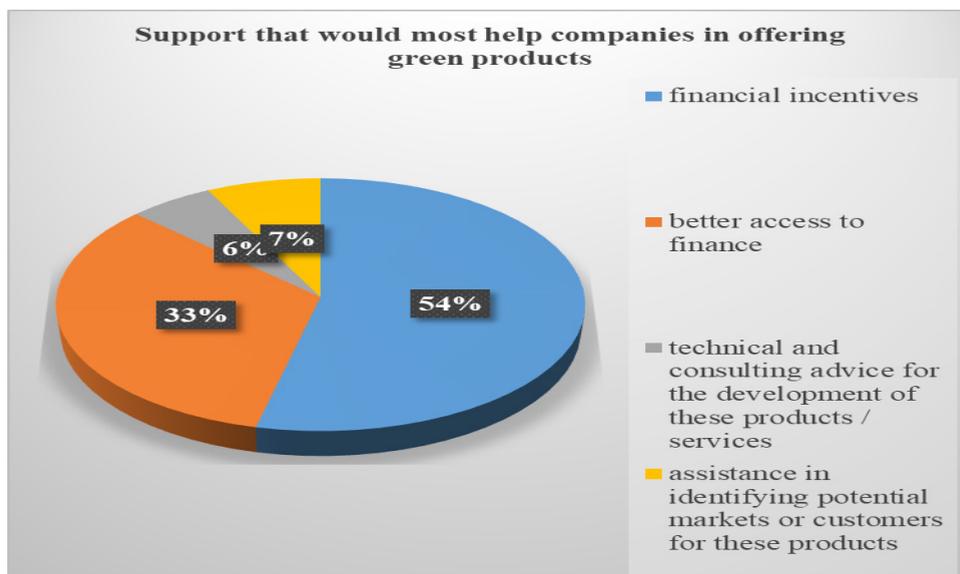
**Graph 7**



*Resource: Own research*

As part of the survey, entities were also asked about the type of state support that would most help them in introducing green products or services. (Graph 8) Financial incentives were mentioned by more than half of the respondents, while better access to finance and technical advice were named by about a third of the businesses surveyed. The need for better access to finance was particularly pronounced among companies in the food production sector and micro-businesses. Most entities require clear and consistent information that aligns agricultural growth and development measures with environmental policies.

**Graph 8**



Resource: Own research

### 3. CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

The analysis showed that in the agriculture sector there is obvious lack of information on how entities can apply the concept of green economy and are facing with complex administrative procedure in implementing environmental practices and strict rules if they want to do more than the legally prescribed requirements. This can be explained by the fact that many agricultural enterprises are subject to the environmental regulatory regime that is not appropriate for them. Despite the modest external support, most of the surveyed entities take measures for more efficient use of resources, in order to save and reduce costs. Many opportunities exist for promoting green economy principles in agriculture sector in Republic of North Macedonia. They include increased awareness by governments, donor interest in supporting agriculture development, growing interest of private investors in sustainable agriculture and increasing consumer demand for sustainably produced food.

Implementation of principles of green economy in agriculture sector will require a supportive policy environment and enabling conditions that

could help level the playing field between conventional and green agricultural practices. There needs to be a greater use of regulations and taxes that impose penalties for pollution in order to include externality costs into market prices for these inputs, as well as economic incentives that reward green practices. There are also opportunities for applying market solutions as alternatives to direct regulation. In general, governmental subsidies for farmer (producer) support should be increasingly decoupled from crop production and alternatively be retargeted to encourage farmers' efforts and investments in adopting green agriculture practices.

Primary, it is necessary to create a regulatory framework for green economy in North Macedonia by bringing clear and appropriate documents with specific activities and measures, harmonized with EU standards. That means to implement higher environmental standards and increasing investments in the sector of agriculture having on mind that green economy concept in the Republic of North Macedonia is relatively new for the entities.

It is obvious the need to expand state financial support for green businesses in agricultural sector and strengthen market incentives to improve the application of the concept of green economy, both directly (such as: green public procurement) and indirectly (green certificates and eco-labels) in order to increase the demand for improved environmental performance and green products and services. This will give an opportunity for agriculture sector to achieve its goals while protecting the environment, strengthening natural capital and energy efficiency of resources. In that context, principles of green economy in agriculture sector should be a significant part of long-term strategy for sustainability in the Republic of North Macedonia.

## **References**

- 1 Annual agricultural report year 2018, MAFWE, <http://www.mzsv.gov.mk/cms/Upload/docs/%D0%93%D0%97%D0%982018.pdf>, 12.1.2022
- 2 Brundland G., Jargon H., , Getting in the way of sustainable development, ECOURED, 2012, <http://ecoured.me/tag/green-economy/>, 10.8.2020
- 3 Brundland G., Jargon H., , Getting in the way of sustainable development, ECOURED, 2012, <http://ecoured.me/tag/green-economy/>, 10.8.2020
- 4 Georgeson L., Maslin M., Poessimouw M., The global green economy: a review of concepts, definition, measurement methodologies and their interaction, Royal Geographical Society (with the Institute of British Geographers), John Wiley & Sons Ltd, vol.4, Issue 1, London, 2017
- 5 Green economy options for Ukraine: Opportunities for organic agriculture, Policy brief, United Nations Environment Programme, 2018
- 6 Stoddart H., Riddlestone S., Vilela M., Principles for the Green economy, Earth Charter Initiative, Earthsummit 2012, London, 2012
- 7 Transition of green economy in key sectors, p. 6 [https://www.un-page.org/files/public/module\\_4\\_transitioning\\_to\\_a\\_green\\_economy\\_in\\_key\\_sectors.pdf](https://www.un-page.org/files/public/module_4_transitioning_to_a_green_economy_in_key_sectors.pdf), 1.6.2022
- 8 UNCSD 2011, Green economy in the context of sustainable development and poverty eradication, UN, <http://www.uncsd2012.org/>, 15.8.2020

---

**VLADIMIR PETKOVSKI** <sup>1\*</sup> 330.59:338.2-049.6(4-672EU)"2011/2020"  
330.59:338.2-049.6(497.7)"2011/2020"  
**ISKRA STANCEVA GIGOV** <sup>2\*\*</sup> (Original scientific paper)

## **MATERIAL LIVING CONDITIONS AND ECONOMIC SECURITY OF THE POPULATION IN THE REPUBLIC OF NORTH MACEDONIA**

**Abstract:** In the past few years, as the world conditions we live in are constantly changing, it demands that the measurements for quality of life change accordingly. Measurements of quality of life can not be just a canonical representation of the economic development of countries and their populations. They should, in fact, encompass the whole of life, namely the objective and subjective perception of the individual about the quality of life. The economic measure of GDP for measuring the quality of life can not estimate the quality of life, therefore we move to a more comprehensive range of indicators when it comes to measuring the quality of life of the citizens in a country, more specifically the Republic of North Macedonia. This research paper looks to present the material living conditions and economic security of the people of North Macedonia as a part of quality of life indicators proposed by Eurostat. The statistics' indications show that the Republic of North Macedonia regarding the material living conditions is at a relatively adverse level. There is still a large percentage of people living in severe material conditions or at the poverty threshold and the pandemic is causing that value to rise. . Furthermore, most analyses indicate that the population live in conditions of economic insecurity, and the pandemic additionally jeopardized and influenced its increase. Therefore, social economic measures and changes are needed, which can improve the material conditions for the life of the population, reduce the percentage of those living on the margins and increase the economic security of the population.

**Key words:** Material living conditions, Poverty, Economic security, Republic of North Macedonia

**JEL classification:** I31

---

<sup>1</sup> \* Ph.D., Associate professor, Institute of Economics, University of „Ss. Cyril and Methodius”, Skopje, Republic of North Macedonia, vladimir@ek-inst.ukim.edu.mk

<sup>2</sup> \*\* Ph.D., Associate professor, Institute of Economics, University of „Ss. Cyril and Methodius”, Skopje, Republic of North Macedonia, iskra@ek-inst.ukim.edu.mk

There is still a large percentage of people living in difficult material conditions or on the brink of poverty and the pandemic is causing that value to rise.

## **Introduction**

Over the past few decades, the problem of countries' social segregation has become quite significant for the economies around the world. The great differences between countries and the people quality of life increased even more during the global pandemic crisis. Socio-economic inequality can be presented as a major problem for developing countries and must be considered as one of the main priorities for increasing economic development and human potential in the coming years. Hence, the Republic of North Macedonia as a developing country faces a serious challenge to improve the citizens' quality of life.

The degree of quality life is perceived according to official indicators proposed and defined by the European Union. They represent a detailed analysis of 8+1 dimensions that can be statistically measured, representing different complementary aspects of quality of life and complementing the indicator that is traditionally used as a measure of economic and social development, gross domestic product (GDP). Eight of these dimensions relate to the functional opportunities that citizens should have available to effectively monitor their self-defined well-being, in accordance with their own values and priorities, and the last dimension refers to personal satisfaction with life and well-being. Among them, especially important dimensions for perceiving the quality of life are material conditions for life and economic security that are actually subject to analysis within the paper.

The material standard of living is measured through three sub-dominations: income, consumption and material conditions (deprivation and housing). Income is an important indicator because it has an impact on most other indicators in the frame. There are several different indicators in this sub-dimension, taken from national accounts and household surveys (net national income, disposable household income). The common indicators of income, consumption and wealth are also developed and have the potential to give the most complete perspective on household state. In doing so, many risks can unexpectedly and negatively affect the material security of the individual or household. These risks are most often divided into two categories: economic and physical security. The first category is analysed through statistics that try to measure a variety of situations in which people can be found. Such are the inability to face

unexpected financial costs or lack of financial resources for regular monthly payments (mortgage, rent, utility bills, etc.).

Security is a key aspect of citizens' life. The ability to plan and overcome every sudden worsening of their economic and broader environment has an impact on their quality of life. For economic security, the richness indicators should be used (the value of the property owned by minus the value of the obligations owed by a household).

Taking into account the previous, the paper aims to evaluate the materials living conditions and economic security of the population in the Republic of North Macedonia. The methodological approach is quantitative and stems from the very nature of the subject of research. Using the statistical method for examining these two dimensions, shown through their indicators, a realistic picture is obtained for them in the Republic of North Macedonia. These indicators are presented and discussed for almost all of the countries in Europe, with emphasis on Republic of North Macedonia.

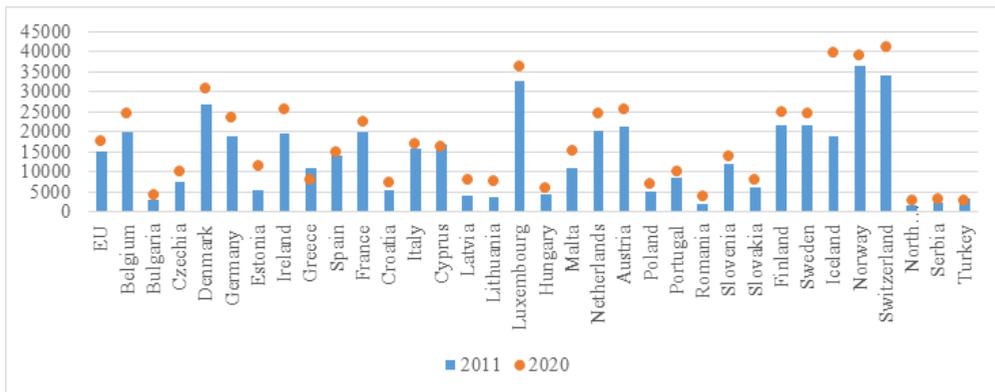
## **1. MATERIAL LIVING CONDITIONS**

According to Eurostat, material standard of living is measured on the basis of three sub-dimensions: income, consumption and material conditions (deprivation and housing). Revenue is an important indicator because it has an impact on most other indicators in the quality of life framework. Common indicators of income, consumption and wealth are also evolving and have the potential to provide the most complete perspective on the state of households. However, currently the aspect of wealth is included in this framework in the sub-dimension Economic Security. Even for those dimensions that extend beyond the material cost of living, the quality of life of the individual is often limited by economic (monetary) factors, because material resources can often be transformed into well-being according to the preferences and capabilities of each individual. However, material standard of living should not be viewed solely in quantitative monetary terms, as consumption patterns, material deprivation, and housing conditions can play a significant role in determining an individual's subjective well-being. European policy aims to reduce poverty and social exclusion. However, there are still large differences and inequalities in terms of material living standards, both between and within EU member states (for example, between different subcategories of the population).

In 2020, the average equivalent disposable income in the EU was 17,422 Purchasing Power Parity (PPP). It varies widely across EU member

states, from 7,338 PPP in Romania to 28,943 PPP in Luxembourg. The highest increases in the average equivalent disposable income (in relative terms) were observed in Romania (+ 107%), Estonia (92%) and Lithuania (91%). The Republic of Northern Macedonia has the lowest purchasing power parity compared to European countries, although it has been growing steadily for the last 5 years. (Chart 1)

**Chart 1. Purchasing power parity in Europe 2011-2020**



Source: [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_di03/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_di03/default/table?lang=en)

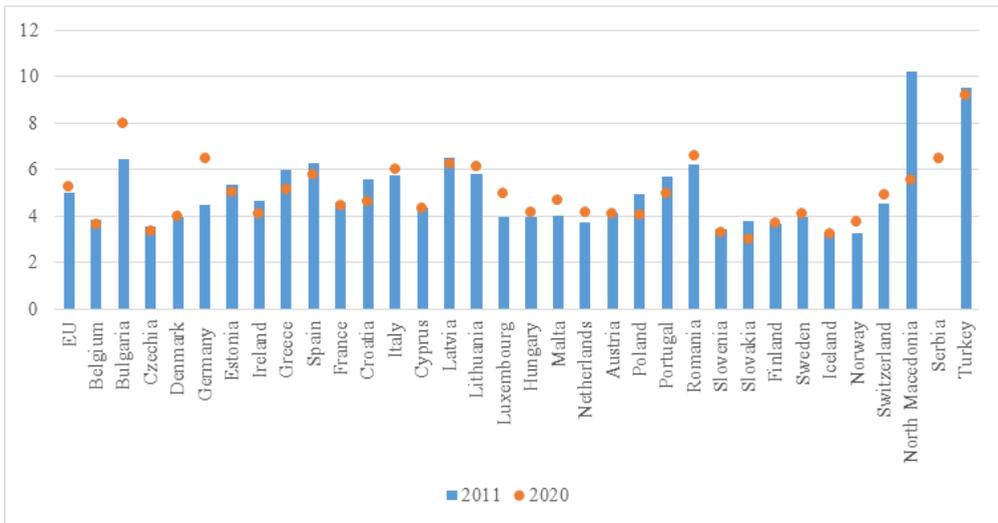
While the median disposable income is a useful indicator for analysing the purchasing power of the average citizen (and therefore indicative of their overall material standard of living), it is the distribution of income and wealth that determines the extent to which individuals have equal access to goods and services produced in within the national economy.

The income share ratio, often referred to as the “S80/S20 ratio”, is the basic measure of income distribution. It is calculated as the ratio of the total income received by 20% of the population with the highest income, with that received by 20% of the population with the lowest income. For example, a S80/S20 ratio of six means that people at the top of the income scale earn on average six times more than those at the bottom of the income scale. Although it does not transmit information on income distribution among all economic groups, this indicator is a convenient means of comparing income inequalities over time and / or between countries.

In 2020, the income share ratio in the EU was 5.0. The Czech Republic, Finland, Slovakia, Slovenia, Belgium and the Netherlands were the most equal EU member states (based on this measure), each with a ratio below 4. Income

inequalities were much higher (above 6) in Italy, Latvia, Lithuania, Romania and highest 8.1 in Bulgaria. The Republic of Northern Macedonia has a share of income of 5.56 and compared to the countries of the European Union is in the middle. However, income inequality was seriously higher in 2011, when it reached 10.2, more precisely, the richest 20% of the population, received as much as 10 times higher income than the lowest income citizens did. Since 2013, this indicator has been declining, reaching 5.56 in 2020. (Chart 2)

**Chart 2. Inequality in income distribution 2011 and 2020**

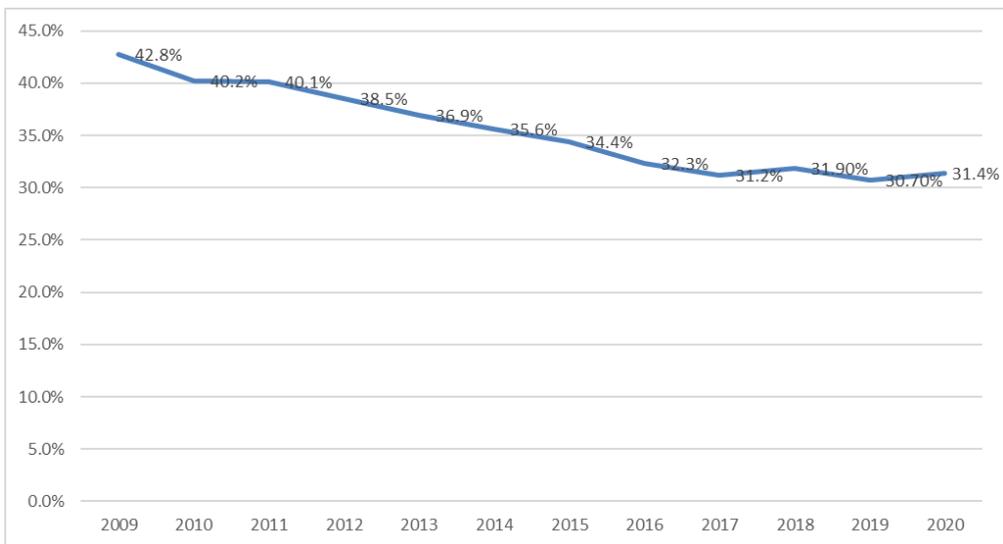


Source: [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_di11/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_di11/default/table?lang=en)

In recent decades, the problem of income inequality and the segregation of social assistance has emerged as one of the biggest problems for modern economic systems. The Republic of North Macedonia, as an aspirant country for EU membership, is facing a serious challenge to reduce income inequality. Income inequality can be presented as a major problem for a developing country and must be considered as one of the main priorities that precede the increase of economic growth in the coming years. The distribution of national income can be explained through the concept of measurement, i.e. the GINI coefficient. The GINI coefficient is derived from the Lorentz curve and sorts the population from the poorest to the richest, showing the cumulative percentage of the population on the horizontal axis and the cumulative share of

costs (or revenues) on the vertical axis.<sup>3</sup> The GINI coefficient tends to show the redistribution of national income. The range of this coefficient is shown on a scale from 0 to 100, where 0 is considered a perfect distribution, i.e. all national income is evenly distributed among the working population, and 100 is considered to be the maximum of income inequality, where few collect all income from the economy. Income inequality and income distribution are the product of several different factors in the country's economy.

**Chart 3 GINI index in the Republic of Northern Macedonia in the period from 2009 to 2020**



Source: <https://data.worldbank.org/indicator/SI.POV.GINI?end=2018&locations=MK&start=2009&view=chart>

Chart number 3 shows the inequality in revenues or distribution of national income for the Republic of North Macedonia, in the year 2009 to 2020. While poverty is an intuitively familiar concept, it is a statistical measurement that raises methodological character, especially when examined as a dimension in terms of quality of life. Poverty can be defined as a practical difficulty in meeting basic needs and achieving a decent standard of living. However, poverty has a more dimensional nature and is a relative concept, potential indi-

<sup>3</sup> Jonathan Haughton and Shahidur R. Khandker, "Handbook of poverty +inequality", The International Bank for Reconstruction and Development/The World Bank, 2009, pg. 101:119.

viduals strive to achieve a minimum standard of living through the interaction between income distribution, consumption patterns and wealth. Poverty and inequality are one of the biggest problems facing economies. They have a great impact on the living standard of the population and the quality of life. What is particularly important to emphasize is that the problem of poverty and the measures and activities to reduce poverty are inseparable from the problem of inequality. That is why they should be treated in parallel.

There are several definitions of what poverty is. The definitions of the term poverty also differ depending on the concept from which they start when trying to define poverty:<sup>4</sup>

- the concept of income (monetary) poverty;
- the concept of basic needs;
- the concept of abilities; and
- the concept of human development.

The concept of income (monetary) poverty for the poor is considered “the individual whose income is below the established poverty line and the poverty line is usually determined at the level of income that can provide a certain amount of food. The concept of basic needs considers that poor are those people who lack material goods and services necessary for a minimum acceptable level of satisfaction of human needs, this being the need for basic health care and education of people and all basic services that should be provided by the state so as not to enter the so-called poverty zone. According to the concept of abilities, poverty means the lack of some basic abilities for the functioning of people. This refers to the lack of food, clothing, housing, etc., characterized as a physical component and the inability to participate in the life of the community as a social component.

According to the Statistical Office of the European Union - Eurostat, the definition of poverty used is: “poor are considered persons, households and groups of persons, whose resources (material, cultural and social) are at such a level that excludes them from the minimally acceptable way of life in the country in which they live”.<sup>5</sup>

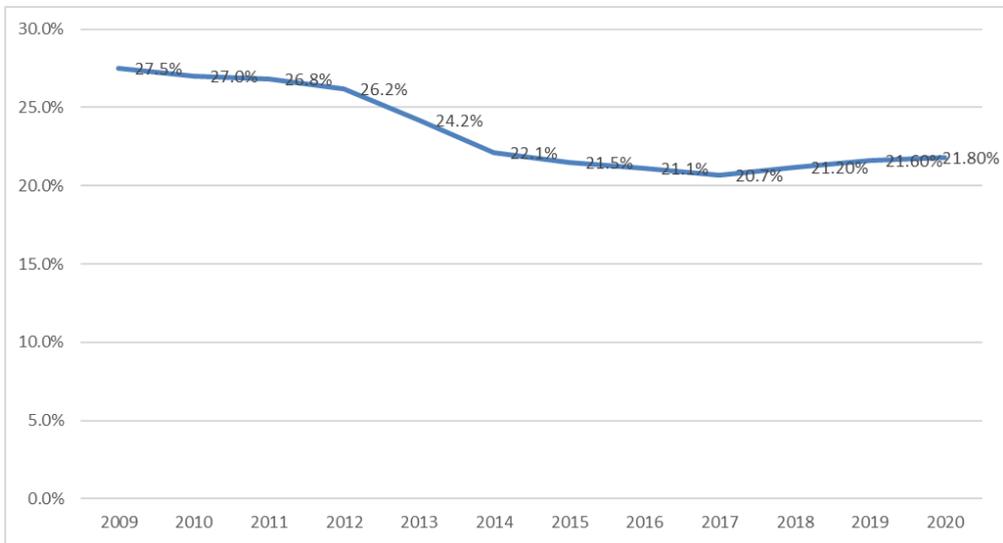
The World Bank estimates that 10.7% of the world’s population, or about 760 million people, live on just \$ 1.90 a day. These people live in what

<sup>4</sup> Eftimoski Dimitar, “Development Economics”, Institute of Economics - Skopje, 2003, p. 303

<sup>5</sup> James Eric Foster, Suman Seth, Michael Lokshin and Zurab Sajaia, “A Unified Approach to Measuring Poverty and Inequality: Theory and Practice” World Bank Publications, May 10, 2013, pg. 158.

the World Bank calls “extreme poverty,” which is measured by the International Poverty Line, or so-called poverty line, introduced in 1990. The poverty line is an estimate of the absolute minimum of resources needed for people to barely make a living. According to the World Bank, the Republic of North Macedonia belongs to the group of high middle-income countries. Low economic growth and a relatively high unemployment rate are obstacles that will prevent the country from moving to the next group on the poverty line. This can also be seen in chart no. four, which presents data from the World Bank, and shows the situation of the Republic of North Macedonia in relation to the poverty line. (Chart 4)

**Chart 4 Poverty threshold in the Republic of Northern Macedonia (% of total population)**



Source: <https://data.worldbank.org/indicator/SI.POV.NAHC?locations=MK>

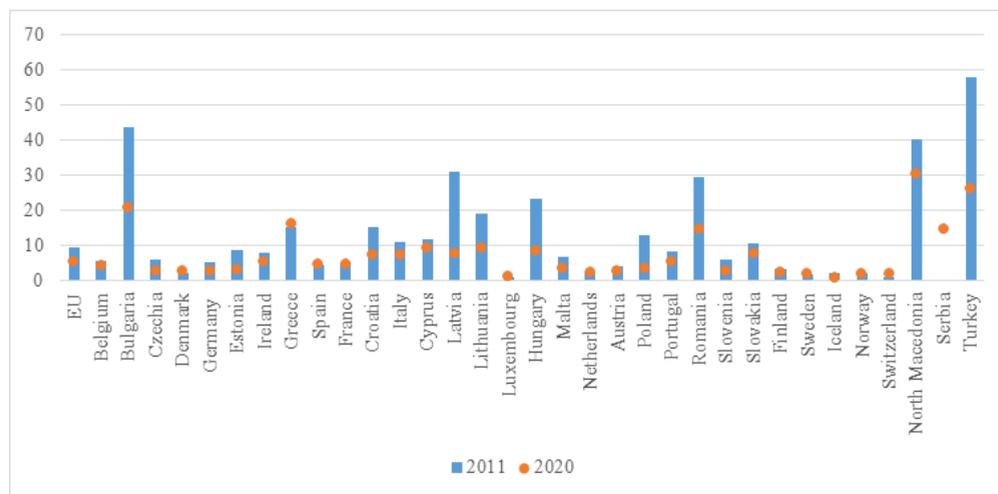
It is obvious that the indicators of poverty mostly depend on the economic and social policy of the country, but the tax system of the country should not be neglected either. Taxes and the taxation system in an economy can contribute to increasing or decreasing income inequality and income distribution in a country, which definitely have an impact on reducing poverty. For example, a progressive tax system may mean that a higher-income workforce will pay a higher percentage of their tax revenue. On the other hand, people with lower incomes will pay a lower percentage of their share of the income. In

addition to the progressive tax system, the flat tax system means that every person who generates income has to pay the same percentage in the form of taxes. This also means that people with higher incomes also pay higher taxes, even though the percentage is the same for everyone. The main point and effect of this tax system is to enable higher-income earners to distribute income to lower-income earners by creating greater revenue-generating opportunities in the form of various real capital investments. However, people who earn a higher amount of income usually invest their income in the opportunity with the highest rate of return for an acceptable amount of risk. This can usually mean that people with higher incomes invest their funds in mutual funds, different types of securities, bonds, etc., thus generating more income while creating a larger gap between those with lower incomes and those with lower incomes.

In addition to direct taxes, indirect taxes can also have the same effect on income inequality, i.e. on the brink of poverty. Indirect taxes, such as value added tax, are the same for everyone, regardless of the amount of income they earn. These types of taxes also tend to create income inequality and poverty. People who generate lower incomes pay relatively more than their income for indirect taxes than those who generate higher incomes.

While the risk of poverty is based on the definition of relative monetary poverty, material deprivation provides a complementary view, based on objective and absolute criteria. Material deprivation refers to a state of economic hardship, defined as a violent inability to afford a set of indicative material standards, which most people find desirable and even necessary to lead a decent life. These include inability to afford: mortgage or rent payments, utility bills, rental instalments or other loan payments; one-week vacation away from home; a meal that includes meat, fish or protein equivalent every other day; unexpected financial costs; telephone (including mobile); colour TV; washing machine; car; heating for the home to be adequately warm. The rate of severe material deprivation is defined as the share of the population that is unable to afford at least four of the above items.

**Chart 5 Rate of heavy material deprivation in Europe 2011 and 2020**



Source: [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_mddd11/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_mddd11/default/table?lang=en)

In 2019, the rate of severe material deprivation in the EU was 5.5%; this marked a decrease of 3.4 percentage points compared to the situation in 2011. In the Republic of North Macedonia the percentage of this type of population is far higher than the European average. Specifically, in 2011, 40% of the population lived in conditions of severe material deprivation. The latest data from 2020 indicates a decrease in this percentage, which now stands at 30.4%. However, this is a far higher percentage of the population than the European average. The very fact that almost 1/3 of the population lives in conditions of severe material deprivation indicates that the Republic of North Macedonia is in an unenviable situation looking at the material condition of its population. This figure gains even more weight knowing that the Covid-19 pandemic crisis is exacerbating the situation. (Chart 5)

This part defined the material living conditions of the population and according to the indications of the statistical data, it can be concluded that the Republic of North Macedonia is at a relatively unenviable level. The level of people living in difficult material conditions or on the brink of poverty is still high and it tends to increase because of the conditions created by the pandemic. However, given the above, measures are needed to help the social and material development of the population and reduce the percentage of those living on the margins.

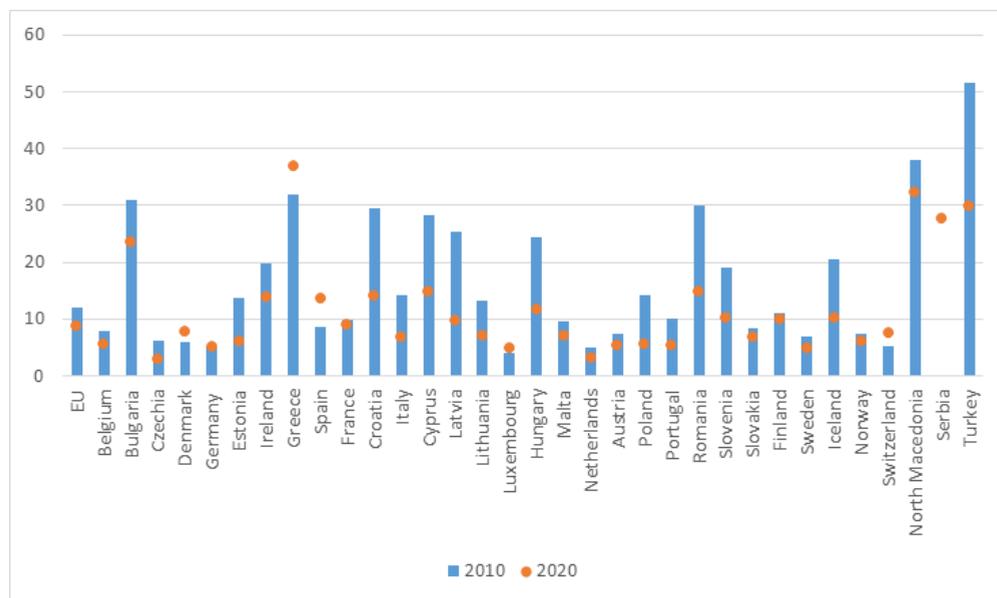
## 2. ECONOMIC SECURITY

Many risks can unexpectedly and negatively affect the material security of the individual or household. These risks are usually divided into two categories: economic security and physical security. The first category is analysed by presenting statistics that try to measure a series of different situations in which people may find themselves, such as inability to face unexpected financial costs or lack of financial resources to pay a mortgage, rent, utility bills or rent.

The concept of economic security is not limited to the existence and magnitude of risks associated with material living conditions, the probability of their occurrence or their financial implications. In a narrower sense, economic security can be defined as the ability of an individual to use financial resources if they are urgently needed. The concept of economic security can be extended to address the overall vulnerability or resilience of people to such adverse situations and the existence of support mechanisms - human and social resources - that provide a safety net for individuals in need. In 2019, almost one in three people (30.9%) in the EU said they could not handle the unexpected financial costs. As a result of the global financial and economic crisis, the share of the population that could not face unexpected financial costs was 37.1% in 2010, with this share gradually rising to a peak of 40.4% by 2012. The impact of the Covid pandemic<sup>19</sup> will be more or less the same towards creating more economic instability among the people.

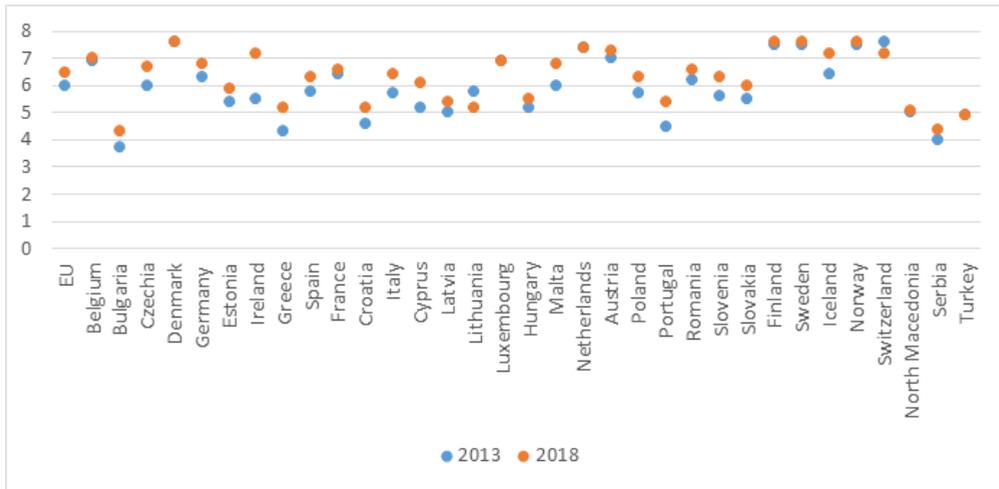
The information presented in Chart 6 presents the availability to make bills or rent payments that are usually paid as monthly instalments. Less than one tenth (8.8%) of the EU population had such outstanding debts in 2020. In Greece, more than one third of the population (36.9%) of the population had debts for mortgages, rent, utility bills, or rent payments, and this share is almost one quarter (23.6%) in Bulgaria. In contrast, 17 of the 27 member states recorded single-digit percentages of less than 10.0%, with the proportion of the population in areas for mortgages or rent, utility bills or rent falling to 3% in the Czech Republic. In the Republic of North Macedonia, this percentage of the population is 32.3% and is the second largest percentage of the population that is not able to pay their bills or monthly expenses, right after Greece. (Chart 6)

**Chart 6 Unavailability to pay the bills, 2013 and 2020 (percentage of the population)**



Source: [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_mdcs05/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_mdcs05/default/table?lang=en)

The financial satisfaction indicator is presented below in Chart 7. The comparison between 2013 and 2018 reveals that overall satisfaction with the financial situation has increased in all member states, except in one, namely Lithuania, where it decreased by 0.6 on a scale from 0 to 10. The largest increase occurred in Ireland, where the rating increased by 1.7 (from 5.5 to 7.2), the only country that experienced a change of more than 1 unit. In 2020, the highest satisfaction levels were measured in Denmark, Finland and Sweden (all with 7.6), followed by the Netherlands (7.4) and Austria (7.3). On the other side of the scale, there were eight countries where the satisfaction level was lower than 6, and the lowest score was recorded in Bulgaria at 4.3. In the Republic of North Macedonia, the index for satisfaction with the financial situation is 5.1, at the same time it is the lowest of all indexes for satisfaction, ie job satisfaction is 7.0, the overall life satisfaction is 6.0. In accordance with the average of these values, the Republic of North Macedonia belongs to the group of bad results compared to European countries. Additionally, it can be concluded that the satisfaction of the population of the Republic of North Macedonia remained unchanged in the period from 2013 to 2018.

**Chart 7 Financial stability personal perception, 2013 and 2018**

Source: [https://ec.europa.eu/eurostat/databrowser/view/ilc\\_pw01/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ilc_pw01/default/table?lang=en)

The information presented above confirms the view that the global financial and economic crisis has a direct impact on the economic security of individuals in the EU. Thus, by 2014, there is a gradual increase in the share of the population that cannot cope with unexpected expenses and / or there are backlogs of regular monthly payments, although both of these shares fell over the next seven years. The impact of the Covid-19 pandemic has exacerbated the problem. People who were at risk of poverty (living below the poverty line) were more likely to be unable to service their regular payments or to face unexpected financial costs. At the same time, households composed of single adults with children are generally the most economically vulnerable subpopulation when analysing household type information. Regarding the Republic of North Macedonia, most of analyses presented in this paper show that even before the pandemic, the population lived in economic insecurity. Therefore, socio-economic changes are needed that can improve the safety and security of the population.

## Conclusion

According to the statistics' indications, it can be concluded that the Republic of North Macedonia regarding the material living conditions is at a relatively unfavorable level. Namely, the extent of persons living in severe material conditions or at the poverty threshold is still high and it has a tendency

to increase as a result of the conditions caused by the pandemic. Furthermore, most analyzes show that the population live in conditions of economic insecurity, and the pandemic additionally jeopardized and influenced its increase. Therefore, social economic measures and changes are needed, which can improve the material conditions for the life of the population, reduce the percentage of those living on the margins and increase the economic security of the population.

## References

- 1 Abdallah, S. and Stoll, L. (2012), Review of individual-level drivers of subjective well-being, produced as part of the contract ‘Analysis, implementation and dissemination of well-being indicators’, Eurostat.
- 2 European Union (2015), Eurostat, Statistical Book, Quality of life – facts and views, Publications Office of the European Union
- 3 European Union: Eurostat regional yearbook, Publications Office of the European Union, 2021, <https://ec.europa.eu/eurostat/documents/3217494/13389103/KS-HA-21-001-EN-N.pdf/1358b0d3-a9fe-2869-53a0-37b59b413ddd?t=1631630029904>, посетено на 10.09.2021
- 4 European Union: Final report of the expert group on quality of life indicators, Publications Office of the European Union, 2017, <https://ec.europa.eu/eurostat/documents/7870049/7960327/KS-FT-17-004-EN-N.pdf/f29171db-e1a9-4af6-9e96-730e7e11e02f>, посетено на 08.09.2021
- 5 Eurostat, “Quality of life: facts and views”, 2015, <https://ec.europa.eu/eurostat/web/products-statistical-books/-/KS-05-14-073>
- 6 Eurostat, <https://ec.europa.eu/eurostat/web/quality-of-life/data/database>
- 7 Eftimoski Dimitar, “Development Economics”, Institute of Economics - Skopje, 2003, p. 303
- 8 James Eric Foster, Suman Seth, Michael Lokshin and Zurab Sajaia, “A Unified Approach to Measuring Poverty and Inequality: Theory and Practice” World Bank Publications, May 10, 2013, pg. 158.
- 9 Jonathan Haughton and Shahidur R. Khandker, “Handbook of poverty + inequality”, The International Bank for Reconstruction and Development/The World Bank, 2009, pg. 101:119.
- 10 State Statistical Office in the Republic of Macedonia, [www.stat.gov.mk](http://www.stat.gov.mk)

**IRINA PIPERKOVA<sup>1\*</sup>**

**005.96:334.72.012.64.02]:338.124.4(497.7)**

**VASIL POPOVSKI<sup>2\*\*</sup>**

**(Original scientific paper)**

**ELENA DAVITKOVSKA<sup>3\*\*\*</sup>**

## **THE IMPACT OF ECONOMIC DOWNTURN ON HUMAN RESOURCE POLICIES IN SMALL BUSINESSES: THE CASE OF NORTH MACEDONIA**

**Abstract:** Globally, businesses struggle to survive amid the rising uncertainty, inflationary pressures and increased costs as well as disrupted supply chains, which deeply affects their performance. Such economic turmoil will inevitably result in cost cutting measures by businesses, thus affecting their human resource policies and practices. This raises issues related to the implications of the economic crisis on the human resource function and the challenges in terms of human resource policies that small businesses face. The main objective of this paper is to assess the immediate effects of the economic downturn on the performance and management activities of small businesses in the Republic of North Macedonia, as well as their response in terms of human resource management policies. The findings reveal that although small businesses consider increased costs of doing business to be their primary concern, most of the surveyed businesses did not and do not anticipate to decrease the pay levels or monetary rewards of their employees, nor do they plan major reductions of employee training and development opportunities. In fact, as a response to the growing inflation, many businesses have increased pay levels of their employees. In terms of staffing policy, the results show that the majority of businesses have already frozen their planned recruitments, but do not plan to implement layoffs. These findings are in line with the studies on firms' human resource policy response conducted during previous economic crisis.

**Keywords:** *human resource management policies, small businesses, economic crisis*

**JEL Classification:** M50

---

<sup>1</sup> \* Associate professor, Institute of Economics – Skopje, “Ss. Cyril and Methodius” University, North Macedonia, [irina@ek-inst.ukim.edu.mk](mailto:irina@ek-inst.ukim.edu.mk)

<sup>2</sup> \*\* Professor, Institute of Economics – Skopje, “Ss. Cyril and Methodius” University, North Macedonia, [vasil@ek-inst.ukim.edu.mk](mailto:vasil@ek-inst.ukim.edu.mk)

<sup>3</sup> \*\*\* Professor, Institute of Economics – Skopje, “Ss. Cyril and Methodius” University, North Macedonia, [elena@ek-inst.ukim.edu.mk](mailto:elena@ek-inst.ukim.edu.mk)

## **Introduction**

The ongoing economic crisis is probably the most profound one in modern times. Current economic conditions create challenging environment for small businesses which could significantly affect the way they do business and manage their workforce. Globally, businesses struggle to survive amid the rising uncertainty, inflationary pressures and increased costs as well as disrupted supply chains. Such economic turmoil puts great pressure on firms to control their costs of doing business, which in turn would affect their human resource practices.

This raises issues related to the implications of the economic crisis on the human resource function and the challenges in terms of human resource policies that small businesses face. Previous research reveals that during economic downturn, businesses normally respond by implementing short-term cost-cutting measures as freezing recruitment, reducing employee development budgets, pay cuts and reduction of bonuses and even layoffs. These cost-cutting measures however should not be at the expense of a severe loss of motivation and commitment among employees or reduction of their key talent pool. While focusing on short-term strategy to respond to the uncertainty and imposed changes, firms do not take activities to support long-term strategy during challenging times. However, coping with current challenges and reactive cost-cuttings can undermine the future competitiveness of firms. Therefore, the major challenge of human resource management during uncertainty is balancing between short-term strategy, as controlling costs, and the long-term strategy of achieving desired market performance.

### **1. FIRMS' RESPONSE TO ECONOMIC DOWNTURN IN TERMS OF HR PRACTICES**

Previous economic crises have initiated a great deal of debates about the possible effects on human resource management policies and the potential areas for action, as retention of key talent and maintaining employee commitment and productivity. During economic downturn, businesses implement short-term cost-cutting measures mainly by freezing recruitment, reducing employee training and development budgets, pay cuts, reduction of bonuses and even layoffs. Research on the effects of recession on human resource management found that major areas that are primarily affected refer to reductions in

compensation and monetary rewards, training and development opportunities and the staffing levels.

In order to avoid large-scale redundancies during economic downturn, firms implement short-term cost-cutting measures as freezing recruitment, reducing employee training and development budgets, pay and bonus reductions and alike. These types of measures however, could have a significant negative effect on employee performance<sup>4</sup>.

Research on the effects of an economic downturn on human resource policies in firms reveals similar findings among UK firms<sup>5</sup>. The recession has affected several HR practices in firms as reductions in pay rises, size of bonuses, training and development budgets and the staffing levels. As a response to the challenging economic conditions, firms tend to use flexible and part-time working in order to avoid layoffs. Nevertheless, these measures had negative effects on employees' motivation and engagement. In addition, a survey in more than 30 European countries and more than 15 industries by The Boston Consulting Group (BCG) and the European Association for People Management (EAPM)<sup>6</sup> highlights similar findings with regard to firms' response. The primary actions taken by firms during recession include freezing recruitments and cutting back on bonus payments tied to company performance. The research also points out that firms have given priority to temporary employee layoffs over cutting back on training and/or using early retirement. Reduction on individual and functional training were least effective in the previous recession and had negative impact on employee commitment. In fact, layoffs based on low individual performance were found to be effective in previous crisis and had positive impact on high performers, who were rewarded with job security.

During recession, businesses pay insufficient attention to retaining their talent pools. Some of the previous recessions have resulted in major employee layoffs. Nevertheless, the demographic changes and talent shortage have influenced many firms to continue to recruit new employees amid the economic crisis and seek to maintain their talent pools. Therefore, the issue of pay levels

---

<sup>4</sup> Moore, S., Grunberg, L., Anderson-Connolly, R. & Greenberg, E., "Physical and mental health effects of surviving layoffs: a longitudinal examination", Institute of Behavioral Science, Working paper PEC 2003-0003, 2003

<sup>5</sup> Clinton, M. & Woollard, S., "From recession to recovery? The state of HR in this challenging economic environment", HR Survey 2010 Report, King's College London University & Speechly Bircham, 2010

<sup>6</sup> Strack, R., Caye, J.M., Thurner, R. & Haen, P., "Creating people advantage in times of crisis: how to address HR challenges in the recession", Boston Consulting Group & European Association for People Management, 2009

and key talent retention are equally important aspects during economic downturn. Namely, pay rates suffer most in times of crisis, while businesses are seeking alternative ways to retain their key talent. At the same time, due to the crisis, firms find themselves overstaffed in comparison to their current scale of production. The actions taken in past recessions, as freezing recruitment and employee layoffs, have left firms with a talent shortage, which had additional implications on their post-crisis performance. So, many companies that focus on their long-term strategy are looking for ways to retain their talent with the capacities necessary for the future post-crisis period.

Broadly speaking, recession has negative impact on employee training, as well. In challenging times, investments in employee training and skill development are the first to feel the consequences of the reactive measures by firms. Indeed, firms are expected to cut training and development budgets over 10% in response to recession<sup>7</sup>. Businesses are generally reluctant to invest in training as they seek to reduce costs and solve acute financial challenges. When revenues shrink, cost-cutting measures are inevitable in firms, hence reflecting on training budgets, among others. However, the last recession proved that employers have recognized the value of employee training and seek to sustain the levels of training investments by balancing the high costs of training and training benefits through alternative methods of delivery of employee training. Firms that have recognized training benefits, and focus on long-term strategy, could change the delivery of training to less expensive alternatives as taking training in-house or introduce e-learning<sup>8</sup>. The reduction in training investments mainly refers to training on soft skills whereas training in job-specific skills, that are core to businesses, has kept the same levels of the pre-recession period. In this context, employers in UK continued to invest in employee training, but primarily in ‘training floors’ that were essential for their operations<sup>9</sup>. Businesses, however, did seek alternative cost-effective ways to deliver training as in-house training, having regular employees as trainers, group training and increased e-learning. The above could be mainly due to the fact that businesses are obliged to sustain employee training despite the reces-

---

<sup>7</sup> Noe, R. “Employee training and development”, (5<sup>th</sup> Ed.), New York: McGraw–Hill, 2010

<sup>8</sup> *ibid*

<sup>9</sup> Felstead, A., Green, F. & Jewson, N. “Training in the Recession: The impact of the 2008-2009 recession on training at work”, UK Commission for Employment and Skills, Evidence Report 72, 2013, p. 64

sion in order to comply with legal requirements, meet operational needs and customer demands<sup>10</sup>.

A large-scale survey in England<sup>11</sup> reported a reduction in training investments among small and medium-sized enterprises as a result of the costs of training and managers' belief that employees did not need training. Around a quarter of surveyed firms have never provided any training to the employees revealing the differences between small and large firms in training investments. Namely, small firms continuously report lower incidence of employee training as a result of higher training costs per employee<sup>12</sup>, absence of HR expertise and/or departments and lack of training budgets<sup>13</sup>. On the other hand, employee training is essentially important to overcome challenges that businesses face, maintain their competitive position and prepare for the post-recessionary period. In addition, during economic downturn major concern of employees has proven to be job security. In this regard, training and development programs can boost employee morale and organizational commitment as employees regard training as firm's investment in them<sup>14</sup>. Research confirms that firms that use more rigorous staffing and training outperform competitors, before and during a recessionary period and recover more quickly than those firms that do not use so rigorous practices<sup>15</sup>. Moreover, these human resource practices enhance both organizational and financial performance of businesses and differentiate the organization from competitors.

While coping to maintain their viability through cost-reduction plans, businesses should also consider long-term plans and strategy in order to be prepared for the post-crisis period. In developed economies, many businesses are aware that in responding to the crisis they have to develop strategies that combine initiatives to reduce costs with measures to improve innovation and

---

<sup>10</sup> Ibid, p. 88

<sup>11</sup> Green, A.E. & Martinez-Solano, L.E. "Leveraging training skills development in SMEs: An analysis of the West Midlands, England, UK", OECD Local Economic and Employment Development Working Paper Series, 2011, p.27

<sup>12</sup> Stone, I. "Encouraging small firms to invest in training: learning from overseas", Praxis, UK Commission for Employment and Skills Iss.5, 2010, p.10

<sup>13</sup> Beraud, D. "SMEs are increasingly interested in the effects of training", *Training and Employment* No.114, 2014, p. 2

<sup>14</sup> Flannery, J. et al. "Experiencing training: the need for a detailed investigation", *Working with older people*, 9 (1), 2005, p. 13-16

<sup>15</sup> Kim, Y. & Ployhart, R.E. "The effects of staffing and training on firm productivity and profit growth before, during, and after the great recession", *Journal of Applied Psychology*, Vol.99 No.3, 2014, p.361-389

quality, employee morale and engagement. In this regard, for example, the financial crisis of 2008 has not affected the level of training investments considerably as major reductions in employee training were not reported in developed countries. Companies have given priority to temporary and full-time employee layoffs over cutting back on employee training and using early retirement<sup>16</sup>. This is mainly because the cuts on employee training and development were least effective in the previous recession and had negative impact on employee commitment and consequently productivity. In addition, major layoffs not only disrupt businesses' talent pools, but also diminish the motivation among employees and affect their productivity levels. Therefore, in an effort to avoid major layoffs and maintain their talent pools, businesses insist on short-term cost-cutting measures as reducing employee training or compensation and bonus levels. Costs related to funding development opportunities are always a concern for management, making businesses reluctant to continue to provide development opportunities to their employees in such times.

## 2. METHODOLOGY

The main objective of this research was to assess the immediate effects of the economic downturn on management activities of small businesses in Republic of North Macedonia and their response in terms of HRM policies. The research was conducted using an online survey questionnaire which was distributed to owners and/or managers of small businesses in different sectors in North Macedonia.

The questionnaire included questions that would determine the negative effects of the current economic conditions on small businesses, as perceived by business owners. In addition, the questionnaire covered aspects pertaining to current human resource policies undertaken by small businesses as a response to the current economic downturn, in particular, recruitment, compensation and employee training and development policies. The research was conducted during February and March 2022. The analyzed sample included 54 small businesses in different industries in North Macedonia.

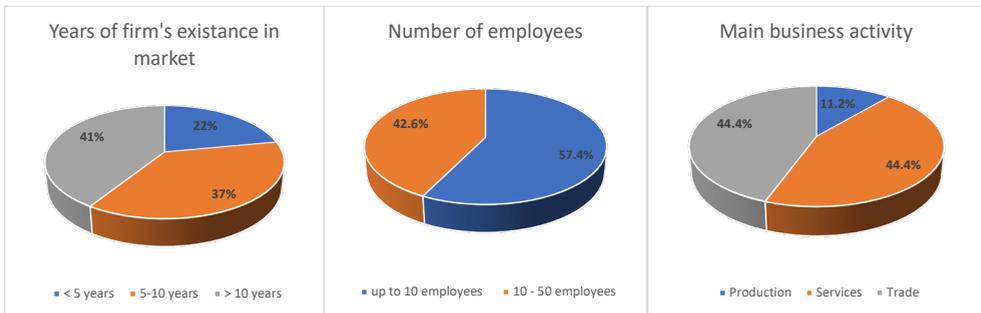
---

<sup>16</sup> Strack, R., Thurner, R., Caye, J.M., Haen, P., Zimmermann, P. & Von der Linden, C., "Creating people advantage: how to tackle the major HR challenges during the crisis and beyond", Boston Consulting Group & European Association for People Management, 2009

### 3. RESEARCH FINDINGS

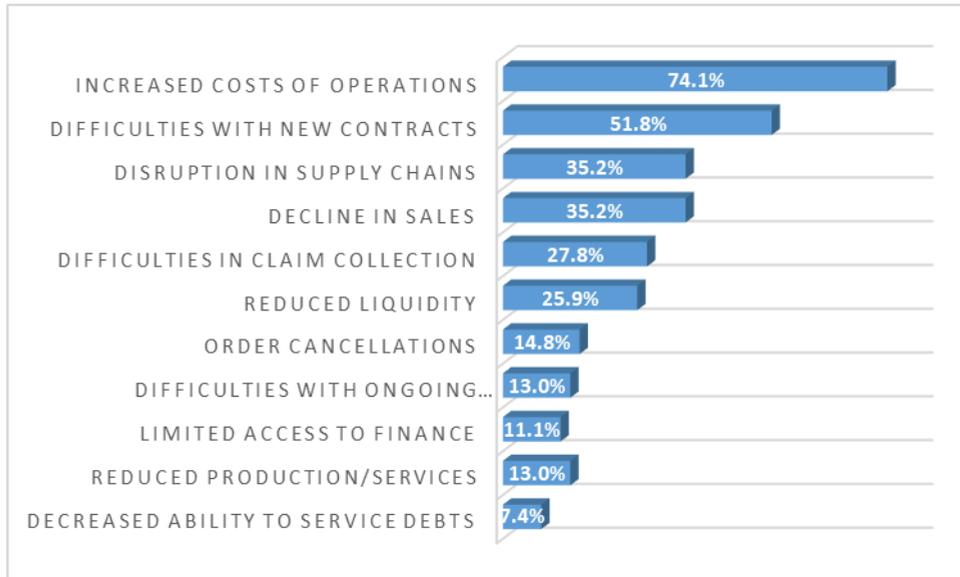
Based on the business activities, the analyzed sample included equal percent of firms in the services sector and trade (44.4%), whereas 11% of firms are in production. In addition, most of the firms (41%) operate more than 10 years, whereas 37% are active in the market from 5 to 10 years. Only 22% of firms exist in the market less than 5 years. More than half of the analyzed sample are firms that employ 10-50 employees, while almost 43% employ up to 10 employees (see Figure 1).

**Figure 1. Characteristics of analyzed sample**



Source: Authors' findings

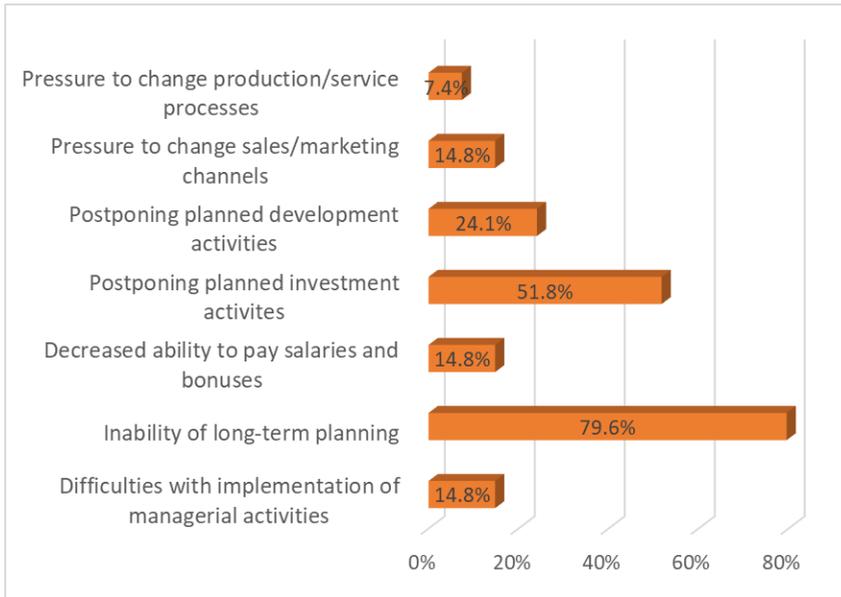
Most of the firms (48.2%) consider the ongoing economic crisis to have partial negative impact on their business, while for less than one third of the firms the negative impact is severe. Regarding the business aspects that are mostly affected by the crisis, for a significant share of firms (74%), these refer mainly to increased costs of operations, immediately followed by difficulties with new contracts (51.8%), disrupted supply chains (35.2%) and decline in sales (35.2%). For about one quarter of the analyzed firms, reduced liquidity is also an issue (Figure 2).

**Figure 2. Major negative effects on firms as perceived by small businesses**

*Source: Authors' findings*

As for the negative effects on managerial activities, the main challenge to firms is the inability of long-term planning and postponing investment activities (see Figure 3). Indeed, almost 80% of the firms point to the inability of long-term planning as a major negative effect of the ongoing economic crisis, whereas more than half have postponed their planned investment activities. For one quarter of firms this refers to their development activities as well.

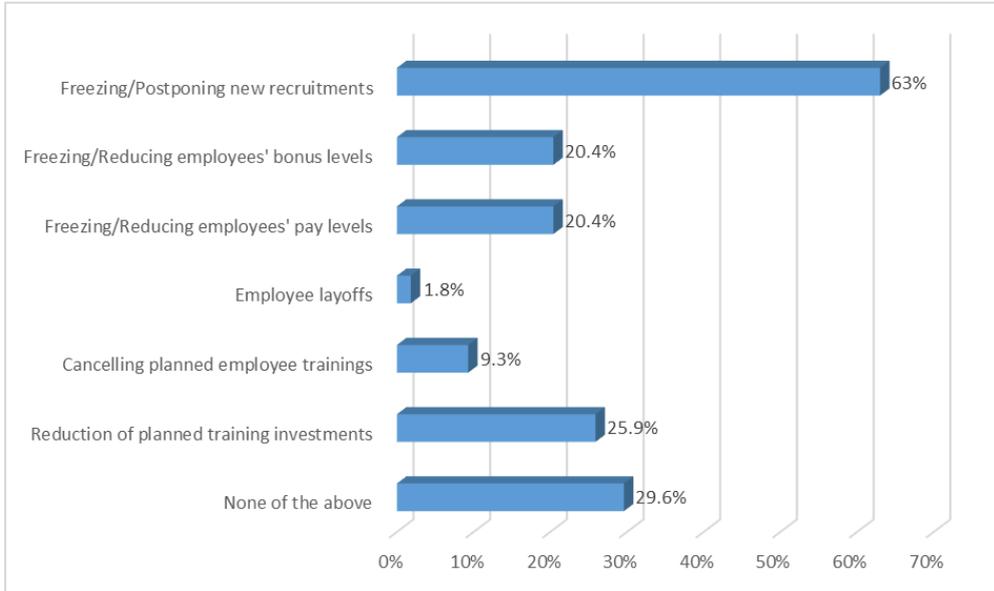
**Figure 3. Major negative effects on managerial activities of businesses**



Source: Authors' findings

In terms of the negative consequences on human resource policies, the ongoing economic crisis has affected firms' recruitment, employee development and compensation policies. In particular, more than half of the firms (63%) have either frozen or postponed planned recruitments (Figure 4), while about 25% of firms have reduced their planned training investments as a response to the increased uncertainty. Additionally, about 20% of firms have reported that, as a result of the current conditions, employees' pay and/or bonus levels were affected.

The findings reveal that firms do not undertake cost-cutting measures at the expense of their talent pools. Indeed, for an insignificant percent of firms this crisis has already led to employee layoffs. Moreover, the findings show that for about one third of the firms the current economic downturn does not affect their human resource policies and these firms have neither frozen recruitments nor have reduced their training budgets or employee pay/bonus levels.

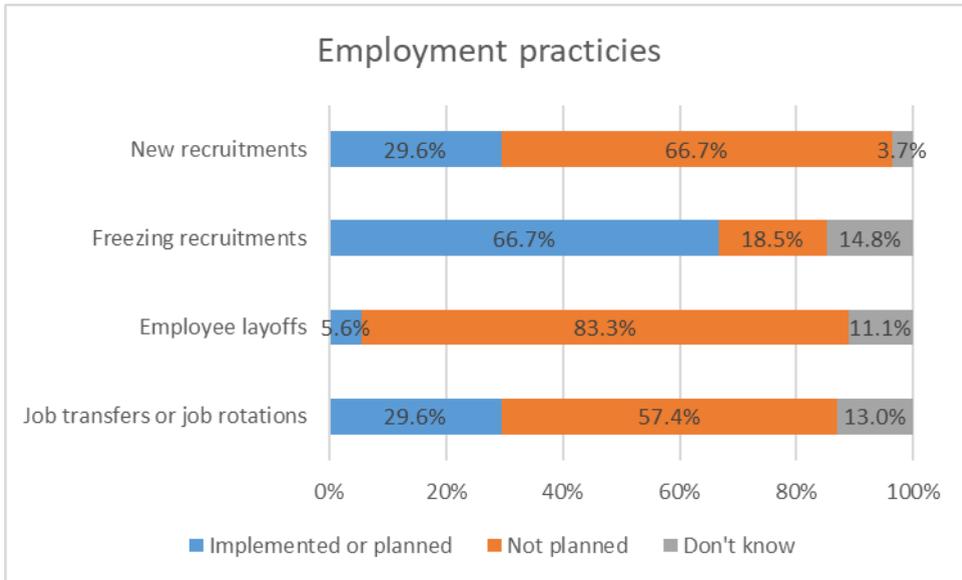
**Figure 4. Impact of the economic downturn on human resource practices**

*Source: Authors' findings*

In fact, about 30% of firms implemented or plan new recruitments while more than half of the firms have already frozen or plan to freeze new recruitments (see Figure 5). Freezing new recruitments is usually the first step that firms undertake during economic crisis, which is in line with our findings.

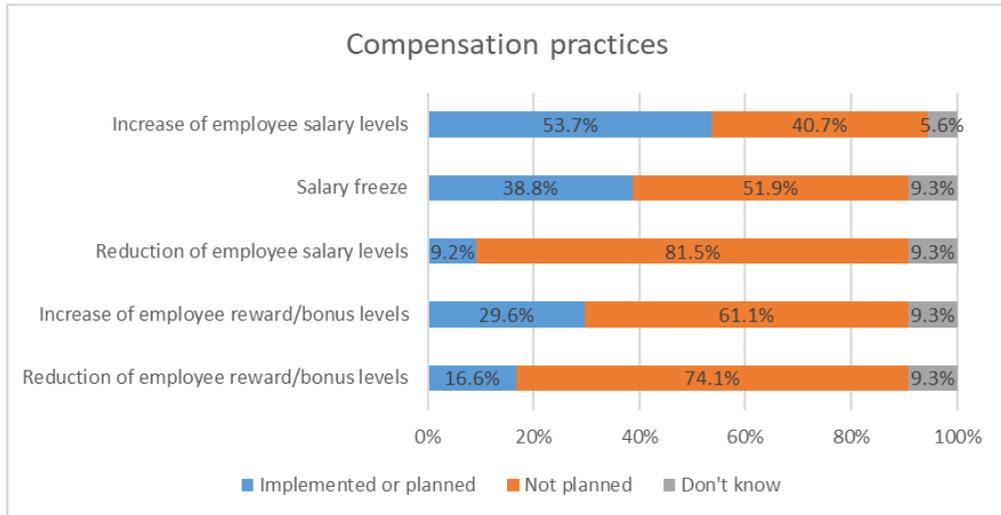
The analysis also revealed that firms strive to preserve their talent pools and are reluctant to make employees redundant. Hence, it is not surprising that more than 80% of businesses do not plan to lay off employees. Also, a significant number of firms do not plan to implement job transfers or job rotations.

**Figure 5. Employment practices of small businesses**



Source: Authors' findings

Regarding compensation practices, it is interesting to note that more than half of the analyzed firms have increased or plan to increase salary levels, whereas 39% have or plan to freeze it. Based on these findings, it can be concluded that businesses strive to maintain employee levels of motivation, engagement and subsequently employee productivity, by increasing levels of employee salary as a response to the rising costs of living. In this regard, reduction of salary levels is implemented only in less than 2% of firms, while 7% plan to reduce these levels should the crisis continue (Figure 6). Nevertheless, most of the firms do not plan to implement any changes in their reward policies, that is, do not plan to either increase or decrease employee bonus levels (61% and 74% of firms, respectively).

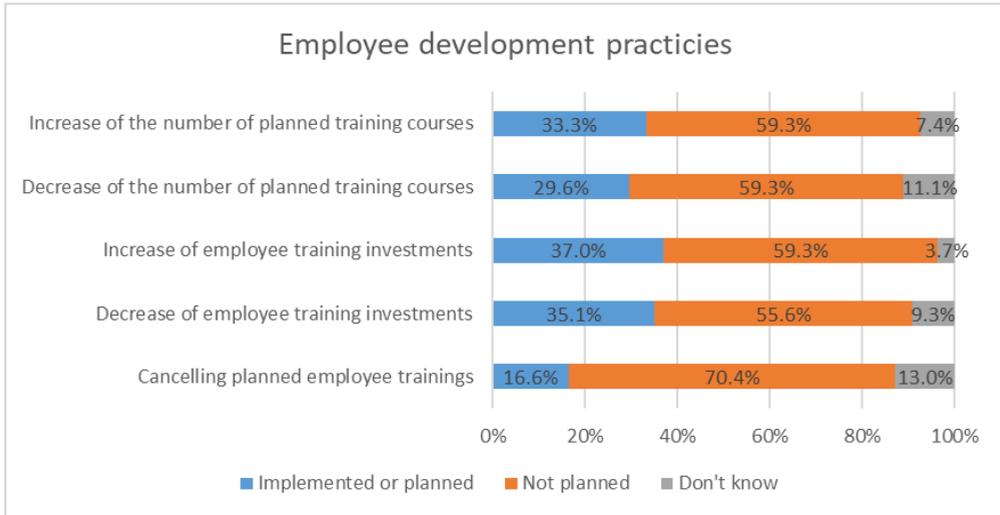
**Figure 6. Compensation practices of small businesses**

Source: Authors' findings

The analysis of employee development practices shows that about half of the firms also do not plan any changes regarding employee training courses and training investments (see Figure 7). In particular, almost 60% of firms shall neither increase or decrease employee training courses or training investments. Also, a significant number of firms shall not postpone or cancel planned training activities for their employees. It is relevant to note that one quarter of firms even plan to increase employee training courses and training investments amid the economic crisis (33% and 37% of firms, respectively).

The previous economic crisis, as mentioned earlier in this paper, has also not affected the level of training investments considerably, mainly because the cuts on employee training and development were least effective in previous recessions and had negative impact on employee commitment and consequently productivity.

**Figure 7. Employee development practices of small businesses**



Source: Authors' findings

Based on the results of the survey, firms, so far, have responded to the economic crisis mainly by freezing new recruitments, as a first step undertaken by firms during economic downturn. Even more, as a response to the rising costs of living, a significant number of firms have increased employee pay levels, in an effort to maintain employee's commitment and engagement. Small businesses in North Macedonia also strive to maintain their talent pools by avoiding major layoffs and major reductions of employee training and development opportunities.

### Conclusion

During recession, firms undertake cost-cutting measures mainly focused on freezing recruitment, reducing employee training investments, pay cuts, reduction of bonuses and even layoffs. However, previous research revealed that many of these measures undermine employee engagement and subsequently their productivity. In addition, the surging inflation and rising costs of living impose expectations for higher salaries among employees. With this in mind, firms face a twofold challenge, increase salaries and employee training investments and thereby operating expenses to maintain and/or improve employee motivation and engagement, or reduce/maintain the same pay levels and training investments so as to reduce firm's costs. Hence, the major challenge of

businesses during economic downturn is balancing between short-term and long-term goals. While coping with ongoing challenges through cost-cuttings, firms should also take into account their long-term strategy in order to be prepared for the post-crisis period. In recent years, employers acknowledge that in responding to the crisis they have to develop strategies that combine initiatives to reduce costs with measures to improve or maintain their competitive position by focusing on innovation, quality and employee engagement and productivity.

Although small businesses consider increased costs of doing business to be their primary concern, most of the surveyed businesses did not and do not anticipate to decrease the pay levels or monetary rewards of their employees, nor do they plan major reductions of employee training and development opportunities. In fact, as a response to the growing inflation, many businesses have increased pay levels of their employees. In terms of staffing policy, the results show that the majority of businesses have already frozen their planned recruitments, but do not plan to implement layoffs. These findings are in line with the studies on firms' human resource policy response conducted during previous economic downturns.

## **REFERENCES**

- 1 Beraud, D. “SMEs are increasingly interested in the effects of training”, *Training and Employment* No.114, 2014
- 2 Clinton, M. & Woollard, S., “From recession to recovery? The state of HR in this challenging economic environment”, HR Survey 2010 Report, King’s College London University & Speechly Bircham, 2010
- 3 Felstead, A., Green, F. & Jewson, N. “Training in the Recession: The impact of the 2008-2009 recession on training at work”, UK Commission for Employment and Skills, Evidence Report 72, 2013
- 4 Flannery, J., Stasi, K., Nolan, M., Davies, S., McKee, K. & Warnes, T., “Experiencing training: the need for a detailed investigation”, *Working with older people*, 9 (1), 2005, pp. 13-16
- 5 Green, A.E. & Martinez-Solano, L.E. “Leveraging training skills development in SMEs: An analysis of the West Midlands, England, UK”, OECD Local Economic and Employment Development Working Paper Series, 2011
- 6 Kim, Y. & Ployhart, R.E. “The effects of staffing and training on firm productivity and profit growth before, during, and after the great recession”, *Journal of Applied Psychology*, Vol.99 No.3, 2014, pp.361-389
- 7 Moore, S., Grunberg, L., Anderson-Connolly, R. & Greenberg, E., “Physical and mental health effects of surviving layoffs: a longitudinal examination”, Institute of Behavioral Science, Working paper PEC 2003-0003, 2003
- 8 Noe, R. “Employee training and development”, (5th Ed.), New York: McGraw–Hill, 2010
- 9 Strack, R., Caye, J.M., Thurner, R. & Haen, P., “Creating people advantage in times of crisis: how to address HR challenges in the recession”, Boston Consulting Group & European Association for People Management, 2009
- 10 Strack, R., Thurner, R., Caye, J.M., Haen, P., Zimmermann, P. & Von der Linden, C., “Creating people advantage: how to tackle the major HR challenges during the crisis and beyond”, Boston Consulting Group & European Association for People Management, 2009

- 11 Stone, I. “*Encouraging small firms to invest in training: learning from overseas*”, Praxis, UK Commission for Employment and Skills Iss.5, 2010, p.10

**JASNA TONOVSKA<sup>1</sup>**  
**PREDRAG TRPESKI<sup>2</sup>**

**339.727**  
**339.73**  
**339.9.02:339.727**  
**(Original scientific paper)**

## **INTERNATIONAL CAPITAL FLOWS MANAGEMENT MEASURES AMID THE CHANGING GLOBAL ENVIRONMENT**

**Abstract:** Even though international capital flows bring significant direct and indirect economic benefits, in case of pronounced volatility, they may increase the risk of crises and adversely affect economic growth. Therefore, the policymakers are challenged to determine how to effectively harness the benefits while mitigating the risks associated with the international capital flows. This paper discusses several aspects related to managing international capital flows. We show how the approach of international financial institutions toward capital flows management measures has adapted to the changing global environment. We detail the current operational framework for capital flow management and report on the recent international practice with capital flow management. The analyzed data show that capital account openness has gradually increased, whereas, on the net, macroprudential policy has mostly been tightened. Eventually, we discuss the most recent recommendations regarding international capital flow management measures within the novel Integrated Policy Framework. In the future, further promotion and development of a consistent global approach toward managing international capital flows should remain one of the main objectives of international financial institutions.

**Keywords:** international capital flows, capital flow measures, macroprudential policy measures, integrated approach

**JEL classification:** F30, F38, F42

---

<sup>1</sup> M.Sc., Teaching and Research Assistant, Faculty of Economics – Skopje, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, e-mail: [jasna.tonovska@eccf.ukim.edu.mk](mailto:jasna.tonovska@eccf.ukim.edu.mk)

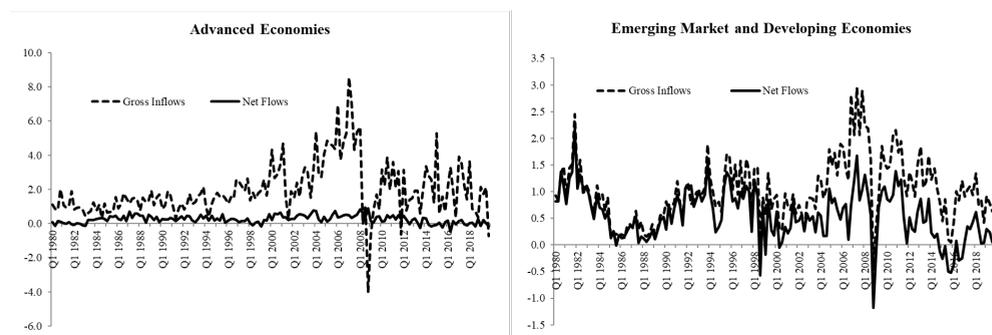
<sup>2</sup> Ph.D., Professor, Faculty of Economics – Skopje, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia, e-mail: [predrag.trpeski@eccf.ukim.edu.mk](mailto:predrag.trpeski@eccf.ukim.edu.mk)

## Introduction

International capital flows are integral to the international monetary and financial system. They bring significant economic benefits, both direct and indirect. Nevertheless, when volatile, capital flows increase the risk of crises and may adversely affect economic growth. Capital surges may bring several challenges, such as price bubbles, inefficient allocation of resources and currency appreciation which deteriorates export competitiveness. Sudden stops, on the other hand, may lead to steep fall in asset prices, currency depreciation, inflation pressures and foreign debt repayment issues.

Regarding the longer-term developments of the international capital inflows, they registered a significant rise in the mid-1990s and up until the mid-2000s, in both advanced economies (AEs) and emerging and developing economies (EMDEs). Still, in the aftermath of the Global financial crisis (GFC) the capital inflows registered a steep decline in both country groups, followed by a reversal in 2009, and a decline in 2011 once again, resulting from the crisis in the peripheral euro area countries. Within this broad trend, there are some important differences between both country groups. In AEs, net capital flows are driven by shifts in both inflows and outflows, whereas in EMDEs net capital flows reflect mainly the gross capital inflows. Capital inflows in EMDEs mostly consist of foreign capital inflows in their economies, while residents' investments abroad are less common (Graph 1).

**Graph 1. International capital inflows in AEs and EMDEs (% of total nominal GDP in AEs and EMDEs)**



Source: IMF, *International Financial Statistics*.

One of the most important tasks for policymakers is to design an international capital flow management framework, which enables harnessing

the associated benefits and mitigating the inevitable risks. To manage capital flows, policymakers can reach for various policy measures. In case capital inflow surges or sudden stops pose risk to macroeconomic and financial stability, macroeconomic policy measures can be supplemented with financial supervision measures, and in some cases, even capital flow measures (CFMs).

This paper investigates several issues related to managing international capital flows, of relevance to policymakers. Section 1 offers a review of the evolution of the approach of international financial institutions toward capital flows management measures. Section 2 provides more details on the operational framework for capital flow management. Section 3 explains the recent experiences with capital flow management, whereas section 4 discusses the international capital flow management measures in the novel Integrated Policy Framework. The last section concludes.

## **1. EVOLUTION OF THE APPROACH OF INTERNATIONAL FINANCIAL INSTITUTIONS TOWARD CAPITAL FLOWS MANAGEMENT MEASURES**

This section sheds light on the evolution of the approach toward capital flows management measures adopted by international financial institutions from a longer-term perspective.

Unlike international trade flows, international capital flows are not subject to a universal regulatory framework. Since the establishment of IMF in 1945, its mandate covered ensuring the proper functioning of the multilateral payments systems. Nevertheless, the mandate for capital flows regulations is somewhat vague. IMF has no legal power to make its recommendations binding and to prevent countries from managing this issue exclusively in accordance with its national economic priorities. From end-1980s and during the 1990s, IMF's surveillance missions increasingly monitored capital account-related policy measures. The main policy recommendations outlined the benefits of international financial integration in accordance with the traditional academic literature. They consist of: higher FDI-induced effectiveness, stronger discipline for macroeconomic policy implementation, risk diversification and allocation, consumption smoothing and financial development. In the following period, as a consequence of several crisis episodes (the Mexican crisis in 1995, the Asian crisis in 1997-1998, etc.), and the growing resistance from the member countries, the IMF was obliged to reconsider its approach and to adopt

a more prudent position on the institutional level. Still, further liberalization of the capital account remained the main long-term goal.

Regarding the capital flows measurement measures, IMF's position from the 1990s did not account for the market imperfections, limiting the capacity of the domestic financial system for capital flows management. Large capital inflows were considered to be common and in line with economic convergence for emerging market countries. Therefore, the prevailing recommendations from IMF surveillance missions consisted of contractionary measures against capital flow surges, in order to limit domestic demand and prevent exchange rate appreciation. In addition, the transition toward a more flexible exchange rate was recommended. Nevertheless, the issue of capital controls implementation remained disputable, since IMF was still against any kind of restrictions that may discriminate against non-residents. In particular, capital inflow controls were considered to be distortive and inefficient in long term, given the possibility of their evasion.

The GFC markedly shifted the international financial conditions, with capital increasingly flowing towards emerging market countries, predominantly in a form of debt inflows. As a response, part of the recipient countries introduced capital controls. Amid the changing global environment after the GFC, in 2011 and 2012 the IMF revised its operational framework through the inclusion of multilateral aspects of economic and regulatory policies affecting capital flows. The revised approach emphasized the role of push factors. In fact, the regulatory ambiguity and financial stability weaknesses in the recipient countries may encourage institutional investors to take excessive risk, leading to excessive and volatile capital flows, spilling over the financial instability risk to recipient countries. Therefore, the international financial organizations and the countries of the origin of the excessive capital inflows, which are the AEs, should make a coordinated effort in safeguarding financial regulation and supervision. These views are elaborated in a new official document (IMF, 2012), presenting the IMF's Institutional view (IV) on capital flows.

The IMF's IV from 2012 is further explained with the technical notes for implementation from 2013 and 2015, contributing to greater consistency in IMF's recommendations on these issues. The IV is viewed to be relevant in the global context (IMF, 2016, p.3).

## **2. OPERATIONAL FRAMEWORK FOR CAPITAL FLOW MANAGEMENT**

The next section elaborates on the operational framework for capital flow management, the “natural mapping” approach, detailing the policies which are recommended in various economic scenarios.

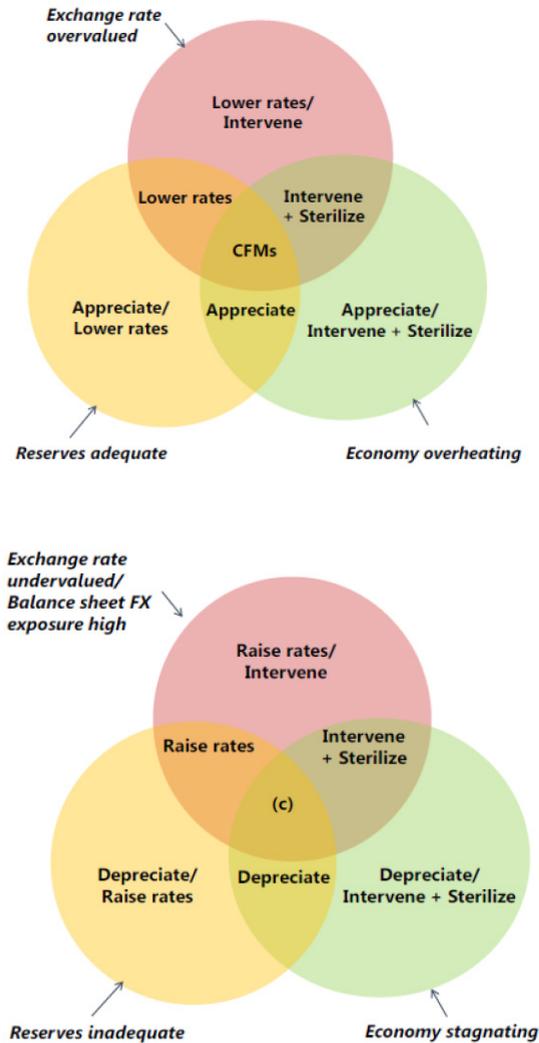
### **2.1. „Natural mapping“**

The operational framework for capital flow management encompasses the following components (IMF, 2016, pp. 15-17):

- Macroeconomic policies:
  - monetary policy,
  - fiscal policy,
  - exchange rate policy,
- Macroprudential policy and
- CFMs.

The implementation of the various measures should follow a logical sequencing - “natural mapping” (Ghosh et al., 2017, pp. 16-17). Therefore, the monetary and fiscal policy can be used to manage inflationary pressures risks and overheating; provided that the domestic currency is not overvalued; foreign exchange interventions can limit potential appreciation; and macroprudential policy measures can prevent excessive credit growth and financial instability. Capital inflow measures, in case they are general, can support the aforementioned measures, primarily by limiting the entire capital inflows. Targeted CFMs can help to alleviate the structural weaknesses, in case of currency or maturity mismatches. Countries with active capital outflow measures may ease these restrictions to reduce net flows, thereby preventing overheating and inflationary pressures (Graph 2).

**Graph 2. Appropriate policy responses to capital inflow surges (left) and capital outflows (right)**



Source: IMF (2016), “Capital Flows – Review of Experience with the Institutional View”, Policy Paper Prepared by Staff of the IMF, p.17.

Irrespective of the particular economic and financial sector challenges, countries should first exploit macroeconomic policies before adopting CFMs. Macroeconomic policies should not react against all international capital

flows, but only to the excessive inflows and outflows which may destabilize the domestic economy. Their objective is to safeguard the economy by limiting capital flows and enabling macroeconomic adaptation. Macroprudential policy measures should have precedence over CFMs since they prevent excessive inflows or outflows from even occurring. Also, they ensure that the countries will undertake globally consistent measures and would not use CFMs as a substitute for necessary macroeconomic reforms. Nevertheless, in spite of limiting the balance sheet vulnerabilities and excessive credit activity, macroprudential and CFMs inevitably lead to economic distortions. Consequently, there is no single ranking of the instruments according to their welfare effects, but a strategy that accounts for the potential risks and distortions should be chosen. Therefore, the instruments applied should be targeted against those particular risks (IMF, 2012, pp. 35-36).

## **2.2 Macroprudential policy measures**

Although necessary, the macroeconomic policy measures may sometimes not be sufficient to overcome economic challenges. Volatile and crisis-inducing capital flows may be caused by financial market weaknesses, stemming from inadequate regulation and supervision. Therefore, by maintaining a functioning and adequately regulated banking system, two types of risks stemming from volatile capital flows can be evaded. Firstly, excessive indebtedness, credit activity and currency appreciation in case of a capital surge can be prevented. Secondly, sharp depreciation and crisis in case of sudden stops or flights can be prevented.

Macroprudential policy measures can bring two main contributions. Firstly, they strengthen the financial system's resilience amid capital stops. Namely, by creating capital buffers, the financial system is protected from the risk of a sudden drop in asset prices or from the sharp depreciation of the domestic currency. Secondly, macroprudential policy measures contain the accumulation of weaknesses amid periods of global financial expansion or capital surges. This is accomplished by mitigating the procyclicality between asset prices or exchange rate and credit activity, as well as by tackling over-indebtedness (ECB, 2016, pp. 20-23).

The macroprudential policy encompasses several types of instruments targeting particular issues, such as (IMF Institute for Capacity Development, 2018):

- Broad-based tools

- Sectoral tools
- Liquidity tools
- Structural tools.

The empirical evidence proves the effectiveness of macroprudential policies in increasing the resilience of the economy and mitigating procyclicality. Nevertheless, there is a risk of evasion of these measures, which can result in capital overflows despite the established macroprudential measures. Also, these measures are related to non-insignificant costs, such as costs for the adoption of these measures by the financial institutions, decreased efficiency of debtors and short-term costs regarding the decreased economic activity amid restrictive macroprudential measures (IMF, 2016).

### **2.3 Capital flow measures**

In the IMF's IV, the IMF establishes the CFMs, which encompass all measures aimed at limiting capital account transactions. CFMs are defined more broadly than capital controls, encompassing: firstly, residency-based measures, which are measures affecting financial activity that discriminate by residency, and secondly, other measures that do not discriminate by residency but are still aimed at limiting capital flows (IMF, 2012, p. 20).

Considering that the capital flows provide significant advantages, as well as pronounced macroeconomic and financial stability risks when volatile, the IMF recommends that: firstly, capital flows should be primarily managed by macroeconomic policies, supported by robust financial supervision and stable institutions, secondly, in certain cases, CFMs should be applied to support macroeconomic adjustment and financial stability, and thirdly, CFMs should not be used as a substitute for the essential macroeconomic adjustments (IMF, 2012).

Regarding the preconditions for establishing CFMs, in its IV, the IMF recommends them to be temporary, transparent and non-discriminatory. Capital inflow measures should be targeted. Conversely, capital outflow measures must be comprehensive, to ensure their effectiveness and prevent evasion. Once they are established, their utility should be continually assessed against their costs. CFMs should be lifted when the capital flow pressures or the crisis are overcome, and macroeconomic policy space is reestablished.

### **3. CAPITAL FLOW MANAGEMENT IN PRACTICE**

This section is focused on the experiences with capital flow management measures after 2012, for the countries with the highest or most volatile capital surges, as well as the countries faced with the most severe economic or financial crises.

The majority of the countries relied on macroeconomic policy measures when dealing with sudden stops and reversals, which is in line with IMF's Institutional view. The measures applied consisted of exchange rate flexibility, foreign exchange interventions and monetary policy accommodation while maintaining a countercyclical and sustainable fiscal policy. CFMs were used in case of crisis or when the crisis was imminent, as part of a comprehensive set of macroeconomic measures. The particular set of measures reflects the particular economic challenges. Many countries facing capital stops registered a negative output gap, an exchange rate that was overvalued or in line with the fundamentals, and an adequate level of foreign reserves. The measures undertaken can be classified into three groups: a small number of countries that depreciated their currency, without foreign exchange interventions or CFMs; a majority of countries that used the exchange rate and foreign exchange interventions to cope with external shocks, but without the use of CFMs; and countries which implemented capital outflow measures (IMF, 2016, pp. 18-23).

In countries where the domestic currency was not undervalued or the foreign exposure of their balance sheets was not large, the flexible exchange rate was the main mechanism for managing external shocks. The depreciation reflected the capital outflow pressures and enabled adjustment of the previously overvalued currencies (common among many emerging market countries).

Most countries applied foreign exchange interventions, amid an already adequate level of foreign reserves. These interventions were aimed at curbing excessive volatility and enabling an adequate market setting. Regarding the monetary policy, interest rate changes were combined with domestic currency depreciation and foreign exchange interventions. In many countries, the interest rates were raised, in spite of the negative output gap, in order to tackle the inflationary pressures amid depreciation (such as in several emerging market countries) or to tackle external financing pressures (the case of the Macedonian economy).

The fiscal policy was largely restrictive. Many countries faced capital stops and commodity prices drop, with already high accumulated public debt and limited countercyclical policy space. Therefore, fiscal policy was in some

cases targeted at external imbalances reduction and as a safeguard mechanism against external shocks, while in other cases it was targeted at budget expenditures reduction and fiscal consolidation.

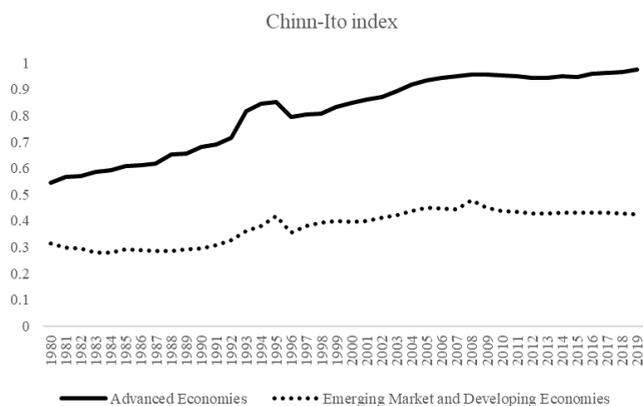
CFMs were used mainly in cases of ongoing or imminent crisis, which is in line with the official guidelines. That was the case with countries facing financial system issues, the balance of payment pressures, economic activity drop, current account deficit and public finances deterioration. Often, the CFMs were accompanied by restrictive monetary and fiscal policy, structural reforms and financial system reforms. Capital outflow measures were in line with the official recommendations. Most of them were comprehensive and non-discriminatory with regard to residence, as well as temporary, with a clear conviction of the governments to be lifted off, once the necessary macroeconomic and financial stability conditions were met (IMF, 2016, p. 21).

In countries facing significant capital inflows, macroeconomic policies were mostly applied, whereas capital inflow measures were rarely used. In particular, countries relied mostly on the flexible exchange rate, sometimes combined with foreign market interventions and monetary accommodation. Most countries allowed their currency to appreciate, remaining in accordance with the fundamentals and avoiding their overvaluation. In some cases, interest rate cuts occurred, whereas the fiscal policy remained neutral or accommodative.

Countries facing capital inflows also relied on macroprudential policies, to limit the systemic financial risk. Sometimes, macroprudential policies that also act as capital flow management measures were used, such as foreign currency borrowing limits. These measures were used in several instances: capital inflows created by the external indebtedness, excessive credit activity, liquidity and exchange rate risk and over-indebtedness. The combined use of several measures demonstrates that systemic risks stemming from capital flows may occur directly, as external borrowing by the corporate sector, or indirectly, through asset valuation and collateral effects. The most commonly used measures were total liabilities to capital ratio limits and debt to disposable income ratio (IMF, 2016).

The broad trends of capital account openness are captured with the Chinn-Ito index. This index is based on binary dummy variables about restrictions on cross-border financial transactions reported in the AREAER. The data show that capital account openness has gradually increased in the observed period. Still, the differences between country groups are quite large, with an almost fully opened capital account in AEs and still present capital controls in EMDEs (Graph 3).

### Graph 3. Implementation of capital flow measures

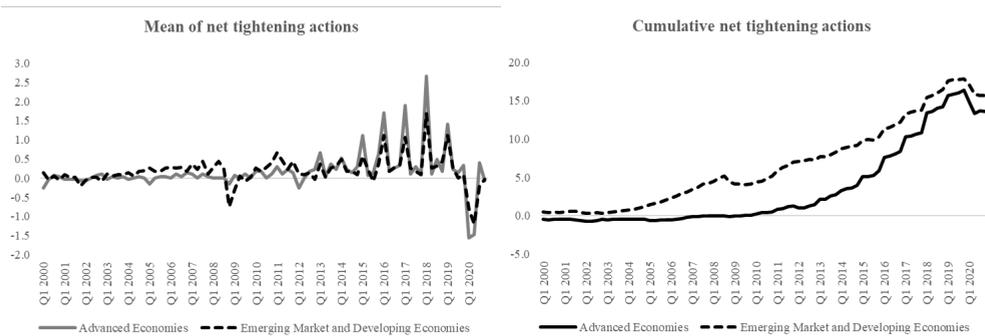


Note: The Chinn-Ito index ranges from 0 to 1, where 0 implies a fully closed capital account and 1 fully open capital account.

Source: Chinn and Ito, 2006, 2022 update.

The use of MPMs is analyzed through the data from the Integrated Macprudential Policy Database (iMaPP), based on IMF’s Macprudential Policy Survey cycle. The iMaPP-data is monthly and records macroprudential actions, i.e. tightening and easing. Over the period 2000–2020 AEs and EMDEs generally increased the use of MPMs. On the net, macroprudential policy has mostly been tightened, and after the GFC the trend towards tighter macroprudential policy has been clearly visible, especially in AEs and the major EMDEs (Graph 4).

### Graph 4. Implementation of macroprudential policy measures



Note: Figure 3 shows the cross-country average of the mean and cumulative net-tightening actions. Tightening actions take value 1 and easing actions value -1.

Source: IMF, iMaPP database.

#### **4. INTERNATIONAL CAPITAL FLOW MANAGEMENT MEASURES IN THE NOVEL INTERNATIONAL POLICY FRAMEWORK**

This segment presents the most recent reviews on the IV, informed by advances in research and the development of the Integrated Policy Framework (IPF). The IPF is the latest international policy framework initiative, which is aligned to the current global economic context, characterized by unflexible prices and imperfect financial markets. The IPF encompasses the interrelation between monetary policy, flexible exchange rate, macroprudential policy and CFMs in the small and open economies, accounting for the imperfections in the goods and financial markets.

The main feature of the novel IPF is that, when determining the appropriate policy mix, it accounts for the nature of shocks, as well as the characteristics of the particular economy. In terms of the particular shocks, the distinction is made between shocks to the real economy - productivity shocks or commodity prices shocks on one side, and financial shocks – to international interest rates, leverage, and capital flows, on the other side. In terms of the characteristics of the particular economy, it is accounted for various aspects, such as the share of primary commodities exports in total exports, currency misalignment in balances, leverage, foreign exchange market development, etc. The aim is to provide comprehensive diagnostics on the particular shocks and characteristics of countries in order to determine the most optimal policy mix. Importantly, the effects of monetary policy, capital flow management measures and foreign exchange market interventions are simultaneously assessed.

The latest reviews on the IV retain the main principles, in a sense that capital flows are viewed to be beneficial, and that CFMs can be useful sometimes but should not be treated as a substitute for a macroeconomic adjustment. Generally, certain macroeconomic and structural policy measures should be undertaken, whereas CFMs or macroprudential policy measures are rarely the only policy measure against capital flow risks. Therefore, an adequate policy mix should enable countries to exploit the benefits of capital flows while managing the associated macroeconomic and financial stability risks.

Two novelties in the latest review on the IV are related to the use of preemptive CFM/ macroprudential policy measures on inflows in some circumstances and establishing a special treatment for certain categories of measures. Firstly, it is proposed that under certain circumstances the inflow CFM/ macroprudential policy measures should be used preemptively, even in the absence

of a capital inflow surge. Such CFM/ macroprudential policy measures may be imposed on foreign debt inflows to address systemic financial risks stemming from exchange rate mismatches; in narrower cases, they may be imposed on local- currency debt inflows. Secondly, certain categories of measures should be subjected to the special treatment due to their nature, such as measures introduced for national or international security purposes.

### **Conclusion**

Driven by the objective to reap the benefits of international financial integration, there is a continued trend of the gradual rise of liberalization of capital flows. It is an ongoing challenge for the policymakers to determine how to effectively harness the benefits while mitigating the risks associated with the international capital flows, globally but also on an individual country level.

The capital flows are managed through a combination of several macroeconomic policies, supplemented by macroprudential policy measures and CFMs. Looking forward, the liberalization of the capital flows should focus on safeguarding financial stability, reflecting the important role of the macroprudential policy. Therefore, it would be useful to analyze how the capital flows affect the systemic financial stability, including the transmission channels, as well as the related institutional aspect of macroprudential policy implementation. The latest research focused on the CFMs shows that they are effective at mitigating the macroeconomic and financial stability vulnerabilities induced by capital flows. Nevertheless, it is necessary to further analyze the impact of CFMs on the amount and structure of international capital flows, the effects of evasion and the cross-country spillover effects.

Further promotion and development of a consistent global approach toward managing international capital flows remain one of the main objectives of international financial institutions.

## References

- 1 Banque de France (2013), Quarterly Selection of Articles, Bulletin No 31, Autumn 2013.
- 2 ECB (2016), “Dealing with large and volatile capital flows and the role of the IMF”, Occasional Paper Series No 180, September 2016.
- 3 Ghosh, A.R., Ostry, J.D., Qureshi, M.S. (2017), “Managing the Tide: How Do Emerging Markets Respond to Capital Flows?”, Working Paper 17/69, IMF, March 2017.
- 4 Gopinath, G. (2019), “A Case for an Integrated Policy Framework”, Jackson Hole Economic Policy Symposium manuscript, July 2019.
- 5 Group of Twenty (2020), “IMF 2020 Taxonomy of Capital Flow Management Measures”.
- 6 IMF Institute for Capacity Development (2018), “Dealing with Capital Flows I: Macroeconomic Policies”, Proceedings of the international course “Managing Capital Flows: Macroeconomic Analysis and Policies”, Vienna, Austria, November 2018.
- 7 IMF Policy Paper (2012), “The Liberalization and Management of Capital Flows”, Policy Paper Prepared by Staff of the IMF, November, 4, 2012.
- 8 IMF Policy Paper (2016), “Capital Flows – Review of Experience with the Institutional Law”, Policy Paper Prepared by Staff of the IMF, December 20, 2016.
- 9 IMF Annual Report (2018), “Exchange Arrangements and Exchange Restrictions”, IMF Library.
- 10 IMF Group of Twenty (2019), “Global Imbalances”, Prepared by Staff of the IMF, April 2019.
- 11 IMF External Sector Report (2019), “The Dynamics of External Adjustment”, July 2019.
- 12 IMF Policy Paper (2019), “Global Imbalances”, Policy Paper Prepared by Staff of the IMF, June 2019.
- 13 Ostry, J.D. (2018), “Managing Capital Flows: Toward a Policy Vademecum”, G-24 Meeting, Colombo, Sri Lanka, February 27-28, 2018.

**SAMOIL MALCHESKI<sup>1</sup>** 331.5.055.2:330.55(497.7)“2000/2020”  
**BLAGOJA SPIRKOSKI<sup>2</sup>** 331.5-057.055.2:330.55(497.7)“2000/2020”  
**RISTO MALCHESKI<sup>3</sup>** 331.215.54:330.55(497.7)“2000/2020”  
(Original scientific paper)

## **MACROECONOMIC ANALYSIS OF SOME INDICATORS OF MACEDONIAN ECONOMY IN THE PERIOD OF 2000-2020**

**Abstract:** This paper examines two major aspects, firstly, three logically linked theses between the following macroeconomics – related aggregate values: rate of GDP growth, growth of employment, growth of the real net salaries, and growth of labor productivity, via a Case Study of the country, while the second aspect it, examines refers to the conditions under which Macedonian economic growth might be stable in the term of the dynamics on the long run, by assessing the economic stability. According to the, neoclassical growth theory we are testing three theses in the defined intervals and time series through the four aggregates value during the period of 2000 to 2020 in case study of Macedonian economy, in order to explore the Macedonian strong stable and the dynamics economic growth on long run in future. The first thesis is that, there is a high correlation between the rate of growth of the employment and rate of growth of the GDP. Our second thesis is that, there is a high correlation between the increase in the number of employees and real GDP growth in the considered period. The third thesis is that, there is a high correlation between the increase in the average real net salary and real GDP growth in the considered period. Further research is necessary to seek conditions under which alternative economic growth paths are likely to become stable in the long-term perspective in case of the Macedonian economy.

**Keywords:** Macroeconomics, Economic growth; Employment; Net Salaries; Labor Productivity

**JEL Classification** E20, O47; E24; J31; J24

---

<sup>1</sup> Associate Professor at International Slavic University, [samoil.malcheski@gmail.com](mailto:samoil.malcheski@gmail.com)

<sup>2</sup> Full-time professor at The American University of Europe, AUE-FON, [bspirkoski@yahoo.com](mailto:bspirkoski@yahoo.com)

<sup>3</sup> Full-time professor at International Slavic University, [risto.malceski@gmail.com](mailto:risto.malceski@gmail.com)

## INTRODUCTION

Macroeconomic analysis of only three Macedonian aggregates, such as real GDP, employment, real wages and labor productivity, can answer the question: is Macedonian economic growth sustainable in the long term.

The macroeconomic analysis that is the subject of this paper includes three relevant “revenue” aggregate indicators, which does not mean that other real indicators such as growth of fixed assets investment and growth of public debt are not important for such a research. Namely, the character of this paper limits the space for research. In fact, this research focuses only on certain “income” macroeconomic indicators such as real gross domestic product (GDP), real wages and labor productivity measured as a ratio of GDP and number of employees, primarily because of their importance for establishing of sustainable economic growth in the long run in any economy. The analysis should answer the hypothesis: Macedonian economic growth is sustainable in the long run. The acceptance or rejection of this hypothesis will be through testing of the following auxiliary hypotheses.

**First hypothesis:** There is a high correlation between the increase in the number of employees and the real GDP growth in the period under review.

**Second hypothesis:** There is a high correlation between the increase in the average real net wage and the real GDP growth in the period under review.

**Third hypothesis:** There is a high correlation between labor productivity growth and real GDP growth in the period under review.

The choice of the three auxiliary hypotheses is not random at all. Namely, according to the neoclassical theory of growth<sup>4</sup> and the aggregate production function, the sustainable long-term economic growth of any economy is associated with a high positive correlation dependence between employee growth, real GDP, real net wage growth and labor productivity growth.

However, during the research we faced a serious inconsistency of the time series for the analyzed period 2000-2020, namely the aggregate real wage and the aggregate number of employees in the country. The statistical inconsistencies of the time series are methodologically resolved by dividing the time series into three sub-periods, harmonizing with the real circumstances arising

---

<sup>4</sup> Robert M. Solow, Technical Change and the Aggregate Production Function, *The Review of Economics and Statistics* Vol. 39, No. 3 (Aug., 1957), pp. 312-320; Barro, R.J. and Sala-i-Martin, X. (2004) *Economic Growth*. 2nd Edition, MIT, Cambridge; Fisher, E. P. (1992). The impact of play on development: A meta-analysis. *Play & Culture*, 5(2), 159–181.

from the statistical inconsistencies. Namely, the statistical indicators of the correlation between the analyzed income aggregates were first researched in the time sub-periods, and later they were analyzed for the whole time series with certain remarks.

As authors of this paper, we were faced with a challenge, first to face all statistical inconsistencies and second to offer certain methodological solutions to overcome them, in order to fully understand one of the most important periods in the economic history of the country, faced with one an internal shock with the 2001 war and three external shocks, such as the Great Depression 2006-2009, the debt crisis in the EU in 2012, and the Covid pandemic 19.

## **1. THE MOVEMENT OF THE TOTAL NUMBER OF EMPLOYEES IN THE PERIOD 2000-2020**

Part of our analysis covers the movement of the total number of employees in the period under review and its correlation with the movement of gross domestic product (GDP). Having in mind the previously stated in this section, we will refer to the movement of the total number of employees, for which we will use the data published in the Annual (hereinafter referred to as the Yearbook), issued by the State Statistical Office (hereinafter SSO).

Regarding the sources and methods of collection, it should be noted that the data on employees up to 2009, shown in the Yearbook are obtained on the basis of reports on employees collected regularly since 1952 from all business entities. Furthermore, since 2011 these data have been obtained on the basis of the “Employee and Salary Report” which is collected from selected business entities as well as from their units that operate in different municipalities.

A second important element of our considerations is the scope of the data. In this part it is important to note that from 2003 the SSO shifts from a semi-annual to an annual period of implementation and processing. This research covers business entities of all forms of ownership, and in 2004, for the first time, the number of employees includes employees of the Ministry of Defense and the Ministry of Interior. During the implementation of the annual survey on employees and salaries, the so-called “territorial principle of observation” was adopted, by which the municipality is taken as a basic territorial unit. This means that if the business entity has its own business or work units outside the territory of the municipality where the business entity is headquartered, it does not display data on these units in its report, because they are obliged to submit their own special report to the statistical authority to which

territory are located. The business or work unit shows the activity it performs, not the activity of the business entity to which it belongs.

**Table 1.** Employees in the period 2000-2020

	Employees	Employee growth
2000	311716	1
2001	297280	0,954
2002	279854	0,941
2003	267546	0,956
2004	411723	1,539
2005	411031	0,998
2006	418192	1,017
2007	434041	1,038
2008	434858	1,002
2009	426252	0,980
2010	435078	1,021
2011	458873	1,055
2012	474398	1,034
2013	483447	1,019
2014	501788	1,038
2015	519031	1,034
2016	534200	1,029
2017	548681	1,027
2018	567230	1,034
2019	621821	1,096
2020	602722	0,969

**Source.** Statistical Yearbook, 2001-2020, State Statistical Office

Furthermore, the third important element for our considerations is what is meant by the term “workers”. Thus, according to the SSO methodology, the term “workers” means all persons who have an employment relationship with the business entity, with that employment relationship being their only

and main occupation, regardless of whether they work part-time or full-time, as and whether they work full time or shorter than full time. Furthermore, students in the economy and persons punished with social-correctional work are not considered as workers, and the number of employees does not include persons who self-employed, as well as individual farmers. Thereby, the data on the annual average of workers are calculated with arithmetic mean of the data obtained from the semi-annual reports from March 31 and September 30, when the coverage of the reporting units is almost complete.

Table 1 gives the data on the movement of the total number of employees in the period 2000-2020, whereby the chain indices for the movement of the number of the total number of employees are calculated (column increase of employees). Regarding the data given in Table 1, it is necessary to note that they contain different coverage for the periods 2000-2003 and 2004-2020, which should be taken into account in the following considerations.

## **2. THE MOVEMENT OF NOMINAL AND REAL NET SALARIES IN THE PERIOD 2000-2020**

The second element required for our reviews are the actual net wages for the period under review. We will calculate them using the data on the nominal net salaries contained in the Annual and the data on the increase in the cost of living, downloaded from the website of the SSO<sup>5</sup>. Before we move on to reviewing this data, we will look at the methodology used by the SSO to obtain it.

As for the sources and methods of collecting data on average net wages published in the Yearbook, it is important to note that they are collected through the Monthly Report on Employees and Net Wages Paid introduced in early 1963. Furthermore, the monthly statistical report on employees and salaries covers business entities from all three forms of ownership. Thereby, the business entities in which the salaries are monitored from month to month are selected respecting the criterion of minimum representation of 70% of the employees in the municipality, sector of activity and in the branches of activity. So, it is a coverage of at least 70% on the three bases, so the state gets coverage of about 92% of employees.

Furthermore, the third important element for our considerations is what is meant by the term “paid net wages”. Namely, according to the methodology

---

<sup>5</sup> <http://www.stat.gov.mk/>

used by the SSO, the term “paid net wages” means the average earned income per month (year) per employee, earned for full-time, shorter and longer working hours (overtime). The total paid net salaries also include: compensation of the net salary from the funds of the business entity for annual leave, public holidays, paid leave for up to seven days, paid leave for professional development, for sick leave up to 60 days (until 2004), ie 21 day (since 2005) etc .; compensation of the net salary at the expense of other business entities, for the time spent on exercise at the invitation of a competent state body, civil protection, for performing civil duties, etc.; Reimbursement of net salary for previous months paid during the reporting month (arrears).

Year	Average nominal net salary	Cost of living index	Average real net salary	Increase in average real net salary	Real GDP growth
2000	10193	100,00	10193	1	1
2001	10552	105,50	10002	0,981	0,969
2002	11279	107,40	10502	1,050	1,015
2003	11824	108,69	10879	1,036	1,022
2004	12293	108,25	11356	1,044	1,047
2005	12597	108,79	11579	1,020	1,047
2006	13517	112,82	11981	1,035	1,051
2007	14584	119,70	12184	1,017	1,065
2008	16096	129,64	12416	1,019	1,055
2009	19957	128,60	15519	1,250	0,996
2010	20553	132,56	15505	0,999	1,034
2011	20847	136,26	15299	0,987	1,023
2012	20902	142,73	14644	0,957	0,995
2013	21145	144,70	14613	0,998	1,029
2014	21394	143,90	14867	1,017	1,036
2015	21906	143,41	15275	1,027	1,039
2016	22342	142,99	15624	1,023	1,028
2017	22928	146,42	15659	1,002	1,011
2018	24276	147,67	16439	1,049	1,029
2019	25213	148,30	17001	1,034	1,039
2020	27182	151,65	17924	1,054	0,939

**Source.** Statistical yearbook from 2000-2020,  
<http://www.stat.gov.mk/>

Table 2 shows the data on the movement of the average paid net salary in the period 2000-2020 and the increase in the cost of living, with the base year being 2000. Furthermore, in the fourth column of Table 2 the average real-net salary is calculated, in the fifth column the chain indices for the movement of the average real-net salary are calculated and in the sixth column the data on the real growth of the gross domestic period for the considered period are given. From the data in Table 2 it can be noticed that in 2009, compared to 2008, we have a drastic increase in both the average nominal net salary and the average real net salary. However, since the beginning of 2009 in the country the so-called gross salary has been introduced, with which the food allowances are transportation to the workplace have been merged into salaries, so in order to get a realistic picture of the income movement of employees in the period under review we will do them for three subperiods: 2000-2003, 2004-2008 and 2009-2020.

## **1. LABOR PRODUCTIVITY IN THE PERIOD 2000-2020**

One of the important components for assessing whether an economy has stable economic growth over a long period of time is labor productivity and its correlation with GDP. Realistically, labor productivity should be calculated as a quotient of GDP and the total number of working hours, but neither the SSO nor the National Bank (NBRM) has valid data for such a calculation. Therefore, the NBRM in the methodology that uses labor productivity calculates it as a quotient between GDP (production method) and the total number of employees, obtained according to the labor force survey conducted by the SSO. We think that this method is quite rough and inaccurate, because it is unrealistic for the employees in the agriculture who are obtained according to the labor force survey to be engaged during the year full time.

There is also inconsistency in the data used by the NBRM, because according to them in some years in agriculture in the first and fourth quarter there are more employees than the second, which according to the volume of agricultural activities is practically impossible. Therefore in our reviews to calculate labor productivity we will use employee data that we used in previous reviews. Due to the lack of data on the total number of working hours, we will calculate labor productivity as a quotient between GDP and the total number of employees. Table 3 shows the calculations for labor productivity, as well as its changes in the period 2000-2020.

Year	GDP in euros	Employees	Labor productivity	Changing labor productivity
2000	4095000000	311716	13137	1
2001	4143000000	297280	13936	1,061
2002	4241000000	279854	15154	1,087
2003	4386000000	267546	16393	1,082
2004	4578000000	411723	11119	0,678
2005	5032000000	411031	12242	1,101
2006	5472000000	418192	13084	1,069
2007	6095000000	434041	14042	1,073
2008	6772000000	434858	15572	1,109
2009	6767000000	426252	15875	1,019
2010	7109000000	435078	16340	1,029
2011	7544000000	458873	16440	1,006
2012	7585000000	474398	15989	0,973
2013	8150000000	483447	16858	1,054
2014	8562000000	501788	17063	1,012
2015	9072000000	519031	17479	1,024
2016	9657000000	534200	18077	1,034
2017	10038000000	548681	18294	1,012
2018	10744000000	567230	18941	1,035
2019	11262000000	621821	18111	0,956
2020	10635000000	602722	17645	0,974

**Source.** Statistical Yearbook (<http://www.stat.gov.mk/>) 2001-2020 and own calculations

In the fifth column of Table 3, the change in labor productivity is calculated, ie the chain indices for labor productivity are given. Calculations show that in 2004, compared to 2003, labor productivity fell by 0.322, ie. by 32.2%, which is certainly an unrealistic indicator. Namely, as we already said in 2004, for the first time, the number of employees includes the employees from the Ministry of Defense and the Ministry of Interior, and we have already mentioned that with certain measures exactly this year the work on the black market has been reduced, t. e. many people who were actually employed until 2004 were not registered as such. This is another reason in further considerations to divide the period 2000-2020 into the mentioned three sub-periods.

## 2. HYPOTHESIS TESTING

In this section we will test the three hypotheses, which are the basis for us to answer the question: Are the economic trends in the period 2000-2020 in function of stable economic growth over a long period of time.

### 2.1 TESTING OF THE FIRST HYPOTHESIS

Testing the first hypothesis:

*There is a high correlation between the increase in the number of employees and the real GDP growth in the period under review.*

we will do it by calculating the correlation coefficient between the growth of the number of employees and the real GDP growth for each of the periods 2000-2003, 2004-2008 and 2009-2020. As we said, the reason for this approach is that in the period 2000-2003 we do not have full coverage of employees and the introduction of the so-called gross salary in 2009, which is also a qualitative change. Table 4 shows the data and calculations for the correlation coefficient for the period 2000-2003.

**Table 4.** Calculation of the correlation coefficient for the period 2000-2003

Year	GDP growth $x_i$	Employee growth $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2000	1	1	1	1	1
2001	0,969	0,954	0,938961	0,908209	0,923457
2002	1,015	0,941	1,030225	0,885481	0,955115
2003	1,022	0,956	1,044484	0,913936	0,977032

**Source.** Own calculations based on the data from Tables 1 and 2

From the data given in Table 4 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0015, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,003418, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,020378,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 0,96275, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 0,927383, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,02264,$$

$\frac{1}{n} \sum_{i=1}^n x_i y_i = 0,964143$  so for the correlation coefficient for the period 2000-2003

we have

$$r = \frac{\frac{1}{n} \sum_{i=1}^n x_i y_i - \bar{x} \cdot \bar{y}}{s_x s_y} = -0,11214 \tag{1}$$

Furthermore, Table 5 provides the data for calculating the correlation coefficient for the period 2004-2008.

**Table 5.** Calculation of the correlation coefficient for the period 2004-2008

Year	GDP growth $x_i$	Employee growth $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2004	1	1	1	1	1
2005	1,047	0,998	1,096209	0,996004	1,044906
2006	1,051	1,018	1,104601	1,036324	1,069918
2007	1,065	1,038	1,134225	1,077444	1,105470
2008	1,055	1,002	1,113025	1,004004	1,057110

**Source.** Own calculations based on the data from Tables 1 and 2

From the data given in Table 5 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0436, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,089612, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,022606,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,0112, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,022348, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,015073,$$

$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,055271$  so for the correlation coefficient for the period 2004-2008

we have

$$r = 0,560534. \tag{2}$$

Table 6 provides the data for calculating the correlation coefficient for the period 2009-2020.

From the data given in Table 6 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,016833, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,034696, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,027319,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,029667, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,061041, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,028759,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,047565$$

so for the correlation coefficient for the period 2009-2020

we have

$$r = 0,720358. \tag{3}$$

Year	GDP growth $x_i$	Employee growth $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2009	1	1	1	1	1
2010	1,034	1,021	1,069156	1,042441	1,055714
2011	1,023	1,055	1,046529	1,113025	1,079265
2012	0,995	1,034	0,990025	1,069156	1,02883
2013	1,029	1,019	1,058841	1,038361	1,048551
2014	1,036	1,038	1,073296	1,077444	1,075368
2015	1,039	1,034	1,079521	1,069156	1,074326
2016	1,028	1,029	1,056784	1,058841	1,057812
2017	1,011	1,027	1,022121	1,054729	1,038297
2018	1,029	1,034	1,058841	1,069156	1,063986
2019	1,039	1,096	1,079521	1,201216	1,138744
2020	0,939	0,969	0,881721	0,938961	0,909891

**Source.** Own calculations based on the data from Tables 1 and 2

From the previous calculations, we can conclude:

- first, in the first subperiod (2000-2003) there is no correlational dependence ( $r = -0,11214$ ) between the increase in the number of employees and the real GDP growth of only 0.925% on average, due to the war in 2001 and with an average budget deficit of 2.425%;
- secondly, in the second sub-period (2004-2008) there is a small correlation between the increase in the number of employees and the real GDP growth with a correlation coefficient of  $r = 0,560534$  and the average budget deficit of only 0.12%; and
- third, in the third subperiod (2009-2020) there is a medium

correlation dependence ( $r = 0,720358$ ) between the increase in the number of employees and the real GDP growth, primarily as a result of higher employment in the public sector and an average increase in the budget deficit of 3.3415%.

Hence, it can be concluded that for the entire analyzed period (2000-2020) **there is not always a high correlation** between the increase in the number of employees and the real GDP growth, but in the sub-period 2009-2020 there is full data consistency and average correlation dependence.

## 2.2 TESTING OF THE SECOND HYPOTHESIS

Testing the second hypothesis:

*There is a high correlation between the increase in the average real net wage and the real GDP growth in the period under review.*

we will do it by calculating the correlation coefficient between the growth of the average real net wage and the real growth of GDP for each of the periods 2000-2003, 2004-2008 and 2009-2020.

Table 7. Calculation of the correlation coefficient for the period 2000-2003					
Year	GDP growth $x_i$	Increase in real net salary $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2000	1	1	1	1	1
2001	0,969	0,981	0,938961	0,962361	0,950589
2002	1,015	1,050	1,030225	1,102500	1,065750
2003	1,022	1,036	1,044484	1,073296	1,058792

**Source.** Own calculations based on the data from Table 2

Table 7 gives the data and calculations for the correlation coefficient for the period 2000-2003.

From the data given in Table 7 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0015, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,003418, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,020378,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,01675, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,03453925, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,027544283,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,01878275$$

so for the correlation coefficient for the period 2000-2003 we have

$$r = 0,904392. \tag{5}$$

Furthermore, Table 8 provides the data for calculating the correlation coefficient for the period 2004-2008.

<b>Table 8.</b> Calculation of the correlation coefficient for the period 2004-2008					
Year	GDP growth $x_i$	Increase in real net salary $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2004	1	1	1	1	1
2005	1,047	1,020	1,096209	1,0404	1,06794
2006	1,051	1,035	1,104601	1,071225	1,087785
2007	1,065	1,017	1,134225	1,034289	1,083105
2008	1,055	1,019	1,113025	1,038361	1,075045

**Source.** Own calculations based on the data from Table 2

From the data given in Table 8 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0436, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,089612, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,022606,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,0182, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,036855, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,011124747,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,062775$$

so for the correlation coefficient for the period 2004-2008 we have

$$r = 0,721624. \tag{6}$$

Furthermore, Table 9 provides the data for calculating the correlation coefficient for the period 2009-2020.

**Table 9.** Calculation of the correlation coefficient for the period 2009-2020

Година	GDP growth $x_i$	Increase in real net salary $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2009	1	1	1	1	1
2010	1,034	0,999	1,069156	0,998001	1,032966
2011	1,023	0,987	1,046529	0,974169	1,009701
2012	0,995	0,957	0,990025	0,915849	0,952215
2013	1,029	0,998	1,058841	0,996004	1,026942
2014	1,036	1,017	1,073296	1,034289	1,053612
2015	1,039	1,027	1,079521	1,054729	1,067053
2016	1,028	1,022	1,056784	1,044484	1,050616
2017	1,011	1,002	1,022121	1,004004	1,013022
2018	1,029	1,050	1,058841	1,1025	1,08045
2019	1,039	1,034	1,079521	1,069156	1,074326
2020	0,939	1,054	0,881721	1,110916	0,989706

**Source.** Own calculations based on the data from Table 2

From the data given in Table 9 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,016833, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,034696, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,027319,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,01325, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,025349, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,0263,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,029217$$

so for the correlation coefficient for the period 2009-2020

we get

$$r = -0,10039. \quad (7)$$

From the previous calculations, we have the following conclusions:

- first, in the first subperiods (200-2003) there is an extremely high ( $r = 0,904392$ ) correlation between the increase in the average real net wage and the real GDP growth, due to the fall of GDP of 3.1% in 2001 or real average growth of 1.275% and the low growth of real wages;
- second, in the next two sub-periods the correlation dependence is constantly decreasing, and for the second sub-period we can say that it is still at a high intermediate level ( $r = 0,721624$ ), however,

the third sub-period correlation for dependence does not exist ( $r = -0,10039$ ) and it is negative, ie the faster growth of the real net wage than the GDP growth is disastrous for any economy, because it loses the accumulative capacity for a higher level of investment expenditures;

- Third, the populist policy of continuous growth of the minimum wage, without being in line with GDP growth and overall labor productivity, will significantly disrupt the macroeconomic stability of the Macedonian economy and lead to uncontrolled growth of its public debt..

Therefore, if we limit ourselves to the 2009-2020 sub-period in which we have full data consistency, then obviously we should not accept the auxiliary hypothesis - that there is a high correlation between average real net wage growth and real GDP growth. in the period under review.

### 2.3 TESTING OF THE THIRD HYPOTHESIS

Testing of the third hypothesis:

***There is a high correlation between labor productivity growth and real GDP growth in the period under review.***

we will do it by calculating the correlation coefficient between the changes in labor productivity and the real GDP growth for each of the periods 2000-2003, 2004-2008 and 2009-2013. Table 10 gives the data and calculations for the correlation coefficient for the period 2000-2003.

Year	GDP growth $x_i$	Productivity change $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2000	1	1	1	1	1
2001	0,969	1,061	0,938961	1,125721	1,028109
2002	1,015	1,087	1,030225	1,181569	1,103305
2003	1,022	1,082	1,044484	1,170724	1,105804

**Source.** Own calculations based on the data from Tables 1 and 3

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0015, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,003418, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,020378,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,0575, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,119504, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,034601,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,059305$$

so for the correlation coefficient for the period 2000-2003

we have

$$r = 0,309533. \tag{9}$$

Furthermore, Table 11 provides the data for calculating the correlation coefficient for the period 2004-2008.

**Table 11.** Calculation of the correlation coefficient for the period 2004-2008

Year	GDP growth $x_i$	Productivity change $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2004	1	1	1	1	1
2005	1,047	1,101	1,096209	1,212201	1,152747
2006	1,051	1,069	1,104601	1,142761	1,123519
2007	1,065	1,073	1,134225	1,151329	1,142745
2008	1,055	1,109	1,113025	1,229881	1,169995

**Source.** Own calculations based on the data from Tables 1 and 3

From the data given in Table 11 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,0436, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,089612, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,022606,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,0704, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,147234, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,038448,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,117801$$

so for the correlation coefficient for the period 2004-2008

we have

$$r = 0,841916. \tag{10}$$

Furthermore, Table 12 provides the data for calculating the correlation coefficient for the period 2009-2020.

**Table 12.** Calculation of the correlation coefficient for the period 2009-2020

Year	GDP growth $x_i$	Productivity change $y_i$	$x_i^2$	$y_i^2$	$x_i y_i$
2009	1	1	1	1	1
2010	1,034	1,029	1,069156	1,058841	1,063986
2011	1,023	1,006	1,046529	1,012036	1,029138
2012	0,995	0,973	0,990025	0,946729	0,968135
2013	1,029	1,054	1,058841	1,110916	1,084566
2014	1,036	1,012	1,073296	1,024144	1,048432
2015	1,039	1,024	1,079521	1,048576	1,063936
2016	1,028	1,034	1,056784	1,069156	1,062952
2017	1,011	1,012	1,022121	1,024144	1,023132
2018	1,029	1,035	1,058841	1,071225	1,065015
2019	1,039	0,956	1,079521	0,913936	0,993284
2020	0,939	0,974	0,881721	0,948676	0,914586

**Source.** Own calculations based on the data from Tables 1 and 3

From the data given in Table 12 we have

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = 1,016833, \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = 1,034696, \quad s_x = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2} = 0,027319,$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = 1,009083, \quad \frac{1}{n} \sum_{i=1}^n y_i^2 = 1,019032, \quad s_y = \sqrt{\frac{1}{n} \sum_{i=1}^n y_i^2 - \bar{y}^2} = 0,027972,$$

$$\frac{1}{n} \sum_{i=1}^n x_i y_i = 1,02643$$

so for the correlation coefficient for the period 2009-2020

we have

$$r = 0,471897. \tag{11}$$

From the previous calculations, we have the following conclusions:

- first, in the first subperiod (2000-2003) there is a very weak correlation dependence ( $r = 0,309533$ ) between labor productivity growth and real GDP growth;
- second, in the second subperiod (2004-2008) there is a strong correlational dependence due to the high average GDP growth rate

of 5.1%, so that in the third sub-period (2009-2020) we have a weak correlation dependence ( $r = 0,471897$ ).

Hence, we can conclude that there is no high correlation between the increase in labor productivity and the real GDP growth in the period 2000-2020..

## CONCLUSION

Obviously, the correlation coefficients of the analyzed three theses for the four macroeconomic aggregates, in conditions of internal and external shocks in the period 2000-2020, indicate that the Macedonian economy was experiencing spontaneous economic growth, except for the sub-period 2004-2008 when there is coexistence of the analyzed macroeconomic aggregates. Namely, the correlative dependence of the real GDP on the one hand, with the level of employment, the real average wage and the productivity of the labor, on the other hand, is not at a high level for the research period, so that in the Macedonian economy there was “unbalanced” economic growth. , which in the future may result in a significant disturbance of the general macroeconomic balance.

In fact, the development model, especially in the period, during and after the global financial crisis, was based on a significant increase in public expenditures, accompanied by a permanent average budget deficit of 3.18% of GDP (2009-2020), and a steady increase of public debt (from 27.1 at the end of 2009 to 60.2% of GDP at the end of 2020) in order to achieve higher GDP growth rates. The Macedonian Government sought to continuously increase public expenditures through deficit financing, to finance general consumption and unproductive public investment, in order to achieve higher rates of economic GDP growth and increase employment. However, the result of such a macroeconomic policy was a weakening of the correlation coefficient between the most important macroeconomic aggregates of GDP, the employment rate, the real net wage and the total labor productivity.

In fact, the government in the period 2009-2016, through massive and unproductive spending of public finances, constantly “squeezed out” the private sector and reduced its accumulative capacity, on the other hand. At the same time, the domestic private sector was additionally “pushed out” by the unfair competition of foreign direct investors, who received significant subsidies from the Macedonian state to open their production facilities in the country.

While the Government in the period 2017-2020 was focused on populist measures for “investments in human capital”, “driven by the growth of net wages and employment”, especially the minimum wage, the 2020 Budget provided for a realistic GDP growth of 3.8% and growth of net wages of 6.3%, and there was a decline in GDP of 6.1% and an increase in nominal wages by 5.4% in December 2020. In fact, non-compliance with the basic macroeconomic principles in the long run will lead to a significant increase in public debt and the inability for its regular payment and disruption of the general macroeconomic balance.

The development model is based on the thesis that economic development can be achieved with the budget scenario where “the growth of balanced public debt is at the same level as the growth of the balanced growth rate”<sup>6</sup>. However, if we compare the average growth rates of public debt for the period from 2009 to 2020, which is 2.75% of GDP with the average GDP growth rate of 1.65% for the same period, it will be concluded that this model in reality it did not function and leads to increasing indebtedness in the country, with a tendency to jeopardize the general macroeconomic balance, especially given the permanent huge trade deficit (average of -1.795 million euros for the period 2009-2020) and the current deficit account (average of -3.341% of GDP for the period 2009-2020).

In fact, the unsustainability of this model stems from the permanent decline in the correlation coefficient of dependence, which refers to the ratio between real GDP growth and labor productivity. Namely, the price for the weakening of labor productivity results from the lack of structural changes in the direction of development of propulsive and fast-growing industries, low and unrealistic gross investments, example in 2019 of 34.3% in the structure of GDP, only 21.0% are investments in fixed assets, and the change in stocks reached the level of 13.2% (in highly developed countries the change in stocks ranges from 0.1-0.2), the constant unproductive increase of employees in the public sector (socialization of high poverty), as well as insufficient investment in machinery and equipment (only 31.42% of all investments in 2020) at the expense of construction facilities (58.47% of all investments in 2020), so that economic growth in the long run can not be sustainable in Macedonian economy, with such a low level of investment as a developing country. Hence, it can be concluded that it is necessary to change the current model of economic growth, and significantly increase the level of investment expenditures.

---

<sup>6</sup> Alfred Greiner & Bettina Fincke (2014). *Public Debt, Sustainability and Economic Growth: Theory and Empirics*, Springer

## References:

- 1 Alfred Greiner&Bettina Fincke (2014). Public Debt, Sustainability and Economic Growth: Theory and Empirics, Springer.
- 2 Barro, R.J. and Sala-i-Martin, X. (2004) Economic Growth. 2nd Edition, MIT, Cambridge.
- 3 IMF, 2021 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; STAFF STATEMENT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE REPUBLIC OF NORTH MACEDONIA, No. 22/47, Fevruar, 22.
- 4 IMF, Executive Board Concludes 2014 Article IV Consultation and Third Post-Program Monitoring Review with the Former Yugoslav Republic of Macedonia Press Release.
- 5 Fisher, E. P. (1992). The impact of play on development: A meta-analysis. *Play & Culture*, 5(2), 159–181.
- 6 Robert M. Solow, Technical Change and the Aggregate Production Function, *The Review of Economics and Statistics* Vol. 39, No. 3 (Aug., 1957), pp. 312-320.
- 7 Munasinghe, M., Sunkel, O., de Miguel, C., 2001. *The Sustainability of Long Term Growth*, Edward Elgar, Cheltenham, UK.
- 8 Neri Salvadori & Arrigo Opocher (2009). *Long-run Growth, Social Institutions and Living Standards*, Edward Elgar Publishing Inc., USA.
- 9 Sardar M.N. Islam, Mohan Munasinghe, Matthew Clarke (2003) “Making long-term economic growth more sustainable: evaluating the costs and benefits”, *Ecological Economics* 47 (2003), pp 149– 166.
- 10 Solow M. Robert (1993) *Sustainability: An Economists Perspective*.
- 11 William D.Nordhaus, *Reflections on the concept of sustainable economic growth*, Cowles Foundation Paper No.951, pp 308-326.

## **Authors' Guidelines**

### General Guidelines

- The Journal covers theoretical and empirical researches in the field of social sciences, economics and management.
- The paper will be written entirely in English (following the Editing Instructions).
- All articles are subject to peer review and scientific categorization and should not exceed 4000 words. Based on that, the paper can be categorized as: 1) original scientific paper; 2) professional paper 3) reviews.
- The authors are entirely responsible for the content of their article.
- Each author may submit a maximum of two papers per one issue (as single author and/or as co-author).
- All submitted manuscripts should not be previously published and not under consideration for publication elsewhere.
- Upon submission of manuscripts the editorial board will: 1) send the paper to peer reviewer 2) inform the author about possible suggestions or comments on the manuscript that need to be revised or 3) inform the author that the paper has been rejected.
- Only positively reviewed manuscripts are published in the Journal. Provided the manuscript is refused, (the editor is not obligated to present reasons for refusal), the author may submit the paper elsewhere. Submitted manuscripts will not be returned to the author. Once the manuscript is accepted for publication, the author must not publish the paper in other journal.
- A soft copy of the manuscript is required to be sent to [EconomicDevelopment@ek-inst.ukim.edu.mk](mailto:EconomicDevelopment@ek-inst.ukim.edu.mk)

### Note

- The logical connection between the title of the article, abstract, key words, main content and conclusions should be respected.
- Articles that do not comply with all the requirements specified in the Editing Instructions will not be accepted for publication.

### Admission fee:

On the occasion of the *70th anniversary of the founding of the Institute of Economics - Skopje*, the Scientific Council at its 63rd session, adopted a Decision on changes in the financial compensation for publishing papers in the journal for the entire year 2022:

1. Active and graduate students of the Institute of Economics-Skopje are **exempt from Admission fee** for publishing papers.

2. Colleagues with teaching-scientific titles from other units of the "Ss. Cyril and Methodius University in Skopje", have the opportunity to publish their papers with a **50% discount**.
3. For the co-authors of papers with persons with teaching-scientific titles from the Institute of Economics – Skopje, **there is no Admission fee**.
4. For other Admission fee is **85 EUR/paper i.e. 5.000 MKD/paper**.

The admission fee must accompany the manuscript submission.

Beneficiary: Institute of Economics - Skopje

(Ss. Cyril and Methodius University in Skopje)

Bank account (national): 160010853278810

International Bank account (IBAN): MK07 1007 0100 0096 782

Bank name: Народна Банка на Република Северна Македонија

National Bank of the Republic of North Macedonia

Address: Bul. Kuzman Josifovski Pitu, No. 1,

1000 Skopje, Republic of North Macedonia

SWIFT code: NBRM MK 2X

Contact:

Technical editor of the Journal

([EconomicDevelopment@ek-inst.ukim.edu.mk](mailto:EconomicDevelopment@ek-inst.ukim.edu.mk))

URL: <http://www.ek-inst.ukim.edu.mk/>

## **Editing Instructions**

**NAME AND LAST NAME** will be written with capital letters, left alignment, 12 points, bold, being followed by asterisks, and in the footnote the didactic and scientific degree, the position and place of work of the authors e-mail are indicated (Times New Roman, 10 points) \*

(12 points) <Blank line 12 point high>

(12 points) <Blank line 12 point high>

**THE TITLE OF THE PAPER WILL BE WRITTEN WITH CAPITAL LETTERS, CENTERED, Times New Roman, 12 POINTS, BOLD**

(12 points) <Blank line 12 point high>

(12 points) <Blank line 12 point high>

<Tab> **Abstract:** (Times New Roman, 12 points, Sentence case, bold, left allignment)

The text in the Abstract will only be in English and will have between 100 and 200 words, a single line spacing, justify alignment, Times New Roman, 12 points. (The abstract should summarize the content of the paper. Do not make references nor display equations in the abstract.)

(12 points) <Blank line 12 point high>

<Tab> **Keywords:** (Times New Roman, 12 points, Sentance case, a single line spacing, justify allignment, bold). Maximum 5 words, in English, Times New Roman, 12 points.

(12 points) <Blank line 12 point high>

<Tab> **JEL Classification:** (Times New Roman, 12 points, Sentence case, justify allignment, bold). Times New Roman, 12 points, ([http://www.aeaweb.org/journal/jel\\_class\\_system.php](http://www.aeaweb.org/journal/jel_class_system.php)).

(12 points) <Blank line 12 point high>

(12 points) <Blank line 12 point high>

**Introduction** (Times New Roman, 12 points, Sentance case, left lligment, bold)

(12 points) <Blank line 12 point high>

(The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper, a single line spacing, justify alignment, Times New Roman, 12 points. The contents of each section may be provided to understand easily about the paper.)

(12 points) <Blank line 12 point high>

\* Assoc.Prof., Ph.D., University of Ss. Cyril and Methodius, Republic of North Macedonia, e-mail:

**1. THE TITLE OF THE CHAPTER:** Times New Roman, 12 points, , capital letters, bold, numbered with Arabic numbers, left alignment.

(12 points) <Blank line 12 point high>

<Tab> The text paragraphs of the paper will be Times New Roman, 12 points, justified alignment, single line spacing. The paper will be edited on A4 format (210 x 297), page setup, top/bottom 2,54 cm; left/right 2,54 cm. The size of a <Tab> is 1,27 cm.

(12 points) <Blank line 12 point high>

**1.1. Subchapter.** Subchapters can be used in the text, numbered with the number of the chapter and a number showing the number of the subtitle within the chapter. The subchapters are Times New Roman, 12 points, Sentence case, bold.

(12 points) <Blank line 12 point high>

<Tab> **Conclusion:** (Times New Roman, 12 points, Sentence case, bold, left alignment). The text in the Conclusion will be written in Times New Roman, 12 points, justify alignment, single line spacing.

**CITATIONS:** Quotations and notes should be elaborated as footnotes and marked successively with Arabic numbers.<sup>1</sup> The scope of quotations and notes should be limited to 15 lines. Abbreviations such as „ibid”, „op. cit” can be used.

**Harvard Format Citation is also acceptable (In-text and Reference list).**

---

<sup>1</sup> Author's surname, Initial of first name: Title of book, Edition (only include this if not the first edition), Publisher, Place, Year, page (Times New Roman, 10 points, justify alignment, single space)

## PRESENTATION OF THE MATHEMATICAL EQUATIONS

(10 points) <Blank line 10 point high>

The mathematical equations will be Times New Roman, 11 points, centred and numbered on the right with Arabic numbers between round brackets.

(10 points) <Blank line 10 point high>

$$X_2 + Y_2 = Z_2(1)$$

(10 points) <Blank line 10 point high>

## PRESENTATION OF TABLES, GRAPHS AND PICTURES (12 points)

Title of the table, graph, picture or other illustration (Times New Roman, 12 points, Sentence case, bold, left alignment)

<Blank line 12 point high>

Tables, graphs, pictures and other illustrations should be presented in Arabic consecutive numbers. The references or data sources of the tables and graphs should be cited below, preceded by any additional comments or explanations. Tables, graphs, pictures and other illustrations are prepared in black and white techniques presented appropriately in the text. All graphs and illustrations and diagrams should be additionally submitted in their original electronic form (jpg, gif, xls, and alike).

<Tab> **References:** (Times New Roman, 12 points, Sentence case, bold, left alignment). References should appear at the end of the paper, listed in alphabetical order by the names of authors. References will be written with Times New Roman 12 points, justify alignment, numbered with Arabic numbers.

- For books the required elements for a reference are: Author's surname, Initial of first name: Title of book, Edition (only include this if not the first edition), Publisher, Place, Year
- For journal articles the required elements for a reference are: Author's surname, Initial of first name: Title of article, Full Title of Journal, Volume number (Issue/Part number), Year, Page numbers
- For journal articles from an electronic source the required elements for a reference are: Author's surname, Initial of first name: Title of article, Full Title of Journal, Volume number (Issue/Part number),

Year, Page numbers if available, Available at: include web site address/URL (Uniform Resource Locator), [Accessed date]

- *For newspaper articles* the required elements for a reference are: Author's surname, Initial of first name: Title of article, Full Title of Newspaper, Day and month, year before page numbers and column line.
- *For websites found* on the world wide web the required elements for a reference are: Authorship or Source: Title of web document or web page, Year of the document, Available at: include web site address/URL(Uniform Resource Locator), (Accessed date)