KEY MACROECONOMIC DETERMINANTS OF GOVERNMENT DEBT – THE CASE OF NORTH MACEDONIA*

Filip Taskovski**

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Abstract

Government debt, as a prime macroeconomic determinant, has a significant impact on the design of fiscal and monetary policy in a country. That is to say, that, with the emergence of the Corona crisis and the energy crisis which caused: 1) interruption of global supply chains, 2) increase in food and energy prices and 3) interruption of the balance of supply and demand, a large number of countries including North Macedonia began to create targeted anti-crisis measures that caused the growth of the budget deficit, and as a result of this, the government's debt increased. What is characteristic about North Macedonia is that the increase of the government's debt caused the growth of the public debt, whereby it exceeded 60% of the GDP, which also means violation of one of the Maastricht criteria for convergence. The focus of this paper is the determination of the effect of key macroeconomic determinants on the government's debt of North Macedonia. This research paper is based on secondary data from relevant sources such as the Ministry of Finance and the National Bank of the Republic of North Macedonia, the State Statistics Office and the IMF. The multiple linear regression model was applied in the empirical part of the research, in which five variables are incorporated. In this model, the government's debt, as a percentage of GDP is the dependent variable, and the annual economic growth, the average annual inflation rate, the budget deficit and the annual amount of FDI are independent variables. Based on the results of the research, it can be concluded that the world crisis has a strong impact on the public finances of North Macedonia, and the growth of the budget deficit largely causes the growth of the country's debt by the government.

Keywords: government debt, budget deficit, macroeconomic determinants, borrowing.

JEL: H61, H62, H63

1. Introduction

The government's debt, as the largest part of a country's public debt, is an instrument that has a significant impact on the management of the business cycle of national economy, as well as on the management of crisis that occur in different forms. Namely, crises, such as the great recession of 2007-2009, the debt crisis of the countries on the periphery of the Eurozone, the occurrence of the Covid-19 pandemic and the energy crisis which caused a significant increase in the national debts of the countries, primarily due to: 1) the growth of the budget deficits that arose as a result of the designed measures in order to deal with the mentioned crisis, 2) the reduced economic growth due to problems in the banking sector, the interruption of global supply chains and the growth of inflation and 3) the reduction of the inflow of foreign capital due to the conservative approach of investors.

The Republic of North Macedonia, as a developing country, often faces crisis situations; in order to resolve this crisis, the government borrows from the domestic and foreign financial markets. With the occurrence of the Corona crisis and the energy crisis, the Macedonian government designed several types of targeted fiscal measures to support the economy, consequently the government's debt grew significantly, and the public debt in 2022 exceeded 60% of the country's GDP.

The purpose of this paper is to establish the interdependence of the Macedonian government's debt and key macroeconomic determinants such as: 1) annual economic growth, 2) inflation, 3) budget deficit and FDI in North Macedonia.

It is characteristic and significant that the analysis was carried out using data within the period of 2001 to 2021, which included several

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** Faculty of Economics, Goce Delcev University, Stip, North Macedonia, filip.30825@student.ugd.edu.mk

fiscal shocks caused by internal and external factors.

The research paper primarily provides an overview of previous research conducted in the area of the national government's debt and the macroeconomic determinants of the same for both developing and developed countries and regional integrations such as the Eurozone. An overview of the data, variables and the model applied in the research are provided in the following section. The third part refers to the overview of the research results. The fourth part deals with the discussion of the data, policies and estimates of the future movements of the public debt. The last part of the research refers to the concluding observations.

2. Literature review

In the literature related to the fiscal policy, several viewpoints and theories about debts can be found, so, the classic theory of public debts represented by Adam Smith and David Ricardo indicate that borrowing by the government and government institutions and creating a budget deficit represents an additional problem for the country (Tsoulfidis, 2007).

At the same time, Adam Smith in his work "The Wealth of Nations" states that creating a budget deficit as a precursor to borrowing disastrous for the nation (Smith, Wealth of Nations, 1776). The classical theory is due to an opposition to mercantilism as a form of economic management, from the point of view that government debts lead to an unsustainable form of borrowing that in the long run would cause an increase in tax rates and the taxation of capital (Smith, The Wealth of Nations, 1776).

Consequently, it can be concluded that an increase in the indebtedness of a national economy leads to:

- ✓ a decrease in the savings of individuals and legal entities,
- ✓ a decrease in investments by economic actors with the exception of the government,
- ✓ a decrease in exports, creating a deficit in the balance of payments.

On the other hand, government debts cause an increase in consumption (Gale & Orszag, 2004).

Based on the research conducted by Gale & Orszag (2004), it can be concluded that a 1% increase in the budget deficit of the US federal budget causes a 50-100 basis point increase in the long-term interest rate (which is an empirical confirmation of the negative effects of government debts.

According to the Keynesian approach, which is characterized by the fact that it requires government intervention in economic flows, the government's debt, which is the result of the growth of the budget deficit, does not represent a significant problem for the national economy (Phelps, 2022). This point of view is primarily due to the fact that Keynes focuses on fiscal policy as one of the key instruments for solving a certain crisis.

With the onset of the Great Recession in 2008, the Keynesian theory of public debt was once again the subject of discussion by many economists. Based on the empirical research, it can be concluded that during the great recession, a large part of the countries that were affected had to create significant budget deficits in order to increase public consumption, that is, public investments, and neutralize the reduced consumption of households and business entities (Dwyer, 2011).

The fiscal policy set this way caused the growth of the government's debt and that of public, so in the USA the public debt reached a level of about 360% of the GDP (Pollin, 2012), and some of the countries in the Eurozone where the public debt in 2009 exceeded 79%, noted significant budget deficits such as Greece, which recorded a budget deficit of 15.8% in 2009 and a public debt of 127.1% (Trabelsi, 2012).

Based on the research and the available data, it can be concluded that the great financial crisis did not have a significant impact on the Macedonian government's debt, primarily because of the modern policies managed by the government in order to neutralize the effects. The Ricardian equivalence, which focuses on spending and borrowing by the government, indicates that the financing of government expenditures that aim to stimulate economic growth from taxes that can be of today and the future will not achieve the expected effect because individuals and legal entities that appear in the role of consumers and investors are conservative in investment and consumption (Gordon, 2023).

The decrease in consumption and investments is primarily notable when the government budget deficit as a result of increased spending is financed by debts, namely, individuals and legal entities in this case are aware that the government's debt should be paid from future taxes, while they are inclined to savings, and consequently the growth of aggregate demand is neutralized as a result of increased government consumption (Seater, 1993).

That is, Ricard's theory opposes the Keynesian theory and is highly criticized by a large number of macroeconomists, but despite the neglect and criticism, its validity has been confirmed during the financial crisis of 2008 when the growth of deficits and government's debts in 12 European Union countries were positively correlated with the growth of consumer and investor savings (Strazds & Grennes, 2013).

3. Research methodology

In the research paper, secondary data was used for the analysis. In order to increase relevance, credibility and quality, a series of criteria were taken into account: 1) the source of data (the institution that acts as the publisher of the data), 2) the date of publication of the data, 3) the degree of contribution of data in the research, 4) the depth of the analysis, etc.

The research is composed of: 1) method of descriptive statistics of the changes in the model within the period 2001-2021, 2) correlation analysis of the dependent variable with the independent variables in the model and 3) a multiple linear regression model with five variables of which one is dependent and four independent variables.

In the model, the annual Macedonian government's debt for the period from 2001 to 2021 is dependently variable, and the annual deficit of the state budget, the average annual inflation rate, the annual economic growth and the annual amount of foreign direct investments are independently variable. The multiple linear regression is expressed through the formula:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\ldots+\beta_nX_n$$

Y – The value of the dependent variable

β_0 – Constant

$\beta_1, \beta_2, \beta_n$ – Regression coefficients

X_1, X_2, X_n - Value of the independent variables

The regression formula for this research is:

$$GGD_t= \beta_0+\beta_1BDE_t+\beta_2INF_t+ \beta_3EGR_t+ \beta_4FDI_t$$

t – year spanning from 2001 to 2021

Dependent variable:

GGD – Annual Government Debt of the Republic of North Macedonia as a percentage of GDP (Ministry of Finance of the Republic of North Macedonia)

Independent variables

BDE - Annual state budget deficit as a percentage of GDP (Ministry of Finance of the Republic of North Macedonia)

INF - The average annual inflation rate (National Bank of the Republic of North Macedonia)

EGR - Annual economic growth (State Bureau of Statistics of the Republic of North Macedonia)

FDI - Annual amount of foreign direct investments as a percentage of GDP (National Bank of the Republic of North Macedonia)

Hypotheses

H1: Key macroeconomic determinants have a significant impact on the Macedonian government's debt.

H1.1: The state budget deficit has a significant impact on the Macedonia government's debt.

H1.2: Inflation in North Macedonia has a significant impact on the Macedonian government's debt.

H1.3: Economic growth has a significant impact on the Macedonian government's debt.

H1.4: Foreign direct investments have a significant impact on the Macedonian government's debt.

4. Research results

Based on the data from Table 1, it can be concluded that the average annual debt made by the government of North Macedonia for the period from 2001 to 2021 is 35% of GDP, in most years the government's debt amounts to 40.4% of GDP.

The distribution of the government's debt is flatter than normal in most of the years its amount does not deviate from the mean value, and the distribution of frequencies has a positive symmetry to the right, which in most years its value is greater than the mean value. The average annual economic growth is 2.2% of GDP, the distribution is more prominent than normal, where in most years the economic growth shows a significant deviation from the mean value, and in most years the economic growth is lower than the mean value.

During the observed period the average annual inflation rate is 1.9%, and in most years the inflation rate is higher than average. The average annual budget deficit is 2.8%, the distribution of the budget deficit is more flattened than normal, and in most years the budget deficit rate does not deviate from the mean value, according to the frequency schedule, in most years the budget deficit rate is higher than the average rate. The average annual rate of FDI in relation to GDP is 4.1%.

According to the distribution of the FDI rate, it can be concluded that in most years it deviates from the mean value, and the distribution of frequencies indicates that in several years the FDI rate is higher than average.

Table 1. *Descriptive statistics of the variables*

	GGD (% of GDP)	EGR	INF	BDE (% of GDP)	FDI (% of GDP)
Mean	35,8047619	2,247619048	1,921428571	2,80952381	4,057142857
Standard Error	1,883922911	0,650516976	0,472865775	0,44805956	0,584016121
Median	36,7	2,8	1,5	2,6	3,1
Mode	40,4	4,7	2,3	5,6	2,4
Standard Deviation	8,633219341	2,981043282	2,166943206	2,053266851	2,676298083
Sample Variance	74,53247619	8,886619048	4,695642857	4,215904762	7,162571429
Kurtosis	-0,146934454	1,993319705	2,467172809	-0,65268011	4,519110331
Skewness	0,061418261	-1,288639324	1,310305091	0,428812764	1,936394416
Range	32,8	12,6	9	7	11,2
Minimum	20,6	-6,1	-0,7	-0,2	1,5
Maximum	53,4	6,5	8,3	6,8	12,7
Sum	751,9	47,2	40,35	59	85,2
Count	21	21	21	21	21
Largest(1)	53,4	6,5	8,3	6,8	12,7
Smallest(1)	20,6	-6,1	-0,7	-0,2	1,5
Confidence Level(95,0%)	3,929794329	1,356954633	0,986380721	0,934635865	1,218236282

Source: Author's calculation (Excel)

According to the data from Table 2, it can be concluded that the government's debt has the strongest correlation with the budget deficit in relation to the other variables, and the weakest correlation with foreign direct investments.

The Government's debt also records a significant degree of correlation with economic growth, as it is negative.

Table 2. *Correlation analysis*

	GGD (% of GDP)	EGR	INF	BDE (% of GDP)	FDI (% of GDP)
GGD (% of GDP)	1				
EGR	-0,419110891	1			
INF	-0,199175096	0,04290855	1		
BDE (% of GDP)	0,630077931	-0,699977461	0,106372771	1	
FDI (% of GDP)	-0,027949959	0,099727608	0,510349598	-0,010294785	1

Source: Author's calculation

According to the regression statistics, there is a strong relationship between the government's debt and the independent variables in the model (Multiple R=0.70), and 36.5% of the variability of the dependent variable is explained by the variability of the independent variables.

Table 3. *Regression statistics*

Multiple R	0,701285267
R Square	0,491801026
Adjusted R Square	0,364751282
Standard Error	6,880890927
Observations	21

Source: Author's calculation (Excel)

Based on the results of the regression analysis (Table 4), it can be concluded that the budget deficit has a significant impact on the debt made by the government, namely the growth of the budget deficit causes the growth of the government's debt.

Table 4. *Regression results*

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	27,18717524	4,908460405	5,538839675	4,49143E-05	16,78170401	37,592646
EGR	0,283922575	0,733804476	0,386918566	0,703914239	-1,271673421	1,8395186
INF	-1,436107349	0,838363261	-1,712989363	0,106021258	-3,21335807	0,3411434
BDE (% of GDP)	3,105661931	1,069121676	2,904872291	0,010335941	0,839225226	5,3720986
FDI (% of GDP)	0,49625648	0,671364995	0,739175387	0,470506601	-0,926973731	1,9194867

Source: Author's calculation (Excel)

5. Discussion

The results of the research indicate that the average annual debt made by the government of the Republic of North Macedonia in the period from 2001 to 2021 is 35.8%, which indicates that the government of the country had control, considering the fact that a large part of the countries in the region and Europe have significantly recorded higher debts, especially during the crisis.

According to the correlation analysis, the country's debt made by the government has a strong positive correlation with the budget deficit, and a negative correlation with economic growth, inflation and foreign direct investments. Based on the regression analysis, the growth of 1% of the budget deficit causes a growth of the government debt of 3.1%, which means that the budget deficit has a significant impact on the government, consequently hypothesis 1.1 is accepted.

According to the regression, the other variables do not have a significant impact on the government's debt. The results of the research confirm the view of Adam Smith and David Ricardo that the budget deficit is a problem for the nation because the budget deficit causes governments to borrow. On the other hand, considering the fact that the government of the Republic of North Macedonia has the government's debt under control and has not seen a significant growth like in some countries, which affirms the theory of Keynes, which, among other things, indicates the budget deficit and debts made by the governments are the most significant instrument for solving economic crisis and do not contribute to jeopardizing the national economy.

There are methodological limitations in this research, primarily due to the fact that only the macroeconomic parameters of the Republic of North Macedonia were taken as independent variables, and the interest rate on the financial markets was not taken into account.

Future research should take into consideration the situation in international financial flows, the credit rating of the country and the macroeconomic situation of the countries of the region and the countries of the Eurozone.

6. Conclusion

The Republic of North Macedonia, like almost every country, faces debts made by the government, can cause macroeconomic instability, but can also often be used as an instrument to solve certain macroeconomic problems.

Debts made by the government, as a macroeconomic phenomenon is determined by several factors, but to a large extent is directly dependent on the budget deficit. Namely, the results of this research indicate a positive correlation between the Macedonian budget deficit and the government's debt. The regression analysis also confirmed the point of view of a large number of macroeconomic theorists that the growth of the budget deficit causes a significant increase of the government's debt.

Consequently, the Macedonian government, in order to maintain a stable level of the government's debt, must create macroeconomic, especially tax policies that will contribute to making the budget liquid, which would avoid the growth of the deficit.

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