

GOVERNMENT EXPENDITURES EFFECTS ON ECONOMIC GROWTH IN THE REPUBLIC OF MACEDONIA

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ABSTRACT

This paper has an aim to analyze the impact of government expenditures on economic growth in Republic of Macedonia during the time period of 2000Q1 – 2016Q4. For this purpose, are used time series regression models and the vector auto regression (VAR) research methodology which help to identify the influence of government expenditures on GDP. The results of the analysis reveal a positive response of GDP to an increase in government expenditure which is in line with the macroeconomic theory of expansionary fiscal policy. Still, a reform of the public expenditure structure in the country is essential, especially in the share of capital expenditures which needs to be increased because those are the ones that refer to investments that drive economic growth.

KEYWORDS: government expenditures, economic growth, regression models, VAR

I. INTRODUCTION

The GDP growth as an indicator of economic growth itself is a subject of research in numerous analyzes and studies especially in recent years as a result of increased state intervention witnessed in all countries. A decent percent of these studies results in findings which confirm the positive impact that government expenditures exercise on the GDP growth. However, this impact is in bigger extent determined by the structure of spending of the budgetary funds, or more precisely by the share of productive spending of the budget.

This research paper aims to explain the effects that government expenditures had on economic growth in a small, open economy like Republic of Macedonia during the time period of 2000-2016. Prior to the empirical analysis are examined the opinions and findings of different scholars who have researched the topic of macroeconomic instruments and their effects on economic growth. Their discussions are numerous and ongoing because in some countries the development of proper fiscal instruments may lead to sustainable continuous economic growth, while in others these same instruments may have different, even opposite effects.

A large percentage of the studies related to this issue argue that increase in government spending can be an effective tool to stimulate aggregate demand in a stagnant economy and to cause crowd-in effects on private sector. These economists are known as supporters of the Keynesian theory which states that the government could overturn economic breakdowns by borrowing money from the private sector and then returning the money to the private sector through various spending programs. As a result it is likely to witness increases in employment, profitability and investment via multiplier effects on aggregate demand (Chude and Chude, 2013). Therefore, government expenditure, even with a recurrent nature, can positively contribute to increases in economic growth.

On the other hand, scholars like Barro (1990) using the endogenous growth model predict that only those government expenditures that account as productive will positively affect the growth rate in the long run. Alike Barro, there is another well known economist, Robert M. Solow (1956) known for his neoclassical growth model in which he explains that productive government expenditures may have impact on the incentive to invest in human or physical capital. However, this impact changes in the long-run when the only effect may be caused on the equilibrium factor ratios, not the growth rate, although in general there will be transitional growth effects. Increased government consumption will

crowd out private investment and in short run will diminish economic stimulus while in the long run may reduce capital accumulation.

This paper seeks to shed more light on how the government can best use the spending of its revenues for the purpose of promoting economic growth. The reason why this topic and its alongside conducted econometric analysis are justified is because proving the main hypothesis of this thesis regarding the existence of a causal relationship between GDP and public spending, gives a confirmation of whether the public spending in Macedonia is implemented in a way that assures economic growth in the country.

II. OBJECTIVES OF THE STUDY

The paper aims to analyze:

1. The composition of public expenditures in the Republic of Macedonia during the period 2000-2016.
2. The impacts of public expenditure components on GDP growth.

III. MATERIALS AND METHODS

A significant amount of empirical research has been done on the topic referring the effects of government expenditures on GDP growth. However, this research produced conflicting results due to the variations in terms of data sets and econometric techniques, as well as from the existence of a wide range of potential factors which are interconnected and which may have influence on economic growth. This issue can especially be noticed in developing countries such as Macedonia where the impact of government spending on economic growth depends upon many factors, such as the efficiency and structure of government expenditures, the way they are financed and the overall political platform of the government. Therefore, this research paper tries to employ quantitative analysis using different statistical techniques in order to closely explore this matter of correlation between government spending and economic growth in Macedonia and to produce more concise conclusions.

Sources of data: The study is based on the following:

1. Ministry of Finance of Republic of Macedonia
2. State Statistical Office
3. National Bank of the Republic of Macedonia.

Some data are taken also from reports of the International Monetary Fund (IMF) and the World Bank. The term government expenditure in this study refers to the country wide budgetary expenditure, including the federal government and the local governments.

IV. REVIEW OF THE LITERATURE

The correlation between various macroeconomic factors and economic growth as an unsolved phenomenon has been in the center of interest of many economists and policymakers since long ago and they have struggled to use their skills to find a unitary opinion for this relation. This issue is dating from the period of the classical economist Adam Smith, followed by neoclassical economists such as Alfred Marshal and Henry Schultz, and many more economists and academicians after them who researched this topic, set numerous different theories and raised a large number of questions in their research papers regarding the various factors that impact the economic growth in different countries as well as in general.

Most cited researchers on this issue with major theoretical work done on exploring the factors and the correlation of various macroeconomic indicators with the economic growth are Barro (1988), Barro and Sala-i-Martin (1995) and Devarajan. Barro is best known for the development of the simple endogenous growth model of government spending in which he demonstrates that there exists a relationship in a negative direction between government consumption and economic growth. A simplification of the model can be represented, that is non-deficit budget financed by lump sum taxation,

underemphasizes the distortionary effect of fiscal policy. Therefore, the model may overstress the optimal level of productive government expenditures on economy (Volkov, 1998).

Likewise, Barro (1990), (1995) also Kneller et al (1999), empirically proved that productive government expenditures positively affect economic growth while non-productive expenditures have neutral impact on the growth.

Devarajan and Vinay (1993) in their study used panel data for 14 developed countries (1970-1990) and applied an OLS method, 5-year moving average. Different functional types of expenditures were assigned as explanatory variables (health, transport, education, defense, etc) and it was discovered that some of these variables like health, transport and communication have significant and positive impact on growth while others like education and defense have significant and negative impact on the growth.

Ramayandi (2003) measured the impact of government size (in terms of the spending) on economic growth in Indonesia over a period of thirty years. In order to examine the relationship through the years, the author used a sample of time series data and applied the co-integration and error correction methods. The author used Barro's endogenous growth model in which he classified the expenditures as productive and unproductive. As it is usually the case in economic theory, the results of the study showed negative effects of the unproductive expenditure on the economic activities. However, the surprising part was that productive expenditures in Indonesia also showed negative effects on economic growth which contradicts to the statements of economic theory. These findings, according to the author, were result of the inefficient management practices concerning the distribution of government budget means in Indonesia during this period of 30 years observed in the study.

Chamorro (2010) analyzed the effects of government expenditure on total and on disaggregate level in low and middle-income countries around the world for the period of 1975-2000. In his study he used the endogenous model and the Arellano and Bond (1991) GMM technique for estimation of the impact of different expenditure components on the economic growth. The findings differed in their direction of impact, thus public spending on education, transport and communication showed positive effects on growth, findings of the effects of spending on economic affairs showed negative reactions on the growth, while government expenditures on health and defense exhibited no significant relationship with economic growth.

Saad and Kalakeck (2009) explored the effects of government expenditure on economic growth in Lebanon using annual data for the time period of 1962-2007. The analysis was done on a disaggregated level of expenditures divided by sectors using the endogenous model and Vector Auto Regression analysis. The findings suggested positive effect of the government education spending on economic growth in the long run and a negative effect in the short run. The public expenditure on agriculture did not show any effects on the economic growth in both time periods, while government expenditures on health and defense illustrated negative impact on the growth only in the long run.

Despite the plethora of studies worldwide on the issue of the public expenditures effects on economic growth, there is still not enough research done on this topic in our domestic empirical literature. It is also important to mention that compared to the existing domestic literature, this paper goes further by giving an empirical analysis not only on effects of the public expenditures on aggregate level, but also on a disaggregate level analyzing the separate effects of all the components of the public expenditures over the GDP in Macedonia. Following are given descriptions of two of the recent domestic empirical studies done on this issue.

Josevska (2016) in her doctoral thesis explored the causal link between government expenditures and GDP for the time period of 2005-2015 with quarterly data in million denars. The author uses Vector auto regression as well as the Granger Causality test for the empirical analysis of this relationship. The findings revealed that there exists a Granger causality connection between government expenditures and GDP in both directions, that is, government expenditures significantly and positively affect the economic growth shown through the GDP, but also GDP has an influence on the government expenditures.

Kurtishi (2013) looked closely the budget revenues and expenditures, budget balance and public debt and compared them to the fiscal position of Macedonia using the GMM technique and the (S)VAR method for the period 1997-2011 using quarterly data. The findings showed that increase in government expenditures has a positive initial impact on economic activity, while in the medium-term effects become negative.

V. GOVERNMENT EXPENDITURES IN THE REPUBLIC OF MACEDONIA

Republic of Macedonia is a small, open economy with a population of 2.1 million. It is a landlocked country with a GDP per capita recorded 5093.84 US dollars in 2015 which means that it belongs to the group of upper middle income countries. According to the real GDP per capita growth in PPP terms which is measured 3.7 percent in average between 2006 and 2014, Macedonia takes the second highest place among the countries of South East Europe (SEE6) and far above the EU28 average rate of 1.4 percent.

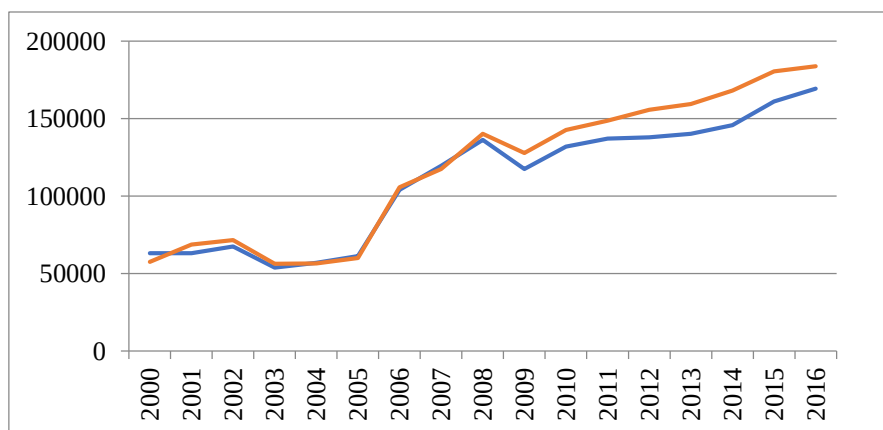
In 2005, Macedonia was the first SEE6 country to gain EU candidate country status, but unlike its neighboring countries, it still has not started with accession negotiations for entering the EU family, partly due to its name dispute with Greece. Yet, EU accession remains the main anchor of the Macedonian reform agenda.

Macedonia's size of government compares favorably to most upper middle income countries at the same level of per capita income. Its low government spending measured annually on average of 34.5 percent of GDP between 2006 and 2013, was significantly below EU and SEE6 averages.

Fiscal policy in Macedonia, over the period analyzed in this study from 2000 till 2016, has evolved in three phases. During the first phase the government was struggling to find a balance between maintaining prudent fiscal policy and confronting economic crisis. The second phase was characterized by the fiscal stimulus that the government used in order to encourage economic growth as the external environment was still weak from the economic shocks. The third and current phase is marked with large infrastructure investments as a central role in the government fiscal policy.

The changes of government revenues and government expenditures for that period are shown numerically in Figure 1 representing the fluctuations of the total government revenues and total government expenditures through the years.

Figure 1: Government revenues and Government expenditures on an annual level for the time period of 2000 – 2016

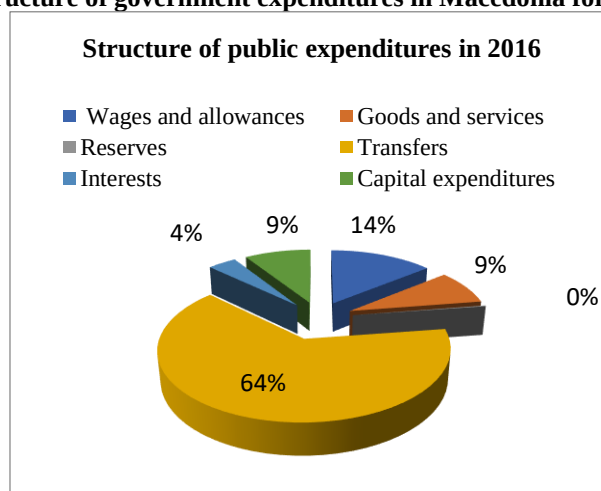


Source: State Statistical Office of the Republic of Macedonia

The figure shows that from 2003 to 2008, the trends of both revenues and expenditures were almost the same. In 2008, their paths separate and the total government expenditures exceed the total government revenues with an even bigger difference gap in the years to come.

Figure 2 shows the structure of government expenditures in percentages for year 2016, from where it can be clearly seen that the main spender of the government budget are the transfers. Next are the expenditures for wages and allowances, then the capital expenditures and the spending on goods and services, while smaller portion of the budget is spent for interests.

Figure 2: Structure of government expenditures in Macedonia for the year 2016



Source: Ministry of finance

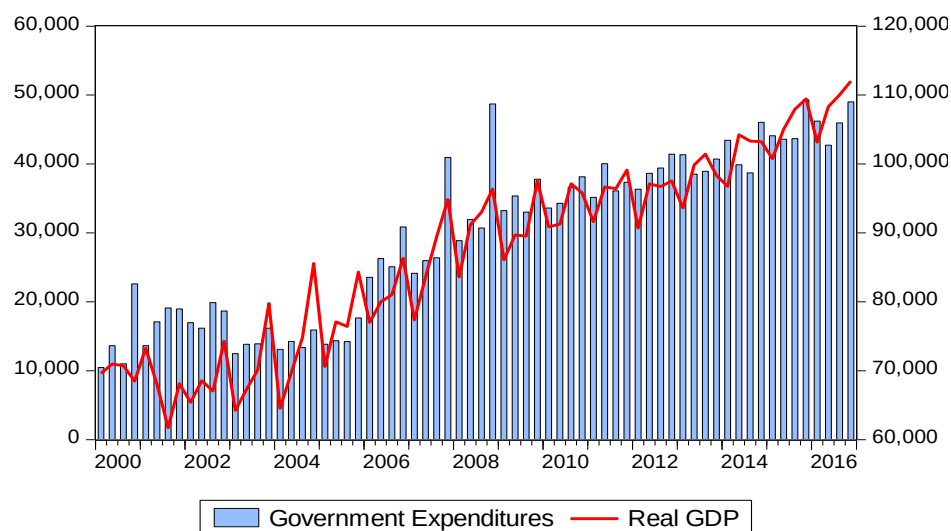
The expenditures composition in Macedonia is broadly aligned with the government's strategic objective, that is, boosting up economic growth by attracting foreign investors, improving the competitive position of the country through business reforms and infrastructure development while at the same time improving the quality of the life of farmers by giving them subsidies and protecting the poor with the social assistance programs. This vision is visible in the recent budget allocations and is reflected in increased pension spending, agricultural subsidies and lower taxes, unlike the under-execution of capital spending which is definitively not in line with this vision. What is more important, these investments may have contributed to short-term job-creation and may have increased economic growth in 2013 and 2014, but it can be clearly seen that both the economic and social outcomes from these amounts of investments could have been optimized if there was made a right prioritization by the government for the projects with high growth potential and social impact.

VI. METHODOLOGY AND EMPIRICAL FINDINGS

With the aim of analyzing this issue empirically, the OLS approach was applied to estimate the regression equation and present the model that analyzes the impacts of government expenditures on economic growth. As dependent variable is considered real gross domestic product as a representative of economic growth, and as independent variables are taken the components of total government expenditures i.e. the wages and allowances, goods and services, transfers, interests and the capital expenditures. Prior to the regression model, a unit root testing using Dickey-Fuller (DF) and Philip-Perron (PP) tests was applied to check the level of stationarity of the data in order not to have meaningless estimations. Based on the results of these tests, only the goods and services variable is stationary whereas, all the other variables are non-stationary in their level, but they are transformed to stationary by taking the first difference. After the OLS method which is a static model, a long term analysis was also made using dynamic models like VAR and the Granger Causality test for better observation of the linkage between government expenditures and real GDP.

Firstly, is given the graphical representation of the secondary data gathered from the Ministry of Finance of RM for total government expenditures along with the pattern of the real GDP growth in Macedonia for the time period 2000-2016, prepared in EViews.

Figure 3: Graphical representation of data for government expenditures in Macedonia



Source: Author's calculations

According to the movements of the data in Figure 3 it can be seen that the RGDP follows the fluctuations of government expenditures in the same direction indicating a causal relationship between these two variables.

The positive relationship from the graphical representations can also be seen in the results of the regression models showing that capital expenditures are with positive sign and indicating a significant and positive relation with real GDP growth (Table 1).

Table 1: Results for government expenditures with various specifications

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
D_lnTEXP_sa	0.1262 (2.83)***				
D_lnCAPEXP_sa		0.0671 (5.06)***	0.0743 (5.99)***	0.0838 (6.45)***	0.0846 (6.35)***
D_lnWA_sa			0.2594 (3.86)***	0.3049 (4.28)***	0.3001 (4.10)***
D_lnTRNS_sa			0.0039 (0.25)	0.0097 (0.64)	0.0099 (0.65)
D_lnINTEREST_sa				-0.0136 (-1.07)	-0.0135 (-1.06)
GS_sa					-0.0063 (-0.33)
_const	0.0042	0.0049	0.0021	0.0039	0.0548
R ²	0.1095	0.2827	0.4196	0.4739	0.4749

Source: Author's calculations

Note: The notification *** denotes 1% level of significance ($p < .05$). D-means first difference and _sa - seasonally adjusted time series

The variable wages and allowances is also with a positive sign and statistically significant in all model specifications, whereas transfers, interests and goods and services resulted statistically insignificant.

The linear model equations are the following:

$$\ln \text{RGDP}_i = 0.0049 + 0.0671 \ln \text{CAPEXP}_i + \varepsilon_i$$

$$\ln \text{RGDP}_i = 0.0021 + 0.0743 \ln \text{CAPEXP}_i + 0.2594 \ln \text{WA}_i + 0.0039 \ln \text{TRNS}_i + \varepsilon_i$$

$$\ln \text{RGDP}_i = 0.0039 + 0.0838 \ln \text{CAPEXP}_i + 0.3049 \ln \text{WA}_i + (-0.0136) \ln \text{INTEREST}_i + 0.0097 \ln \text{TRNS}_i + \varepsilon_i$$

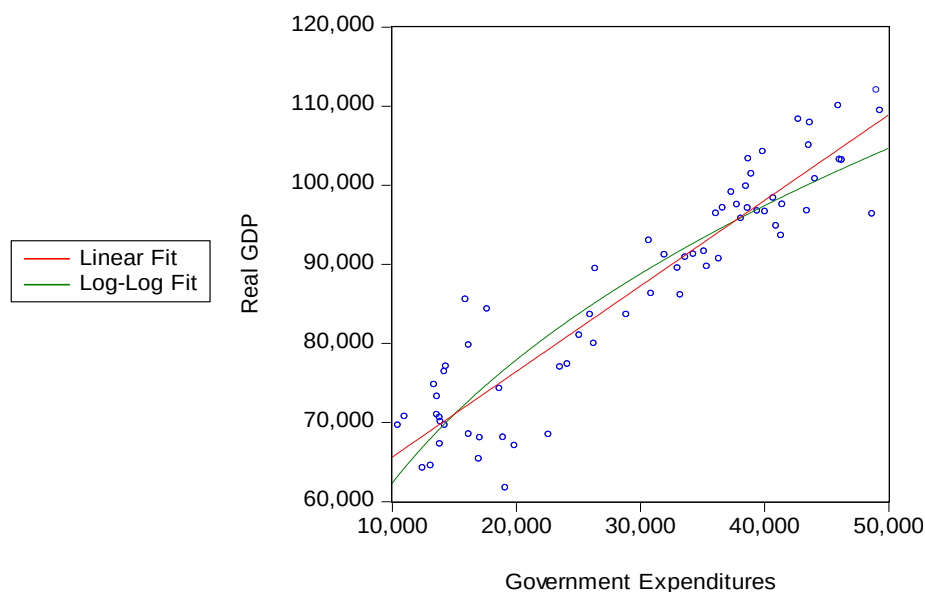
$$\ln \text{RGDP}_i = 0.0548 + 0.0846 \ln \text{CAPEXP}_i + 0.3001 \ln \text{WA}_i + (-0.0135) \ln \text{INTEREST}_i + 0.0099 \ln \text{TRNS}_i + (-0.0063) \beta_1 \ln \text{GS}_i + \varepsilon_i$$

where RGDP is real gross domestic product with constant prices in time i ; c is the constant; TEXP – are the total government expenditures; WA are the wages and allowances; GS is for spending on goods and services; INTEREST is the spending used for paying interest; TRNS – the transfers; CAPEXP – are the capital expenditures;

With ' ε ' is presented the error term, or stochastic factor that is supposed to be with zero conditional mean and constant variance, i.e. $E(\varepsilon_i) = 0$ for each period i . All the data are transformed into logarithms.

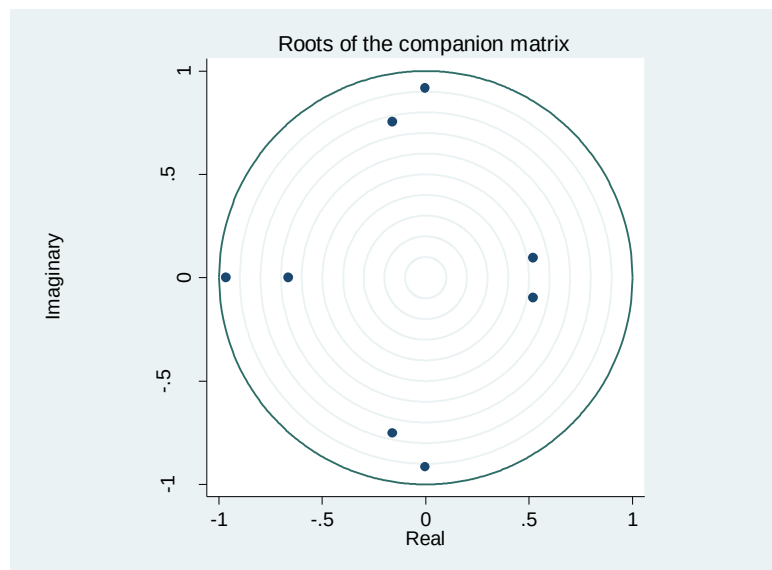
The positive correlation between real GDP and government expenditures can be noticed also from the scattered plot graph in Figure 4 where it is obviously seen that there is a goodness of fit among the actual observations and the model's predictions.

Figure 4: The relationship between real GDP and government expenditures in a scattered plot graph



Source: Author's calculations

In order to further investigate the possible long run relationship between government expenditures and real GDP an unrestricted VAR model is performed. The first thing to find is the optimal time lags for these two variables, so based on Akaike Information Criterion the study considers 4 lags in this analysis. Regarding the regression results of VAR model, at least one coefficient of lags of government expenditures was found to be statistically significant, implying that there exists a long run relationship between government expenditures and real GDP.

Figure 5: Graph of the model unit roots for government expenditures

Source: Author's calculations

Figure 5 which is a graph of unit roots of the model for government expenditures shows that all roots are less than one and they lay within the unit circle. This indicates that the estimated VAR is stable and stationary.

In order to define the direct and bidirectional relationship between the government expenditures and the GDP, the Granger causality test was applied. The first specific hypothesis that government expenditures do not Granger cause GDP can be rejected, meaning that if the level of government expenditures increases, the GDP will follow. The second hypothesis that GDP does not Granger causes government expenditures can be accepted, meaning that the GDP does not influence government expenditures and a change in GDP does not cause any change in government expenditures.

Table 2: Granger Causality Wald Tests on the correlation between government expenditures and real GDP

Pairwise Granger Causality Tests

Date: 04/18/17 Time: 22:44

Sample: 2000Q1 2016Q4

Lags: 4

Null Hypothesis:	F-		
	Obs	Statistic	Prob.
TEXP does not Granger Cause RGDP	63	4.49414	0.0033
RGDP does not Granger Cause TEXP		1.91414	0.1213

Source: Author's calculations

VII. CONCLUSION

The aim of this paper was to examine the government expenditures effects on GDP growth in the Republic of Macedonia. From the results of the OLS approach it is found that government expenditures positively affect the economic growth of the country. Based on the VAR results at least one coefficient of the lags of government expenditures is statistically significant meaning that there exists a long term relationship between government expenditures and GDP. The findings of the causality test indicate that GDP does not seem to induce government expenditures but government expenditures seem to induce GDP. All these results are in correspondence with the macroeconomic theory of expansionary fiscal policy meaning that higher government spending indeed has a positive impact on the economic growth. This suggests that the positive correlation of fiscal policy and economic growth movements stated in the Keynesian theory is the case for the economy of the Republic of Macedonia.

The results of this study compared to previous research studies done on this topic in Macedonia, such as the studies of Josevska (2016) and Kurtishi (2013), coincide between each other, taking into regard also that Kurtishi states that this positive relationship between expenditures and economic growth is only on a short term basis, after which it becomes negative.

Based on the generated results, the study recommends the future policy makers to reduce the current expenditures and increase the government spending on capital productive expenditures in order to boost the economic growth. Instead of wasting the budget funds for meeting non-productive expenditures which have no significant impact on the economic growth and are just putting additional pressure on the paid balance of the country, the government should make the most of its revenues by investing in productive purposes which are beneficial for improving the infrastructure, health and education. Capital expenditures have to be reoriented from commercial projects to public infrastructure projects such as transportation, communication and utilities. This will encourage private investors to invest more and eventually the level of employment and economic growth will also increase.

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