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The impact of public expenditures on economic growth of the Republic of North Macedonia

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Abstract. Ensuring high and sustainable economic growth is one of the main tasks of public spending policy. In fact, public expenditure plays an important role in the formation of physical and human capital over time. If are properly targeted, they can stimulate economic growth even in the short term, when limited infrastructure of (unskilled) workforce is a barrier to increased production. Therefore, the realized impact of public expenditures on economic growth can be considered as an indicator of their effectiveness. The goal of public expenditure is to increase economic growth by providing more employment opportunities, increasing people's income and living standards. Therefore, if they are well-managed, they can lead to the desired level of economic growth and improvement of the living standard of the population.

Keywords. economic growth, public expenditure, effectiveness

1. Introductory observations

Due to the fact that the effective and efficient operation of the public sector is particularly important for economic growth, empirical studies in this field often aim to propose ways to improve the structure of public expenditures in the function of their higher effectiveness. However, the results of such studies should be cautiously analyzed because all public programs are not always aimed at fostering economic growth and all public expenditure is not important for economic growth. The interaction between public expenditure and economic growth is two- way. Namely, they affect economic growth, but at the same time, growth can lead to a change in the volume of expenditures or to some of its components (for example, through changes in demand for certain public goods or services).

Developing countries spend on average 26% of the gross domestic product for public supplies of goods and services. According to the World Bank, this figure has risen by 8 percentage points over the last fifteen years. This rise has spurred a series of detailed research and planning of the impact and linkages between the size and structure of government spending and economic growth.

Public expenditure theories evolved over time and gradually perceived the failure of markets to effectively allocate economic resources for social development and economic sphere, which has consequently initiated the growth of public expenditures. As the size of the public sector grew, so was the need for an appropriate mechanism to ensure the efficient allocation of these funds. The budget, as a state revenue and expenditure plan and tax

legislation, is an important tool for controlling and monitoring the various plans for state revenues and expenditures.

Public investment has a direct impact on economic growth. Such investment in infrastructure is a kind of prerequisite for accumulating capital in the private sector, while public investment in education and health improves human capital. Bearing this in mind, it is clear that the analysis of the impact of public expenditure on economic growth is a key step in understanding the sources, the consequences and future growth movements, and in finding appropriate solutions and recommendations to increase the contribution of various public expenditures in achieving that goal.

In the case of developing countries, fiscal policy plays an important role. It is one of the key elements with a strong impact on economic activities. If properly targeted, public expenditures, especially capital expenditures, can be one of the most important levers of fiscal policy, with a specific contribution to stimulating economic activity and achieving the desired level of economic growth.

2. Theoretical approach

The relationship between public sector spending and economic growth is continually the subject of debate between economic researchers and economic policy makers. A common consensus among researchers is that public sector spending is identified as an important tool by which the government affects the performance of the economy. However, many studies that investigate the effects of public expenditure on economic growth often yield contradictory results. Some argue that the increase in public spending is associated with a decline in economic growth (Scully, 1989), others that public spending is positively correlated with economic growth (Ram, 1986), thirdly there is no significant link between the two variables mentioned (Kormendi and Meguire, 1985). Sattar (1993) pointed out that public expenditure has no impact on growth in developed countries, but has a positive impact in developing countries.

A number of studies have analyzed the effects of certain components of public expenditure on economic growth. Such studies indicate that public sector spending does not promote economic growth (Barro, 1991, Grossman, 1990). Easterly and Rebelo's studies (1993) indicated a positive correlation between economic growth and different segments of education spending, such as: primary and secondary education levels, education expenditure in total public expenditure, capital expenditure for education etc. Clements and Levi's (1994) studies indicate an indirect link between education and economic growth, through the linkage of education spending and private investment. Unlike the general view of the positive correlation between education and growth expenditure, some studies have shown only a weak link between these two variables (Gwatkin, 1983).

Numerous studies explore the impact of military defense costs on economic growth. Defense spending can create new jobs, and military research and development programs can promote technological advancement. Benoit (1973) pointed to a positive correlation between these costs and economic growth. According to him, military spending affects aggregate consumption in the period of recession in the economy. When resources are fully engaged, the opportunity cost theory implies that military spending exacerbates other public spending, including private investment.

Loizides and Vimvoukas (2005) examined the relationship between government expenditure and economic growth in Greece, the United Kingdom and Ireland. The results showed that the volume of the state (state activities) has caused growth in the three countries. This growth is implied both in the short and the long term, in Ireland and the UK. When the

analysis includes inflation, the results show that economic growth has a backward impact on the increase in public spending in Greece and the UK.

Nurudeen and Usman (2010) analyze the impact of increased government spending on Nigeria's economic development. They came to the conclusion that total government capital expenditures, total current expenditures and education expenditures have a negative impact on economic growth, while rising government spending on transport and communications, as well as health costs, have a positive impact on economic growth.

3. Methodology, specification and model analysis

This segment of the study aims to examine the impact of government spending on the economic growth of the Macedonian economy. By econometric approach, the cause-effect relationship between the categories of government expenditure and economic growth will be perceived. The possibility of the influence of other variables on economic growth will not be excluded. This means that the model recognizes the influence of other variables. However, model variables are considered to be the main components of government expenditure that should adequately be sufficient to explain economic growth.

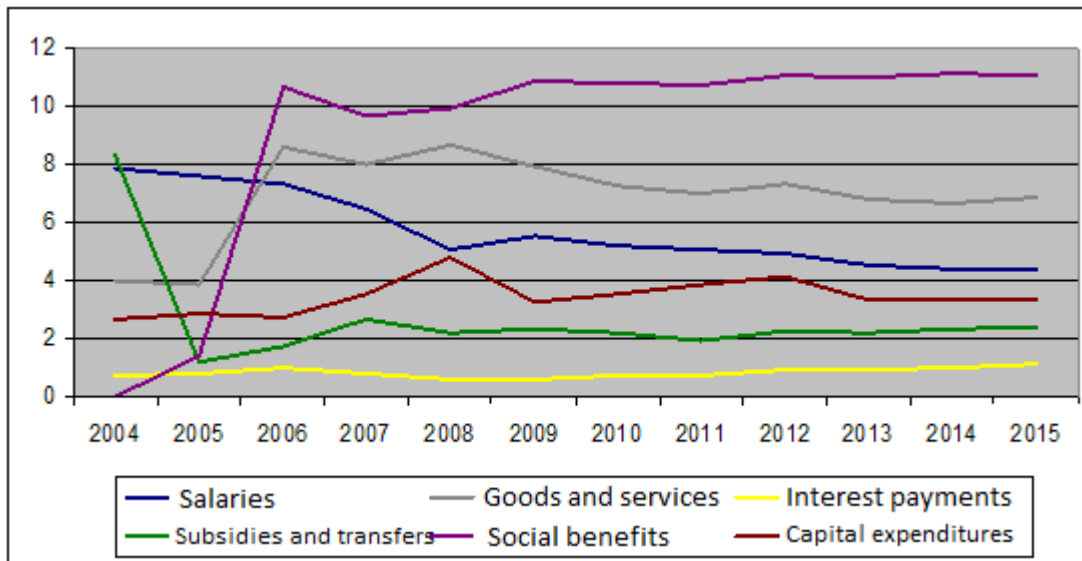
Table 1: Government expenditures in the Republic of North Macedonia and the GDP growth rate for the period from 2004 to 2015 (in% of GDP)

Year	Growht rate of GDP	Salaries and allowances	Goods and services	Interest payments	Subsidies and transfers	Social benefits	Capital expenditures
2004	4.5	7.9	3.97	0.76	8.3	0	2.67
2005	-3.1	7.57	3.9	0.8	1.22	1.41	2.85
2006	1	7.32	8.58	0.98	1.73	10.7	2.75
2007	2.2	6.47	8.03	0.8	2.69	9.65	3.54
2008	4.7	5.06	8.7	0.63	2.19	9.95	4.83
2009	4.7	5.53	7.96	0.61	2.35	10.9	3.27
2010	3.4	5.22	7.3	0.73	2.21	10.79	3.54
2011	2.3	5.04	6.98	0.76	1.94	10.72	3.88
2012	-0.5	4.96	7.31	0.92	2.27	11.1	4.12
2013	2.9	4.52	6.81	0.92	2.19	11.02	3.33
2014	3.5	4.39	6.7	0.97	2.35	11.13	3.35
2015	3.7	4.42	6.87	1.16	2.41	11.09	3.34

Source: Ministry of Finance of the Republic of North Macedonia

The table presents data on the rate of economic growth, as well as several selected categories of public expenditures: salaries and allowances, expenditures for goods and services, interest payments, surcharges and transfers, social benefits and capital expenditures. The analysis of the table shows that after 2006 the expenditures of the observed categories (as a percentage of the GDP of the country) are the most extensive for social benefits, followed by expenditures for goods and services, as well as expenditures for salaries and allowances in the public sector. Lower share in GDP has capital expenditures, transfers and subsidies, while interest payments have a significant minimum share and in the entire observed daddy they are slightly below 1% of GDP (except for 2015).

Chart 1: Dynamics of Public Expenditures of the Republic of North Macedonia (2004-2015)



Source: Ministry of Finance of the Republic of North Macedonia

In 2005, the country was affected by the crisis and the blood picture of the Macedonian economy was poor. According to a number of expert opinions, the reasons for the crisis were in the budget. Namely, from ignorance or other reasons, the previous economic policy makers pumped the budget, squeezing significant funds from the economy. From 775 million euro in 1998, the volume of the state treasury reached one billion and seven hundred million euro in 2005. The biggest jump was made in 2001 (as a result of the introduction of value added tax in the previous year), when an additional 350 million euro were spilled from the economy in the country's budget. Then the budget has crossed the border of one billion euro. The state treasury was full, but the companies were affected by this situation and lost the competition with foreign competition, so imports have multiplied exports more than once. North Macedonia's trade account went into a growing minus. From 515 million dollars in 1998, to a billion and two hundred million dollars of trade deficit in 2005.

As a result of the crisis in North Macedonia in 2005, all categories of expenditures, except for wages and salaries, had a low share of GDP in the country. After 2005, all categories showed an upward trend, except for wages and benefits, which began to decrease as a percentage of GDP, which was the result of the increase in the GDP of the Republic of North Macedonia over the coming years, but also as a consequence of the rational use of funds of the budget in respect of this category of expenditure. Expenditures for social benefits had the highest share in GDP, followed by expenditures for goods and services. Salaries and allowances that were aligned from the budget participated on average from 4 to 5% in relation to GDP in the following period. After 2005, capital expenditures, as one of the most important generators of economic growth, accounted for 3 to 4% of GDP (seen by 2015). Subsidies and transfers as an expense item, after 2005, show an unchanging trend in the dynamics (around 2% of GDP). The category interest payments in the entire analyzed area have a fairly constant trend of movement with a share of less than 1% of GDP.

By applying appropriate econometric techniques, public expenditure data and economic growth will be used to estimate numerical values in the model, to obtain the appropriate coefficients and the required data relevant for assessing the relevant hypotheses. Subsequently, the estimated model is discussed vis-à-vis theoretical expectations for the sign of numerical

values of the individual coefficients. It provides a clearer insight into the nature of the relationship between government expenditure and economic growth. Then, after testing his co integration and stability, the statistical significance and power to explain the model will be assessed. Evaluation should provide insight into the characteristics and behavior of the various components of government expenditure and their common impact on growth. This is the basis for accepting or rejecting hypotheses on the relevance of the impact of expenditure on growth.

In the model as a dependent variable and representative of the economic growth, the real GDP growth rate was taken. As independent variables are taken: salaries and allowances, expenditures for goods and services, interest payments, subsidies and transfers, social benefits and capital expenditures (all in accordance with the economic classification of the budget of the Republic of North Macedonia).

The output of the regression model includes more relevant econometric-statistical information and data that are useful for further analysis and evaluation. Estimates of the coefficients of the model are assessed for the individual and total impact of the effects on economic growth. The basis for assessment is F-statistics at a level of significance of 0.05 and an appropriate number of degrees of freedom. The power of the explanatory model, ie the indicator of how good the model is, is determined by the coefficient of determination (R-squared or adjusted R-squared). Using the obtained data, it is possible to clearly see the extent to which the individual government expenditures explain the economic growth in North Macedonia for the observed period.

3.1 Specification of the model

From the theoretical point of view, in the model gross domestic product depends on: salaries and allowances, expenditures for goods and services, interest payments, subsidies and transfers, social benefits and capital expenditures. In this case, the appropriate relations and effects on the economic growth in the observed period should be determined. The values (β_1 , β_2 , ... β_6) are the corresponding partial effects of the independent variables on the dependent variable. So the model linearly gets its shape:

$$\text{GDP} = C + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + \mu, \text{ where:}$$

C - represents a constant that reflects the level of economic growth at zero level of government spending;

β_i ($i = 1, 2, \dots, 6$) - represent coefficients or variation of the components of government expenditure; They represent a measure of the effects of certain components of government spending on economic growth;

μ - is a stochastic member that shows the influence of variables that are not included in the model on economic growth.

3.2 Data analysis and discussion

With the help of the EViews software program, the gross domestic product regression is represented depending on the components of government expenditure.

Table 2: Model of the impact of public expenditures on economic growth

Dependent Variable: BDP				
Method: Least Squares				
Date: 05/02/17 Time: 16:16				
Sample: 2004 2015				
Included observations: 12				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.33919	10.10963	2.308610	0.0690
interest_payments	-0.006859	0.012929	-0.530511	0.6185
capital_expenditures	-3.411660	1.360157	-2.508284	0.0539
salaries	-3.805101	1.170195	-3.251683	0.0227
social_benefits	-1.443291	0.566752	-2.546602	0.0515
goods_and_services	3.403848	1.021456	3.332350	0.0207
subsidies_and_transfers	0.815634	0.263209	3.098811	0.0269
R-squared	0.887802	Mean dependent var	2.441667	
Adjusted R-squared	0.753165	S.D. dependent var	2.331390	
S.E. of regression	1.158292	Akaike info criterion	3.422968	
Sum squared resid	6.708202	Schwarz criterion	3.705830	
Log likelihood	-13.53781	Hannan-Quinn criter.	3.318242	
F-statistic	6.594038	Durbin-Watson stat	2.075357	
Prob(F-statistic)	0.028115			

Source: Custom calculations using the EViews software program

After inserting the data in the model, it gets the following form:

GDP = - 0.006 interest payments - 3.411 capital expenditures - 3.805 salaries and allowances - 1.443 social benefits + 3.403 goods and services + 0.815 subsidies and transfers.

From the model it can be concluded that interest payments, capital expenditures, wage costs and social benefits are in inverse relation to the GDP growth, while state expenditures for goods and services, as well as subsidies and transfer payments, are positively correlated with economic growth. Three of the six independent variables have a probability of less than 0.05, while two variables are close to 5%, which can be safely said that the model is satisfactory. All monitored variables, except for interest payments, are statistically significant, i.e. they have a significant impact on economic growth.

The results of the model in the segment of the inverse relationship between capital expenditures and economic growth contradict the theoretical claims for the positive impact of this type of expenditure on growth. However, the question here is raised about the structure of capital expenditures and the need for a more detailed examination of the impact of particular types of capital expenditures on the GDP growth rate. This would determine which capital expenditures the government should put more emphasis on and which to minimize them.

The R-squared ratio is 88% indicating that 88% of the variations in economic growth are conditioned by changes in the observed expenditure categories. In other words, these components of government expenditures are important determinants of economic growth in the Republic of North Macedonia. Also, F-statistics in the model is good, because its probability [Prob (f-statistic)] is less than 5%.

Table 3: LM serial correlation test

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	0.747498	Prob. F(2,3)	0.5452	
Obs*R-squared	3.991095	Prob. Chi-Square(2)	0.1359	
Test Equation: Dependent Variable: RESID Method: Least Squares Date: 06/14/18 Time: 19:20 Sample: 2004 2015 Included observations: 12 Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.77880	15.22320	-0.839430	0.4629
PLATI	1.689126	1.896728	0.890547	0.4388
STOKI	-2.188681	2.191879	-0.998541	0.3916
KAMATI	-0.023286	0.025939	-0.897703	0.4355
SUBVENCII	0.210455	0.333619	0.630825	0.5729
SOCIJALNI	1.113909	1.136405	0.980204	0.3993
KAPITALNI	2.370459	2.506941	0.945558	0.4141
RESID(-1)	-1.513176	1.439354	-1.051288	0.3703
RESID(-2)	-0.794685	0.688065	-1.154956	0.3318

Source: Custom calculations using the EViews software program

Durbin-Watson statistics is 2.07. This suggests that the problem of serial correlation is missing in the model. This attitude is confirmed by the LM serial-correlation test where the value of the F-test statistic (0.747) is significantly lower than the critical value of 5.991. Accordingly, modeling can make valid predictions. Thus, if capital expenditures as a whole (as a percentage of GDP) increase by one percentage point (pp), the growth rate of the gross domestic product would be reduced by 3.4 pp. The increase in wages and contributions by 1 pp will cause a decrease in the GDP growth by 3.8 pp, the increase in social benefits by 1 pp. will reduce the GDP growth by 1.4 pp, the increase in expenditures for goods and services by 1 pp. will increase the GDP growth by 3.4 pp, and the increase in expenditures for subsidies and transfers will cause an increase in the GDP growth rate by 0.8 pp.

4. Findings and recommendations

The analysis examined the effect of government expenditures on the economic growth of the Republic of North Macedonia in the period 2004-2015. Relevant literature suggests that researchers are striving to reach a consensus on the impact of government spending on economic growth. The model obtained showed that there is a link between separate categories of government expenditure and economic growth, and that separate components of government spending have a negative, and other positive effects on growth. The aggregate effect of the valued expenditures on economic growth is statistically significant. This conclusion supports the view of the necessity of government intervention using different instruments.

The effects of increasing all types of public expenditures in the observed period are far below the expected ones, which is primarily the result of the low multipliers of total public expenditures that under the observed period are moving under one. This question the effectiveness of fiscal policy measured from the point of view of the multiplicative effects of the economy.

Based on the results of the research, the following recommendations can be drawn:

- Capital expenditures should be mainly directed towards productive economic activities. This would stimulate the activities in the economic sector and could

cancel the possible negative effect of certain expenditures on economic growth. Naturally, the positive effects of capital investments are not located only in the state budget, but also in the enterprises that implement them. There are always problems with the realization of capital projects because they are usually not well managed. Preliminary detailed analyzes of possible obstacles are necessary for which they will be prolonged and more expensive than the originally foreseen amounts (property-legal relations, environmental problems, etc.). In the case of the Republic of North Macedonia, the effects of capital expenditures with small exceptions are often small and even negative. Moreover, over time instead of rising, they are diminishing and lower economic efficiency is shown.

- The country should consider the size of the public sector, since its reduction (i.e. the decrease in the volume of wages and benefits in the public sector) would neutralize the negative impact on economic growth.
- The analysis showed that expenditures for goods and services often have a greater positive effect on growth than other categories. Therefore, more attention should be paid to the allocation of government spending.
- Caution is needed in stimulating subsidies and transfer payments in the economy.
- The discrepancy between government expenditure and economic growth requires continuous use of measures and instruments of fiscal policy in order to achieve the macroeconomic goals of the state.

North Macedonia in general has an unfavorable structure of public expenditures with high share of wages and social transfers, while other budget categories, especially capital investments in infrastructure facilities, have relatively low representation. In addition, the structure of capital investments is unfavorable. Such a structure is very difficult to change, and it is reproduced for many years. Although in recent years the share of public infrastructure investments has increased, they are still difficult to realize. The category of capital expenditures is expressed heterogeneous and includes numerous items of unproductive character - administrative expenses (luxury interiors), monuments, facades and the like. Except that the funds set aside for this purpose are not productive, some of them ended up outside the Macedonian economy.

In order to improve the structure of public consumption, it is advisable to re-examine the priorities of public expenditures, with the emphasis on large infrastructure projects (construction and reconstruction of roads and railways, energy, gasification, etc.).

The goal of public expenditure is to increase economic growth by providing more employment opportunities, increasing people's income and living standards. Therefore, if they are well-managed, they can lead to the desired level of economic growth and improvement of the living standard of the population.

Analyzing the impact of public expenditures on economic growth, there is a link between separate categories of government expenditure and economic growth, and that some of the components of government spending have a negative and other positive effects on growth. In that direction, careful targeting of capital expenditures towards productive economic activities is recommended. The effects of capital investments depend not only on the state budget, but also on the companies that implement them. Very often problems arise in the implementation of capital projects because they are often not well managed. For that purpose, solid feasibility studies are needed to anticipate barriers that can prolong or increase the project's costs. In the case of the Republic of North Macedonia, the effects of capital expenditures with

small exceptions are often small and even negative, and over time, instead of increasing, they are reduced and show lower economic efficiency.

Another recommendation would be to reduce the volume of the public sector, ie the mass of wages and benefits in the public sector. The effect would be neutralizing the negative impact on economic growth. In this context, a great deal of caution is needed in the dimensioning of subsidies and transfer payments in the economy, in terms of whether and how much they will be effective and give a positive outcome.

Although the participation of public infrastructure projects has increased over the last several years, the envisaged investments are difficult to realize. Capital expenditures as a category are extremely heterogeneous and involve numerous items of unproductive character. Apart from the fact that some of the items set aside for this purpose are not productive, part of these funds end up outside the Macedonian economy. For that purpose, it is necessary to re-examine the priorities of public expenditures, with an emphasis on major infrastructure projects such as construction and reconstruction of roads and railways, gasification, energy, etc.

The main goal of public expenditures is to encourage economic growth and development of the economy by increasing the number of jobs, raising the income and living standards of people. Hence good governance of public expenditures will lead to higher economic growth and a better standard of living.

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