

GOVERNMENT BUDGET BALANCE AND ECONOMIC GROWTH

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Abstract

The necessity of government participation in the economy, as well as the limits of such participation are the object of theoretical and empirical economic research. The debate concerning public revenue share in Gross Domestic Product has a long history. Another question that exists is as follows: is budget deficit or surplus able to maintain a balance between economic stability and social equity and which one (budget deficit or surplus) is going to induce higher real economic growth. The necessity of active participation of the government in the economy and the use of budget balance as a fiscal instrument for economic regulation is even more tangible. The economic growth in global, regional and national aspect over the last years has been slow. This fact presents a real challenge concerning the stability of the public budget.

In the present research, the object of analysis is budget balance, and its subject – the effect of public budget deficit/ surplus on real economic growth. The main goal is to evaluate budget deficit/ surplus impact on real economic growth using econometric analysis and comparative analysis between Bulgaria and the other new Member States of the European Union (Cyprus, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Romania, and Croatia, accepted in the EU during 2015.) as well as the Balkan States (Serbia, Turkey, Greece, North Macedonia). The purpose is to justify the necessity of balancing the public budget and of reducing budget deficit to the level ensuring sustainable economic growth.

Keywords: public revenues, taxes, budget balance, budget deficit, budget surplus, economic growth

1. INTRODUCTION

Over the last years the myth, that fiscal policy can be used as an indisputable instrument for macroeconomic stabilization, in which most economists have believed until the seventies of the last century, has been given a new meaning. The effect of government budget balance on economic growth is a controversial question in economic theory as well as in empirical research. At the heart of the debate is the question of whether large government budget deficits or surpluses are detrimental to real economic growth and long-run sustainable development.

The globalization also has a substantial impact on tax policy. There is a necessity of a reform. The reform should be as follows: all countries in the sample to achieve a balanced budget and to limit the redistributive activity of the government. Lower fiscal deficits and the broader introduction of proportional (flat) taxes could increase the economic development of the analyzed European countries. The international movement of human capital and investment flows put pressure on the government budget balance of the European countries. Thus, all the European governments are forced to reform their taxation by initiating lower and non-distortionary taxes on labor and capital. Nowadays all the people are informed about the taxation in the different countries. Lower taxes stimulate capital flows as well as human capital mobility.

The economic way of thinking is changing because of the various empiric evidence that bring the achievement of economic efficiency as well as social justice through active government activity in question. The countries with "small governments" achieve higher economic growth in comparison with countries with higher public spending, which are financed by means of higher taxes or by accumulation of public debt.

The globalization and the violent competition among the different economies for foreign investments make the countries with large public sector and respectively high taxes unattractive to foreign investors.

These are the main reasons for rethinking and revaluation of the government role, as well as its fiscal policy, in one economy. High taxes and large-scaled redistributing government role have a negative effect on the economic growth, employment and economic development.

There are different opinions whether budget deficit or budget surplus stimulates economic development. Another controversial question is whether deficit financed public spending push forward the total output, estimated by real economic growth of Gross Domestic Product. The leading position over the last years is that lower fiscal deficits and nondistortionary taxes have a positive effect on economic growth.

2. LITERATURE REVIEW

The empirical results of some economists (Blanchard, O., Perotti, R., 2002) consistently show positive government spending shocks as having a positive effect on output, and positive tax shocks as having a negative effect. The authors argue that one result has a distinctly nonstandard flavor: both increases in taxes and increases in government spending have a strong negative effect on investment spending. Profound analyses' (Hussain, S., Malik, S., 2014) key results point towards significant asymmetry: output responds insignificantly to a tax increase, but shows a significantly positive and permanent response to a tax decrease. Further analysis reveals that the authors' result of asymmetric responses of output to positive and negative tax shock is driven by individual income tax shocks. Output responds symmetrically to corporate income tax shocks but asymmetrically to individual income tax shocks.

The skepticism about the government possibilities to relieve social and economic problems increases. The economic researches (Tanzi, V., Schuknecht, L., 1999) concerning the macroeconomic effects of taxes, government budget balance and public revenues give theoretical and empiric evidence of that skepticism. The empiric analysis of the level of public revenues and public spending as well as the efficiency of government activity gives a proof that: "moderate government", which distributing and redistributing function does not exceed 40% of Gross Domestic Product and the balanced or almost balanced government budget are becoming popular again.

Profound empiric analyses (Slimani, S., 2016) investigate the relationship between fiscal policy and economic growth for a panel of 40 developing countries for the period 1990 – 2012. The author's main findings are: *First*, there is evidence of a double threshold effect of the fiscal balance. When exceeding a budget deficit level of 4.8% of GDP or a fiscal surplus level of 3.2% of GDP, economic growth is negatively affected. *Second*, the sign of the relationship between budget deficit and economic growth is conditioned by the level of total investment. For values of total investment higher than 23%, it follows that there is a positive relationship. However, it becomes negative, when investment falls below this threshold.

The neoclassical growth models alternate the attitude towards the way the government may influence economic growth by promoting private activities with positive external effects. The possibilities of fiscal policy for macroeconomic stabilization are controversial. There are a number of opinions (Solow, R. M., 1994) over the last decades making the point that endogenous factors also have impact on real economic growth. A research (Barro, R. J., Redlick, Ch. J., 2009) has a substantial contribution in this sphere. It proves that increases in average marginal income-tax rates (measured by a newly constructed time series) have a significantly negative effect on real GDP. In particular the analysis finds negative tax shocks to have persistent and significantly positive effect on output while positive tax shocks have no systematic effect on output.

The results from another analysis (Romer, Ch., Romer, D, 2010) indicate that tax changes have very large effects on output. The baseline specification of the research implies that an exogenous tax increase of one percent of GDP lowers real GDP by almost three percent. In addition, the analysis finds out that the output effects of tax changes are much more closely tied to the actual changes in taxes than to news about future changes, and that investment falls sharply in response to exogenous tax increases. The results do not speak to the issue of whether taxes are a more powerful tool of fiscal policy than government purchases.

An analysis (Perotti, Roberto, 2012) shows that the discretionary and the automatic components of taxation have different effects on GDP. The different impacts of the discretionary and endogenous components of taxation are as follows: typically, a one percentage point of GDP increase in taxes leads to a decline in output by about 1.3 percentage points after 12 quarters.

The findings from another research (Hussain, M., Haque, M, 2017) reveals that there is a positive and significant relationship between fiscal deficit and economic growth. The data in the analysis indicate that the impact of fiscal deficit on the growth of Gross Domestic Product is mild but negative and significant at the 5% level in the analysed economy, i.e. Bangladesh.

Transfers in the countries which have higher public spending pursue wrong purposes (Tanzi, V., Schuknecht, L., 1999). The authors state that “big governments” create a mechanism to transfer money between different groups of people with winners and losers, who are not clearly defined. The fiscal policy concerning taxes and social transfers does not contribute to better distribution and redistribution of the income. Social inequality can be reduced through an even distribution of the human capital in society. This can be done with much lower public spending and taxation. The implementation of non-distortionary taxation and cutting the social-security payments is also necessary.

3. METHODOLOGY, DATA AND ECONOMETRIC ESTIMATION

The research of recent empirical analyses gives some answers about the dependence between the two variables: government budget balance and real economic growth. This empiric analysis tries to provide some possible answers concerning fiscal policy through identifying the nature of dependence between budget deficit/ surplus and economic growth for a panel of 17 European countries. Using annual data over the period 2007 – 2018, the two variables are empirically evaluated using comparative analysis as well as regression analysis with a focus on a comparative analysis between Bulgaria and the panel.

In this respect, it is necessary to conduct research into the connection between government budget deficit/ surplus and economic growth using a comparative analysis between Bulgaria and other new Member States of the European Union as well as Balkan countries as regards the following two indices. The aim is to compare government budget balance and real economic growth in all the analysed European countries. Detailed data of budget balance in percent of GDP of the analysed countries for the period 2007 – 2018 are given in Table 1. The data reveal their efforts to balance the government budget without increasing the taxation. Low taxes as well as non-distortionary taxes make the analysed countries competitive on the global world market. The only way to have budget balance, when public revenues decrease during a recession, is to reduce public spending.

The data in Table 1 show that all of the analyzed countries accumulate budget deficit over the analyzed twelve years. The highest level of cumulative budget deficit is in our neighbor country Greece – 82,5 %. Slovenia holds the second place concerning the level of budget balance, as the country’s cumulative level of budget deficit is – 47,8%. Romania holds the third place with cumulative budget deficit – 45,8%. The cumulative level of budget deficit in eight of the analyzed seventeen countries – Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Slovakia, Serbia and North Macedonia – was between 30% and 45%. The accumulated budget deficit is a little lower in Turkey and the Czech Republic – respectively – 23,7 and – 19,7. Total government budget deficit levels, during the period of 2007-2018, were between 10% and 17% in only two of the analyzed seventeen countries: Malta – 16,6% and Bulgaria – 11,1%. In Estonia, the accumulated level of budget deficit was the lowest one – 1,8%.

Throughout the review period, Bulgaria registered frequently fiscal deficits. Three separate periods in terms of government budget balance structure can be distinguish: the first period – which can be described as a budget surplus – was in 2007 and 2008. It indicates a budget surplus level – respectively 1,1% and 1,6%. In the second period, where it starts in 2009 and terminates in 2015, Bulgaria registered fiscal deficits persistently all over the period. The third period of 2016 – 2018, the government budget balance registered a continuous budget surplus level reaching 2% at the end of the year 2018.

Bulgaria, over the last years of world economic crisis, maintains a comparatively stable fiscal position. The only notable exceptions being related to 2009 and 2014 where it is observed deficit positions of,

respectively, – 4,1% and – 5,5%. The highest surplus was registered in 2018 (2% of GDP). In spite of all the challenges towards Bulgarian budget balance, accumulated budget deficit in Bulgaria over the period 2007 – 2018 was – 11,1%. It is almost seven times lower than accumulated budget deficit in our neighbor country Greece. It is important to mention, that Bulgaria also have average budget deficit over the analyzed twelve years – 0,9%, i.e. the second lowest one. This budget balance level is in accordance with The Stability and Growth Pact set of rules designed to ensure that countries in the European Union pursue sound public finances and coordinate their fiscal policies. Budget deficit target is defined in maximum net borrowing of 3% of Gross Domestic Product.

Country	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	2007/ 2018	Average
Bulgaria	1,1	1,6	-4,1	-3,1	-2,0	-0,3	-0,4	-5,5	-1,7	0,1	1,2	2,0	-11,1	-0,9
Czech Republic	-0,7	-2,0	-5,5	-4,2	-2,7	-3,9	-1,2	-2,1	-0,6	0,7	1,6	0,9	-19,7	-1,6
Estonia	2,7	-2,7	-2,2	0,2	1,2	-0,3	-0,2	0,7	0,1	-0,3	-0,4	-0,6	-1,8	-0,2
Croatia	-2,4	-2,8	-6,0	-6,3	-7,9	-5,3	-5,3	-5,1	-3,2	-1,0	0,8	0,2	-44,3	-3,7
Cyprus	3,2	0,9	-5,4	-4,7	-5,7	-5,6	-5,1	-9,0	-1,3	0,3	1,8	-4,8	-35,4	-3,0
Latvia	-0,5	-4,2	-9,5	-8,6	-4,3	-1,2	-1,2	-1,4	-1,4	0,1	-0,6	-1,0	-33,8	-2,8
Lithuania	-0,8	-3,1	-9,1	-6,9	-8,9	-3,1	-2,6	-0,6	-0,3	0,2	0,5	0,7	-34,0	-2,8
Hungary	-5,0	-3,7	-4,5	-4,5	-5,4	-2,4	-2,6	-2,6	-1,9	-1,6	-2,2	-2,2	-38,6	-3,2
Malta	-2,1	-4,2	-3,2	-2,4	-2,4	-3,5	-2,4	-1,7	-1,0	0,9	3,4	2,0	-16,6	-1,4
Poland	-1,9	-3,6	-7,3	-7,3	-4,8	-3,7	-4,1	-3,7	-2,7	-2,2	-1,5	-0,4	-43,2	-3,6
Romania	-2,7	-5,4	-9,1	-6,9	-5,4	-3,7	-2,2	-1,3	-0,7	-2,7	-2,7	-3,0	-45,8	-3,8
Slovenia	-0,1	-1,4	-5,8	-5,6	-6,7	-4,0	-14,7	-5,5	-2,8	-1,9	0,0	0,7	-47,8	-4,0
Slovakia	-1,9	-2,4	-7,8	-7,5	-4,3	-4,3	-2,7	-2,7	-2,6	-2,2	-0,8	-0,7	-39,9	-3,3
Serbia	-1,8	-2,5	-4,2	-4,3	-4,5	-6,4	-5,1	-6,2	-3,5	-1,2	1,1	0,6	-38,0	-3,2
Turkey	-1,6	-1,8	-5,3	-3,6	-1,4	-1,9	-1,1	-1,1	-1,1	-1,3	-1,6	-1,9	-23,7	-2,0
Greece	-6,7	-10,2	-15,1	-11,2	-10,3	-8,9	-13,2	-3,6	-5,6	0,5	0,7	1,1	-82,5	-6,9
North Macedonia	0,6	-0,9	-2,6	-2,4	-2,5	-3,8	-3,8	-4,2	-3,5	-2,7	-2,7	-2,5	-31,0	-2,6

Table 1. Government Budget Balance (% of GDP) over the period 2007 – 2018

Source: Compiled from IMF World Economic Outlook (WEO); International Monetary Fund, World Economic Outlook Database; World Bank, <http://epp.eurostat.ec.europa.eu/portal/page,https://tradingeconomics.com/macedonia/government-budget-data>, July 2019.

The lowest level of accumulated budget deficit over the entire period of the empirical research in the analyzed countries is in Estonia – 1,8%. Average budget deficit in Estonia is also the lowest one – 0,2%. Estonia also has kept the rule of The Stability and Growth Pact, i.e. budget deficit in the country over the period 2007 – 2018 is below 3% of GDP. Estonia registered fiscal surpluses during five of the analyzed twelve years. The Czech Republic, Malta and Turkey also have average budget deficit below 2% of GDP, respectively – 1,6%, – 1,4% and – 2%. Three of the analyzed European countries – Latvia, Lithuania and North Macedonia – have average budget deficit between – 2% and – 3 % of GDP, respectively – 2,8%, – 2,8% and – 2,6%. Seven of the member states of the European Union haven't kept the rule of The Stability and Growth Pact, i.e. maximum net borrowing of 3% of Gross Domestic Product. The average budget deficit in Croatia, Cyprus, Hungary, Poland, Romania, Slovenia and Slovakia is between – 3% and – 4%. The budget deficit in the Balkan country Serbia is also comparatively high – 3,2%. Greece registered the highest average budget deficit – 6,9%. This value is almost twice higher compared to other analyzed Member States of the European Union. Greece is the country, realizing the highest level of budget deficit as a percentage of GDP over the analyzed twelve years, – 15,1% in 2009. This value is five times higher than the rule of the European Union concerning

government budget balance. The accumulation of budget deficits over the analyzed twelve-year period leads to higher government debt levels.

In 2009, when is the peak of the world economic crisis in the new Member States of the European Union and in the Balkan Countries, the fiscal position of all analyzed countries is negative. The highest budget deficit was realized in our neighbor country Greece (– 15,1%). Slovenia holds the second place concerning the level of budget balance, as the country's budget deficit level in 2013 was – 14,7%. Latvia registered budget deficit – 9,5% in 2009. Only two of the analyzed seventeen countries – Bulgaria and Cyprus, realized budget surplus over the two-year period before the world crisis. This certainly proves, that budget deficits, in the analyzed countries, were not due to the world economic crisis. Budget deficits were due to high public spending levels, which are inefficiently used in most cases (Todorova, T., 2012). The clear facts for the rest of the analyzed countries are as follows: budget deficits were realized even over the years of economic growth. The adequate fiscal policy over a period of economic growth involves public spending decrease, in order economic growth to be “cooled”.

Bulgaria is an example for an adequate fiscal discipline and for keeping a balanced government budget. The lowest taxes on personal incomes and corporate profits were imposed in Bulgaria. In other words, the proportion taxation system level of 10% has a positive impact on growth. The low taxation raises the compatibility of Bulgarian economy. Bulgaria, compared to the other analyzed European countries, becomes more attractive to foreign direct investments.

Data on real economic growth during this period in the same countries are given in Table 2. The smallest amplitude between the highest and the lowest point of economic growth is in Poland – the average economic growth rate is comparatively high 3,8%. Poland reached the peak of the world economic crisis a little later than other European countries. The lowest economic growth rate in Poland was observed in 2013 – 1,4%. The highest economic growth rate of 7% was realized in 2007. Poland was the only country which during the peak of the world economic crisis in 2009 realized economic growth of 2,8%. In Turkey, the realized average real economic growth rate over the analyzed twelve years is the highest one 5,1 %. The average budget balance level in Turkey is – 2%. Malta holds the second place concerning the real economic growth rate, as the country's average level is 4,6%. The level of average budget balance is – 1,4%. In other words, highest real economic growth rates are associated with lower levels of government budget deficits.

Comparing Government Budget Balance in different countries it is obvious that the highest level of budget deficit is in Greece where the average level is – 6,9% of GDP. The highest level of budget deficit over the entire period of the empirical research in the analyzed countries is also in Greece in 2009 – 15,1%. Despite high levels of budget deficits, Greece is the only country with average economic decline (– 1,9% of GDP) over the period 2007 – 2018. Slovenia holds the second place concerning the level of budget balance, as the country's average level is – 4% and the average real economic growth rate is 1,5%. The highest deficit was observed in 2013, when the realized economic growth rate was negative, i.e. there was an economic decline (– 1,1%). Low economic growth rate in Greece and Slovenia over the period 2007 – 2018 was realized regardless of comparatively high average budget deficit levels – more than – 4%. In other words, deficit financed public spending have not had positive effects on economic growth rate.

Other European countries – Hungary, Slovenia and Serbia – also report high budget deficit level as percentage of GDP, accordingly – 3,2%, – 4% and – 3,2%. Their economies have the average real economic growth rate of 1,4%, 1,5% and 2%. The level of budget deficit in Slovakia is also comparatively high – 3,3% of GDP, and the real economic growth rate (average value) over the analyzed twelve years is in the golden middle 3,3%. Croatia is the country with the lowest average real economic growth over the period 2007 – 2018, only 0,6% and the average budget deficit level is – 3,7%. Central European country – The Czech Republic, has average budget deficit level of – 1,6% and average real economic growth is 2%. The highest real economic growth rate in the Czech Republic was realized in 2007 (5,6%), when the budget deficit rate (– 0,7%) is below the average budget deficit level (– 1,6%). Romania has average budget deficit level during the same period – 3,8%. The realized economic growth rate is in the golden middle (3,1% of GDP). North Macedonia and Cyprus have a level of average

government budget deficit over 2007 – 2018, respectively – 2,6 and – 3%. The realized economic growth rate is accordingly 2,7 and 1,1%.

Country	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	Average
Bulgaria	7,3	6	-3,6	1,3	1,9	0	0,5	1,8	3,5	3,9	3,8	3,1	2,5
Czech Republic	5,6	2,7	-4,8	2,3	1,8	-0,8	-0,5	2,7	5,3	2,5	4,4	2,9	2,0
Estonia	7,7	-5,4	-14,7	2,3	7,6	4,3	1,9	2,9	1,9	3,5	4,9	3,9	1,7
Croatia	5,3	2	-7,3	-1,5	-0,3	-2,3	-0,5	-0,1	2,4	3,5	2,9	2,6	0,6
Cyprus	5,1	3,6	-2	1,3	0,4	-2,9	-5,8	-1,3	2	4,8	4,5	3,9	1,1
Latvia	10	-3,5	-14,4	-3,9	6,4	4	2,4	1,9	3	2,1	4,6	4,8	1,5
Lithuania	11,1	2,6	-14,8	1,6	6	3,8	3,5	3,5	2	2,4	4,1	3,4	2,4
Hungary	0,4	0,9	-6,6	0,7	1,7	-1,6	2,1	4,2	3,5	2,3	4,1	4,9	1,4
Malta	4	3,3	-2,5	3,5	1,3	2,7	4,5	8,5	10,7	5,7	6,7	6,6	4,6
Poland	7	4,2	2,8	3,6	5	1,6	1,4	3,3	3,8	3,1	4,8	5,1	3,8
Romania	6,9	9,3	-5,5	-3,9	2	2,1	3,5	3,4	3,9	4,8	7	4,1	3,1
Slovenia	6,9	3,3	-7,8	1,2	0,6	-2,7	-1,1	3	2,3	3,1	4,9	4,5	1,5
Slovakia	10,8	5,6	-5,4	5	2,8	1,7	1,5	2,8	4,2	3,1	3,2	4,1	3,3
Serbia	6,4	5,7	-2,7	0,7	2	-0,7	2,9	-1,6	1,8	3,3	2	4,3	2,0
Turkey	5	0,8	-4,7	8,5	11,1	4,8	8,5	5,2	6,1	3,2	7,4	5,5	5,1
Greece	3,3	-0,3	-4,3	-5,5	-9,1	-7,3	-3,2	0,7	-0,4	-0,2	1,5	1,9	-1,9
North Macedonia	6,5	5,5	-0,4	3,4	2,3	-0,5	2,9	3,6	3,9	2,8	0,2	2,7	2,7

Table 2. Real economic growth (in percentage points) over the period 2007 – 2018

Source: Compiled from IMF World Economic Outlook (WEO); International Monetary Fund, World Economic Outlook Database; World Bank, <http://epp.eurostat.ec.europa.eu/portal/page> , <https://tradingeconomics.com/macedonia/government-budget> data, July 2019.

The Baltic States (Lithuania, Latvia and Estonia) have the highest amplitude in terms of the realized economic growth rate. The amplitude in Lithuania is almost 30%, with the growth rate reaching 11,1% in 2007 and changing to an economic decline of 14,8% just two years later. Economic growth is realized when budget deficit is – 0,8%% of GDP, and decline is evident when budget deficit is – 9,1% of GDP. In 2007 Latvia realized economic growth of 10%, while the level of budget deficit was as low as – 0,5%, and in 2009 the economy declined by almost 14,4%, while the government budget deficit rose by 9% and reached – 9,5%. The clear facts for Estonia are as follows – when there is government budget surplus of 2,7% economic growth is over 7%. When there is government budget deficit level – 2,2% of GDP, the decline of the economy is over 14%. During the last year (2018) the levels of government budget balance in Latvia and Lithuania were as follows: – 1% and 0,7%. These two countries managed to escape the recession realizing one of the highest economic growth rates in 2018 – respectively 4,8 and 3,4%. This fact shows clearly that high public spending and government budget deficits are not a precondition for overcoming the economic crisis.

In other words, the government fiscal policy, in Baltic States, does not influence real economic growth. The completed comparative analysis indicates that when public spending is much higher than public revenue, i.e. there is high government budget deficit, economic decline is the most substantial one. However, the highest real economic growth is realized when the government budget balance is without deficit or surplus.

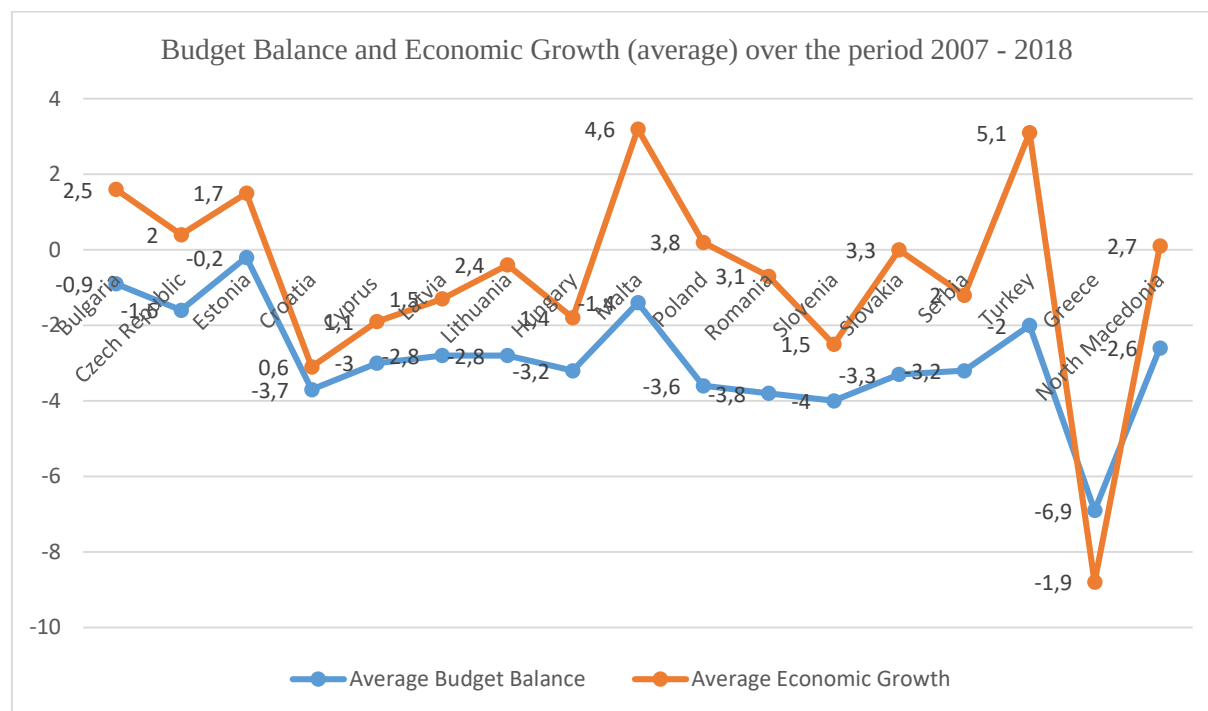


Fig. 1. Government Budget Balance and Real Economic Growth (average) over the period 2007 – 2018

Source: Based on the data in Table 1 and Table 2

The chart (Figure 1) shows also the chaotic behavior of average government budget balance and economic growth (average rate), especially during the years of economic crisis. Comparing the economic growth realized in the analyzed seventeen countries, Turkey holds the first place – 5,1%. In this country, growth is realized when the average level of budget deficit is one of the lowest – 2% of GDP. In Bulgaria, the average level of budget deficit during the analyzed period is – 0,9% of GDP and the economic growth (average rate) is 2,5%. In other words, in Bulgaria, the average real economic growth rate, over the analyzed twelve year period, is in the golden middle: 2,5% of GDP. Bulgaria holds the seventh place comparing the average economic growth rate. The highest average budget deficit level is in Greece (– 6,9%), and the realized average real economic growth rate over the analyzed twelve years is the lowest one – 1,9%, i.e. there was average economic decline.

The Baltic States, especially Estonia, realizing one of the lowest levels of government budget deficit as a percentage of GDP over the analyzed twelve years, are the countries with comparatively the highest average economic growth during the same period. In Lithuania and Latvia, the level of average budget deficit was one and the same – 2,8% and the average real growth rate of their economies was one of the highest – respectively 2,4 and 1,5%. In Estonia, the average budget deficit level during the period 2007 – 2018 was – 0,2% of GDP and the rate of real economic growth was respectively 1,7%.

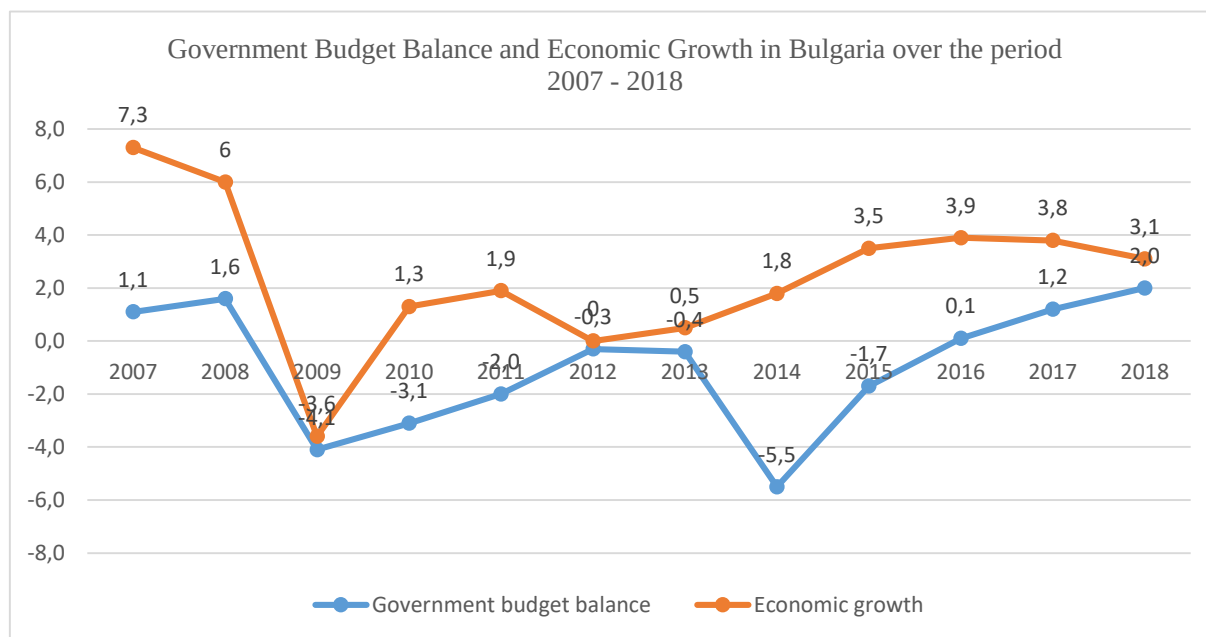


Fig. 2. Government Budget Balance and Real Economic Growth in Bulgaria over the period 2007 – 2018

Source: Based on the data in Table 1 and Table 2

The chart (Figure 2) shows that the economic growth rate in Bulgaria was realized in conditions of low budget deficits. In 2007 Bulgaria realized economic growth of 7,3%, while the level of budget surplus was 1,1%. In 2009 the economy declined by 3,6%, while the government budget deficit was – 4,1%. The highest rate of economic growth in Bulgaria was 7,3% in 2007 and 6% in 2008, when government budget balance was also with government net lending – about 1% of GDP during the first year and 1,6% in 2008. Government budget surplus in Bulgaria during the last three years was almost 2% and our country had comparatively high economic growth – more than 3% during the period of 2016 – 2018. The highest real economic growth rate was realized in 2016 (3,9%) when the country had balanced budget.

According to the data in Table 1 and Table 2, all analyzed countries have realized economic growth in conditions of budget deficit. **The main conclusion** of the completed comparative analysis of government budget balance and real economic growth in the seventeen European countries is as follows: **higher budget deficits as a percentage of GDP and “pumping up” public spending do not guarantee the achievement of high real economic growth. The countries, which have balanced government budget or budget deficit (around 1% of GDP and below) have realized the highest real economic growth rate (over 5%) during the analyzed period.**

4. RESULTS AND DISCUSSION

Having in mind that real economic growth is registered under conditions of balanced government budget as well as under conditions of budget deficit or budget surplus, the conclusion of the completed comparative analysis is that there isn't definite dependence between government budget balance level and real economic growth rate. Thus, single-factor regression analysis will be used to define the dependence between the two variables – budget deficit/ surplus level and economic growth rate.

Country	Variable	Regression coefficient	t – statistics	Coefficient of linear correlation Multiple R	Coefficient of determination R - square
Bulgaria	Constant	$a_1 = 3,15$	4,32	0,62	0,39
	G – % of GDP	$a_2 = 0,74$	2,53		
Czech Republic	Constant	$a_1 = 3,52$	4,40	0,70	0,48
	G – % of GDP	$a_2 = 0,92$	3,06		
Estonia	Constant	$a_1 = 2,25$	1,96	0,79	0,63
	G – % of GDP	$a_2 = 3,46$	4,10		
Croatia	Constant	$a_1 = 3,66$	2,88	0,69	0,47
	G – % of GDP	$a_2 = 0,84$	2,99		
Cyprus	Constant	$a_1 = 3,16$	3,42	0,74	0,55
	G – % of GDP	$a_2 = 0,69$	3,47		
Latvia	Constant	$a_1 = 5,91$	3,90	0,81	0,66
	G – % of GDP	$a_2 = 1,58$	4,36		
Lithuania	Constant	$a_1 = 4,79$	2,35	0,50	0,25
	G – % of GDP	$a_2 = 0,83$	1,82		
Hungary	Constant	$a_1 = 5,17$	2,31	0,50	0,25
	G – % of GDP	$a_2 = 1,18$	1,82		
Malta	Constant	$a_1 = 5,66$	5,42	0,52	0,28
	G – % of GDP	$a_2 = 0,78$	1,95		
Poland	Constant	$a_1 = 4,92$	5,61	0,42	0,17
	G – % of GDP	$a_2 = 0,31$	1,45		
Romania	Constant	$a_1 = 7,45$	3,98	0,65	0,42
	G – % of GDP	$a_2 = 1,13$	2,70		
Slovenia	Constant	$a_1 = 3,61$	2,61	0,56	0,32
	G – % of GDP	$a_2 = 0,53$	2,16		
Slovakia	Constant	$a_1 = 6,00$	3,48	0,51	0,26
	G – % of GDP	$a_2 = 0,82$	1,89		
Serbia	Constant	$a_1 = 4,11$	3,60	0,59	0,34
	G – % of GDP	$a_2 = 0,66$	2,29		
Turkey	Constant	$a_1 = 8,96$	4,65	0,59	0,35
	G – % of GDP	$a_2 = 1,94$	2,33		
Greece	Constant	$a_1 = 1,19$	0,80	0,64	0,41
	G – % of GDP	$a_2 = 0,45$	2,54		
North Macedonia	Constant	$a_1 = 5,18$	4,30	0,58	0,34
	G – % of GDP	$a_2 = 0,94$	2,25		

Table 3. Results of the calculation of Equation 1

Source: The achieved results are based on the data in Table 1 and Table 2 and the author's calculations with the help of software product Microsoft® Office Excel 2007 and ANOVA – Analysis of Variance.

In particular, using regression analysis on the basis of the lowest squares method, we will define the dependence (direct, inverse or non-dependence) between the independent variable, namely, government budget balance and the dependent variable, namely, real economic growth as well as the strength of the correlation between the two variables.

The dependence between budget balance (in % of GDP) and real economic growth is empirically analyzed using a single-factor regression model calculated in the following way:

$$T = a_1 + a_2G \quad (1),$$

Where: **T** is real growth of the Gross Domestic Product (real economic growth in percentage points);

G – Government budget balance (Government deficit/ surplus in % of GDP);

a₁ and **a₂** – equation parameters or regression coefficients.

The results of the calculation of Equation 1 indicate, that: the simple linear dependence as used in the analysis reveals direct dependence between the two variables. This is proved by the calculation of the regression coefficients **a₁** and **a₂**. The regression coefficient is positive when the increase of **G** (public surplus) causes an increase in **T** (real economic growth). The data in Table 3 above shows that the regression coefficient **a₂** for all of the analyzed countries is positive.

The conclusion of the single-factor regression analysis of the dependence between budget balance level and real economic growth rate is as follows: balanced government budget and even the increase in budget surplus and respectively the decrease of budget deficit caused the increase in real economic growth during the period 2007 – 2018.

The achieved results concerning the dependence between budget balance and the realized economic growth may be interpreted as direct dependence between the two variables, i.e. the increase of government budget surplus has caused higher real economic growth rate. Identical interpretation could be as follows: the decrease of government budget deficit level stimulates real economic growth rate of GDP in the analyzed seventeen European countries. This conclusion is conditional and “the optimal budget balance” level could vary to a great extent for the different countries, depending on their economic development, public spending efficiency and also their economic and functional structure.

A detailed analysis of the achieved results concerning the dependence between government budget balance (% of GDP) and the realized real economic growth rate, in the analyzed European countries over the last twelve years, **reveals the following tendencies:**

Firstly, the increase in budget surplus or decrease in budget deficit (% of GDP) caused the increase in economic growth in each of the analyzed seventeen countries. This tendency is most obvious in two of the Baltic States – Latvia and Estonia, and in Cyprus and the Czech Republic. In these four countries (Estonia, Cyprus, Latvia and Czech Republic) the value of the linear correlation coefficient is $R > 0,7$. This value reveals strong dependence between government budget balance and real economic growth. In other words between 70% (Czech Republic) and 81% (Latvia) of differences in the economic growth of the analyzed countries during this period are due to government budget balance level itself. The determination coefficient (R-square) in the same countries varies between 0,48 and 0,66, i.e. it reveals that in Estonia – 63%, in Cyprus – 55%, in Latvia – 66% and in Czech Republic – 48% of the changes in economic growth are due to changes in government budget balance, i.e. the realized budget surplus. From 34% of changes in real economic growth in Latvia up to 52% in Czech Republic are due to other factor variables not included in the regression model. In these countries, an 1% increase in budget surplus caused an increase in real economic growth of respectively 1,58%, 3,46%, 0,69% and 0,92%.

Secondly, this positive dependence between the two variables is confirmed in other countries, too. The 1% decrease in budget deficit caused an increase in real economic growth in the following countries:

Bulgaria (0,74%), Croatia (0,84%), Romania (1,13%), Turkey (1,94%) and Greece (0,45%). Balancing the government budget caused increase in real economic growth in Lithuania, Hungary, Malta and Poland of respectively 0,83%, 1,18%, 0,78% and 0,31%. In the other four countries – Slovenia, Slovakia, Serbia and North Macedonia the lower budget deficit has moderate effects on real economic growth: the 1% decrease in budget deficit caused an increase in real economic growth between 0,5% and 1% of GDP.

Thirdly, decrease in budget deficit in Bulgaria, Croatia, Romania and Greece caused lower positive influence on the realized growth rate, since the correlation coefficient is respectively 0,62, 0,69, 0,65 and 0,64. This fact means that in Bulgaria 39%, in Croatia 47%, in Romania 42% and in Greece – 41% of the changes in economic growth were due to the change in the level of government budget balance. In eight of the analyzed countries (Lithuania, Hungary, Malta, Slovenia, Slovakia, Serbia, Turkey and North Macedonia) the linear correlation coefficient ($0,3 < R < 0,7$) indicates moderate dependence. In Poland, the correlation coefficient is extremely low (0,42), but it is statistically significant. The value of the coefficient of determination proves that between 25% in Lithuania and Hungary and 35% in Turkey of the changes in economic growth were due to the realized budget surplus, i.e. the decrease in budget deficit. Budget deficit decrease had insignificant effect on the economic growth rate in Poland – only 17%.

Fourthly, the linear correlation coefficient in Bulgaria is high. It could be assumed that the result is statistically significant, i.e. the dependence between the two variables is very strong. A 1% decrease in budget deficit over the last twelve years has caused an increase in real GDP of 0,74%. In other words, 62% of differences in economic growth between Bulgaria and the other analyzed European countries during this period are due to government budget balance itself. It is estimated, that 39% of the changes in economic growth in Bulgaria were due to the realized budget surplus, i.e. the decrease in budget deficit. However, 61% of changes in real economic growth in Bulgaria are due to other factor variables not included in the regression model.

Another important conclusion to be drawn from the regression analysis is as follows: high budget deficit leads to poor economic productivity and low economic growth. Budget deficit is negatively correlated with real economic growth rate. Thus its increase can hinder the process of growth. Balanced government budget stimulates economic growth as well as economic development in the analyzed countries.

However, the results should not be accepted as absolute for the following reasons:

Firstly, the achieved results will be more statistically significant if the number of the observations is larger. The analyzed period of twelve years is short. The final results depend on the decrease or the increase of the time period.

Secondly, as it has been mentioned, government budget balance is only one of the factors that influence economic growth. Real economic growth also depends on the taxation system and tax rates, on foreign direct investments, on the inflation rate, etc. If these factors were included in the regression model, its statistical significance would be higher.

The aim of the analysis has been to verify the hypothesis that there is objective dependence between the level of government budget balance (as a percentage of GDP) and the realized real economic growth rate. **The hypothesis of the existence of a positive correlation between the two values has been proved, i.e. the decrease of budget deficit level and the balanced government budget stimulates the economic growth in the analyzed European countries. In other words, there is direct dependence between the increase of budget surplus level and the increase of real economic growth rate.** Having high deficit levels have an adverse economic impact, with harmful consequences for real economic growth.

5. CONCLUSION

This research contributes to the fiscal policy literature by re-analyzing the relationship between the government budget deficit and real economic growth in seventeen European countries. The results obtained from the regression analysis indicate that:

Firstly, increase of government budget deficit can hinder the process of economic growth, i.e. raising budget deficit is growth reducing. The increase in government budget deficit as a percentage of GDP over last twelve years is not in favor of achieving higher real economic growth. The research proves that higher budget deficit level (% of GDP) cause lower real economic growth.

Secondly, budget deficit in the analyzed European countries should be reduced and government budget should be balanced. A balanced budget is a situation where total revenues are equal to or greater than total expenses. The budget may be balanced in two ways: through increase in tax rates or tax base broadening and also through decrease in public spending levels. We can recommend the redistributive role of government budget to be reduced by public spending cuts and by adopting the neoclassical idea of "small government". Balancing the budget by simultaneous increasing tax levels and public spending levels has negative effect on real economic growth rate of GDP. Budget deficits burden future generations with public debt. At the same time, all the countries should improve tax collection and cut down tax evasion.

Thirdly, there is a common reason for the fact that the governments which are bigger and more expensive for taxpayers slow down economic growth. This reason lies in the price paid in the form of taxes, state loans etc. for higher public spending. It is well known that in an economy, as well as in a single household, we cannot spend more than we earn. The consequences are always negative, as the most obvious consequence is an increase of public debt.

The empiric analysis outlines **possibilities** to realize higher economic growth in the contemporary globalizing economy:

- Potential economic growth will be reached on condition that the government budget is balanced with far lower levels of public spending and public revenues;
- A long-term strategy for increasing tax system efficiency and for successful tax revenue reform is of major importance. Following this policy the analyzed European countries as well as Bulgaria will achieve higher economic growth and sustainable economic development.

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