

# “Empirical study of the fiscal policy impact on economic growth”

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Mykola Pasichnyi (Ukraine)

# EMPIRICAL STUDY OF THE FISCAL POLICY IMPACT ON ECONOMIC GROWTH

## Abstract

The challenges of economic globalization, recession, and the essential changes in market conditions, as well as the financial institutionalization, determine the expediency of the new studies to explore the impact of fiscal instruments on the dynamics of economic growth and social stability. This paper examines the role of fiscal policy in the economic growth ensuring in advanced and emerging market economies over the period from 2001 to 2015. The research indicates the growing role of the state (in general) and the budget (in particular) in regulation of social and economic processes. Based on the methods of economic regression, the interrelations between government spending and GDP growth in different groups of countries were evaluated. The study emphasized the directions to increase the positive influence of budget policy on economic development for countries with emerging market economies. This can be achieved by harmonization of the tax burden and structure, improving the use of budget funds, conducting structural optimization of budget expenditures, further development of financial and budget institutions, implementation of the fiscal constraints and rules while forming the basic indicators of fiscal policy.

## Keywords

fiscal policy, economic growth, taxation, government spending, budget deficit

## JEL Classification

E62, H20, O40

## INTRODUCTION

One of the most actual scientific issues holding strong attention for a long time is the determination of the budget and tax instruments role in ensuring sustainable social and economic growth. There is a common opinion of neoclassical economics that the changes in the main budgetary parameters of revenues and expenditures have a significant impact on the level of revenues, but at the same time have no essence to economic growth in the long run. A significant share of budgetary expenditures and state funds in GDP reduces the rates of economic development. An alternative approach to this issue is based on the fact that under conditions of recession and financial instability, the government plays a fundamental role restoring positive macroeconomic dynamics (by demand stimulation) and rising productive expenditures both on human capital and improvement of the infrastructure. Increase in public expenditures has a significant dual effect on economic growth. On the one hand, public spending rise has a positive impact; on the other hand, the tax increase (required to fund the necessary expenditures) has an opposite economic effect.

## 1. LITERATURE REVIEW

A prominent American scholar Romer (1990) gave a special attention to the determinants of economic growth. He concluded that substantial influence on the economic dynamics was provided by investing both in human capital and endogenous technological change (Romer, 1990). Robert J. Barro (1996), the Paul M. Warburg Professor of Economics at Harvard University, conducted a profound empirical study of growth factors both in the countries with advanced economies, as well as in the countries with moderate per capita income. He discovered that the excessive state influence on the national economy slowed down the growth of real GDP (Barro, 1996). Agell, Lindh, and Ohlsson (1997) did not make a unified conclusion about the impact (either positive or negative) of the share of GDP redistribution through the budget system (Agell, Lindh, & Ohlsson, 1997). Swedish researchers Fölster and Henrikson (1999) used the methods of mathematical modeling in their studies of economics. They determined that a substantial share of GDP redistribution through the budget system and public finances had rather strong negative effect on economic development in advanced market economies. At the same time, there are some scientific studies showing that in terms of economic instability the public institutions (responsible for the fiscal policy) play a key role to secure the restoration of positive macroeconomic dynamics through additional public spending or redistribution of the budget expenditures. Ram (1986) made the estimation of the budget expenditures influence on the dynamics of real GDP. He specified the presence of a positive correlation between these indicators (Ram, 1986). DeLong and Summers (2012) emphasized the vital role of fiscal policy aimed to restore positive economic dynamics. Cogan, Taylor, Wieland, and Wolters (2013) identified the measures of fiscal policy ensuring economic growth both in the short and long run.

A positive influence of the fiscal policy instruments on the economic development is indicated in the studies of such domestic scholars as Boholib (2015), Zapatrina (2007), Lysyak (2009), Makogon (2016), Chugunov (2015, 2016), etc. Taking into account all the previous studies, the continuation of scientific research had to determine the importance and impact of budgetary and tax instruments ensuring the social and economic development is essential.

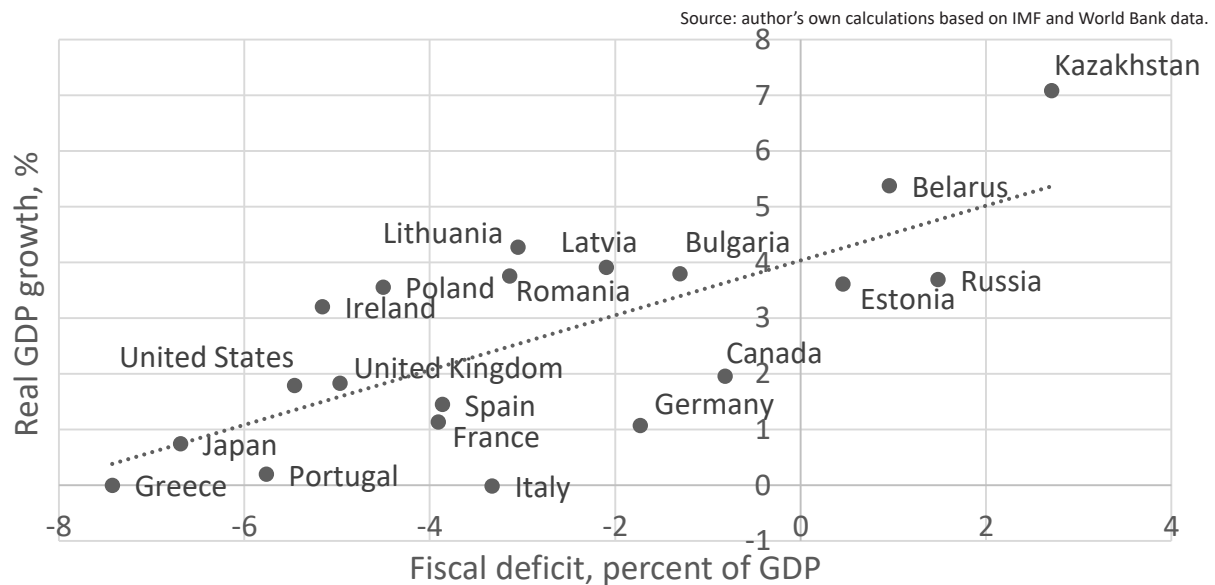
## 2. FORMULATION OF RESEARCH OBJECTIVES

Analyses of the mentioned scientific works prove that it is impossible to make a definite conclusion about the fiscal policy impact on economic growth. It is necessary to carry out an empirical study of the fiscal policy instruments in order to unveil the interrelations between its main components and the indicators of economic growth. This paper examines the role and impact of fiscal policy levers on economic growth in advanced and emerging market economies over the period from 2001 to 2015.

The purpose of this article is to determine the role and to specify the impact of fiscal policy instruments on economic growth.

## 3. THE MAIN RESULTS OF THE STUDY

According to the terms of economics and positive empirical experience of the fiscal policy implementation, it is assumed that the lower misbalance of the budget system and public finance is associated with higher rates of economic growth in general. Obviously, there is a reverse causal link. There are much more opportunities to form a balanced budget or even a budget with possible surplus in the countries with higher rates of economic growth. Considering the mentioned facts, it is important to analyze the correlation between the annual growth rate of real GDP and fiscal deficit in developed and transitional economies during the period from 2001 to 2015. We have selected the four following groups of the countries: the 1<sup>st</sup> group – the countries of the G7, primarily the US, Japan, Britain, Germany, Italy, and France; the 2<sup>nd</sup> group that includes the countries of Central Europe and the Baltic states (once had a socialist administrative command economies) which are the members of the European Union now: Lithuania, Latvia, Estonia, Poland, Romania, and Bulgaria; the 3<sup>rd</sup> group – consisting of the post-Soviet countries that are the members of the Eurasian Customs Union – the Russian Federation, Kazakhstan, and Belarus; the 4<sup>th</sup> group – including the countries known as PIGS that have experienced the greatest misbalance of public finances during the global



**Figure 1.** Fiscal deficit and real GDP growth in advanced and emerging market economies over period from 2001 to 2015

recession of 2008–2010 – Portugal, Ireland, Greece, and Spain (see Figure 1).

According to the results of our studies, we can make the conclusion that (during the period from 2001 to 2015) the GDP growth rates in the countries of the 3<sup>rd</sup> group (countries with post-Soviet economies) were higher than the world's average rate. In addition to that, their annual budgets were executed with a surplus. For example, the average growth of real GDP in Kazakhstan during the analyzed period was at 7.08% per year, while the budget surplus was equal to 2.70% of GDP; in Belarus, the corresponding figures were 5.39% and 0.96 %; in Russia – 3.69% and 1.48%, respectively.

During the analyzed period, the countries of the 4<sup>th</sup> group (except Ireland) were characterized by slight rates of economic growth and a quite substantial budget imbalance. The economy of Greece has not shown any indications of growth during the same period. The average percentage of government budget deficit was equal to 7.42% of GDP. Real GDP in Portugal has been growing at 0.19% per year, while an average budget deficit was equal to 5.76% of GDP. The corresponding figures in Spain were 1.45% and 3.86%; in Ireland – 3.19% and 5.16%, respectively.

The 2<sup>nd</sup> group of countries (consisting of Central European and the Baltic states) has had an average

annual rate of economic growth from 3.5% to 4.2% and rather stable situation with the budget deficit. The average percentage of government budget deficit has been varied in descending order from the value equal to 4.50% of GDP in Poland to the value equal to 1.31% of GDP in Bulgaria. The exact figures were: 3.14% of GDP in Romania, 3.04% of GDP in Lithuania, 2.10% of GDP in Latvia. At the same time, in Estonia, the state budget was executed with an average annual surplus equal to 3.61% of GDP.

Over the last fifteen years, the G7 members have had rather moderate economic growth rates equal to 1-2% per year. At the same time, the economy of Italy, for example, was characterized by an average annual decline equal to 0.02%. Meanwhile, these countries (under conditions of global recession and unstable economic recovery) have conducted countercyclical fiscal and monetary policies in order to stimulate domestic demand and to revive the growth. The measures of these policies have increased the budget deficit. Its average value in Japan over the last fifteen years was equal to 6.68% of GDP; in the US – 5.46% of GDP; in United Kingdom – 4.97% of GDP; in France – 3.91% of GDP; in Italy – 3.33% of GDP; in Germany – 1.72% of GDP; in Canada – 0.81% of GDP.

Financial regulation of economic development should be performed considering two main as-

pects: ensuring the sustainability of public finances and promotion of financial balance. A harmful unbalance of the budget system and rapid accumulation of public debt reduce the level of market participants' confidence to the government bonds and to the paying capacity of the borrowers as well. The absence of non-inflationary debt financing sources forces the governments to impose some budget constraints. This is performed by implementation of some structural reforms in the field of public finances (adapting national fiscal policies to the crisis or a prolonged recession). The mentioned causes a crucial change of approaches to the formation and realization of fiscal policy, creation of the new indicative targets of its development over the short, medium, and long term. The public debt (accumulated during the recession and the further recovery period) is the factor that limits the scope and effectiveness of the fiscal adjustment measures. In addition to that, the imbalanced for extended period fiscal policy contributes to the strengthening of rather negative trends in economy. The experience of Greece (gained during the last decade) may be considered as evidence.

Budget policy in the field of expenditures adjusting may have different influence on economic dynamics. This fact, in turn, is confirmed by the scientific studies and empirical experience. The growth of budget expenditures may increase the fiscal deficit. The budget imbalance reduces the opportunities for a rapid economic development over the medium term. In countries where the share of public spending exceeds 40% of GDP, in most cases, the budget deficit exceeds 4% of GDP. Among the rare exceptions are Belarus, Canada, and Germany. The budget deficit increase may be caused both by conducting expansionary fiscal policy and by the influence of automatic fiscal stabilization levers. In that case, the debt service payments, social protection and security spending, wages of public sector employees and civil servants should be considered as an essential part of the aggregated budget expenditures. In these terms, during the reduction of budget revenues (including tax revenues reduction due to the processes of economic transformation) only a slight adjustment of expenditures is possible. That increases the public deficit growth rate.

A positive impact of increased public spending on economic growth was determined in countries

with high levels of state financial institutions performance and public financial regulation. Poland, Spain, Ireland, and Germany should be named primarily among the examined countries as the examples proving this conclusion. However, in the countries with a moderate level of public expenditures (particularly in the Russian Federation, Kazakhstan, Belarus, Bulgaria, Romania, and Latvia), the similar dynamics does not lead to increased economic growth. We have found specific dependencies between the growth rate of real GDP and the dynamics of the public expenditures share over the period 2001–2015 (using the correlation and regression equations). The study of these dependencies was performed for all the represented countries in general, as well as for the groups of the analyzed countries. For our study, we have sampled the parent population (consisting of all the analyzed countries). 20 countries have been included into the sample. It was determined that increase in the public expenditures share in GDP by 1 percentage point had caused reduction in the growth rate of real GDP by 0.201 percentage points. The approximation ratio ( $R^2$ ) was equal to 0.567.

The analysis of this correlation for the G7 countries has given the opportunity to state that increase in the public expenditures share in GDP by 1 percentage point had caused reduction in the growth rate of real GDP by 0.041 percentage points. However, it should be noted that there were found no strong or sustainable correlation between the mentioned indicators for this group of countries. The similar results have been received after using the method of the correlation and regression analysis to study the economies of Central European and the Baltic states: increase in the public expenditures share in GDP by 1 percentage point had caused reduction in the growth rate of real GDP by 0.054 percentage points. The approximation ratio for the sample was higher than in the previous study. Nevertheless, there is no reason to argue about the stability of this correlation.

For the group of former Soviet countries, the results of analysis have demonstrated a strong inverse dependence between these indicators. The rise in the public expenditures share in GDP by 1 percentage point increased the growth rate of real GDP by 1.125 percentage points (with sufficient approximation coefficient). For the 4<sup>th</sup> group

of the countries (PIGS), increase in the public expenditures share in GDP by 1 percentage point had caused reduction in the growth rate of real GDP by 0.531 percentage points (with sufficient approximation coefficient).

The most important objectives of budget and tax policy include supporting the processes of sustainable economic development (at the stages of growth), macroeconomic stabilization (at the stages of decline), as well as providing the stimulating impulses by enhancing the investment and consumer demand (at the “bottom” of the recession). There are some questions requiring the detailed analysis. How do the changes of budget expenditures impact the consumption in national economy? What lag effects are caused by the budgetary stimulating measures? How to determine a time-bound period within which the rise in budget expenditures is both actual and appropriate? During the several studies, the mentioned neoclassical approach revealed the fact that constant growth of budget expenditures provided by expanding the tax base or increasing the tax rates had mainly negative effect on the financial condition of households. It leads to the costs optimization and decreases the households' consumption. Temporary growth of budget expenditures (mainly entailing the increase in the budget deficit) has less effect on the welfare of households. It is aimed at enhancing an investment or consumer demand. Depending on the duration of funding of the excessive budget deficit and the depth of recession, the level of investment and consumption may both grow and decrease. New-Keynesian economics offers an alternative view on the impact of the increased government spending on the economic processes. The key new-Keynesian thesis is that the growth in budget expenditures is supplemented simultaneously by increase in the real wages and the aggregate consumption. As a result, the business activity is enhanced.

Considering the budget policy, in economic studies, all the components of the state budget expenditures are traditionally divided into two opposite groups: productive and non-productive. The first group includes all expenditures affecting the economic growth directly or indirectly through the increase in stocks of input (physical and human capital) and rising of total factor productivity.

According to this definition, productive expenditures include expenditures on education (traditionally associated with increase in human capital), expenditures on scientific research and development (providing growth due to innovation and technological progress; rising the labor productivity), expenditures on the infrastructure, transport and communications (enhancing the productivity of private capital and stimulating aggregate demand), expenditures on health (due to improvement of the public health a number of employees and labor productivity are increased). The other components of the budget expenditures are identified as non-productive. Their effect on the change of total factor productivity growth rate is insignificant (Idrisov & Sinelnikov-Murilev, 2013).

It should be mentioned that in order to ensure the prerequisites for economic growth, it's important to support the essential level of investment in human capital. Involvement of the budget funds for this purpose should be conducted under the rigorous control and audit of the effectiveness of their implementation. Furthermore, the government should contribute to the development of the institutional environment for private capital investment in production and improve the mechanism of public-private partnership for implementation of the projects in the field of social development. Under the terms of economic theory and due to the significant externalities, some “market failures” may occur. The market is unable to provide the optimal provision of public services in the spheres of education, health, and scientific research without government regulation and substantial investment. Creation of the specific conditions for the profitability growth of private investment aiming to increase the level of total factor productivity (including the fiscal spending on infrastructure and science) is expedient as well.

The scientific research in the area of assessing the impact of tax regulation on the processes of economic development covers several important issues. One of these issues is to determine the tax burden effect (often represented by the tax-to-GDP ratio). The other issue is to estimate the interconnection between the structure of tax revenues and the long-term economic growth. The total tax burden is the factor that determines the preconditions of economic development and the amount



**Table 1.** Tax revenues in advanced and emerging market economies, % of GDP

Source: author's own calculations based on IMF and World Bank data.

Country	2001–2005	2006–2010	2011–2015	2001–2015
United States	25.38	24.94	24.98	25.10
Japan	26.26	27.94	29.28	27.83
United Kingdom	35.58	36.16	34.98	35.57
Canada	32.92	31.64	30.58	31.71
Italy	39.74	41.42	43.18	41.45
France	44.08	44.30	46.94	45.11
Germany	39.02	38.92	39.26	39.07
G7	34.71	35.05	35.60	35.12
Lithuania	29.16	30.20	27.58	28.98
Latvia	28.10	28.30	28.86	28.42
Estonia	30.82	32.46	32.28	31.85
Poland	33.64	33.92	32.80	33.45
Romania	28.22	28.16	27.78	28.05
Bulgaria	30.04	29.04	27.06	28.71
Central Europe and Baltic states	30.00	30.35	29.39	29.91
Kazakhstan	13.19	11.56	13.30	12.68
Russia	35.30	34.98	36.56	35.61
Belarus	33.24	29.62	34.60	32.49
Eurasian Customs Union	27.24	25.39	28.15	26.98
Spain	34.46	33.88	33.48	33.94
Portugal	33.84	34.36	36.22	34.81
Greece	33.32	33.40	38.06	34.93
Ireland	30.24	30.56	29.50	30.10
PIGS	32.97	33.05	34.32	33.44

of budget revenues. This thesis is confirmed by the conclusions of famous American economist Arthur Betz Laffer (including the interrelation between the rates of taxation and the resulting levels of government revenue represented by the Laffer curve). The necessity of reducing the tax burden is indicated in the works of numerous liberal economists. Their position is based on the fact that the high level of taxation negatively affects the production. It is obvious that excessive tax burden doesn't only constrain the business activity and deprive the companies of financial resources (they could invest in production), but also has a strong influence on the size of shadow economy. Taxation is an important part of an endogenous growth model. The tax policy instruments have a serious impact on the determinants of endogenous development. The level of investment activity of the enterprises and the level achieved in the fields of scientific research and education are among those determinants.

The type of selected model of mixed economy (Nordic, West European, Asian, Liberal, etc.), the

institutional environment, the structure of economy and its technology degree, the quality of public administration, and the involvement of the national economy into the global economy affect the level of GDP redistribution through the tax system. It was determined that the share of tax revenues (including social security contributions) in GDP in advanced countries (members of the G7) is quite significant. Its average value during the period from 2001 to 2015 was equal to 35.12% of GDP (see Table 1).

It should be noted that during this period, only a slight growing tendency of the above-named indicator was investigated. In the mentioned sample, the highest tax burden – equal to 45.11% of GDP – was observed in France, the lowest – equal to 25.10% of GDP – in the US. However, the tax-to-GDP ratio is not a determining criterion for assessing the level of tax burden. It is not the measure of the effectiveness of the tax system too. Depending on the tax burden, it is important to divide the taxpayers into two separate groups – legal entities and individuals. The questions of macroeco-

conomic stability and sustainability of public finances without reducing the potential of economic growth over medium and long term have become very important. As an available instrument of tax regulation (aiming to achieve the main fiscal goals of the public institutions), the improvement of tax revenues structure is the most appropriate for implementation in modern conditions.

In addition, the overall rate of tax burden reflects the social choice of the level of GDP redistribution through the public finance. Tax structure is an implementation tool of this choice. Through the use of this tool, the authorities are able to reach the desired level of public services provision and to reduce the impact of negative tax factors on the economic processes.

## CONCLUSION

To achieve the paper's goal, we have chosen the main components of fiscal policy and studied the interrelations between these components and the main indicators of economic growth over the period from 2001 to 2015. We have selected the four following groups of the countries: the 1<sup>st</sup> group – the countries of the G7, the 2<sup>nd</sup> group including the countries of Central Europe and the Baltic states, 3<sup>rd</sup> group – post-Soviet countries that are the members of the Eurasian Customs Union, and the 4<sup>th</sup> group including the countries known as PIGS. Based on the methods of regression, we have found out negative impact of increased government spending on economic growth almost in all cases. It should be mentioned that the strongest negative effect exists in 3<sup>rd</sup> and 4<sup>th</sup> groups. A positive impact of increased public spending on economic growth was determined in countries with high levels of state financial institutions performance and public financial regulation. Poland, Spain, Ireland, and Germany should be named primarily among the examined countries as the examples proving this conclusion. In case of taxation, we have determined that overall rate of tax burden reflects the social choice of the level of GDP redistribution through the public finance. As an available instrument of tax regulation, the improvement of tax revenues structure is the most appropriate for implementation in modern conditions.

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