icabme
4th International Conference on Advanced Research in BUSINESS, MANAGEMENT & ECONOMICS
Amsterdam, Netherlands
16-18 July 2021

The Impact of Fiscal Deficit on Economic Growth: Evidence from Europe

Maryna Bohach and Tetiana Paientko*
Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine
*Corresponding author

Abstract.

The purpose of this study is to determine the impact of fiscal deficit on economic growth to find out whether it is possible to promote economic growth through reduction of the gap between government revenue and expenditures. The sample consists of thirty-seven European countries according to United Nations approach. The findings demonstrate that in the case of developed countries the budget deficit reduction could be one of the tools of accelerating economic growth. For developing countries, this method should not be used, as the deficit has no significant impact on GDP per capita.

Keywords: budget deficit, GDP per capita, gross capital formation, net export

1. Introduction

The purpose of this paper is to determine the impact of fiscal deficits on economic growth to understand whether it is possible to stimulate economic growth by reducing the gap between government revenues and expenditures.

The global financial and economic downturn following the COVID19 pandemic has been a major cause of the rapid growth of budget deficits and public debt in most countries and in Europe (Augustin, et al 2021). Consequently, there has been a surge of interest in the possible effects of fiscal deficits on national economies, primarily on the rate of economic growth.

Some economists have argued that the relationship between fiscal deficits and economic growth is positive and that fiscal deficits promote economic growth if expenditure is directed towards investment, including in human capital (Ang & Longsta, 2013). Another group of scholars hold the opposite view (Brender & Drazen, 2005). They believe that fiscal deficits and economic growth have a negative relationship.

The analysis was based on thirty-seven European countries. The results of the analysis showed that in developed countries fiscal deficits have a positive impact on economic growth. In developing countries, no positive impact of fiscal deficits on economic growth was found.

The article is organised as follows: the second section contains a literature review, the third section describes the research methodology, the fourth section presents the research results, and the last section presents conclusions and prospects for further research.

2. Literature Review

The impact of fiscal deficits on GDP dynamics, as a key indicator of economic development, is one of the most discussed topics among researchers as well as among government officials responsible for macroeconomic policy making. The interest in this impact is primarily due to the ambiguity of the effects of permanent fiscal deficits on the main macroeconomic indicators. Some economists assess the impact of fiscal deficits as sharply negative, others as rather positive, and there are economists who see the impact of fiscal deficit as completely neutral. Many researchers argue that the effects of fiscal deficits depend on the time horizon: In the short, medium, and long term, deficits affect the dynamics of macroeconomic indicators differently, and before studying their effects, the time horizon of the study should be precisely defined.

According to Keynesian theory, government spending is an important component of aggregate demand (AD) in the economy. If there is a shortage of AD, the government can increase spending, which in turn increases AD and thus stimulates the economy (Keynes, 1936). This government stimulus solution worked well to increase output, employment, and income, which lifted the US economy out of the Great Depression of 1929-1933 and during the financial crisis in 2007-2009.

The Ricardian equivalence paradigm espouses that increases in fiscal deficits (for instance, through government spending) must be paid for either today or in the future with the total present value of receipts fixed by the total present value of spending. This implies that a reduction in today's tax receipts must be matched by corresponding increases in future taxes, leaving interest rates, and private investment unchanged.

Recent publications provide a wide range of empirical evidence of fiscal deficit impact on different economic indicators. Dichachim (2020) provided empirical evidence regarding the corrosive effect of fiscal deficit to economic growth. His research is based on data of twenty SubSaharan African countries. Earlier Cinar et al (2014) provided evidence confirming of a negative relationship between fiscal deficit and economic growth in the short run though the relationship turned out to be positive in the long run. The result of studies by Funlayo et al (2014), Arjomanda et al (2016), Mohanty (2017) and M. Nazari et al (2019) indicated the negative relationship between fiscal deficit and economic growth.

Several studies provided evidence to support the Keynesian ideas about fiscal deficit. Saleh & Harvie (2005), Eminer (2015), Osoro (2016), Mohamed Aslam (2016), Dritsakis et al (2016), Despotovic & Durkalic (2017) and Molocwa et al (2018) confirmed of a positive relationship between fiscal deficit and economic growth.

In turn, Vien Bui Van (2015) demonstrates that in the case of Vietnam, government deficits had no direct effects on the country's economic productivity between 1989 and 2011. Farahbakhsh & Farzinvash (2010) state that there is not a significant relationship between the fiscal deficit, private consumption, and economic growth in high income countries. But the results from the middle- and low-income countries confirm the significant relationship.

An analysis of recent publications shows that trends in the impact of fiscal deficits are mixed. Much depends on the causes of the deficit, and hence on the fiscal policy of the particular government. In addition, there is a large literature on empirical studies of fiscal deficits in

African and Asian countries, while the European countries are not sufficiently covered, although fiscal deficits are also a common problem in these countries. The research hypothesis is:

H1: Fiscal deficit has negative impact on GDP per capita.

3. Methodology

Our empirical assessment of the impact of fiscal deficits on economic growth was conducted on a sample of thirty-seven countries according to the UN GeoScheme for Europe. The UN geo-scheme is a system that divides the countries of the world into regional and sub-regional groups. The creators note that "the assignment of countries or territories to particular groups is made for statistical convenience and does not imply any assumption as to the political or other affiliation of countries or territories. The scheme was created for statistical analysis and consists of macro-geographical regions arranged, as far as possible, according to the continents. The countries included in the sample are Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland.

Statistical information was used from the World Bank website. The period of analysis is from 2001 to 2019. The data are organised into panels.

The general description of the model is provided below (1):

$$GDP\ p.c._t = \beta_0 + \beta_1 BD_t + \beta_2 NX_t + \beta_3 GCF_t + \varepsilon_t \qquad (1)$$

Where $\beta_0, \beta_1, \beta_2$ mean the regression coefficients. GDP p.c. is Gross Domestic Product per capita, as a proxy of economic growth, BD represents fiscal deficit as a percentage of GDP.

GDP per capita is an important indicator of economic performance and a useful unit to make cross-country comparisons of average living standards and economic wellbeing. However, GDP per capita is not a measure of personal income and using it for cross-country comparisons has some known weaknesses. For example, GDP per capita does not consider income distribution in a country.

Net exports (NX) and gross capital formation (GCF) are defined as control variables. Net exports have been chosen as a control variable because it serves as an indicator of the financial health of a country. A country with a trade surplus receives more money from the external market than it spends. A negative net export figure is a trade deficit for that country. This means that the total value of the country's imports is greater than the total value of its exports. A country with a trade deficit spends more money on the external market than it earns. The net exports variable is particularly important in calculating a country's GDP. A country with a high export value receives income from other countries. This strengthens the financial position of the country and contributes to GDP growth.

Ensuring sustainable economic growth closely correlates with the actual modes of capital accumulation. The relevant process not only creates the preconditions for the continuous renewal of the production system and the increase in the volume of products and services supplied by the economies of different countries, but also influences the behaviour of economic agents. The process of capital accumulation is the result of complex interrelationships established within the various components of the economic mechanism, the characteristics of the social model, the state of the production system, the direction of technological change and the degree of openness of national economies. De Long & Summers (1991, 1993) studied this issue in more detail. Calculations have been made for all European countries as well as separately for developed and developing countries. This is since the impact of fiscal deficits can vary, given the historical and geographical characteristics of a country.

The data set was tested for missing variables, the variables were tested for multicollinearity. All variables were logged. The regression results are described in the next section.

4. Results and Discussion

The regression results are presented in the Table 1.

Table 1: Regression results

	Full sample		Developed countries		Developing countries	
	Pooling	Fixed effects	Pooling	Fixed effects	Pooling	Fixed effects
Fiscal deficit	-1,2*** (0.4)	-1,3*** (0.4)	-1,4*** (0.4)	-1,5*** (0.4)	2.3 (1.6)	2.4 (1.9)
Net export	0.1** (0.02)	0.1*** (0.02)	0.2*** (0.02)	0.2*** (0.02)	-0.01 (0.04)	-0.01 (0.04)
Gross capital formation	0.7** (0.01)	0.9*** (0.01)	0.8** (0.1)	1.0*** (0.1)	0.6 (0.4)	0.7* (0.4)
Observations	713	338	476	304	229	34
F statistic	28.7***	29.8***	36.4***	36.2***	2.1	2.5*

*Note:*p<0.1, **p<0.05, ***p<0.01*

Source: Authors' calculations

As can be seeing from the Table 1, a correlation between fiscal deficit and GDP per capita for the full sample is negative and significant: β_1 = -1.2 for pooling regression and β_1 = -1.3 for regression with fixed effects. It means that in 2000-2019 one percentage point increase in the fiscal deficit leads to a 1.2 percentage point decrease in GDP per capita in European Countries according to pooling regression and to 1.3 percentage point decrease in GDP per capita according to regression with fixed effects. The impact of fiscal deficit in pooling regression and regression with fixed effects is quite significant (0.1), and it shows that the influence of fiscal deficit depends on policy of particular country.

Fiscal deficit influence is also negative for developed countries β_1 = -1.4 for pooling regression and β_1 = -1.5 for regression with fixed effects. The difference in effects shown by pooling regression and regression with fixed effects is significant, it means that governments of developed countries actively use fiscal deficit as a regulatory instrument.

The negative effect of fiscal deficit is compensated by positive effect of net export and gross capital formation. The net export and gross capital formation have a positive and significant

correlation with GDP per capita (β_2 = 0.1, β_3 = 0.9) for the full sample. It is also positive for developed countries (β_2 = 0.2, β_3 = 1). The effect of next export does not change in pooling regression and regression with fixed effects, but β for gross capital formation in pooling regression differ significantly from regression with fixed effects. The value and the significance are higher for the model with fixed effects. We can conclude, that developed European can use fiscal deficit as a regulatory instrument until its negative effect is balanced by net export and gross capital formation. It means, that until country has positive net export the negative impact of fiscal deficit on GDP in short run is limited. We did not find multicollinearity between gross capital formation and fiscal deficit, it means that there is no direct correlation between fiscal deficit and gross capital formation, but these two indicators should be studied further. It could be the case for developed countries that debt funding obtained to cover fiscal deficit is used as active investment, therefore, increase gross capital formation.

As can be seeing from the Table 1, fiscal deficit does not have any effect on GDP per capita in developing countries. For developing countries net export has almost no effect on GDP per capita, and gross capital formation has positive per capita at low significance level. This situation requires further investigation because each developing country included in sample has fiscal deficit. The absence of any effect during the studied period does not exclude cumulative effect for the long run. Absence of net export effect can be caused by on-going trade balance deficit in the developing countries. The fact that ross capital formation does not have any effect on GDP per capita requires further studies which shall consider institutional conditions of developing countries.

To summarize, the hypothesis 1 is confirmed for developed countries and rejected for the developing countries.

5. Conclusion

We investigated the relationship between budget deficits and economic growth to determine whether it is possible to stimulate economic growth by reducing the gap between government revenues and expenditures. The results support the Ricardian equivalence paradigm as well as the idea that fiscal deficits have a negative impact on economic growth. The overall results obtained from the analysis of the first model indicate a negative impact of fiscal deficits on economic growth and development processes in the long run. The same hypothesis is supported by the results of the second model for developed countries. It can be concluded that the method of fiscal deficit reduction can be a tool for accelerating economic growth only in developed countries. For developing countries, this method should not be used because deficits have no significant impact on GDP per capita. For developing countries, other methods, and techniques to stimulate economic growth and development in the long term are recommended. As the study shows, part of the potential for economic growth lies in the stimulation of gross capital formation.

The article has several limitations. First, the sample size is limited. We plan to increase it for the next stage of research. Second, the number of control variables is small, due to the current sample size. For the next stage of the study, the number of variables will be increased. The results of the study also point to the need to include institutional factors describing government effectiveness in the list of control variables. This would reveal the relationship between the

impact of fiscal deficit and GDP per capita growth, taking into account the institutional characteristics of individual countries.

References (TNR 14pt., bold)

Ang, Andrew, and Francis A. Longsta (2013), Systemic sovereign credit risk: Lessons from the U.S. and Europe, *Journal of Monetary Economics* 60, 493{510.

Arjomanda M., K. Emamib, F. Salimi (2016) Growth and Productivity; The Role of Budget Deficit in the MENA Selected Countries. *Procedia Economics and Finance*, Volume 36, 2016, Pages 345-352

Augustin, P., Sokolovski, V., Subrahmanyam, M. G. and Tomio, D. (2021). In Sickness and in Debt: The COVID-19 Impact on Sovereign Credit Risk. *Journal of Financial Economics*, https://www.sciencedirect.com/science/article/abs/pii/S0304405X21001914.

Awe, A. K. Funlayo (2014) The Short and Long-Run Implications of Budget Deficit on Economic Growth in Nigeria (1980-2011), *Canadian Social Science*, Vol. 10, No. 5, 2014, pp. 201-205.

Bernheim, B.D. (1989), 'A Neo-classical Perspective on Budget Deficit', *Journal of Perspectives*, Vol. 3 No. 2, pp. 55 – 72.

Brender, A., Drazen, A., 2005. Political budget cycles in New versus Established Democracies. *Journal of Monetary Economics*, 52 (7), 1271–1295.

Christopher S. Adam, D. L. (2004). Fiscal deficits and growth in developing countries. *Journal of Public Economics* 89 (2005) 571– 597

Cinar, Mehmet, ˙Ilhan Ero ˘glu, and Baki Demirel. (2014). Examining the Role of Budget Deficit Policies in Economic Growth from a Keynesian Perspective. *International Journal of Economics and Finance*

De Long B. and Summers, L. (1991), Equipment investment and economic growth, *Quarterly Journal of Economics*, vol. 106, no 2, May, pp. 445-502.

De Long B. and Summers, L. (1993), How strongly do developing economies benefit from equipment investment? *Journal of Monetary Economics*, vol. 32, pp. 395-415.

Dritsakis N., Stamatiou P. (2016) Budget Deficit, Economic Growth and FDI in the Baltics: A Cross-Section Dependence Panel Approach, *International Journal of Humanities and Social Science* 4(12):65-76

Eminer F. (2015) The impact of budget deficit on economic growth in North Cyprus. *The 2015 WEI International Academic Conference Proceedings.*

Keynes, John Maynard. (1936). *The general theory of interest, employment, and money*. Palgrave Macmillan.

A. L. Mohamed Aslam (2016) Budget Deficit and Economic Growth in Sri Lanka: An Econometric Dynamic Analysis, *World Scientific News*, vol. 46, pp. 176-188.

Mohanty, R.K., (2018). Fiscal Deficit and Economic Growth Linkages in India: Impact of FRBM Act. In Challenges and Issues in Indian Fiscal Federalism. pp. 89– 105. *India Studies in Business and Economics*. Singapore: Springer, 2018.

Nayab, Humera. (2015). The Relationship between Budget Deficit and Economic Growth of Pakistan. *Journal of Economics and Sustainable Development* 6: 85–90.

Nazari, M., E. Asadi, M. Imanian (2019) Uncertainty, budget deficit and economic growth in OPEC member countries, *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, DOI: 10.1080/15567036.2019.1668510.

Osoro S. (2016). Effects of budget deficit on economic growth in Kenya. *Unpublished thesis*. University of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/153998/Kanchori_The%20effect%20of%20budget%20deficit%20on%20economic%20growth%20in%20Kenya.pdf?sequence=1&isAllowed=y

Pavelescu F.-M. (2008). Gross Capital Formation and Economic Growth During Early 2000'S in Eu-Member and Candidates States, *Romanian Journal of Economics,* Institute of National Economy, vol. 26(1(35)), pages 166-179.

Schmidt-Hebbel, K., Serven, L. & Solimano, A. (1994) Saving, Investment and Growth in Developing Countries: An Overview. Policy Research Working Paper, (No.1382), pp.1-48. *Economic Growth and Long-Term Development conference*, held in El Escorial, Spain, July 11-13,1994

Tan, E.C., (2006). Fiscal Deficits, Inflation and Economic Growth in a Successful Open Developing Economy. *Review of Applied Economics* 2, no. 1 (2006): 129–39.

United Nations geoscheme - Retrieved from https://unstats.un.org/unsd/methodology/m49/

Vien Bui Van, Tatchalerm Sudhipongpracha (2015) Exploring Government Budget Deficit and Economic Growth: Evidence from Vietnam's Economic Miracle, Asian Affairs: *An American Review*, 42:3, 127-148, DOI: 10.1080/00927678.2015.1048629.