



# Impact of Fiscal Policy on Economic Growth in the Euro Area

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## ABSTRACT

The main objective of this paper is to study the influence of fiscal policy on economic growth in euro area countries during the period of 2002- 2013. The implementation of fiscal policies by governments of different Member States needs to provide an impact on economic growth in the short- and long-run. Complex interactions between general government revenues and expenditures and economic growth are investigated by the means of regression analysis. The conclusion is that general government revenues based on non-distortionary taxes are more efficient in terms of supporting economic growth. The efficiency of government revenue policy and particularly the structure of taxes play a very important role in achieving economic development and fiscal consolidation.

**KEYWORDS:** Fiscal policy, budget deficit, government debt, economic growth.

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## 1. Introduction

The primary focus of public finances is the use of government expenditures and revenues to stimulate the economy. Fiscal policies have an impact on economic growth, inflation, income distribution, macro-economic stability. Thus,

they tend to be at the center of political and economic debates. Governments must use fiscal policy to decrease poverty and to promote economic growth and development. The need for fiscal discipline is even stronger in a monetary union, such as the euro area, which is constituted by sovereign states, which retain responsibility for their own fiscal policies.

Governments indirectly and directly control the way in which resources are used in the economy. Policy makers can change the types and level of taxes, the amount and structure of spending and the level of borrowing and general government debt (De Grauwe, 2013). In the short term, the economy's output can deviate from its potential level in response to changes in demand for goods and services by consumers and businesses, for example, by changes in taxation and spending. Thus, governments may focus on macro-economic stabilization. In the longer term, euro area countries need to take into account economic efficiency implications when identifying structural fiscal adjustment reforms to raise and encourage rapid sustainable and broad-based economic growth.

The paper is structured in four sections. Section 2 presents the dynamics of main fiscal policy indicators in the EA-17\* countries during the period of 2002-2013. Section 3 provides an empirical analysis focused on the effects of public expenditure and revenue on economic growth in the euro area. Moreover, this paper applies the ordinary least squares (OLS) regression method to a year panel data. Section 4 concludes the paper.

## **2. Dynamics of main fiscal policy indicators in the EA-17 countries (2002–2013)**

In the euro area, fiscal policies (in the form of expenditure and tax policy) have an impact on other relevant economic variables. In this regard, the rules of entry (Maastricht criteria) have become permanent fiscal rules. Adoption of the euro as the single European currency was accompanied by Stability and Growth Pact (SGP) of the EU and is a framework for fiscal policies of the EU Member States. Since the introduction of the single currency in the EU, the SGP has sought to avoid excessive public deficits of individual Member States. This is considered necessary, because if the budgetary policy of a Member State

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\* Euro area countries amounted to 11 in 1999, 12 in 2001, 13 in 2007, 15 in 2008, 16 in 2010, 17 in 2011 and 18 in 2014.

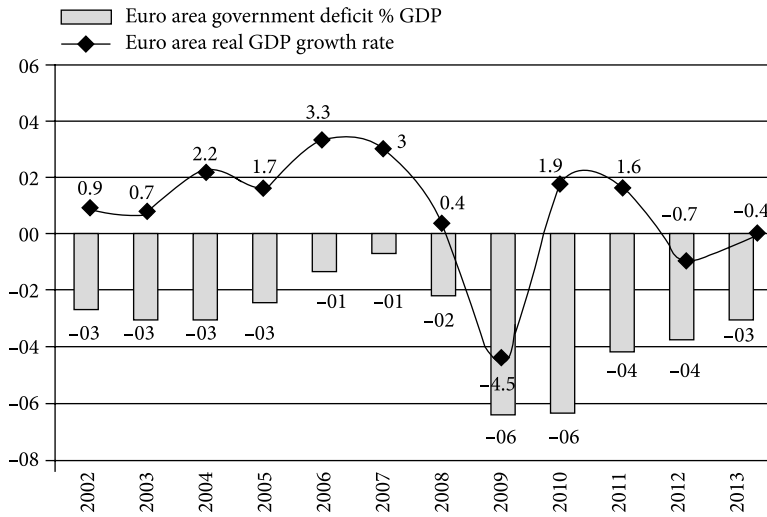
of the European Economic and Monetary Union (EMU) is too casual, this may adversely affect other Member States and thus be detrimental to the general confidence in economic stability of the euro area. The Broad Economic Policy is written for the 18 current members of the euro area. These guidelines are intended to represent policy coordination among euro area countries so as to take into account the linked structures of their economies.

The members of the euro area must comply with the Stability and Growth Pact, which sets agreed limits on deficits and debt. The Pact originally set a limit of 3% of GDP deficit for each year. Reforms were undertaken to provide more flexibility and ensure that the deficit criterion took into account the economic situation of the Member States as well as additional factors.

The balance sheet of the government has unbalanced maturity structure (De Grauwe 2013). Government obligations consist mainly of bonds, which are highly liquid and can be sold almost instantly. Assets consist of infrastructure and, more importantly, tax claims. The latter, however, are illiquid, i.e. the government has to go through the democratic process of decision-making to increase tax revenues; the process can take a long time. The second stabilization feature of the dynamics of booms and busts was introduced gradually through the state budget. These stabilizing functions are essential to stabilization of the otherwise unstable system for the following reason. This was first recognized by Keynes (1936) and by Fisher (1933).

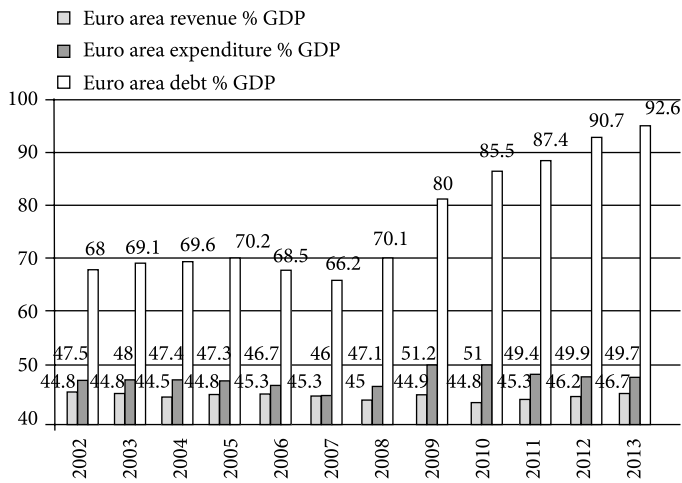
The global financial crisis resulted in a very strong deterioration in government deficit and debt ratios in euro area countries. Over the period of 2010–2013, consolidation efforts succeeded in reversing the trend of rising budget deficits in most countries. As a consequence, the euro area budget deficit has been gradually declining from its peak of 6.4% of GDP in 2009 and is expected to reach 3.1% of GDP this year. In comparative terms, in 2013 the deficit was highest in Slovenia (-14.7% of GDP). The lowest levels in 2013 were reported by Estonia (-0.2% of GDP), Germany and Luxemburg (0.1% of GDP). In the euro area, the government deficit-to-GDP ratio decreased from 3.7% in 2012 to 3.0% in 2013. In respect of the euro area countries discussed in the study, an increase in the deficit-to-GDP ratio raises general debt. The weakening of fiscal variables has a more negative impact in countries with higher initial deficit and debt ratios. In Graph 1, we show government deficit-to-GDP ratios before and after the crisis in the euro area countries.

According to the European Commission's economic forecast, in 2014 the euro area budget deficit is projected to fall below the reference value (2.5% of GDP). This continued reduction in budgetary imbalances is broadly consistent



**Fig. 1.** Trends in the real GDP growth rate and government deficit (% of GDP) in the euro area (2002–2013)

Source: Eurostat



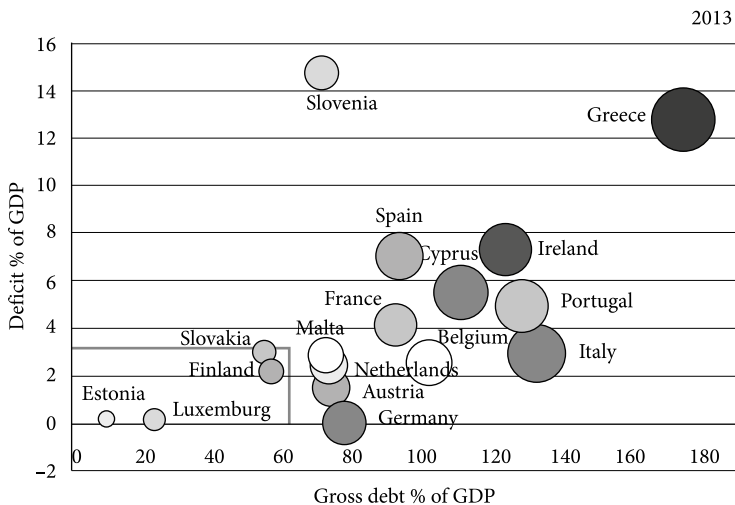
**Fig. 2.** Trends in government expenditures, revenues and debt (% of GDP) in the euro area (2002–2013)

Source: Eurostat

with 2014 draft budgetary plans. However, when compared with budgetary plans for 2014, as outlined in the 2013 stability program, the vast majority of governments expect either broadly unchanged or worse than initially foreseen fiscal positions. At the same time, as indicated by the European Commission’s economic forecast, the structural effort in 2014 is expected to fall short of commitments under the SGP in many countries.

The diagnosis of the euro area crisis made by political leaders, especially those of Northern European countries, is that the sovereign debt crisis resulting from the profligacy of governments in general and governments in Southern Europe in particular. These policy actions, while combined with the working of automatic stabilizers, caused budget deficits and debt-to-GDP ratios across the euro area to rise to unprecedented levels well above the reference criteria laid down in the Stability and Growth Pact. In recent years, government debts in several euro area countries have reached historic highs. The countries that announced sizeable fiscal adjustment plans in 2011 did not necessarily gain a reduction in deficit and debt ratio to GDP. In Graph 2, we show general government debt-to-GDP ratios before and after the global crisis for euro area countries.

The initial reaction of European governments to the banking crisis in October 2008 is correct. These governments allowed their own debt levels increase.



**Fig. 3.** General government deficit vs. General government debt (% of GDP) in euro area countries (2013)

Source: Eurostat, author’s calculations

This is achieved by two slots. The first is governments actually take private debt (mostly bank liabilities). The second one controlled by automatic stabilizers is set in motion by the downturn recession triggered by government revenue. As a result, the ratio of government debt / GDP started growing rapidly after the outbreak of the financial crisis. The biggest ratios of government revenue-to-GDP in 2013 were reported by Finland (56%), France (52.8%) and Austria (49.7%). The highest ratio of government expenditure among the EA-17 countries was recorded in Slovenia (59.4% of GDP) and Belgium (54.7% of GDP).

Most Member States have to reduce their public debt and deficit ratios, although fiscal adjustment may reduce growth in the short run and slow down improvements in fiscal indicators. Graphic 3 takes stock of the progress made in fiscal consolidation in the euro area and further needs for consolidation. In comparative terms, in 2013 debt was the highest in Greece (175.1% of GDP), Italy (132.6 % of GDP), Portugal (129 % of GDP), Ireland (123.7 % of GDP) and Cyprus (111.7 % of GDP). The lowest levels in 2013 were reported by Estonia (10% of GDP), and Luxemburg (23.1% of GDP). In the course of 2013, several euro area countries further improved their fiscal positions as compared with 2012, but just four Member States, namely, Estonia, Luxemburg, Slovakia and Finland, fulfill the Maastricht requirement that the debt-to-GDP ratio has to amount to 60% of GDP and the deficit-to-GDP ratio has to account for 3% of GDP. Latvia officially adopted the euro currency on 1 January 2014 thus becoming the 18<sup>th</sup> euro area country and was not included in the panel.

### **3. Effects of public expenditure and revenue on economic growth in the euro area: an empirical analysis**

This empirical research pursues the aim of studying the basic efficiency of government expenditure and revenue in relation to economic growth. The empirical estimation assesses in a more consistent way why fiscal indicators differ across 17 economies\* of euro area countries by looking at a set of macro-economic fundamentals based on a simple cross-sectional Ordinary Least-Squares Regression (Baltagi, 2009). Empirical evidence of the relationship between growth and government expenditure and revenue is also found in

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\* The country sample includes Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia and Spain. Latvia officially adopted the euro currency on 1 January 2014, becoming the 18<sup>th</sup> euro area country and was not included in the panel.

Roubini and Sachs (1989), Edin and Ohlsson (1991), Woo (2003), and Bayar and Smeets (2009). We will adopt Barro's endogenous model as an appropriate analytical framework to investigate the impact of public expenditure and revenue on economic growth in euro area countries. A regression empirical analysis is preferred, because it allows to include a larger number of countries, which adds greater variation to the dataset (Cottarelli and Jaramillo (2012)). Macro-economic and fiscal variables used in regressions have been drawn from the Eurostat government finance statistics database.

### 3.1. Methodology and model specification

Regressions include as follows:

- Dependent variable is the annual growth rate of GDP per capita.
- Independent variables are different types of public revenue and public expenditure, presented as a ratio to GDP.

The equation that expresses this relationship is as follows:

$$y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \varepsilon_{it}, \quad (1)$$

where

$y_{it}$  stands for the annual growth rate of GDP for each country and year

$\beta_1$  measures the partial effect of  $X_{it}$  on  $Y_{it}$  with  $Z_{it}$  held constant.

$\beta_2$  measures the partial effect of  $Z_{it}$  on  $Y_{it}$  with  $X_{it}$  held constant.

$X_{it}$  stands for total budget expenditure for each country and year

$Z_{it}$  stands for total budget revenue for each country and year

$\beta_0$  is a scalar

$i$  denotes countries  $i = 1, \dots, N$

$t$  denotes time  $t = 1, \dots, T$

$\varepsilon_{it}$  is a random error term.

The estimation procedure for the regression model's parameters employs the ordinary least squares (OLS) method.

$$\text{GDP} = C(1) + C(2)*\text{EXP} + C(3)*\text{REV} + u_{it}. \quad (2)$$

This panel data consists of 17 euro area countries and covers a 12-year period from 2002 until 2013.

Long-term fiscal variables are two explanatory variables – General Government Revenue /REV/ and General Government Expenditure /EXP/ during 2002–2013 as a ratio to GDP;

The macro-economic variable is the Real GDP growth rate.

With the help of E-Views software, GDP has been regressed on the components of government Expenditure and Revenue and the results presented below have been obtained.

**Table 1.** Regression results

Dependent Variable: GDP				
Method: Panel Least Squares				
Sample: 2002 2013				
Cross-sections included: 17				
Total panel (balanced) observations: 216				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.21886	1.733187	7.626911	0.0000
EXP	-0.518981	0.054448	-9.531621	0.0000
REV	0.284760	0.059178	4.811950	0.0000
R-squared	0.330974	Mean dependent var		1.625926
Adjusted R-squared	0.324692	S.D. dependent var		3.853681
S.E. of regression	3.166844	Akaike info criterion		5.157140
Sum squared resid	2136.156	Schwarz criterion		5.204019
Log likelihood	-553.9711	F-statistic		52.68666
Durbin-Watson stat	1.429651	Prob(F-statistic)		0.000000

Source: Eurostat, author's calculations

### 3.2. Estimation results and data analysis

The results of the linear regression including all the variables are shown in Table 2. Column 1 represents a general specification in which all variables are included. The next columns illustrate the specification search with insignificant variables dropped one by one. Column 5, the preferred specification, provides a relatively good fit with an adjusted R-squared.

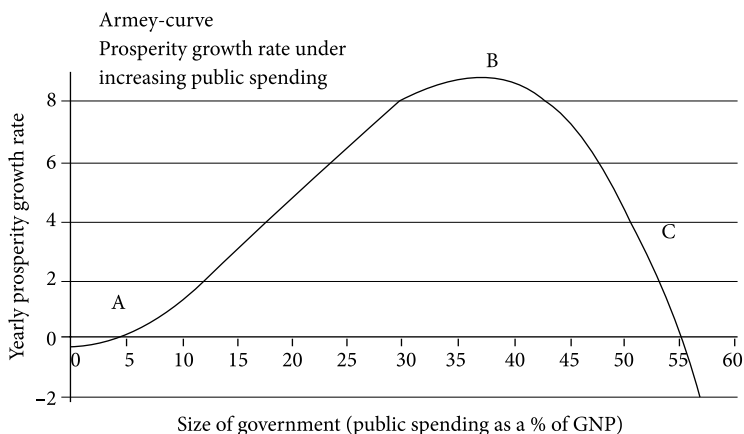
The results show the statistical significance of the variable EXP with the value of -0.518981. The negative value of EXP reduces the regression constant C, which results in a decrease of GDP and neutralization of the influence of the other explanatory variable used in the regression equation. We can observe that the explanatory variable EXP is statistically insignificant, as t-statistic has a value of less than 2. The t-statistics with their probabilities associated with coefficients indicate that an increase in general government expenditure has negative (-9.531621) effects on



economic growth and that an increase in government revenue has a positive and statistically significant (4.811950) effect on economic growth.

The joint effect of these components of government expenditure and revenue on economic growth is statistically significant as indicated by the computed F-Statistic equal to 52.68666 and its probability. The result shows that while the sign of the coefficients EXP is not consistent with expectations about the relationship between growth of GDP and growth of general government expenditure in the countries of the euro area, the sign of the general government revenue coefficient REV is consistent. An increase in government revenue has a direct relationship with economic growth and thus exerts a positive effect on it. Therefore, the study assumes that there is a relationship between government revenue and economic growth and that the former exerts a significant effect on the latter. The existence of a positive correlation is confirmed. Government revenue (taxes and non-taxes) has a positive impact on economic growth due to an increase in the efficiency of general taxation and state revenue collection. The regression coefficient of government revenue REV has a plus sign and means a positive effect of revenue on long-term economic growth.

The regression coefficient EXP shows the effect of public expenditure on the Real GDP growth rate. It has a minus sign and statistical significance (Stoilova and Patonov (2013)). The minus sign shows that this is concave parabola with maximum turning point.



**Fig. 4.** Correlation between the rate of long-term growth and the share of government spending in GDP

Source: Vreymans, P, Verhulst, E. Growth differentials in Europe: An Investigation into the Causes. Growth stimulating policies, 2005, p. 5 ([www.workforal.org/WFA\\_study\\_English.pdf](http://www.workforal.org/WFA_study_English.pdf))

An increase in government spending will stimulate economic growth to a certain point and after that every subsequent increase in government spending will reduce growth. Consequently, this result is a reliable empirical evidence of the negative repercussions of general government expenditure on economic growth and indicates that the efficiency of public expenditure in the euro area is not good enough. This fact points to statistical significance and supports the above-mentioned conclusions.

The coefficients are broadly in line with what has been found by other econometric research, such as work by Edwards (1984), Baldacci and Kumar (2010), etc. The results illustrate that fiscal variables are especially important for euro area countries focusing primarily on short-term developments. This suggests that spending reforms or measures that would have a long-term impact are not necessarily being rewarded in the short run. This result underscores the necessity of more debates for a flexible country-by-country approach.

## **Conclusions**

This study has examined the effect of government expenditure and revenue on economic growth in euro area countries during the period of 2002-2013. The data analysis has revealed that there is a relationship between government expenditure and economic growth. This supports the Keynesian (1936) view of active government intervention in the economy using various policy instruments. We have outlined a clear case for a more flexible country-by-country interpretation of the SGP depending on public debt, which is more important for long-run fiscal sustainability and price stability than annual public debt and deficit in the individual Member States.

To sum up, both theoretical and empirical studies show that growth can be supported when public expenditure is focused on investments in human capital through education and health programs, technical progress and public infrastructure. The countries are different, which limits necessary flexibility to conduct country, inflation and growth-specific fiscal policies. This was problematic already in the EA given that the new Member States' economic variables, such as real GDP growth, inflation and public debt differ significantly from those of the old members due to their transition process and catching-up endeavors. This would be a further step towards a more flexible country-by-country interpretation. Even as the worse effects of the crisis subside, fiscal challenges persist especially in the euro area, and this approach remains as relevant as ever.

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