Government Expenditure and Economic Growth in Euro Area Countries

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Abstract

In this article, the author examines the impact of government expenditure on economic growth. A review of empirical studies shows that researchers have found a negative link between government spending and economic growth in most cases. This paper is based on yearly data between 1995 and 2020 in euro area countries, with the application of linear regression on panel data. The main purpose is to determine whether government spending affects economic growth and, if so, how. Based on the econometrics model applied, the author established that in panel data, government expenditure has a negative impact on economic growth, more precisely, if government spending as a share of GDP increases by 1%, economic growth decreases by 0.509%. In addition, there is a significant negative relationship between government expenditure and economic growth for each country as well as the entire panel.

Introduction

With the development of humankind, the understanding of economic processes changed and different economic thoughts were formed, thus the views of economists on the role of the state in economic development were also modified. While classic and neoclassic economists were more inclined to the state not interfering in the economy and the fact that it is the free market that takes care of the allocation of resources, Keynesians and neo-Keynesians advocated an active role of the state, i.e. the state actively participates in the market and enters into the role of a demander when there is insufficient demand from the private sector.

Nowadays, however, it is common knowledge that the market is full of anomalies, and fiscal interventions are necessary because market failures occur in even the most efficient markets. There are several different types of market failures, such as the existence of public goods, externalities and monopolies, which are one of the forms of imperfect competition in the market (Pindyck & Rubinfeld, 2013).

By shaping economic development while regulating economic growth, governments are helping to prevent economic crises or at least mitigate their effects. One of the frequent aims of economic policy measures is to reduce income inequality among members of society by redistributing income and providing goods and services of wider public interest. It is important that economic policy has a stabilising effect. However, government spending always raises questions about its effectiveness. It is often the case that government expenditure ends up in investments that prove to be unproductive, which is also emphasised by critics of fiscal interventionism, such as Milton Friedman (Brue & Grant, 2013).

The main purpose of this paper is to use a selected model to assess the impact of government spending on economic growth in euro area countries (Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Germany, the Netherlands, Portugal, the Slovak Republic, Slovenia, Spain). The author decided to conduct the research on euro area countries because they have the same currency and monetary policy within the European Central Bank.

There are always conflicting opinions when talking about the role of governments in economic development. Classical economists believe that a free and competitive market would ensure efficient production, trade and distribution. The economy is therefore self-sufficient and strives for full employment without government interference. However, it is up to the government to provide the basis for a free market so that it can function. The government must thus ensure the protection of property rights, the physical protection of citizens and accessible education, thus ensuring public education (Brue & Grant, 2013, p. 51-53). Members of the Keynesian economic thought, however, oppose this belief, as they believe that governments should actively participate in the market. The active role of government in the economy means that governments increase their spending or reduce taxes to combat recession. Government spending would boost economic growth through multiplier effects and lower taxes would indirectly increase private consumption. On the contrary, the government should pursue a restrictive fiscal policy in times of economic prosperity, thus preventing the economy from overheating (Samuelson & Nordhaus, 2010, p. 437-449). Keynes (1957, p. 21-30) also repeatedly pointed out that changes in aggregate demand, whether anticipated or not, have a major impact on the economy in the short term. That is why fiscal interventions in the economy are necessary, at least in the short term, and the short term is long enough for fiscal interventions to have significant consequences for the economy. However, this is opposed by the new classical school of economic thought, which argues

that economic policy measures are often expected and consequently do not lead to the desired effects. There are no real effects of the government measures because consumers incorporate their expectations into their economic activity (Lucas & Sargent, 1981, p. 55-62). However, this is not always the case. The new Keynesians determined that even anticipated shocks lead to real effects, and the reason for this lies in price and wage rigidity (Stiglitz, 1984).

On the one hand, it is evident that government spending with multiplier effects can contribute to economic growth. Government spending is also necessary to address market failures such as public goods, externalities and monopolies, to redistribute income and regulate economy through counter-cyclical action. On the other hand, however, an increase in government spending can lead to negative effects, such as the crowding-out effect. This mainly occurs in expansionary fiscal policy where, through borrowing and rising interest rates, increased government spending is crowding out private investment activity. The volume of government borrowing can therefore go so far as to raise the real interest rate, which can lead to companies being deterred from capital investment. As projects financed by borrowing are too expensive after interest rates rise, companies are turning to foreign markets where capital is cheaper (Blanchard & Johnson, 2012, p. 94-96).

This study provides a clear overview of the link between government spending and economic growth for all euro area countries. The findings are also compared with studies that have already been conducted, and, on this basis, in the conclusion the author has proposed measures for decision makers.

In the first part of this article the author carried out a review of existing relevant research into the impact of government spending on economic growth. This is followed by a description of the methodology and data. The study ends with an overview of the results and conclusions.

Literature Review

Several economists have already addressed the role of government spending in economic growth. The results of selected empirical studies are summarised below, and the details of the research are summarised in Table 1.

Rubinson (1977) studied how the size of government spending affects economic growth on cross-sectional data from several countries. He concluded that higher government spending boosts economic growth, especially in less developed and poorer economies. Cameron

(1982), meanwhile, argued a positive correlation between government spending and economic growth. Based on data of 19 developed economies between 1960 and 1979, he found that increases in government spending resulted in slow economic growth, higher unemployment or higher inflation, therefore concluding that there is negative correlation between government spending and average GDP growth. However, change is small, therefore government spending needs to change drastically in order for it to be reflected in economic growth. He also notes that, contrary to conventional macroeconomic theory, high levels of spending do not cause stagflation.

Both Cameron (1982) and Landau (1983) concluded that there is a negative correlation between government spending and economic growth. Cameron's research was based on data of 100 countries between 1961 and 1976. Even though he claimed that there is a negative correlation between government spending and a growth in GDP, he emphasises that there is no significant negative correlation between the share of government expenditure in GDP and real GDP growth per capita among less developed economies. Cameron assumes that this is result of non-investment in education, which has consequently led to a slow-down in economic growth.

In his research, Marlow (1986) tested the hypothesis that increasing government spending is detrimental to economic growth. In a sample of 19 industrialised countries, he found that the increase in government spending between 1960 and 1980 was inversely related to economic growth. The findings of his research also showed that shrinking the private sector not only threatens future economic growth but also limits the future ability of the public sector to efficiently use private resources.

Grier and Tullock (1989) conducted their research on a panel which included 113 countries in the period between 1951 and 1980. They studied the empirical laws of post-war economic growth, pointing out that the value of the estimated coefficients varies between different groups of countries. In three out of the four groups of countries, they perceived a negative connection between real GDP growth and the growth rate of government expenditure.

For 98 countries in the period between 1960 and 1985, a negative connection between real per capita GDP growth and the share of government spending in GDP was also found by Barro (1991). At the same time, he noted that public investments themself have a low link to economic growth. Although countries with higher human capital have lower fertility rates, they have a higher share of physical investments in GDP. Based on Barro's economic growth model, Hsieh and Kon (1994) formed a study to determine the nature of the relationship between government expenditure and economic growth, by examining intermediate interactions between real GDP per capita growth rate, public spending and private investment in GDP. The sample covered the G7 countries. The results of the survey showed that the relationship between government spending and economic growth can change significantly over time. Another important finding is that there is no consistent evidence that government spending could increase GDP per capita. Lin (1994) also dealt with the time component of the impact of government expenditure on economic growth, albeit his study only focused on the nature of the connection over the short and medium term. His findings point to the fact that government spending has a positive effect on economic growth in the short term, while in the medium term (25 years) it has no effect on economic growth.

Sheehey (1993), unlike other authors, examined whether the nature of the link between government expenditure and economic growth is affected by the size of government expenditure. He tested the hypothesis that the impact of government spending on economic growth is fundamentally positive, however, as government spending increases, the positive impact becomes weaker or even negative. The results of his study support this claim, as he proves that the impact of government spending on GDP growth is initially positive. The results supporting this claim were significant for poor countries and those whose government expenditure represents a low share of GDP. For countries with a large share of government expenditure in GDP, as well as for rich countries, there is already a significant negative correlation, regardless of the size of government expenditure. This is because government expenditure in rich and developed countries is usually higher than in poor countries. Sheehey (1993) concluded that if government spending exceeds 15% of GDP, the link between the size of government spending and economic growth becomes negative.

Due to the increase in government expenditure in Greece as well as the decline in economic growth, the hypothesis of the connection between GDP growth and government expenditure was also tested by Basil (2000). An econometric analysis reveals that there is a negative relationship between the size of government spending and economic growth in Greece. One of the reasons for this empirical outcome seems to be inefficient and unproductive activities financed by public funds.

Since the vivid negative relationship between government expenditure and economic growth is distinctive mainly for rich countries with large public sectors, Fölster and

Henrekson (2001) conducted an econometric study on a panel of rich countries in the years between 1970 and 1995. They found a robust negative correlation between government spending and economic growth. Dar and AmirKhalkhali (2002) confirmed the thesis of a negative link between government spending and economic growth in countries with a large public sector. The survey was based on 19 PECD countries and covered the period from 1971 to 1999. The results showed that there is an advantage for small public sectors, because economic growth is relatively higher in countries that have fewer fiscal policy interventions, which cause market distortions. However, this does not mean that optimal fiscal policy minimises the size of the public sector. The authors merely note that a small public sector can be just as effective as a large public sector in providing legislative, administrative and management infrastructure. In principle, resource allocation is also more efficient in these countries and the effect of crowding out is also smaller.

Colombier (2009), in contrast to most of the aforementioned researchers, reports a weak positive link between the size of government spending and economic growth. He claims that economic data are often poor quality, consequently the least squares method often used in research is biased and inefficient.

The author of this study also cites the study by Alfonso and Tovar (2011), who conducted an empirical analysis on a sample of 108 countries in the period from 1970 to 2008. The results showed a negative impact of the size of government spending on economic growth. They also showed that the negative impact is greater in countries where fiscal policy is less effective, and that the quality of fiscal policy increases with the reduction of the public sector.

Aleksandrovich and Upadhyaya (2015) examined the impact of the size of government expenditure on economic growth in the United States, Canada and the United Kingdom in the period from 1975 to 2012. For Canada and the United Kingdom, they noted a negative impact of government spending on economic growth, most likely due to the crowding out of private sector investment. A negative impact of government spending on economic growth was also found by Pascual Sáez on panel data of EU countries in the period from 1990 to 2013. However, the negative impact is not significant in each of the individual countries. The authors emphasised that the relationship between economic growth and government expenditure can be positive or negative, depending on the countries included in the sample, the period of estimation and the variables that reflect the size of the public sector.

After reviewing selected studies, the author of this study determined that most of the authors found that there is a connection between government expenditure and economic growth. Among the studies, there are fewer that identified a positive impact of government spending on economic growth. Common to the studies, however, is that they found that a positive link between government spending and economic growth is mainly present in poorer and less developed countries, and that the positive impact can go from positive to negative when government spending exceeds a certain limit. More studies conclude that, in principle, a smaller public sector means a better fiscal policy. In most of the studies reviewed, however, the authors find a negative link between government expenditure as a share of GDP and economic growth. Of course, this does not mean that countries should not spend to stimulate the economy.

Table 1

Literature review

Authors	Data	Conclusions
Rubinson (1977)	Cross-section data (several samples from 7 to 91 countries)	A larger government size stimulates economic growth by reducing dependence, especially in poorer, less developed countries.
Cameron (1982)	Cross-section (19 countries)	Increases in government spending result in lower economic growth, higher unemployment, increases in deficits and inflation.
Landau (1983)	Panel data (over 100 countries)	A negative relationship between the growth rate of real per capita GDP and the share of government expenditure in GDP.
Marlow (1986)	Panel data (48 countries)	A negative relationship between the growth rate of real per capita GDP and the share of government expenditure in GDP.
Grier and Tullock (1989)	Panel data (113 countries)	A negative relationship between the GDP growth rate and that of the government share of expenditure in GDP.
Barro (1991)	Panel data (98 countries)	A negative relationship between GDP growth and the share of government expenditure in GDP.
Sheehey (1993)	Cross-section data (20 OECD countries)	The relationship between government expenditure and economic growth differ according to the size of government expenditure.

Table 1
Literature review (cont.)

Hsies and Kon (1994)	G7 countries	The relationship between government expenditure and economic growth varies over time and between countries.
Lin (1994)	Panel data (several countries)	Government spending has a positive impact on economic growth in the short term, but not in the medium term.
Basil (2000)	Time series for Greece	A negative relationship between the size of government expenditure and economic growth.
Fölster & Henrekson (2001)	Panel data (29 countries)	Government expenditure has a negative impact on economic growth.
Dar & AmirKhalkhali (2002)	Panel data (19 OECD countries)	Government spending has a negative impact on economic growth.
Colombier (2009)	Panel data (21 OECD countries)	A stable but weak positive link between government spending and economic growth.
Afonso & Tovar (2011)	Panel data (108 countries)	Government spending has a negative impact on economic growth.
Aleksandrovich & Upadhyaya (2015)	Panel data for the USA, the United Kingdom and Canada	Government spending has a negative impact on economic growth.
Pascual Sáez & others (2017)	Panel data (EU countries)	A negative relationship between the share of government expenditure in GDP and the rate of GDP growth per capita.

Source: Author's elaboration

However, there are situations where government spending, together with its multiplier effects, can have a significant impact on the economic situation.

Methodology and Data

Methodology

The starting point of this empirical work is based on a study by Pascual Sáez et al. (2017), in which the authors examined the relationship between the size of government expenditure and economic growth. The study geographically covered selected European Union countries in the year 2012, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. The survey covers the period from 1994 to 2012. The relationship between government expenditure and economic growth was first estimated using linear regression for each of the countries, then data by country and time period were combined into a panel and regression analysis was performed on the panel data. The problem identified by the researchers is that the composition of government expenditure varies from country to country.

Based on the theoretical framework developed by Ram (1986), Pascual Sáez and others (2017) assumed that the economy consists of two sectors, namely private and public (government), so the production function consists of labour and capital of private public sector. The study mainly focused

on the direction of the impact of government expenditure on economic growth, whether government expenditure increases economic growth (the link is positive) or whether the link is negative. They considered the variable GDP per capita to be economic growth and used the share of government expenditure in GDP for government expenditure.

In the first part of the study, Pascual Sáez and others (2017) performed a linear regression for each individual country and assessed the impact of government expenditure on economic growth. They found that in most countries the link between government spending and economic growth is negative. The coefficients were only positive in the case of France, Greece, Luxembourg, Portugal and the United Kingdom, however, the coefficients of determination were also unacceptable in these countries. In the second part of the study, a regression analysis was performed on the panel data of the observed countries. The significance of the model was verified using an F-test – the Hausman test. The authors concluded that a model with fixed effects is more suitable for further evaluation. Assessing this model, they concluded that government spending is negatively linked to economic growth in European Union countries.

The model used for this study is based on the aforementioned research. By considering Ram's (1986) theoretical framework, it is assumed that the economy consists of two sectors – private (C) and the public (G). The aggregate product (Y) is thus expressed as the sum of two expenditure groups:

$$Y = C + G \qquad (1)$$

Based on equation (1), an econometric model is formed that explains economic activity through the dynamics of government expenditure in aggregate income:

$$Y_{it} = \beta_0 + \beta_1 (G/Y)_{it} + u_{it} \qquad (2)$$

$i = 1,2,\dots,19,$
$t = 1,2,\dots,25.$

where Y_{it} is the percentage change in GDP per capita, $(G/Y)_{it}$ represents the percentage change in government expenditure as a share of GDP and u_{it} is an abbreviation for the error term.

A regression analysis based on the least squares method was used to analyse the impact of government spending on economic growth. The corresponding assumptions of this method are taken into account, and by fulfilling them it is possible to use the best unbiased linear estimator as an estimator. This means that the estimators of the linear function are the dependent variables Y, the estimates of each regression coefficient are normally distributed with the mean equal to its population value and have minimal variance. For the purposes of this study a simple regression analysis was used in order to observe a dependent variable and one independent variable in the model. A 95% confidence level ($p < 0.05$) was considered in all tests.

Data

The link between economic growth and government spending was analysed on panel data. Given the nature of this data, it can be argued that the inclusion of data from different countries over the same time period considers the heterogeneity of individual basic observation units. In addition to the aforementioned heterogeneity, data variability is also crucial for panel data, which enables more efficient estimates of regression coefficients and reduces the problem of multicollinearity between variables.

As the number of observations for each entity (country) is not the same, since not all data were available, this is an unbalanced panel. Data for Malta for the period from 1995 to 1999 inclusive are missing. The number of time series in the panel (26) is higher than the number of cross-sectional data (19), therefore it can be considered a long panel.

The analysis of the impact of government expenditure on economic growth is based on data obtained from the Eurostat database. Data were obtained from a single data source for all countries, as this avoids possible differences in data processing or measurement methods (Eurostat, 2021).

For the analysis, data is required on GDP per capita and government expenditure in aggregate income. For data on GDP per capita, data on the aggregate income of an individual country and the population of the country were obtained. GDP was shown in millions of euros at constant 2010 prices. Population data referred to the population situation on 1 January each year. The author of this study calculated the data on GDP per capita, thus ensuring comparability between economies.

Data on government expenditure were obtained in millions of euros at constant 2010 prices, and for the purposes of the analysis, government expenditure was then recalculated as a share of the GDP of each country. This process was also repeated for the purpose of data comparability, i.e. by excluding the effect of the size of the economy.

The analysis was performed on countries in the euro area, therefore the following countries represent the cross-section of the panel: Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Germany, the Netherlands, Portugal, Slovak Republic Slovenia and Spain. The time series of the panel represents the period from 1995 to 2020 inclusive. The time series therefore contained 26 observations and a cross-section of 19 observations.

Results

Based on the estimated linear relationship between GDP growth rate per capita and government expenditure, for each of the euro area countries, the estimates of regression coefficients in all countries suggest a negative relationship. By considering the 95% confidence level, it was found that the critical value of t-statistics is 2.069. The absolute value of the t-statistics of each estimated regression coefficient does exceed the critical value, while the p value for each of these coefficients does not exceed 0.05, as illustrated in Table 2. The best result is found in Finland, where the value adjusted R^2 0.9029, which means that the selected model explains as much as 90.29% of the total variance of the percentage change in GDP per capita based on the percentage change in the share of government expenditure in aggregate income.

The author of this study began by testing the significance of the group effects using an F-test as well as the significance of each coefficient using a t-test (Table 3). Using panel data, the model was also tested for a fixed effect or random effect. Using the Hausman test in Table 3, it was found that the model with fixed effects is more appropriate. The results are

based on White's robust standard errors for heterogeneity of countries, wherein it was determined that the possible presence of heteroskedasticity does not affect the statistical characteristic of regression coefficients. Evaluating the model using White's robust standard errors for the time series characteristic, it was found that the autocorrelation in the model has no effect on the statistical characteristic of regression coefficients. By performing the above tests,

Table 2

Estimated linear relationship between GDP growth rate per capita and government expenditure (in GDP), euro area countries (1996-2020), dependent variable: economic growth

Country	Coefficient	Std. error	t-statistic	p	Adj. R^2
Austria	-0.7669	0.0821	-9.3385	0.0000	0.7822
Belgium	-0.8838	0.0939	-9.4130	0.0000	0.7849
Cyprus	-0.2935	0.1075	-2.7296	0.0119	0.2118
Estonia	-0.9166	0.0856	-10.7037	0.0000	0.8255
Finland	-0.9352	0.0625	-14.9738	0.0000	0.9029
France	-1.0471	0.0983	-10.6502	0.0000	0.8241
Greece	-0.6622	0.1917	-3.4549	0.0022	0.3130
Ireland	-1.0372	0.1592	-6.5166	0.0000	0.6334
Italy	-0.7457	0.1108	-6.7327	0.0000	0.6488
Latvia	-0.8870	0.2120	-4.1831	0.0004	0.4074
Lithuania	-1.0690	0.1096	-9.7549	0.0000	0.7969
Luxembourg	-0.7149	0.1006	-7.1074	0.0000	06735
Malta	-0.4143	0.0833	-4.9717	0.0001	0.5552
Germany	-0.7540	0.0623	-12.1213	0.0000	0.8588
The Netherlands	-0.5178	0.1238	-4.1832	0.0004	0.4074
Portugal	-0.7226	0.1516	-4.7670	0.0001	0.4751
Slovak Republic	-0.4806	0.1312	-3.6630	0.0013	0.3410
Slovenia	-0.9439	0.1329	-7.1035	0.0000	0.6733
Spain	-0.7389	0.1005	-7.3505	0.0000	0.6884

Source: Author's elaboration

Table 3

Estimates of the determinants of economic growth in the euro area countries (1996-2020). Dependent variable: economic growth

Variable	Coefficient	Std. error	t- statistic	p
Model with fixed effect				
c	1.8893	0.0988	19.1151	0.0000
dG	-0.5090	0.0354	-14.3496	0.0000
R^2	0.7476			
Adj. R^2	0.7221			
F-statistic and Prob	29.3457 (0.0000)			
Model with random effect				
c	1.8410	0.2129	8.6490	0.0000
dG	-0.7143	0.0842	-8.4834	0.0000
R^2	0.5528			
Adj. R^2	0.5518			
F-statistic and Prob	578.42 (0.0000)			
Hausman statistic and Prob	11.9356 (0.0006)			

Source: Author's elaboration

it was determined that the fixed effect model is the most optimal. The estimated regression coefficient for the change in government expenditure is -0.509, which means that if the share of government expenditure in GDP increases by 1%, economic growth or change in GDP per capita will decrease by about 0.51%. This result confirms the assumption that the growth of the share of government expenditure in aggregate income has a negative impact on economic growth.

Conclusion

In this paper the author reviewed some of the existing studies on the relationship between economic growth and government expenditure and also carried out an analysis. It was concluded that the relationship between economic growth and government expenditure can be positive or negative, depending on the countries included in the sample, the period of estimation and the variables, which reflect the size of government spending. In this study, the author first examined this relationship for each country of euro area alone and then for the whole panel. Based on the estimated linear relationship between GDP growth rate per capita and government expenditure, a negative relationship was detected between each of the euro area countries. The impact of government spending on changes in GDP may not be particularly significant, however, if the share of government expenditure in GDP increases by 1%, economic growth or change in GDP per capita will decrease by about 0.51%. The connection also turns out to be negative in the panel of euro area countries, whereby the assumption of negative relationship between GDP growth rate per capita and government expenditure can be confirmed.

Focusing on the results of this study only, it can be assumed that government interfering in the economy has a negative effect on a country's further economic growth. Based on the results of this study, government spending is resulting in decreasing economic growth in all euro area countries. Based on the results obtained, the author of this study suggests that countries should focus on strategic use of resources, such as in employment strategy, infrastructure, education and the legal system, rather than direct intervention in the economy, thus enabling the free market to have the best possible conditions for functioning. Government investment can sometimes turn out to be unproductive or even cause a crowding-out effect, therefore it is important for governments to identify areas and activities where their interfering can contribute to economic growth.

Every now and then, however, the economy finds itself in a situation where government intervention is needed, especially in the short term. Sometimes it simply cannot be left to the market to rebalance itself, as too much damage would be done in the short term. Therefore, on the one hand, the sacrifices caused by non-government intervention are simply too great to offset the damage caused by the government's intervention, while on the other, countries must respect certain social rights of citizens. This means providing them with an income that provides them with a livelihood and social security.

It would obviously make sense for this study to be repeated in the aftermath of the COVID-19 crisis, considering the consequences of the crisis.

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Vladni izdatki in gospodarska rast v državah evro območja

Izvleček

V tem članku preučujemo vpliv vladnih izdatkov na gospodarsko rast. Pregled empirične literature kaže, da v večini primerov obstaja negativna povezava med javnimi izdatki in gospodarsko rastjo. Naša raziskava temelji na podatkih držav evro območja v obdobje med 1995 in 2020 z uporabo ekonometrične analize panelnih podatkov. Glavni namen je ugotoviti, ali vladi izdatki vplivajo na gospodarsko rast, in če da, kako. Na podlagi ocene našega ekonometričnega modela panelnih podatkov ugotavljamo, da imajo vladni izdatki izraženi v deležu BDP negativen vpliv na gospodarsko rast, natančneje, če se delež vladnih izdatkov v BDP poveča za 1 %, se bo gospodarska rast zmanjšala za 0,509 %. Negativna povezava je statistično značilna tako za celoten panel kot tudi za vsako izmed posameznih držav.

Ključne besede: vladni izdatki, gospodarska rast, evro območje, panelni podatki