

**GOVERNMENT EXPENDITURES AND ECONOMIC GROWTH: AN EMPIRICAL  
EVIDENCE FOR WESTERN BALKAN COUNTRIES**

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**Abstract:** Government expenditures are substantial component that influence economic development in market economies. However, there is an intense debate among scholars and fiscal policymakers whether growth of government expenditures boosts economic growth. Evidence regarding the impact of public expenditures on economic growth, as an attractive subject concerning studies of different scholars, demonstrate contradictory results of this nexus where according to conventional wisdom high government expenditures are source of economic instability or stagnation. On the contrary, empirical findings do not conclusively support such statement, where several studies claim positive and significant relationship between government expenditures and economic growth, while few others find a significant negative or no relationship between government expenditures and economic growth.

Controversial empirical evidence of such impact in developing countries makes us aware of its importance and therefore this paper addresses the significant relationship between public expenditures and economic growth in Western Balkans for time period 2004-2014, where indeed addresses this results as further recommendation for eventually government changes in the near future. Moreover, the paper represents a further contribution on the existing literature regarding the impact of government expenditures on economic growth, rather than solving the debate of the controversial results of this relationship.

Regarding the empirical analysis of the relationship of government expenditures and economic growth, this paper also investigates the fixed effects and individual heterogeneity across countries and years. Based on the panel regression techniques and Least Square Dummy Variable (LSDV) regression method, government expenditures positively affect the economic growth in the sample countries in various model specifications. This implies that policymakers in these countries should enhance capital government expenditures and productive economic activities in order to spur economic development.

**Keywords:** Government expenditures, Economic growth, LSDV, Western Balkan countries

## **INTRODUCTION**

There is no doubt about the predominant objective of public expenditure policy for achievement of sustained and equitable economic growth. Therefore most of the governments' public policies worldwide are aimed for promoting this sustained and equitable economic growth. Furthermore, public expenditures also play an important role in the human capital formation as well on the physical capital. Moreover, through appropriate destination of public expenditures economic growth can be boosted even in the short run.

Yet, beside the important role of the fiscal policy, the debate regarding the effects of public expenditures on economic growth has been a subject to a large body of empirical studies claiming evidence for occasionally conflicting results regarding the relationship between public expenditures and economic growth. In addition, existing literature displays conclusions regarding the effects of public expenditures at developed countries or using large samples as a mixture of developed and developing countries and there is scanty of empirical analysis of such nexus in Western Balkans. Economic growth can be enhanced through many ways such as infrastructural facilities, improvement of education and health service, encouragement of foreign local investments, while when dealing with such issues great amount of spending is faced by the government which clearly leads to high government expenditures. De facto, public expenditure size and structure determine the pattern and form of economic growth.

The relationship between public expenditure and economic growth is especially important for developing countries, most of which have experienced increasing level of public expenditure over time. (Fasanya & Egbetunde, 2013, Lindauer & Valenchik, 1992).

Considering public expenditures as substantial component of economic growth in market economies and the intense debate among scholars and policymakers, main objective of this paper reveals the impact of government expenditures on economic growth in Western Balkan countries during the time period 2004-2014, through investigating also the fixed effects and individual heterogeneity across countries and years.

Following this section, section two configures literature review analysis, followed by the methodological framework of the pursued study while the empirical results are discussed in section four from which results we have presented conclusions and recommendations in the last section.

## **LITERATURE REVIEW**

So far there exist many studies estimating the effects of public expenditure on economic growth. Moreover, empirical studies have achieved conflicting results: some support hypothesis of public expenditures associated with a decline in economic growth (Landau, 1986; Scully, 1989); others that public expenditure is associated positively with economic growth (Ram, 1986); rest of the studies found no significant relationship among these variables (Diamond, 1989). Moreover, results also claim that public expenditures have no impact on growth in developed countries, but they show positive impact in developing countries (Sattar (1993). However, studies regarding the relationship between government expenditures and economic growth have not shown robust results, claimed by small changes in model specification.

Effects of certain public expenditure components on economic growth have been subject of a numerous studies suggesting that public sector consumption does not promote economic growth (Diamond, 1989; Barro, 1991 and Easterly and Rebelo, 1993). Besides, many studies found positive correlation between economic growth and various education indicators or expenditures: primary and secondary levels of educational attainment (Barro, 1991), the share of expenditures on education in total expenditure (Otani & Villanueva, 1990). However, existing studies also suggest indirect correlation of education and economic growth, through education expenditures and private investment (Clements and Levy, 1994).

So far, existng consensus is found regarding the claiming that relatively tiny part of government expenditures, respectivly unemployment benefits, is a pure cyclical phenomenon, where changes in the level of output are important only to the affected extent of cyclical slack in economy. (Noord, 2000; Bouthevillan et. al., 2001). The relationship between public expenditures and economic growth has been analyzed through many corners, where a part of literature investigates determinants of size of government across countries, focusing on per-capita income (Peltzman, 1980; Borcharding, 1985), other part investigated the relative price of public goods and services (Baumol, 1967), also the demographic structures has been an analyzed issue (Heller and Diamond, 1990), degree of openness of economy (Rodrik, 1998).

Moreover, nexus between public expenditure and economic growth depends from the size of government which is important in the performance of economy and gives recommendation for an increase in the spending on infrastructure, social and economic activities as well as encouraging and supporting the private sector to accelerate economic growth (Abdullah, 2000). By pointing out endogenous growth models, fiscal policy is very crucial in predicting future economic growth (Atul & Khalkhali, 2002)

Positive evidence effects regarding the relationship between public expenditures and economic growth does not hold for all expenditures, but de facto can hold up to certain threshold, until when by increasing the expenditure level may cause inverse effects in the economic growth. Thus, public expenditure stimulate economic growth, but only to certain point and eventually the costs associated with public expenditure may begin to outweigh their benefits (Nizalov & Loveridge, 2005).

Many researchers have attempted to examine the effect of government expenditure on economic growth. Authors Ranjan and Sharma (2008) analyzed the impact of public development expenditure on economic growth during the period 1950-2007 by discovering a significant positive impact on economic growth as well as the existence of co-integration among these variables.

Other existing literatures disentangled public expenditures by using multivariate co-integration analysis to investigate effect of each sector on the economic growth where in the long run, public expenditures on education showed positive effect on economic growth, where as public expenditures designated on defense and health experienced negative effects on economic growth, stating the importance of the allocation of government resources for enhancing economic growth.

Moreover, causal relationship between economic growth and government expenditure for the US was enhanced by Liu et al., (2008), by using data for time period 1947-2002, where causality revealed that total public expenditure raises the US economic growth.

Analyzing nature and direction of causality in Pakistan between public expenditure and national income together with various selected components of public expenditure by applying Toda-Yamamoto causality test to Pakistan for the period of 1971 - 2006, Rehman et al., (2010) shown positive impact of such nexus.

Moreover, authors Olugbenga and Owoye (2007) have investigated the relationship between public expenditure and economic growth for a group of 30 OECD countries for the time period 1970-2005. Thus, there is an existence of a long-run relationship between government expenditure and economic growth (Olugbenga & Owoye, 2007). In addition, authors also predicted unidirectional causality from public expenditure to economic growth for 16 countries.

Furthermore, in G7 countries, public expenditure is generally co-integrated with income, where long-run income elasticity of public expenditure is above unity at all countries compared with public consumption and transfers, while in short-run elasticity differ across countries showing an average around 0.5 (Kolluri et al., 2000).

In their study, Komain and Brahmasrene (2007) examined relationship between public expenditures and economic growth in Thailand, through employment of Granger causality test, by indicating a unidirectional relationship, where causality is running from public expenditures to economic growth. Such results claim significant effect of public spending on economic growth.

As a result of the existing findings regarding the empirical relationship between government expenditures and economic growth, crystal distinguishing of such nexus varies upon models, data and countries of analysis, causing the debate of impact of government expenditures on economic growth to continue and left open for further investigation.

#### **METHODOLOGY AND DATA**

In order to examine the impact of government expenditures on economic growth of the Western Balkan countries, a general standard model is used in the following form:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + \varepsilon_{it} \quad (1)$$

Where Y represents the real output for country *i* and time *t*, X is a vector of control variables that includes, in our case, the lagged GDP per capita, government expenditures, FDI stock, and exports. Whereas  $Z_i$  is an unobserved variable that varies from one country to the next but does not change over time. We want to estimate  $\beta_1$ , the effect on Y of X holding constant the unobserved country characteristics Z. Because  $Z_i$  varies from one country to the next but is constant over time the real output regression model can be interpreted as having *n* intercepts, one for each country and  $\varepsilon_{it}$  is the stochastic term.

To estimate the above panel regression model, three alternative methods are used. First, the Pooled Least Squares (OLS) model, which fundamentally depends on minimizing the sum of squared residuals, is based on the assumption that both intercept and coefficient are constant over time and cross section, and statistical noise captures disturbances over time and cross section. Second, the Fixed Effects model (FEM), also referred to as the "Least-Squares Dummy Variable (LSDV) model", estimates the intercept as coefficient of dummy variables. This model allows intercept to vary for each cross-section and thus account for the individual effect. Third, the Random Effects model (REM), treats the intercepts as random variables rather than fixed constants. The intercepts are assumed to be independent from the error term and also mutually independent. This study also provides Hausman test to decide between Fixed Effect model and Random Effect model. The null hypothesis underlying this test is that the FEM and REM estimators do not differ substantially. If the null hypothesis is rejected, REM is not appropriate and it is may be better to use FEM, in which case statistical inferences will be conditional on the  $\varepsilon_{it}$  in the sample. Specifically, if it is assumed that  $\varepsilon_{it}$  and the  $X$ 's (explanatory variables) are uncorrelated, REM may be appropriate, whereas if  $\varepsilon_{it}$  and the  $X$ 's are correlated, FEM may be appropriate (Gujarati, 2003).

Explicitly, let  $\alpha_i = \beta_0 + \beta_2 Z_i$  then the equation (1) becomes:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \varepsilon_{it} \quad (2)$$

This equation represents the fixed effects regression model by which we estimate the fixed effects on real output, where  $\alpha_i$  (*i*=1....*n*) is the unknown intercept for each country.

While the random effects model has the form:

$$Y_{it} = X_{it}\beta + \alpha_i + u_{it} + \varepsilon_{it} \quad (3)$$

Where  $u_{it}$  is the between-entity (country) error;  $\varepsilon_{it}$  is the within-entity (country) error.

**The data**

This study is an empirical study using secondary data. The annual data from 2004 to 2014 of six Western Balkan countries namely Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, were collected from World Development Indicator (WDI) provided by the World Bank. All data are transformed into logarithmic in order to measure the relative impact and the elasticity of government expenditures on economic growth in Western Balkan countries. A descriptive statistics of the used data in the empirical analysis is provided in (Table 1) below:

Table 1. Summary statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
<b>GDPC</b>	<b>4425.385</b>	<b>2600.175</b>	<b>1743.098</b>	<b>11515.96</b>	<b>66</b>
<b>FDI</b>	<b>9.78E+08</b>	<b>1.11E+09</b>	<b>4.12E+07</b>	<b>5.81E+09</b>	<b>66</b>
<b>EXP</b>	<b>32.92835</b>	<b>8.483087</b>	<b>9.85324</b>	<b>49.37222</b>	<b>66</b>
<b>GOVEX</b>	<b>3.58E+09</b>	<b>3.56E+09</b>	<b>2.16E+08</b>	<b>1.30E+10</b>	<b>66</b>

Source: Authors' calculations

**EMPERICAL RESULTS**

In this section are presented estimates of econometric models, ie "pooled OLS," "Fixed Effects", "Random Effects". As dependent variable we take GDP per capita as a representative variable of economic growth, while as independent variables in addition to the variable of government expenditures (GOVEX), we consider GDP per capita with a time lag (lag GDPC) in order to control the convergence 'steady-state' predicted by neoclassical growth models (see Solow 1956; Mankiw et al. 1992), as well as we experiment with other control variables such as foreign direct investment stock (FDI), and exports (EXP). Summarized results are shown in Table 2 below. As a result of individual unobservable heterogeneity, linear regression method, respectively pooled OLS estimates show bias and cannot be regarded as consistent, so therefore the results of this approach should be taken with caution. Consequently, we have estimated the FEM and REM models, where through the Hausman<sup>60</sup> test we determined that the FEM model is more proper than REM for this case.

Table 2. Regression results

	<b>Pooled OLS</b>	<b>Fixed Effects</b>	<b>Random Effects</b>
<b>ln_gdpc</b>	0.0001512	0.000534	0.000146
<b>L1.</b>	(0.000110)***	(0.000154)***	(0.000125)***
<b>ln_govexp</b>	0.05855	0.192197	0.016510
	(0.01245)	(0.03259)***	(0.016758)
<b>ln_fdi</b>	0.004288	0.012750	0.03214
	(0.010426)***	(0.009556)*	(0.01103)***
<b>ln_exp</b>	0.19817	0.179600	0.2170
	(0.03155)***	(0.03824)***	(0.03616)***

<sup>60</sup> To decide between fixed or random effects we can run a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative hypothesis the fixed effects (see Green, 2008, chapter 9). It tests whether the errors ( $u_i$ ) are correlated with the regressors, the null hypothesis suggests that they are not correlated.

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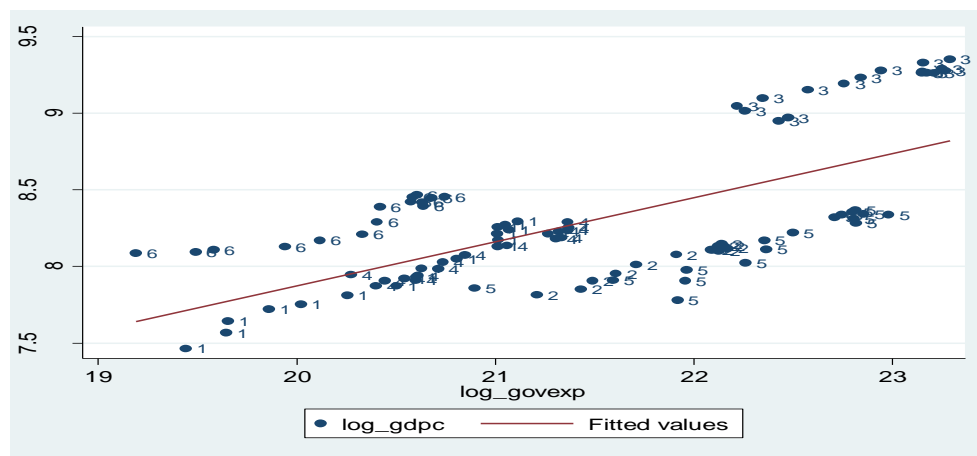
<b>Constant</b>	5.593520 (0.24794)	3.0744 (0.54905)	5.9002 (0.30155)
<b>Observations</b>	66	66	66
<b>R-squared</b>	0.972	0.833	0.971
<b>F</b>	119.23	15.58	Chi2(4)=163.8

Note: The values in parentheses represent standard errors of coefficients, and notations \*\*\*, \*\*, \* indicate statistical significance of the regression coefficients of 1%, 5%, 10%, respectively

Source: Authors' calculations

Basically, the regression results of FEM indicate that there is a positive and statistically significant relationship between economic growth and government expenditure (see also Figure 1 below). Moreover, the relationship is positive and statistically significant with the other independent variables considered in the model. The intuition behind the positive coefficient of lagged GDP per capita of countries included in the study, is that all countries are transition countries and growth rates have been relatively high mainly as a result of public property privatization and the increased investments. It can also be assumed that the 'steady state' of these countries can be considered to be at a higher level than the average. Specifically, the coefficients of lagged GDP per capita, government expenditures and the ratio of exports are statistically significant at 1% level of significance, while the FDI stock at 10% level of significance. So, under other conditions unchanged, for every 1% increase of government expenditures, GDP per capita will increase by 0.192%, and for every 1% increase of exports, GDP per capita will be increased by 0.179%. FDI is also considered as a determinant of growth of GDP, although researchers have obtained different results for different countries. In fact, in some countries there is a positive impact, while in others the link is unclear. In the case of the Western Balkan countries according to these results the relationship is positive.

Fig. 1. The relationship between Economic growth and government expenditures in WB countries



Source: Authors' calculations

## CONCLUSIONS

The main purpose of this study was to analyze empirically the impact of government expenditures on economic growth of the Western Balkan countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro). To accomplish this goal we performed regression models based on panel data (from 2004-2014), such as pooled OLS, fixed effects model and random effects model. Based on the results of Hausman test the most appropriate model for this analysis was determined the fixed effects model. Empirical results of this model show that there is a positive and statistically significant relationship between GDP per capita and government expenditures in the sample countries. For every 1% increase of government expenditures, GDP per capita will increase by 0.192% over time.

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