

## THE IMPACT OF FISCAL POLICY UPON ECONOMIC GROWTH IN THE EUROPEAN UNION

**Gheorghita DINCĂ,**

PhD. Associate Professor

Transilvania University of Brasov

29, Eroilor Bvd., Brasov, 500036, Romania

E-mail: [gheorghita.dinca@unitbv.ro](mailto:gheorghita.dinca@unitbv.ro)

**Marius Sorin DINCĂ**

PhD. Associate Professor

Transilvania University of Brasov

29, Eroilor Bvd., Brasov, 500036, Romania

E-mail: [marius.dinca@unitbv.ro](mailto:marius.dinca@unitbv.ro)

**Abstract.** *The current paper aims to analyze the correlation between fiscal policy and economic growth. Using a multiple regression we have researched the effects of the fiscal pressure, gross capital formation, exchange rate, labor productivity and economic openness upon the growth rate of the Gross Domestic Product per capita. In our study we have grouped the countries into two categories: old member countries and new member countries of the European Union, gathering the data for the 2001-2011 period. We have divided the member countries into these categories taking into consideration the existing disparities in the economic development between the European Union member countries. The results obtained have shown that the economic growth rate is positively influenced by fiscal pressure, gross capital formation in the private sector, degree of economy openness and labor productivity. The variables government expenditures, exchange rate and public debt likely exerted a negative influence upon the economic growth.*

**Keywords:** economic growth, fiscal policy, linear regression

### 1. INTRODUCTION

The current financial crisis has raised once again the issue of the fiscal sustainability of the public sector. The choice between the adoption of an austerity fiscal policy or an economic stimulating fiscal policy is rather difficult, although one can argue that the short term stimuli can be reconciled with the long term fiscal consolidation. In the current context of the EU fiscal framework the member countries are facing important challenges, such as the need for ensuring the sustainability of the public finances, in order to maintain the role and importance of the Euro currency.

Measuring the impact of the fiscal policy upon the economic development represents a theme of interest for the researchers from the economic field and other areas, since the weight of the public

debt into GDP has reached its second highest level in the last 130 years. One of the main fiscal policies' instruments is represented by the taxation policy.

Along time several types of econometric models concerning economic growth have emerged, of which we mention:

- The endogenous growth models. These models assume that fiscal policy is an important factor for economic growth; however they tend to transform the temporary effects of the growth owed to fiscal policy into permanent ones. The models have good principles; however they do not include a series of exogenous factors that strongly influence the economy of any given country, given the strong interdependencies between national economies.
- Neoclassical models. These are more suited to analyze the effects of fiscal policies upon economic growth, since they are more realistic compared to the endogenous models. These models were used to study the impact of taxation, the fiscal policies and the dynamics of their effects; nevertheless they also considered exogenous factors which affect economic growth (especially the dynamics of population and technological advance). In this context the fiscal policy is considered a factor which has a strong influence upon the economic growth only during the transition period toward a state of equilibrium. As the recession period is automatically followed by efforts to restore the equilibrium, the neoclassical models are more suited for analyzing the effects of the fiscal policies upon economic growth.

A representative research for the neoclassical models is the empirical study of Barro (Barro, 1996), regarding the determinants of the economic growth. [3]. Even if the Barro's economic growth model it is not directly connected with the study of the effects of fiscal policies, it offers several important perspectives upon the variables to be used inside the model. Also, he is among the explorers of the convergence features, mentioning that less developed countries have a much higher potential for growth compared to the developed countries. This is supported by a series of factors, such as economic freedom, life expectancy, education, technological progress, which when improved can lead to economic growth. In a country where these factors are already at a high level they cannot contribute to such a fast development as in a country where they are underdeveloped and actions are taken for their enhancement. In his work, Barro considers that governmental policies add precision to the econometric model of economic growth, but they do not have a significant impact upon the model.

The rest of the paper is structured as follows: the second section addresses the literature review, while the third section is dedicated to the presentation of the methodology, analysis of the data and of the results obtained. The fourth section presents the conclusions of the study, where the fifth and final section is concerned with relevant references to our study. The importance of the investments for the sustainable increase in the company value is undisputed in the economic business and academic environment. In the same time, the issue of having an efficient follow-up of the investment activities is also essential for the investors and company managers.

## **2. LITERATURE REVIEW**

It is generally considered that fiscal policy is associated with economic growth and adequate fiscal measures can be taken to stimulate economic growth.

Even before the relevant endogenous growth models were elaborated there were a significant number of studies concerning the relationship between fiscal policy and economic growth. The endogenous growth models claim that an increase of the productive public expenditures, financed by non-distortionary taxes will determine a boost in economic growth, while the effect will be irrelevant should these expenditures are financed via distortionary taxes. In the same time, any increase in the non-productive public expenditures financed by non-distortionary taxes will have a neutral impact upon economic growth, whereas if these expenditures are financed via distortionary taxes, their impact upon economic growth will be negative.

In a study realized for a 100 countries sample, Landau (1983) has found a negative relation between government expenditures as a weight into GDP and economic growth. [17].

Kormendi and Meguire (1985), using data for 47 countries for the post-second world war period have reached the following conclusions: i) the monetary shocks negatively affect economic growth; ii) the rest of the explanatory variables influence both the part of the GDP allotted to investments as well as the profitability of the capital [16].

Koester and Kormendi (1988) have analyzed the impact of the average and marginal taxation rates upon the level and growth of the economic activity [15]. The authors have found that an increase of the marginal taxation rates has a negative impact upon the level of the economic activity.

Barro (1991) using data for 98 countries for the 1960-1985 period has found that the economic growth rate is negatively correlated with government consumption as a weight into GDP, while public investments do not influence economic growth. In the same time, the economic growth rate is positively correlated with political stability measures and negatively correlated with market distortions [4]. King and Rebelo (1990) in a research based on an endogenous growth model have shown that national taxation can substantially affect the long term economic growth rates [14].

Dowrick (1992) has concluded, using a sample of OECD countries for the 1960-1985 period, that there is a strongly negative effect of income taxation upon the increase in output, while there is virtually no impact of corporate taxation upon the same increase in output [9].

Engen and Skinner (1992) have realized an empirical research upon the relation between fiscal reform and economic growth rates, for the 1970-1985 period. The results have shown modest effects, of about 0.2 to 0.3pp differences in the economic growth rates, as a result of the fiscal reform [12].

A study made by Easterly and Rebello (1993), using data for 100 countries for the 1970-1988 period and panel data for 28 countries for the 1870-1988 has found the following:

i) there is a strong connection between the level of economic development and the structure of taxes; ii) the fiscal policy is influenced by the size of the economy; iii) investments in public transport and communication are positively correlated with economic growth [10].

Cashin (1995) has estimated in his study a positive relation between government transfers, public investments and economic growth and a negative relation between distortionary taxes (current

income and wealth taxes, capital tax and real social contributions) and economic growth, using panel data for 23 developed countries for the 1971-1988 period [7].

Devarajan *et al* (1996) have shown that an increase in the weight of current public expenditures has positive and statistically significant effects upon economic growth. By contrast, the public capital expenditures are negatively correlated with the evolution of GDP/capita. The study was made on a sample of 43 developing countries for the 1970-1990 period [8].

Bleaney *et al* (2001) have used panel data for 22 OECD countries for the 1970-1995 period and taking into account the government budgetary constraint have proven that taxes reduce the long term economic growth rate, whereas productive government expenditures are increasing [6].

Nijkamp and Poot (2004) have realized a meta-analysis of the fiscal policy and of economic growth and have discovered that in a sample of 93 studies and 123 meta-observations the proofs of a positive effect of the fiscal policy upon economic growth are quite feeble, still with a confirmed significance of the infrastructure and education expenditures [18].

Easterly (2005) has found a significant impact of the budgetary balance upon the economic growth which is not manifested when “extreme” observations were excluded from the analysis [11].

Angelopoulos *et al* (2008) have revised the relation between the level of taxation and economic growth in a study made for 64 developed and developing countries for four 5-years periods from the 1980-2000 interval. The results obtained have proven there is a non-monotonic relation between the level of taxation and economic growth, which depends essentially of the efficiency-size mix [1].

### 3. METHODOLOGY, DATA AND RESULTS

We have used panel data for our econometric model. The panel data identifies each value by the mean of two indexes, one for the temporal dimension and another for identifying the statistic unit. Amongst the advantages of using this type of data Baltagi (1995) mentioned the variety of the information and the increased efficiency in modeling the data. In the same time, a major advantage is given by the possibility of estimating the dynamics of the change within the entities analyzed. A regression based on panel data differs from a simple regression or from a time series regression as it displays a double index upon its variables. The  $i$  index shows the cross-sectional dimension, whereas the  $t$  index represents the temporal one [2].

The main reason for grouping a time-series and a cross-sectional data series is the increase of the data base and the opportunity of obtaining more precise estimators for the parameters of the model. The use of this data also implies the occurrence of several problems, such as heteroscedasticity, autocorrelation and serial correlation. The most common methods of dealing with this kind of data consist of using the fixed or variable regression models. (Gujarati, 2011) [13].

For the fixed effects the  $\alpha_i$  error component can be correlated with the  $x_{it}$  regressors, however the hypothesis of no correlation between  $x_{it}$  and the  $\varepsilon_{it}$  random component of the error is still kept on.

For the random effects models, we assume that  $\alpha_i$  error is totally random, a stronger hypothesis, which implies its lack of correlation with the regressors (Baum, 2001) [5]. The data used for our research come from the Eurostat database for all the EU states.

### 3.1 Econometric model and results for Older Member States (OMS)

In this section we are investigating the relation between economic growth, denoted by the rate of growth of the real GDP/capita and a series of seven explanatory variables for a sample made of 15 older member states (OMS of the EU): Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxemburg, Holland, Austria, Portugal, Finland, Sweden and United Kingdom for the 2001-2011 period.

The explanatory variables used in the econometric models are: overall fiscal pressure, real effective exchange rate, public debt as a weight into GDP (the quadratic equation), government expenditures, the gross capital formation of the private sector, the degree of economic openness, and the real annual labor productivity. The inclusion of the quadratic form of the public debt as a weight into GDP was based on the fact that the linear form (public debt as weight into GDP) has not lead to significant results.

The econometric model is:

$$g_{it} = \alpha + \beta_1 FP_{it} + \beta_2 ER_{it} + \beta_3 PD_{it}^2 + \beta_4 GEX_{it} + \beta_5 GCF_{it} + \beta_6 OP_{ec_{it}} + \beta_7 LP_{it} + v_t + \varepsilon_{it} \quad (1)$$

Where:

$g_{it}$  = The growth rate of the real GDP per capita (percentage modification against the level from previous year);

$i$  = country;  $t$  = year;

$FP_{it}$  = Fiscal Pressure – the overall fiscal pressure (weight into GDP, calculated as a sum of the fiscal pressure owed to direct taxes, indirect taxes and to social contributions);

$ER_{it}$  = Exchange rate – effective real exchange rate (compared to the base year 2005=100%);

$PD_{it}^2$  = Public Debt (weight into GDP, the quadratic form);

$GEX_{it}$  = Government Expenditures - (weight into GDP);

$GCF_{it}$  = Gross Capital Formation of the private sector (reported as compared to the base year 2005 = 100%);

$OP_{ec_{it}}$  = The degree of economy openness, calculated as the sum of exports and imports (weight into GDP);

$LP_{it}$  = Labor Productivity – real labor productivity per employee (percentage modification compared to previous year);

$v_t$  = Fixed time effects;

$\varepsilon_{it}$  = The specification error.

In order to analyze the impact of fiscal policies and of other factors which influence the economic growth rate in the OMS for the 2001-2011 period we have used data from the Eurostat and AMECO databases. The regressions and the different test specific to the panel data were performed using the software program Stata.

The first test, specific to panel data, is the Hausman test, used to determine the regression method, respectively the fixed effects (FE) or the random effects (RE).

The hypotheses of this test are:

$H_0$ : the errors are not correlated with the regressors, which means that the preferred model is the random effects one, rather than the fixed effects model;

$H_1$ : the errors are correlated with the regressors, which means that the preferred model is the fixed effects, rather than the random effects one.

The results obtained from running a fixed effects regression have disclosed that the estimated standard error of  $\alpha_i$  (sigma\_u) is 2.8962023, which is much higher than the standard error of  $\varepsilon_{it}$  (sigma\_e), which is 1.002625, suggesting that the individual specific error  $\alpha_i$  is more significant than the random component of the error,  $\varepsilon_{it}$ .

After running the Hausman test we found a likelihood of 0.0007, which is inferior to the critical value of 0.05, leading us to reject the null hypothesis  $H_0$  and to accept the  $H_1$  hypothesis, using the fixed effects regression (model).

An important characteristic of the panel data is the possible presence of heteroscedasticity, which can be verified for the fixed effects model with the modified Wald test.

The hypotheses of this test are:

$H_0$ : the existence of homoscedasticity, assuming that the variance of the error is constant;

$H_1$ : the existence of heteroscedasticity, assuming that the variance of the error is not constant.

The probability obtained after performing the modified Wald test is 0.0000, which is lower than the critical value of 0.05, leading us to reject the null hypothesis of the homoscedasticity (constant variance of the error) and to accept  $H_1$ , indicating the presence of heteroscedasticity.

Another characteristic of the panel data is the possible presence of the serial correlation, which can be tested with the Lagrange-Multiplier test.

The hypotheses of this test are:

$H_0$ : there is no serial correlation, which implies there is no first order autocorrelation of the residues;

$H_1$ : there is serial correlation, which implies there is a first order autocorrelation of the residues.

After running the Lagrange-Multiplier test we have found that the probability obtained was of 0.0000, inferior to the critical value of 0.05, leading us to reject the null hypothesis and to accept the  $H_1$  hypothesis. This indicates the presence of serial correlation, which in turn leads to lower standard errors for the coefficients and to a higher determination coefficient.

We have further conducted the Pesaran CD test in order to check the cross-sectional dependence, used to test whether the residues are correlated across the entities.

The hypotheses of this test are:

$H_0$ : there is no cross-sectional dependence, which means the residues are not correlated across the entities;

$H_1$ : there is cross-sectional dependence, which means the residues are correlated across the entities.

The probability obtained after running this test is of 0.0000, inferior to the critical value of 0.05, leading us to reject the null hypothesis (indicating there is no cross-sectional dependence) in the presence of a high value of the average correlation of 0.354. These findings lead us to the conclusion there is cross-sectional dependence in the fixed effects model.

In the econometric model we have also included 14 dummy variables, corresponding to the 10 years of the analyzed period in order to control for the common shocks, as well as for the economic and monetary modifications occurred during that period.

In order to check whether is necessary the introduction of fixed time effects for this model we will perform a test checking if the dummy variables are equal to zero for all the years. In such a case there would not be necessary to account for fixed time effects.

The hypotheses of this test are:

$H_0$ : the dummy variables for all the years are simultaneously equal to zero, which means there is not necessary the introduction of fixed time effects;

$H_1$ : the dummy variables for all the years are not simultaneously equal to zero, which means there is necessary the introduction of fixed time effects.

After running this test we have found that the probability is of 0.0000, inferior to the 0.05 critical value. This leads us to reject the  $H_0$  hypothesis and to accept the  $H_1$  hypothesis, indicating the necessity of introducing fixed time effects.

Having in mind these results we will use a Driscoll and Kraay regression model with standard errors. The results obtained after running the regression are presented in table no. 1 below.

**Table no. 1 – The Driscoll and Kraay standard errors' regression**

Explanatory variables	Coefficients	Standard Driscoll and Kraay Errors	p-value
<i>FP</i>	0.3360718	(0.0780158)	0.001
<i>ER</i>	-0.0335755	(0.018685)	0.014
<i>PD</i>	-0.0003126	(0.0000459)	0.000
<i>GEx</i>	-0.1789106	(0.027437)	0.001
<i>GCF</i>	0.1837741	(0.0405424)	0.003
<i>Op_ec</i>	0.0239029	(0.0098972)	0.011
<i>LP</i>	0.5583737	(0.0504215)	0.000
Dummy variables	(2002-2011)		
_cons	-19.27217		
N	165		
R-squared	92.88%		
F( 17, 10)	569.24		
Prob > F	0.0000		

Note: The dependent variable is the economic growth rate. The table presents the estimated coefficients for each explanatory variable, with the Driscoll and Kraay standard errors presented in the brackets.

Source: Realized by the authors based on STATA results.

The total number of observations is 165, for the 15 countries included in the model.

The model becomes:

$$g_{it} = -19.27217 + 0.3360718FP_{it} - 0.0335755ER_{it} - 0.0003126PD_{it}^2 - 0.1789106GEx_{it} + 0.1837741GCF_{it} + 0.0239029Op\_ec_{it} + 0.5583737LP_{it} + v_t + \varepsilon_{it}$$

(2)

We have found the determination coefficient to be 92.88%, meaning that 92.88% of the growth rate of the real GDP per capita is explained by the seven variables included in the econometric model. Also, the p-value for the global significance test is 0.0000, lower than the 0.05 critical value, which means all the explanatory variables included in the model have a statistically significant impact

upon the economy growth rate. This global significance test checks if all the model coefficients are significantly different from zero. The  $p$ -value for each explanatory variable checks whether each coefficient is significantly different from zero and its value should be lower than 0.05.

The table no. 1 reveals that each explanatory variable of the model has a  $p$ -value inferior to the 0.05 critical value, confirming that all the seven factors have a significant impact upon the economy growth rate. From the table no. 1 we can see that overall fiscal pressure exerts a positive impact upon the economy growth rate, with a coefficient of 0.3360718. It means the economy growth rate can increase by 0.3360718pp for each 1pp additional increase in the overall fiscal pressure.

The real effective exchange rate has a negative impact upon the economy growth rate, with a coefficient of -0.0335755. It says that the economy growth rate will be reduced by 0.0335755pp for each 1% additional increase of the real effective exchange rate.

The public debt as weight into GDP (in its quadratic form) exerts a negative impact upon the economy growth rate. A 1pp additional increase of the public debt (as weight into GDP) will determine a decrease in the economy growth rate by 0.0003126pp.

The public expenditures as weight into GDP exert a negative impact upon the economy growth rate. The dependent variable reduces by 0.1789106pp at an additional 1pp increase of the public expenditures as weight into GDP.

The gross capital formation of the private sector exerts a positive impact upon the economy growth rate. The latter can increase by 0.1837741pp for each 1pp additional increase in the private sector gross capital formation.

The economy openness degree, calculated as the weight of the sum between exports and imports into GDP exerts a positive impact upon the economy growth rate. At a 1pp additional increase of the openness degree of the economy, the economy growth rate can increase by 0.0239029pp. The panel data regression allows even for inter-states comparisons.

Hence, two older member states registering the same values for all the other explanatory variables of the model, but display a degree of economy openness differing by 1pp will have different rates of economic growth. The older member state having a 1pp higher degree of economy openness will display a 0.023029pp growth rate higher than the other state. The real labor productivity per employee exerts a positive impact upon the economy growth rate. The economy growth rate will increase by 0.5583737pp for each 1pp additional increase of the real labor productivity per employee.

### 3.2 Econometric model and results for NMS

The purpose of this analysis is to investigate the relation between economic growth expressed by the rate of growth of the real GDP per capita and a series of four explanatory variables for a sample made out of 12 new member states of the EU: Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia and Slovakia, for the 2001-2011 period.

The explanatory variables used in our model are: overall fiscal pressure, real effective exchange rate, government expenditures and private sector gross capital formation.

The model is:



$$g_{it} = \alpha + \beta_1 FP_{it} + \beta_2 ER_{it} + \beta_3 GE_{it} + \beta_4 GCF_{it} + v_t + \varepsilon_{it} \quad (3)$$

Where:

$g_{it}$  = The growth rate of the real GDP per capita (percentage modification against the level from previous year);

$i$  = country;  $t$  = year;

$FP_{it}$  = Fiscal Pressure – the overall fiscal pressure (weight into GDP, calculated as a sum of the fiscal pressure owed to direct taxes, indirect taxes and to social contributions);

$ER_{it}$  = Exchange rate – effective real exchange rate (compared to the base year 2005 = 100%);

$GE_{it}$  = Government Expenditures - (weight into GDP);

$GCF_{it}$  = Gross Capital Formation of the private sector (reported as compared to the base year 2005=100%);

$v_t$  = Fixed time effects;

$\varepsilon_{it}$  = The specification error.

In order to analyze the impact of fiscal policies and of other factors which influence the economic growth rate in the new member states (NMS) for the 2001-2011 period we have used data from the Eurostat and AMECO databases. The regressions and the different test specific to the panel data were performed using the software program Stata.

The first test, specific to panel data, is the Hausman test, used to determine the regression method, respectively the fixed effects (FE) or the random effects (RE). The probability obtained after running this test is of 0.0000, which is inferior to the 0.05 critical value, leading us to reject the null hypothesis, which states that the errors are not correlated with the regressors. We thereby accept the  $H_1$  hypothesis and use the fixed effect regression (model).

An important feature of the panel data is the possible presence of heteroscedasticity, which can be verified in case of the fixed effects model with the modified Wald test. The probability obtained after running the modified Wald test is of 0.0000, which is lower to the 0.05 critical value, leading us to reject the null hypothesis of the homoscedasticity (constant variance of the error) and to accept the  $H_1$  hypothesis of heteroscedasticity.

Another feature of the panel data is the possible presence of serial correlation, which can be verified with the Lagrange-Multiplier test. The probability obtained after running this test is of 0.000, lower than the 0.05 critical value, leading us to reject the null hypothesis and to accept the  $H_1$  hypothesis, indicating the presence of serial correlation (which induces lower standard errors for the coefficients and a higher determination coefficient).

We have further conducted the Pesaran CD test to verify the cross-entities correlation of the residues, respectively the cross-sectional dependence. The probability obtained after running this test was of 0.0000, which is lower than the 0.05 critical value, leading us to reject the null hypothesis of no cross-sectional dependence. The average correlation is quite high, of 0.452, showing us there is cross-sectional dependence in the fixed effects model.

We have also included 14 dummy variables in our model, corresponding to the 10 years of the analyzed period, in order to account for the common shocks, as well as for the economic and monetary changes which have occurred during that period.

To check the necessity of introducing fixed time effects in our model we will run a test which checks whether all the dummy variables for all the years are equal to zero. If they are all equal to zero, we do not need to introduce fixed time effects. After running this test we have found that the probability was of 0.0000, lower than the 0.05 critical value, leading us to reject the  $H_0$  hypothesis and accept the  $H_1$  hypothesis, indicating the necessity of introducing fixed time effects.

Considering the results obtained after running all the test we have decided to use a Driscoll and Kraay standard errors regression model, which assumes that the structure of errors is heteroscedastic, auto-correlated up to a certain lag and possibly inter-groups correlated. The results obtained after running this regression are presented in table no. 2 below.

**Table no. 2 – The Driscoll and Kraay standard errors regression**

Explanatory Variables	Coefficients	Standard Driscoll and Kraay Errors	p-value
<i>FP</i>	0.4676083	(0.1716082)	0.005
<i>ER</i>	-0.1004576	(0.0214842)	0.003
<i>GE</i>	-0.4590731	(0.1094647)	0.007
<i>GCF</i>	0.2446718	(0.0541939)	0.042
Dummy Variables	(2002-2011)		
_cons	-5.17168		
N	132		
R-squared	83.15%		
F( 14, 10)	532.74		
Prob > F	0.0000		

Note: The dependent variable is the economic growth rate. The table presents the estimated coefficients for each explanatory variable, with the Driscoll and Kraay standard errors presented in the brackets.

Source: Realized by the authors based on STATA results.

The total number of observations is 132, for 12 EU new-member countries.

The model becomes:

$$g_{it} = -5.17168 + 0.4676083FP_{it} - 0.1004576ER_{it} - 0.4590731GE_{it} + 0.2446718GCF_{it} + v_t + \epsilon_{it} \quad (4)$$

The level of the determination coefficient (see table no 2) signifies that 83.15% of the economic growth rate (the rate of growth for real GDP per capita) is explained by the four explanatory variables included in our model: overall fiscal pressure, real effective exchange rate, government expenditures and private sector gross capital formation.

The  $p$ -value for the global significance test is 0.0000, lower than the 0.05 critical value, which means all the explanatory variables included in the econometric model have a statistically significant impact upon the economic growth rate.

This test of global significance checks whether all the model coefficients are significantly different from zero. The table no. 2 reveals that each of the model's explanatory variable has a  $p$ -value lower than the 0.05 critical value (respectively 0.005; 0.003; 0.007; 0.042), having a significant impact upon the economy growth rate.

The table no. 2 also reveals that overall fiscal pressure exerts a positive impact upon the economic growth rate. The economic growth rate will increase by 0.4676083pp for each additional 1pp increase in the overall fiscal pressure. The effective real exchange rate has a negative influence, reducing by 0.1004576pp the economy growth rate for each additional 1% increase in its level. The government expenditures as weight into GDP exert a negative influence upon the economy growth rate. Each 1pp additional increase of the government expenditures induces a 0.4590731pp decrease in the rate of economic growth.

The private sector gross capital formation exerts a positive impact upon the economy growth rate, such as each 1pp additional increase in its level can generate an increase of 0.2446718pp in the economy growth rate.

#### **4. CONCLUSION**

As a result of running the different test specific to the panel data, we have decided to use a Driscoll and Kraay standard errors regression model in order to analyze the impact of the fiscal policy upon the economic growth in the EU member states. The analysis was realized using two different samples, one for the older member states and the other for the new member states, for the 2001-2011 period. For OMS, due to a higher number of observations, we have obtained a higher number of explanatory variables, with rather intuitive results.

We have found that in the OMS the overall fiscal pressure, the private sector gross capital formation, the degree of economy openness, the real labor productivity per employee exert a positive impact upon the economy growth rate. The other variables (exchange rate, public debt and government expenditures) exert a negative impact upon economic growth.

For the NMS, overall fiscal pressure and private sector gross capital formation have positive effects upon economic growth, whereas exchange rate and government expenditures exert a negative influence.

The results obtained are intuitive in what concerns the positive influence of private sector gross capital formation and the negative influence of exchange rate and government expenditures for both the OMS and NMS.

The influence of the overall fiscal pressure is significant and positive for all the EU countries. This is also intuitive up to a certain point, as the Laffer theory suggests. A paper by Trabandt and Uhlig (2009) presented a model that predicted that the US and most European economies were on the left of the Laffer curve (in other words, that raising taxes would raise further revenue).

Obviously, further research is needed in order to obtain results which are likely to become a basis for decision-makers from the public sector.

## REFERENCES

- [1] Angelopoulos K., A. Philippopoulos E. Tsionas (2008). Does public sector efficiency matter? Revisiting the relation between fiscal size and economic growth in a world sample, *Public Choice* 137: 245–278 DOI 10.1007/s11127-008-9324-8
- [2] Baltagi Bh., (2011). *Econometrics, Fifth Edition*, Springer Texts in Business and Economics, p. 306
- [3] Barro R. J., (1996). Determinants of Economic Growth: A Cross-Country Empirical Study NBER Working Paper No. 5698 NBER Program(s): EFG
- [4] Barro R.J., (1991). Economic Growth in a Cross Section of Countries, *The Quarterly Journal of Economics*, 106 (2): 407-443.doi: 10.2307/2937943
- [5] Baum C. F., (2001). Efficient management of multi-frequency panel data with Stata, United Kingdom Stata Users' Group Meeting 8
- [6] Bleaney M., N. Gemmell and R. Kneller, (2001). Testing the Endogenous Growth Model: Public Expenditure, Taxation, and Growth over the Long Run, *Canadian Journal of Economics* 34 No. 1, pp. 36–57
- [7] Cashin P., (1995). Government Spending, Taxes and Economic Growth, *IMF Staff Papers*, Palgrave Macmillan, vol. 42(2), pp. 237-269
- [8] Devarajan S., V. Swaroop, Heng-fu Zou, (1996). The composition of public expenditure and economic growth, *Journal of Monetary Economics* 37, pp. 313-344
- [9] Dowrick S., (1992). Technological Catch Up and Diverging Incomes: Patterns of Economic Growth 1960-88, *Economic Journal Royal Economic Society*, vol. 102(412) pp. 600-610
- [10] Easterly W. and S. Rebelo, (1993). Fiscal Policy and economic growth, An empirical investigation, *Journal of Monetary Economics* 32, pp 417-458, 1993
- [11] Easterly W., (2005). What did structural adjustment adjust? The association of policies and growth with repeated IMF and World Bank adjustment loans, *Journal of Development Economics* 76(1), pages 1-22
- [12] Engen E. and J. S. Kinner, (1996). Taxation and Economic Growth, *National Journal*, Vol. 49, no 4, pp 617-42
- [13] Gujarati D., (2011). *Econometrics by example*, Palgrave Macmillan, New York, p. 293
- [14] King R. G. & S. Rebelo, (1990). Public Policy and Economic Growth: Developing Neoclassical Implications, *Journal of Political Economy*, University of Chicago Press, vol. 98(5), pp. 126-50
- [15] Koester R. B. and R. C. Kormendi, (1989). Taxation, Aggregate Activity and Economic Growth: Cross country Evidence on Some Supply side Hypotheses, *Economic Inquiry* 37, pp. 367-386
- [16] Kormendi R. and Ph. Meguire, (1985). Macroeconomic Determinants of Growth: Cross-Country Evidence, *Journal of Monetary Economics*, 16, 141-63
- [17] Landau D., (2008). Government Expenditure and Economic Growth: A Cross-Country Study, *Southern Economic Journal* Vol. 49, No.3 pp.783-792
- [18] Nijkamp P. and J. Poot, (2004). Meta-analysis of the effect of fiscal policies on long-run growth, *European Journal of Political Economy*, vol. 20, Issue 1, pages 91-124
- [19] Trabandt M., H. Uhling, (2009). How Far Are We From The Slippery Slope? The Laffer Curve Revisited, NBER Working Paper No. 15343