Marius Răzvan Surugiu[1], Camelia Surugiu[2], Mihai Nica[3]
FISCAL POLICY AND ECONOMIC GROWTH: EXPLANATION WITH EMPIRICAL ANALYSIS

This paper focuses on the fiscal policy-economic growth nexus. Using panel data for 30 European countries during the 1996-2009 interval, the paper finds a significant positive relationship between both the growth in government spending and in taxes and GDP growth.

Keywords: fiscal policy; economic growth; panel data; European countries.

JEL Classification: E62; H87; O47.

Маріус-Резван Суруджіу, Камелія Суруджіу, Міхай Ніка
ФІНАНСОВА ПОЛІТИКА І ЕКОНОМІЧНЕ ЗРОСТАННЯ: ПОЯСНЕННЯ З ЕМПІРИЧНИМ АНАЛІЗОМ

У статті увагу зосереджено на зв'язку фінансової політики і економічного зростання. Використовуючи панельні дані щодо 30 європейських країн за 1996-2009 рр., знайдено значний позитивний зв'язок між зростанням державних витрат і податків і зростанням ВВП.

Ключові слова: фінансова політика; економічне зростання; панельні дані; європейські країни.
Табл. 1. Літ. 35.

Мариус-Резван Суруджиу, Камелия Суруджиу, Михай Ника
ФИНАНСОВАЯ ПОЛИТИКА И ЭКОНОМИЧЕСКИЙ РОСТ: ОБЪЯСНЕНИЕ С ЭМПИРИЧЕСКИМ АНАЛИЗОМ

В статье внимание сосредоточено на связи финансовой политики и экономического роста. Используя панельные данные по 30 европейским странам за 1996-2009 гг., найдена значительная положительная связь между ростом государственных расходов и налогов и ростом ВВП.

Ключевые слова: финансовая политика; экономический рост; панельные данные; европейские страны.

1. Introduction. Taxation and government spending are two sides of the same coin, fiscal policy, which is one of the most important economic tools a government has at its disposal. While most economists accept that this tool can be used to "tune" the economy, they disagree when it comes to specific applications. Lately, however, economists seem to agree that monetary policy is the tool to be used in normal times while fiscal policy should be used during recessions. Indeed, some of fiscal policy's shortcomings are large policy lags (especially when it comes to government spending) as well as possible crowding out effects (Caldentey and Vernengo, 2010).

On the other hand, one of the main arguments for using fiscal policy during recession is that there are times (such as during liquidity traps) when monetary poli-

[1] Corresponding author, Institute of National Economy, Romanian Academy, Bucharest, Romania; University of Bucharest, Faculty of Administration and Business, Bucharest, Romania.
[2] National Institute for Research and Development in Tourism, Bucharest, Romania; University of Bucharest, Faculty of Administration and Business, Bucharest, Romania.
[3] Department of Economics, University of Central Oklahoma, Edmond, OK, USA.

cy becomes unusable. In these circumstances the only available tool remaining is fiscal policy. However, even as some see fiscal policy as the policy of the last resort, and despite the logic behind using it, many researchers doubt its usefulness in any circumstances (Caldentey and Vernengo, 2010; Pereira and Roca-Sagales, 2010).

Indeed, it is generally accepted that, depending on the economic conditions, a high tax rate may slow down economic growth, while a reduction of tax rate may boost it. Similarly, many economists also agree (even today, after acknowledging Japan's lost decade and the latest recession fiscal policy's results) that an increase in government spending may stimulate the economy, while a decrease may slow it down.

Obviously, government spending and taxation are related, since most of the funds used for government spending come from tax revenues. Increases in tax rates may lead to higher tax revenues (depending on which side of Laffer's curve the economy is on), which could be used to finance projects that benefit most taxpayers, such as new investment in public transportation and energy, or repairs and modernization of older assets such as public roads, bridges, and rail lines. All these activities could also lead to the stimulation of an economy; however, a decrease in tax rates may lead to the stimulation of private investment, with similar effects.

The question this paper answers, is if fiscal policy may be used as a catalyst for economic growth not only during recessions, but also in the long run. The next section presents a summary of the relevant findings in the previous research on the topic. Section 3 presents the data and the methodology used. Section four presents the results and discussion. The last section concludes.

2. The relationship between fiscal policy and economic growth. Many researchers claim that high levels of government spending undermine economic growth. The reason behind the negative impact of high government spending on economic growth rests with both the way governments spend money and the source of this money, taxation.

There is little doubt that zero government spending cannot be attained since spending for activities such as enforcing contracts, protecting property, and developing an infrastructure is critical for any economy (Mitchell, 2005). On the other hand, researchers see two main explanations as to why high government spending influences economic growth negatively. First, governments spend beyond what would be needed for simply laying down a structure for the economy to grow on (infrastructure and institutions), to pursue redistribution of income (Riedl, 2008). A second reason is government inefficiency, since economists associate increases in government spending with inefficiencies or misallocation of funding (Mitchell, 2005; 2006).

Many researchers believe that high level of taxation will lead to decreases in economic growth too (Mandl et al., 2008). One main reason is that high taxation also demotivates people to work hard (Mitchell, 2006). Indeed, increases in marginal tax rates for those people who work harder or are more productive seem unfair. Moreover, mechanisms of implementing fiscal policies are important too. For example, Riedl (2008) maintains that tax rebates fail to positively affect economic growth, mainly because they do not necessarily reward productivity or efficiency.

The literature indicates that stability and sustainability of economic growth are influenced by: fiscal policy (Afonso and Furceri, 2008; Brasoveanu and Brasoveanu, 2008; Engen and Skinner, 1996; Mashkoor et al., 2010; Ocnean, 2006; Perotti, 2004;

Woo, 2010); public spending (Alexiou, 2009; Angelopoulos et al., 2007; Baldacci et al., 2004; Devarajan et al., 1996; Zhang and Zou, 1998); investment (Dritsakis et al., 2006; Easterly and Rebelo, 1993; Pavelescu, 2008; Wilson and Briscoe, 2004); human capital (Chemingui and Ayadi, 2003; Jajri and Ismail, 2010; Pissarides, 2000; Wilson and Briscoe, 2004); inflation (Ahmed and Mortaza, 2005; Gokal and Hanif, 2004; Williamson and Mathers, 2009); population (Panahi, 2010; Williamson and Mathers, 2009; Wilkie and Young, 2009). Other authors emphasize that public spending (Bagdigen and Cetintas, 2004), population (Bucci, 2007), human capital (Jajri and Ismail, 2010) do not influence economic growth, or that the distortions have a role in explaining state-level economic growth (Yamarik, 2000), or underline the impact of taxation and public spending on the location of FDI (Buettner, 2002) or the impact of the EU fiscal rules on growth (Castro, 2010). There is no evidence that researchers are finding a common point of view regarding the fiscal policy − economic growth nexus, especially due to the diversity of the economies. However, choosing a more homogenous group of countries or better controlling for heterogeneity and missing variables may lead to more general results.

3. Data and methodology. According to Castro (2010), "traditional economic growth literature considers that the rate of accumulation of physical capital, the accumulation of human capital and population growth are the most important factors in determining the level of real output per capita". We considered these variables as control variables and added fiscal policy variables as interest variables. A dataset consisting of annual data[4] for the 1996-2009 period for 27 EU members and 3 non-members (Iceland, Norway, and Switzerland) was compiled. The dependent variable is the growth rate of nominal GDP. The tax policy variable was proxied by the growth rate of total nominal tax receipts. As measures of government spending we used the nominal growth rate of total general government expenditure. We took into consideration the impact of human capital and investment on GDP growth. The variables are:

GRW − GDP growth rate;

GRW-1 − lagged GDP growth rate;

GTAX − growth rate of total tax receipts, general government;

GGEX − growth rate of total general government expenditure, general government.

GPOP − growth rate of population, total;

GHC − growth rate of employees, 25 to 64 y.o., total, tertiary education − levels 5-6 (ISCED 1997);

GCAP − growth rate of GFCF;

INF − HICP, annual average inflation rate (annual average rate of change in HICP).

4. Results and discussion. Due to expected autocorrelation an autoregressive term (AR) was included in the simple least square model. We estimated the model with an AR(1) error specification (the estimated first-order autoregressive coefficient of the error term). As expected, the AR(1) term's coefficient is positive and significant. Similarly, a lagged term was introduced in GMM specification too.

Both estimations revealed similar results with coefficients of interest significant. While we expected to have a positive relationship between GDP growth and all the

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[4] The data are available from Eurostat.

variables except inflation, the results differ from our expectations. The main difference is that inflation exhibits a positive sign (one explanation may be the use of nominal values) while only the population variable exhibits a negative sign. One can also see that the magnitude of the coefficients seems to be constant across estimations.

Table 1. **Determinants of growth – LS and GMM**

Variables	LS[1]	GMM[2]	Expected sign
GTAX	0.520*** (18.981)	0.560*** (24.418)	(-)
GGEX	0.295*** (9.648)	0.282*** (27.957)	(+)
GPOP	-0.510* (-1.675)	-2.116*** (-18.910)	(+)
GHC	0.003 (0.219)	0.010*** (3.252)	(+)
GCAP	0.071*** (3.923)	0.083*** (6.298)	(+)
INF	0.108** (2.363)	0.168*** (6.149)	(-)
C	0.447 (1.386)		
AR(1)	0.202*** (3.129)		
R-sq.	0.873		
Adj. R-sq.	0.870		
F-stat.	267.660		
Prob(F-stat.)	0.000		
DW stat.	1.938		
Inv. AR Roots	0.20		
Wald (F-stat.)	240.065 (prob. 0.000)		
GRW$_{-1}$		-0.071*** (-4.831)	
Sargan (p-val)		0.259	
Wald (F-stat.)		1,060.769 (prob. 0.000)	

[1] Method: Panel LS; Sample (adjusted): 1998 2009; Periods incl.: 12; Cross-sections incl.: 27; Total panel (unbalanced) obs.: 280; t-statistics in round brackets.
[2] Method: Panel GMM; Transf.: First Diff.; Sample (adjusted): 1998 2009; Periods incl.: 12; Cross-sections incl.: 27; Total panel (unbalanced) obs.: 284; Instrument specification: @DYN(GRW,-2); t-statistics in round brackets.
***/**/*- statistically significant at 1%, 5% and 10% levels.

5. Concluding remarks
Our results regarding the influences of the variables are in line with:
- Dritsakis et al. (2006); Pavelescu (2008) – capital formation;
- Williamson and Mathers (2009) – on population;
- are not in line with:
- Afonso and Furceri (2008); Engen and Skinner (1996) – on tax receipts;
- Afonso and Furceri (2008); Bagdigen and Cetintas (2004); Devarajan et al. (1996) – on government expenditure;
- Panahi (2010) – on population;
- Jajri and Ismail (2010) – on human capital;

- Ahmed and Mortaza (2005); Gokal and Hanif (2004); Williamson and Mathers (2009) – on inflation.

The paper finds evidence that increased government spending stimulates the economy in the long run, even if it is accompanied by higher taxes. Future research could tackle this analysis at country level, fiscal policy depending on various factors which tailor the socioeconomic environment.

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