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POLITICAL BUDGET CYCLES IN THE EUROPEAN UNION

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Abstract

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This paper provides research on the theme of the political budget cycles. The goal is to find out whether or not the government tries to manipulate the state budget and its components for the purpose of re-election across the countries of the European Union. In order to verify this theory a dynamic panel data model was used. The results were significant, but only if predetermined elections were not counted into the estimations. In that case, the theory of the political budget cycles could be accepted as valid for the EU countries. The main driving force of the political budget cycles across the countries of the European Union is fluctuation of the government expenditures. During the election year, the government expenditures are higher, and a year after the election, government expenditures are lower. This is reflected into the state budget balance.

Keywords: political budget cycles, government expenditures, government revenues, elections, GDP growth, dynamic panel model, generalized method of moments, European Union

INTRODUCTION

The research of political budget cycle began several years ago. To describe this concept, I need to go back to the baseline of political business cycle problematic. The political business cycle is described as a part of government failure. The government tries to manipulate the economy to attain its goal, regardless of the real economic situation. Government's main goal is reelection. In order to be reelected, the government tries to enforce expansionary fiscal policy right before the election. Consequently, they have to implement restrictive fiscal policy after re-election in order to prevent the impacts of this policy.

One of the first publications on this subject was presented by William D. Nordhaus (1975). He used trade-off between unemployment and inflation. Douglas A. Hibbs (1977) expanded this problematic on various ideologies of political party. Since then, many papers have been based on these ideas. Rogoff and Sibert (1998) and Alesina (1987) have also a major contribution to the development of political business cycle using rational expectations.

With continuing research of the political business cycle, two important questions which reveal its weakness have arisen. Question number one – Is the government able to manipulate with real economy and if so to which extent? Second – Is it possible that the incumbent is able to time the fiscal expansion so that its impacts occur just before the election and not after? The uncertainties about efficiency of the fiscal policy on the real economy and difficulties with the right timing of such a policy led to a change in the research. The main focus of economists has shifted from the political business cycle to the political budget cycle. One of the first economists who mentioned this problematic in his article was Kenneth Rogoff (1990). He pointed out that the results of the political business cycle research have been mixed and therefore he has suggested focusing on research of the political budget cycle. He emphasized the importance of the signaling effect. This means that at the time of election, the incumbent signals his competence through the fiscal policy. Voters are naïve, and they want to elect more competent politicians. A consequence of this policy is a greater deficit during the election year. The fact that the government could use state budget as an instrument for purpose of reelection brings more reliable studies.

A new angle on this problematic is shown in a paper by Shi and Svensson (2002) focusing on moral hazard approach to political budget cycle. In the paper, they concentrate on the differences between developed and developing countries and they try to explain them using the moral hazard model. Adi Brender and Allan Drazen (2004) made similar research and as well as Shi and Svensson (2002), they assign these differences to a moral hazard. However, they also argue that voters rather punish politicians than reward for fiscal manipulation. Research by Jeroen Klomp and Jakob de Haan (2012) concentrates on distinction between political budget cycle "old" democracies and "new" democracies.

The goal of this paper is to find out whether or not the government tries to manipulate the state budget and its components for the purpose of re-election across the countries of the European Union.

The political budget cycle falls under the theory of government failure. This means that government is imperfect. The EU member states are considered developed and highly democratic, and their fiscal politics should be transparent and credible. Voters should be rational and well informed about policy makers and their competences. However, even in these countries, we sometimes see voters who can be easily manipulated of fooled by politicians. The question is if it happens on a regular basis.

If we only take the theoretical assumption that the European Union's next step of integration is fiscal union, then the problem of the political budget cycle could be shared by all the EU countries. That could lead to a very unstable political environment on a multinational level. Therefore, politicians should practice such a policy which is corresponding with the real economic situation. Manipulation with the budget or with the economy for the profit of politicians should be punished to help alleviate the problem of moral hazard.

MATERIALS AND METHODS

Methodology of political budget cycle is presented in this section. I used a standard dynamic panel model for this purpose. My inspiration for this model was taken from work by Shi and Svensson (2002). Specifications of the model could be described as follow:

$$f_{i,t} = \sum_{j=1}^{k} \gamma_j f_{i,t-j} + \lambda x_{i,t} + \beta ELECTION_{i,t} + \xi_i + \varepsilon_{i,t}, \qquad (1)$$

where $f_{i,t}$ is government fiscal indicator (state budget, revenues, or expenditures) for country i and for year t, $x_{i,t}$ is a vector of control variables, $ELECTION_{i,t}$ represents a dummy variable, $\xi_{i,t}$ is a specific effect of each country and $\varepsilon_{i,t}$ is an error term.

The most suitable method of testing dynamic panel data appears to be the generalized method of moments (GMM), how was proposed by Arellano and Bond (1991). GMM estimator was further developed by Arellano and Bover (1995), Ahn and Schmidt (1995), and Blundell and Bond (1998). Estimations done by GMM are based on first difference of equation, therefore equation (1) needs to be transferred as follows:

$$\Delta f_{i,t} = \sum_{j=1}^{k} \gamma_j \Delta f_{i,t-j} + \lambda \Delta x_{i,t} + \beta \Delta ELECTION_{i,t} + \Delta \varepsilon_{i,t}, \qquad (2)$$

where $\Delta f_{i,t} = f_{i,t} - f_{i,t-1}$ and the same principle is applied for all the variables. It is necessary for GMM estimation to find valid instruments which are not correlated with first differenced error term $\Delta\varepsilon_{i,t}$ in all period (Baltagi, 2008). Another possibility of approaching this problematic could be using a model with fixed effects according to the Hausman test, but this approach could lead to bias in estimation.

Annual data of variables from 1995 to 2014 are used for the estimation. In a sample are included member countries of the European Union. Unfortunately, I had to remove several countries due to the lack of data. It was Greece, Malta, Estonia, Lithuania, and Croatia. Ultimately, I was using a sample of 23 EU countries with a length of 20 periods.

Fiscal variables involve the state budget as a share of GDP, revenues as a share of GDP, and expenditures as a share of GDP. All these variables are available and easily accessible through Eurostat. Vector of control variables include GDP growth, GDP per capita, and the corruption perceptions index (CPI). The corruption perceptions index is taken from Transparency International, while GDP per capita and GDP growth are sourced from Eurostat. Election dummy variables are based on the election term of each country. The source of the election terms used is the Inter-Parliamentary Union. In this paper, the election variables are divided into two groups. The first group of election variables is created based on every government election in each country[1]. The second group of election variables contains only elections which were held in a regular term. This type of dummies ends with the letter *R*[2]. Exact specifications of the election dummy variables are shown in Tab. I.

According to Tab. I, one can observe that the election dummy variable called *AELE* or *AELER* is set up to register reaction of the government after the election. Variables *ELE* (*ELER*) and *BELE* (*BELER*) then record reactions of the government before the election.

1 Into this group are assigned variables *ELE*, *BELE* and *AELE*.
2 That contains variable *ELER*, *BELER* and *AELER*.

I: *Construction of the election dummy variables*

	Variable	Value
Every elections	ELE	Value 1 in the election year, otherwise 0
	AELE	Value 1 after the election year, otherwise 0
	BELE	Value 1 before the election year if the term of the election is held in first three months of the election year and also value 1 in an election year if the election occurred in other 9 months of the election year, otherwise 0
Only regular elections	ELER	Value 1 election year, otherwise 0
	AELER	Value 1 after the election year, otherwise 0
	BELER	Value 1 before the election year if the term of the election is held in first three months of the election year and value 1 in an election year if the election occurred in other 9 months of the election year, otherwise 0

Source: Transparency international (2015) – own processing

RESULTS

Before presenting results of the research, it is necessary to define a hypothesis of the regression coefficients of the election dummy variables. To confirm the theory of political budget cycle, it is assumed that before the elections government revenues will decrease and expenditures will increase. Therefore, government's budget deficit will grow. After the election the government will have to face consequences of the reckless policy and the new incumbent will have to implement restrictive fiscal policy. Thus, we should see tendency towards increasing of government revenues and decreasing government expenditures after the election. The government deficit should fall. Exact expectations of the election variables are shown in Tab. II.

Exact results of the estimations are included in Tab. III for every election and in the Tab. IV for only regular election. How was said in a methodology part generalized method of moments (GMM) was used like an estimation method. For both type of the election (normal and regular) were estimated 9 different equations. First we take a look at results included every elections (see Tab. III).

Based on the estimation results, we can say that none of the election dummy variables is significant at 5% level of significance except for *AELE* in an equation with dependent variable *expenditures*. More specifically for the first three equations with dependent variable *budget*, the hypotheses for variables ELE, AELE and BELE could not be confirmed. Therefore, according to these estimations, the budget balance is not affected by an election terms. That means it is not affected either before or after the elections. The same results are valid for equations with the dependent variable *revenues*. For equations with dependent variable *expenditures* variables *ELE* and *BELE* are rather insignificant but variable *AELE* is significant at 5% level of significance. The results incline to the conclusion that the government expenditures are not affected by elections before the elections themselves, however, results show significant influence of elections on expenditures after the elections (almost half percent).

If we take a look at all control variables (see Tab. III), it is possible to say that *GDP grow* is highly significant (1% level) for equations with dependent variable *budget* and *expenditures,* but it is not valid for estimations with dependent variable *revenues*. All other control variables are insignificant at 5% level for all estimated equations. Variable *CPI* is significant only at 10% level and only in two equations with dependent variable *budget*.

If we look at the results of estimations for only regular terms of the elections (see Tab. IV), we can see that the same equations were used but the election dummies were different. Instead of *ELE, AELE, BELE; ELER, AELER* and *BELER* were used.

New estimations brought different results. In case of government revenues, the results are the same as in estimations for every election included. All the election variables are insignificant. Therefore, government revenues are not affected by term of election not before, nor after the elections. An important change brought the estimations of equation with dependent variables of *budget* and *expenditures*. Results show that elections have influence on budget balance and also on

II: *Expected hypothesis of regression coefficients of the election dummy variables*

	Dependent variables		
	Budget	**Revenues**	**Expenditures**
ELE (ELER)	– (–)	– (–)	+ (+)
AELE (ALER)	+ (+)	+ (+)	– (–)
BELE (BELER)	– (–)	– (–)	+ (+)

Note: Symbols in the table represent expected behavior of the regression coefficients (for example: when the budget is a dependent variable, then we expect the coefficient of ELE variable to have a negative symbol in its estimate equation).
Source: Own processing

III: *Estimation results for equation (2) – including every election*

	Dependent Variables								
	Budget			Revenues			Expenditures		
$Budget_{t-1}$	0.619*** (12.444)	0.672*** (5.628)	0.635*** (9.977)						
$Budget_{t-2}$	–0.147*** (–3.759)	–0.143*** (–2.994)	–0.148*** (–4.106)						
$Revenues_{t-1}$				0.444* (1.754)	0.436** (2.271)	0.444* (1.795)			
$Revenues_{t-2}$				–0.0503 (–0.501)	–0.069 (–0.627)	–0.055 (–0.466)			
$Expenditure_{t-1}$							0.674*** (7.671)	0.713*** (7.619)	0.619*** (8.025)
$Expenditure_{t-2}$							–0.075** (–2.069)	–0.077*** (–2.840)	–0.087*** (–4.320)
ELE	–0.287 (–1.219)			–0.114 (–0.446)			0.286 (1.190)		
AELE		0.585* (1.709)			0.114 (0.301)			–0.498** (–2.478)	
BELE			–0.216 (–1.175)			0.027 (0.112)			0.189 (1.245)
GDP growth	0.407*** (5.378)	0.428*** (5.689)	0.396*** (5.530)	0.084 (0.778)	0.101 (1.025)	0.085 (0.904)	–0.456*** (–4.710)	–0.472*** (–5.560)	–0.411*** (–6.540)
lnGDP per capita	1.372 (0.892)	0.871 (0.416)	1.014 (0.688)	–3.246 (–0.654)	–3.569 (–0.930)	–3.423 (–0.661)	–0.485 (–0.209)	0.277 (0.132)	–1.112 (–0.614)
CPI	0.735 (1.317)	1.209* (1.774)	0.816* (1.652)	–0.694 (–0.728)	–0.714 (–0.821)	–0.687 (–0.695)	0.016 (0.020)	–0.037 (–0.050)	–0.147 (–0.236)
Unemployment	–0.007 (–0.057)	–0.046 (–0.250)	–0.022 (–0.160)	0.140 (1.223)	0.139 (0.848)	0.140 (0.965)	–0.125 (–0.932)	–0.108 (–0.822)	–0.041 (–0.300)
Num. of obs.	354	354	354	354	354	354	354	354	354
Instrument rank	23	23	23	23	23	23	23	23	23
J-statistic	21.021	19.493	20.652	15.363	15.125	15.015	19.208	17.083	20.226

Note: *** – significant variable at the 1% level of significance, ** – significant variable at the 5% level of significance, * – significant variable at the 10% level of significance. J-statistic imply that model is not over-identify.
Source: Eviews – own processing

expenditures. This is valid for pre-election variables, but also for post-election variable. In equations with budget being the dependent variables, significant variables are: *ELER* at 1% level, *AELER* at 5% level, and *BELER* at 5% level of significance. According to these results, there is clear evidence of increasing budget deficit during election year[3], as well as evidence of decreasing budget deficit after the election year. When the expenditures was used as a dependent variable, results show significance of *ELER* variable at 5% level, *AELER* variable at 5% level, and *BELER* variable at 1% level. Before the election could be observed growth of government expenditures and year after the election could be observed decline of government expenditures.

In terms of control variables, there are similar findings like in the case of initial estimations[4]. Only variable GDP growth is highly significant (at 1% level of significance) in estimations with dependent variable *budget*. GDP growth is also highly significant in estimations with dependent variable *expenditures*. Otherwise, there are not any more significant variables at 5% of significance.

All results are summarized in Tab. V. We can compare actual results of estimations with expected hypotheses and we can see that all expectations are consistent with the hypothesis and several of the variables are statistically significant. This is mostly the case for election variables in estimations with regular election terms. In the table, columns contain dependent variables of individual estimations, rows represent all election dummy variables.

3 In case of BELER, there is evidence of increasing budget deficit during election year and in same case (when the elections occurred in first three months of the year) before election year.
4 Estimations with election dummy variables which contain every occurred election.

IV: *Estimation results for equation (2) – including only regular elections*

	Dependent Variables								
	Budget			Revenues			Expenditures		
$Budget_{t-1}$	0.613*** (20.223)	0.667*** (7.058)	0.618*** (12.837)						
$Budget_{t-2}$	–0.123*** (–2.730)	–0.153*** (–3.939)	–0.129*** (–3.069)						
$Revenues_{t-1}$				0.498** (2.119)	0.424** (2.068)	0.452* (1.667)			
$Revenues_{t-2}$				–0.058 (–0.803)	–0.065 (–0.604)	–0.048 (–0.471)			
$Expenditure_{t-1}$							0.651*** (8.193)	0.710*** (7.539)	0.612*** (8.377)
$Expenditure_{t-2}$							–0.073* (–1.925)	–0.080*** (–2.812)	–0.083*** (–4.194)
ELER	–0.686*** (–2.852)			–0.171 (–0.657)			0.705** (2.256)		
AELER		0.788** (1.986)			0.106 (0.251)			–0.595** (–2.373)	
BELER			–0.539** (–2.484)			–0.076 (–0.301)			0.602*** (3.692)
GDP growth	0.449*** (6.670)	0.408*** (5.847)	0.441*** (6.294)	0.054 (0.664)	0.102 (0.974)	0.080 (0.793)	–0.434*** (–4.302)	–0.467*** (–4.848)	–0.394*** (–5.591)
lnGDP per capita	1.854 (1.117)	0.732 (0.372)	1.682 (1.111)	–2.560 (–0.604)	–3.685 (–0.849)	–3.096 (–0.573)	–0.250 (–0.116)	–0.032 (–0.016)	–1.158 (–0.583)
CPI	0.690 (1.014)	1.166* (1.940)	0.651 (1.128)	–0.687 (–0.775)	–0.720 (–0.755)	–0.625 (–0.557)	–0.201 (–0.242)	0.020 (0.026)	–0.184 (–0.311)
Unemployment	0.017 (0.135)	–0.029 (–0.178)	0.016 (0.136)	0.125 (1.525)	0.144 (0.856)	0.152 (1.186)	–0.045 (–0.280)	–0.135 (–1.138)	–0.023 (–0.194)
Num. of obs.	354	354	354	354	354	354	354	354	354
Instrument rank	23	23	23	24	23	23	23	23	23
J-statistic	20.066	19.093	20.319	18.152	14.929	15.759	17.775	17.401	18.358

Note: *** – significant variable at 1% level of significance, ** – significant variable at 5% level of significance, * – significant variable at 10 %level of significance. J-statistic implies that model is not over-identified.
Source: Eviews – own processing

V: *Comparison of the expected hypotheses with the achieved results of regression coefficients of the election dummy variables*

	Dependent variables		
	Budget	Revenues	Expenditures
	expectation/estimation	expectation/estimation	expectation/estimation
ELE (ELER)	–/–(–/–***)	–/–(–/–)	+/+(+/+**)
AELE (ALER)	+/+(+/+**)	+/+(+/+)	–/–**(–/–**)
BELE (BELER)	–/–(–/–**)	–/+(–/–)	+/(+/+***)

Note: *** – significant variable at 1% level of significance, ** – significant variable at 5% level of significance, * – significant variable at 10% level of significance.
Source: Own processing

DISCUSSION

Earlier in this paper, results of the estimations were presented. Evaluations of these results bring three interesting facts.

First, only one of the control variables was significant[5]. Therefore, budget balance, government expenditures and government revenues are not affected by GDP per capita, rate of unemployment, nor corruption perceptions index. Naturally, GDP growth has had an important influence on the budget balance but only with relation to government expenditures. That is surely an unexpected result.

5 Significance at 10% level is not counted, thus variable *CPI* is not counted either.

One could anticipate that government revenues, which consist mainly of taxes and social security payments, should be affected by growth of GDP. However, this problematic is not to be discussed in this paper. Rather, let's look at government revenues which do not seem to be affected by anything at all, not even election terms. The latter statement is valid for every election, as well as for only regular elections.

The second fact is that if the election variables are counted from every past election, then there can be shown only one important result. This result concerns the post-election period. Governments reduce their expenditures immediately in year after the election. This is partly reflected into the budget balance although the variable confirmatory this statement is significant only at 10% of significance. In short, the results show that governments across the EU countries react to elections only in a way that after the election they reduce expenditures. Therefore, they use their political capital. No other results could be confirmed.

Finally, the results were drastically changed when only regular elections were counted so that the election variables did not include early elections. This means that governments had time and space for the implication of their intentions. In this case, not only post-election influence but also pre-election influence was evident. According to the estimated results, one can state that governments across the EU countries use budget balance as an instrument to attain their goals. It is essential to remember that the main goal of every government is reelection. It is important to note, that political budget cycles are induced by government expenditures. With relation to revenues, no influence caused by the election was confirmed. In their work, Brender and Drazen (2004) reached a similar conclusion that political budget cycles are caused by higher expenditures during election year. In their case, it was valid mainly for new democracies[6]. The same conclusion could be found in the work of Jeroen Klomp and Jakob de Haan (2012), who tested political budget cycles in 65 democratic countries all around the world. They also pointed out that political budget cycles are more evident in young democracies.

On the other hand, the results of this paper clearly show that political budget cycles are evident even for developed countries, which countries of Western Europe certainly are. This conclusion is in contrast with Brender and Drazen (2004), however, the work of Georgios Efthyvoulou (2010) confirmed this conclusion completely. His work was also focused on political budget cycles across the countries of the European Union but only from 1997 to 2008. His results indicate same conclusions as in this paper.

The deeper analysis of the causalities with relation to government expenditures could be more interesting for future research of political budget cycles. For instance, what parts of the government expenditures are the most affected by the elections? Additionally, can normal voters distinguish between changes in government expenditures for the purpose of re-election from the purpose of real needs of the single economy? These could be two questions referring to further research. Also, it would be interesting if one could put this problematic in contrast with the transparency of the governments. Thus, based on suggestions of Brender and Drazen (2004), and Shi and Svensson (2002), one can test institutional factors of political budget cycles.

CONCLUSION

Results of the research can be clearly specified, but first it is important to review the goals of the research. The goal of this paper was to find out whether or not the government tries to manipulate the state budget and its components for the purpose of re-election across the countries of the European Union.

It can now be proclaimed that political budget cycles are evident across the countries of the European Union when predetermined elections are not counted. More specifically, it is proven that political budget cycles are caused by higher government expenditures in the election year and by lower government expenditures in the year after the election. According to the results, government spending as a share of GDP is higher in the election year by 0.7% and thus government deficit as a share of GDP is also higher in the election year by almost 0.7%. In the year after the election, governments across the European Union have a tendency to lower spending and that is valid even if predetermined elections were counted into the estimation. This fact also influences the budget deficit as a share of GDP, which is higher by almost 0.8% during the year after the election[7].

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6 Like a new democracies they considered for example Bulgaria, Czech Republic, Greece, Hungary, Poland, Portugal, Spain, Slovak Republic, Slovenia etc.

7 This is valid only for estimations including regular election terms. In estimations with every occurred election, the budget balance is also affected but result is less significant (10% level of significance).

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