CONDITIONAL POLITICAL BUDGET CYCLES IN THE OECD COUNTRIES: THE CASE OF GOVERNMENT EXPENDITURES

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Abstract: The public choice theory studies interactions of politicians, voters and bureaucrats, which can be investigated in a number of ways. In this paper, we will investigate the so-called “political budget cycle”. This term is used to describe cyclical fluctuations (or systematic patterns) in the fiscal policy induced by the timing of elections. We examine the presence of the conditional political budget cycle in the OECD countries using data from 25 member states over the period 1995–2012. Three important results emerge: First, there is a statistically significant political budget cycle (PBC) in the government expenditures which is institutionally conditioned (it exists in the total government expenditures in the OECD countries with lower level of fiscal credibility and transparency). Second, the PBC exists mainly in the specific government expenditures, e.g. social expenditures. Third, the PBC is hidden also in some government expenditures in the OECD countries with high level of credibility and transparency of fiscal policy; however it is not directly observable in the total government expenditures.

Keywords: Elections, government expenditures, imperfect information, political budget cycle, public choice theory.

JEL classification: D72, D83, E62, H50

1. Introduction

Public choice or public choice theory is focused on the systematic analysis of political behavior and uses economic tools to deal with traditional problems of political science. It studies self-interested agents (politicians, voters, bureaucrats) who strive for utility maximization. Especially, it studies their interactions, which can be investigated in a number of ways. Usually it employs game theory, decision theory, standard utility maximization theory or some methods of econometric analysis.

Interactions between politicians and voters can be well illustrated by their behavior in the time of elections. For example, we can ask whether electoral motives influence an economic performance or at least a fiscal outcome. In this paper, we will investigate the so-called “political budget cycle”. This term is used to describe cyclical fluctuations (or systematic patterns) in fiscal policy induced by the timing of elections. Generally, the reason for the emergence of these cycles in the fiscal policy is because re-election motives create incentives for incumbent politicians to appear competent just ahead of the elections.

In the previous research (Janků, 2015), we examined the conditional political budget cycle (PBC) in developed economies (in the OECD countries). In the previous research the conditionality meant different levels of credibility and transparency of fiscal policy – approximation for the level of awareness of voters. We focused on the conditional political budget cycle in government deficits, revenues and expenditures. In this paper we will examine the political budget cycle in developed countries as well, however we will focus especially on detailed analysis of government expenditures.

This paper examines the presence of conditional political budget cycles (PBCs) in the OECD countries using data from 25 member states over the period 1995–2013. The dynamic panel linear regression model is used in this article. Three important results emerge: First, there is a statistically significant political budget cycle (PBC) in the total government expenditures which is institutionally conditioned (it exists in the total government expenditures in the OECD countries with lower level of fiscal credibility and transparency). Second, the PBC exists mainly in the specific government expenditures, e.g. social expenditures. Third, the PBC is observed also in some government expenditures.
expenditures in the OECD countries with high level of credibility and transparency of fiscal policy; however it is not directly observable in the total government expenditures.

The paper is organized as follows: Section 2 offers some theoretical considerations. Section 3 describes the methodology, the data and the empirical model specification. Section 4 reports and discusses the estimation results and investigates their robustness. Section 5 concludes.

2. Theoretical considerations

The traditional “political business cycle” theory implies that some macroeconomic variables (outcome, unemployment, inflation, etc.) are influenced by politicians before the elections. Nevertheless, two important assumptions of this theory are very controversial. First, a government must be able to affect real economic variables; second, there must be an immediate impact on the economy. For this reason, there is a shift in focus to the “political budget cycle” theory. As mentioned above, the term “political budget cycle” is used to describe a cyclical fluctuation in fiscal policies induced by the timing of elections. The reason for the emergence of these cycles in the macroeconomic variables and in the fiscal policy is the same - re-election motives create incentives for incumbent politicians to appear competent just ahead of the elections.

In the previous paper, we divided electoral cycles into three generations. The former models of the so-called political business cycle are labeled as a first generation of electoral cycles and the models of political budget cycles are labeled as subsequent generations. Through this approach, we can divide the current electoral cycles to:

- former models of political business cycle (sometimes called the PBC I), see e.g. Nordhaus (1975) or Lindbeck (1976),
- models of political budget cycle based on the adverse selection and the signaling (PBC II), see Rogoff and Sibert (1988) or Rogoff (1990),
- models of political budget cycle based on the moral hazard problem (PBC III).

In this paper, we examine the third generation of political budget cycle models. These models were designed by Persson and Tabellini (2000) and Shi and Svensson (2002a). In these models of moral hazard, there is an assumption that each politician has a competence level. However, in contrast to PBCs of the second generation, there is an assumption that neither the electorate nor the incumbent can observe the incumbent’s competence level contemporaneously. Voters have rational expectations and want to elect the politician (incumbent or challenger) with a higher competence level. A competence level is unobservable so that voters must make their decision on a base of the observable macroeconomic performance of the incumbent government (such as the amount of public goods). The most important assumption is that the incumbent government can exert a hidden effort and stimulates policy instruments. Shi and Svensson (2003) argue that in contrast to adverse selection models, all types of the incumbent government will incur excessive pre-election budget deficits in the moral hazard model.

Shi and Svensson (2002a) describe moral hazard models by the utility function of voters \(i\) in period \(t\) as:

\[
U_t^i = \sum_{s=t}^{T} \beta^{s-t} \left[ g_s + u(c_s) + \theta^i z_s \right],
\]

where \(g_t\) is consumption of a government provided good (per capita) in period \(t\), \(c_t\) is private consumption, \(z_t\) is a binary variable taking the value \(-1/2\) if \(a\) is elected and \(1/2\) if \(b\) is elected, and \(u(c)\) is a standard concave utility function.
Shi and Svensson (2002a) assume that the economy is composed of a large number of citizens, each of whom derives utility from a private consumption good and a public good. There are two politicians (political parties), denoted with superscripts $a$ and $b$. All agents are expected utility maximizers. All voters are alike in their preferences over consumption, but they differ in the parameter $\theta^i$, which is uniformly distributed on $[\frac{1}{2}, \frac{1}{2}]$. If $\theta^i < 0$ voter $i$ is biased in favor of party $a$ (and vice versa), which can be seen as valuation of other dimension (policy or personal characteristics) on which the candidates differ.

Shi and Svensson (2002a) define public output as:

$$g_t = \tau_t + d_t - R(d_{t-1}) + \eta^i_t,$$

(2.2)

where $\tau_t$ means taxes, $d_t$ means borrowing, $R(d)$ is a continuous cost function of public borrowing with $R(0) = 0$ and $R(\bar{d}) > 0$ for all $d > 0$, and $\eta^i_t$ means certain “competence level”.

The voters’ ability to assess the incumbent’s policy differs. Certain share ($\sigma$) of the electorate is assumed to be informed (has access to a free flow of information), in the sense that it observes both election year spending ($g_t$), taxes ($\tau_t$), and the amount of borrowing ($d_t$) before elections. A share of $1 - \sigma$ of the electorate is uninformed (does not have access to a free flow of information) and only observes the policy instruments that directly influence their utility, i.e. $g_t$ and $\tau_t$. The higher share of uninformed voters (which can confuse the amount of borrowing for competence level $\eta^i_t$), the higher should be the incumbent’s incentives to manipulate the fiscal outcome and the more likely should rise the PBC.

### 3. Data and econometric specification

#### 3.1 Data

We use an unbalanced cross-country time-series dataset, comprising 25 developed countries (the OECD members) over the period 1995-2012. A dynamic panel model is used. The panel includes a number of economic, socio-economic and political variables. Government fiscal policy data and economic variables are obtained from the OECD database. Data on demographic variables are extracted from the World Bank database. Political data (election dates) are obtained from the Database of Political Institutions (Keefer et al., 2001).

We will test the detailed structure of government expenditures (as dependent variables). The OECD database provides a breakdown of government expenditure according to their function according to SNA93. Economic flows of expenditure are aggregated according to the Classification of the Functions of Government (COFOG). We will examine ten main categories of COFOG – general public services (10); defense (20); economic affairs (30); environment protection (40); housing and community amenities (50); health (60); recreation (70), culture and religion (80); education (90); social protection (100).
3.2 Conditionality of the PBC, division of countries

A current research investigating PBCs consider certain heterogeneity of these cycles, which is given by different conditional factors (see, e.g., Haan and Klomp, 2013). We will evaluate the credibility and transparency of fiscal policy – approximation for the level of awareness of voters. This concept covers especially the ability of voters and private enterprises to understand implemented government policy and their ability to distinguish opportunistic fiscal policy (e.g. before election) and a common fiscal policy.

The logic of an examination is as follows: If voters are able to punish (at elections) targeted expansion policy before elections (and we know that they are – see Efthyvoulou (2012) or Alt and Lassen, 2006), there is a relatively high probability that certain institutional settings can make it difficult to detect such pre-election manipulation – and an incumbent can obtain extra incentives creating the PBC. Let us recall the equation 2.2.

Worldwide Governance Indicators (WGI), see Kaufmann et al. (2010), are relatively close to the institutional characteristics mentioned above. A sub-index Government Effectiveness is probably the best approximation. This index reflects “perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies”.

If an individual country was ranked in the highest category of the index (i.e. 90 - 100 percentiles) in the period 1995–2012, then we can identify this country as a country with high level of credibility and transparency of fiscal policy. This is the main criterion for the distribution of countries into two groups. Countries with a high level (15): Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Spain, Sweden, the United Kingdom, and the USA. Countries with a lower level (10): The Czech Republic, Estonia, Greece, Hungary, Israel, Italy, Korea, Portuguese, Slovakia and Slovenia.

3.3 Econometric specification

We use the dynamic panel data model to test the predictions of the PBC. Originally, the model has been designed by Shi and Svensson (2002b, 2006) and Person and Tabellini (2002). We proposed (Janků, 2015) some modifications in this model. The model has the following form:

\[ Y_{it} = \sum_{j=1}^{l} \alpha_j Y_{i,t-j} + \beta X'_{it} + \gamma growth_{it} + [IN_{it} \delta^1 + (1 - IN_{it}) \delta^0] elec_{it} + \mu_i + \varepsilon_{it}, \]  

(3.1)

where \( Y_{it} \) is a dependent variable, i.e. a fiscal indicator in country \( i \) in year \( t \), \( X'_{it} \) is a row vector of control variables, \( growth_{it} \) is the GDP growth rate, \( elec_{it} \) is a dummy electoral variable, \( \mu_i \) are unobserved country-specific effects and \( \varepsilon_{it} \) is an error term.

As already mentioned a dependent variable \( Y_{it} \) is always one of the categories of COFOG expenditure (as a percentage of GDP).

Environment protection (50) – waste management; waste water management; pollution abatement; protection of biodiversity and landscape; RandD environmental protection.
Housing and community amenities (60) – housing development; community development; water supply; street lighting; RandD housing and community amenities.
Health (70) – medical products, appliances and equipment; outpatient services; hospital services; public health services; RandD health.
Recreation, culture and religion (80) – recreational and sporting services; cultural services; broadcasting and publishing services; religious and other community services; RandD recreation, culture and religion.
Education (90) – pre-primary and primary education; secondary education; post-secondary non-tertiary education; tertiary education; education not definable level; subsidiary services to education; RandD education.
Social protection (100) – sickness and disability; old age; survivors; family and children; unemployment; housing; social exclusion n.e.c.; RandD social protection.
The vector of control variables can be expressed as $X_{it} = (nairu_{it}, idr_{it}, trade_{it})$. These control variables have been shown to be correlated with fiscal policy outcomes in previous studies. They are important to ensure that our estimated results for the political variable will not draw misleading inferences regarding the unemployment, a business cycle, international trade, etc.

The variable $nairu_{it}$ is the non-accelerating rate of unemployment (NAIRU) and represents equilibrium in the labor market. NAIRU can be seen as a reflection of the potential outcome on the labor market, see Modigliani and Papademos (1975). It also represents imperfections on the labor market and can be identified with the structural and frictional unemployment. With increasing NAIRU a higher fiscal imbalance is expected.

The variable $idr_{it}$ expresses the proportion of the population aged 15-64 on the proportion of the population aged 65+. It is simply an inverse dependency ratio (workers per dependent). Persson and Tabellini (2002) or Brender and Drazen (2005) use two demographic variables representing the percentage of population aged 15-64 and 65+. However, these two variables are collinear and they are not statistically significant. Moreover, due to a reduction of these variables into one, the number of instruments is reduced. With increasing IDR a lower fiscal imbalance is expected.

The control variable $trade_{it}$ has been used in the studies mentioned above as well. This variable represents the trade share, i.e. exports and imports as share of GDP. The trade share as an important determinant of fiscal outcome is mentioned in the related literature (see Vernon, 1974). With an increasing openness of the economy a lower fiscal imbalance is expected because of a decreasing efficiency of the fiscal policy.

The exogenous variable $growth_{it}$ is a very important control variable, which represents an annual percentage growth rate of GDP at market prices. Its role is to filter out and to capture fiscal fluctuations caused by the economic fluctuations. The results should not be misrepresented by the dynamic of a business cycle.

Finally, the electoral variable $elec_{it}$ codes the year the executive is elected. It equals 1 in the years of legislative election, and 0 in all other years. The variable $elec_{it}$ is a key variable for the evaluation of politically induced cycle. This dummy variable is further divided by a binary indicator $IN_{it}$, $IN_{it} \in \{0, 1\}$. The indicator takes the value 0 at the subsample of countries with worse fiscal institutions ($IN_{it} = 0$) and the value 1 at the subsample of countries with better fiscal institutions. See e.g. Persson and Tabellini (2002) for a similar procedure.

### 3.4 Methodology

Assuming that the unobserved country-specific effects are equal across countries, that error term is not serially correlated and that the explanatory variables are strictly exogenous, the model (3.1) can be estimated with Ordinary Least Squares (OLS). It is almost certain that the unobserved country-specific effects are different across countries. Consequently, the simple Ordinary Least Square estimator is biased. Most empirical studies have employed the Fixed Effects (FE) in order to allow for cross-country differences. However, the dynamic panel data model is used in this article (the inclusion of lagged dependent variables). Hence, there is another source of bias because the vector of lagged dependent variable is correlated with the vector of error term. The potential estimation bias is of order $1/T$, where $T$ is the length of the panel (the number of periods). (see Nickell, 1981; Kiviet, 1995).

This problem is enlarged if the number of individuals $i$ is large, while the number of periods $T$ is quite small (note, that the bias becomes smaller as the length of the panel increases to infinity $T \to \infty$). Since the number of periods is relatively small ($T = 18$) in this panel and it is lower than the number of cross-sections ($i = 25$), the generalized method of moments (GMM) is employed. For the panel data, this method uses the Arellano-Bond estimator (Arellano and Bond, 1991). The
Arellando-Bond estimation transforms all regressors by differencing (first differencing, FD), and uses the GMM with the instrumental variables (IV)\(^3\).

The consistency of the GMM estimator depends on the condition of no second-order serial correlation of the differenced residuals. For this reason we check the Arellano-Bond test for second-order serial correlation (proposed by Arellano and Bond, 1991). Similarly, the consistency of the GMM estimator depends on the validity of instruments. Thus, we perform Hansen (1982) test for over-identifying restrictions, which is based on Sargan (1958) test.

4. Results and discussion

4.1 Basic findings for the PBC

First, we will comment the regression results of the model (3.1) when the dependent variable is a total amount of government expenditures in relation to GDP (exp). Table 1 reports the regression results. The existence of an election-motivated fiscal cycle (the PBC) is confirmed when the regression coefficient on the electoral variable elec\(_{it}\) is correctly signed and statistically significant at conventional levels of significance.

Let us add that the control variables display the expected signs and their influence is generally significant. There are extra rows reporting the Hansen test for over-identifying restrictions [p-values] and the Arellano-Bond test for second-order serial correlation of the differenced residuals [p-values]. Both tests have expected p-values (we do not reject the null hypothesis: that instruments are uncorrelated with residuals; that there is no second order serial correlation in the first-difference residuals). The model is dynamically stable (see the first row).

The coefficient on electoral dummy elec\(_{it}\) has the expected sign in the case of countries with the lower level of fiscal credibility (elec\(_L\)). The coefficient is statistically significant as well. It implies that the government expenditure increases (on average) by about 0.72 percentage points when elections occur. Thus, it can be stated that there is the explicit PBC in the overall government expenditure in the OECD countries with the lower level of fiscal institutions.

On the other hand, the coefficient on electoral dummy elec\(_{it}\) has unexpected sign and it is not statistically significant in the case of countries with the higher level of fiscal credibility (elec\(_H\)). Thus, we can state that there is not similar cycle in the case of the countries with higher level of fiscal institutions.

<table>
<thead>
<tr>
<th>FD GMM</th>
<th>exp</th>
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<tr>
<td>X/Y</td>
<td></td>
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<tr>
<td>Y(-1)</td>
<td>0.722*** (19.823)</td>
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<td>growth</td>
<td>-0.486*** (-19.006)</td>
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<tr>
<td>nairu</td>
<td>-0.384*** (-2.956)</td>
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<td>idr</td>
<td>-0.607*** (-2.547)</td>
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<tr>
<td>trade</td>
<td>-0.032*** (-2.849)</td>
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<tr>
<td>elecH</td>
<td>-0.054 (-0.406)</td>
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</table>

\(^3\) The instruments used in GMM regression are lagged levels of the dependent variable (they are generated for each period). The electoral dummy and the strictly exogenous covariates are instrumented by themselves.
4.2 The PBC in the COFOG categories

Table 2 shows regressions in the case of various COFOG categories. Generally, there is the statistically significant PBC in almost all COFOG categories in the OECD countries with the low level of fiscal credibility (elecL). As expected, there is a higher PBC in the social expenditure (100) and in the economic affairs expenditure (40). Conversely, there is not a PBC in the general public services, environment protection expenditure and health expenditure.

The variable (elecH) describes the political budget cycle in the OECD countries with a high level of fiscal credibility. The situation is quite different from the previous. There is not a PBC in most categories of COFOG. However, the PBC can be found in the social expenditure (100) and in the general public services (10). On the other hand, there is a decrease in the economic affairs expenditure (40). As mentioned above, the coefficient on electoral dummy (elecH) had unexpected sign and it was not statistically significant in the case of the total government expenditure. Thus, it can be stated that the PBC in some categories of the COFOG is compensated by the decrease in other categories of government expenditure. For better clarity, the results are shown also in Figure 1.

Table 2. The conditional PBC in the COFOG categories, the OECD countries, 1995-2012

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5. Conclusions

In this paper we examined the empirical evidence for the existence of the conditional political budget cycle in developed countries (the OECD countries). We researched the government expenditures divided by COFOG categories. The empirical results indicate that the political budget cycle exists in the total government expenditures in the OECD countries with a lower level of fiscal credibility and transparency. Let us add that this PBC is relatively strong (an average increase in the government expenditure by 0.73% GDP in time of the elections).

On the other hand, a similar cycle does not exist in the OECD countries with higher level of fiscal credibility and transparency. Thus, we can state that the PBC in OECD countries is institutionally conditioned. It appears likely that voters can recognize fiscal manipulations in the total government expenditures in these countries due to high level of fiscal credibility and transparency. In this situation, incumbent politicians do not receive benefits from explicit fiscal manipulations and these manipulations do not happen. Of course, formally, we have to assume that the PBC in the total government expenditures cause the PBC in the government budget balance (see the equation 2.25).

Our previous research (Janků, 2015) proves this assertion.

If we consider the PBC in various categories of COFOG expenditures, we can obtain additional results. First, the PBC exists especially in the social expenditure and in the economic affairs expenditure in the OECD countries with worse institutional environment. One can state that these results are quite natural. Mainly the social protection expenditures and economic affairs expenditures can be very powerful in influencing voters. Also (if we consider the same logic), it is not surprising that the similar cycles do not exist for example in the environment protection expenditure or in the health expenditure.

Second, the PBC does exist also in some categories of COFOG expenditures in the countries with a higher level of fiscal credibility and transparency. However, this PBC is offset by the decrease in other categories of government expenditures and it is not directly observable in the total government expenditures. We can still follow our claim about the conditionality of the PBC.

\[ Y(-j) \] denotes the autoregressive coefficient at lag \( j \). *Significant at the 10 percent confidence level, **significant at the 5 percent level, ***significant at the 1 percent level.

Source: Eviews 8, own calculations

Figure 1. The conditional PBC in the COFOG categories, the OECD countries, 1995-2012

\[ \text{Figure 1. The conditional PBC in the COFOG categories, the OECD countries, 1995-2012} \]

\[ \text{Source: the author} \]

\[ \text{Source: the author} \]

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\[ \text{The figure 1 shows statistically significant results only. Formally, statistically insignificant results of regression coefficients are equal to zero.} \]

\[ \text{With certain simplifications, we can identify } d_t \text{ with the government budget balance.} \]
This paper was financially supported within the VŠB - Technical University SGS grant project No. SP2015/115 “Institutional and Monetary Context of Economic Integration of European Countries Today".

References


