Do political budget cycles really exist?

Jeroen Klomp, Jakob de Haan

► To cite this version:

Jeroen Klomp, Jakob de Haan. Do political budget cycles really exist?. *Applied Economics*, 2011, 45 (03), pp.329-341. 10.1080/00036846.2011.599787 . hal-00734528

HAL Id: hal-00734528

<https://hal.science/hal-00734528>

Submitted on 23 Sep 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Do political budget cycles really exist?

Journal:	<i>Applied Economics</i>
Manuscript ID:	APE-2011-0224
Journal Selection:	Applied Economics
Date Submitted by the Author:	13-May-2011
Complete List of Authors:	Klomp, Jeroen; Wageningen University De Haan, Jakob; University of Groningen, Faculty of Economics and Business
JEL Code:	E62 - Fiscal Policy Public Expenditures, Investment, and Finance Taxation < E6 - Macro Policy Formation, Macro Public Finance, Macro Policy, etc < E - Macroeconomics and Monetary Economics, H62 - Deficit Surplus < H6 - National Budget, Deficit, and Debt < H - Public Economics
Keywords:	Political budget cycles, Elections, Government spending, Fiscal balance

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Peer Review

Do political budget cycles really exist?

This version, 13 May 2011

Abstract

Most recent cross-country studies on election-motivated fiscal policy assume that the data can be pooled. As various tests suggest that our data for some 70 democratic countries for the period 1970-2007 cannot be pooled, we use the Pooled Mean Group (PMG) estimator to test whether political budget cycles (PBCs) exist in our sample. We find that fiscal policy is only affected by upcoming elections in the short run. Our results suggest that the occurrence of a PBC is conditional on the level of development and democracy, government transparency, the country's political system, its membership of a monetary union and its degree of political polarization.

Keywords: Political budget cycles, heterogenous panel model

JEL code: E62, H62

I. Introduction

Incumbents have strong incentives to affect voters' behavior by using fiscal policy, the more so if elections are at hand and voters base their behavior on the recent past (Nordhaus, 1975). According to Brender and Drazen (2005), until recently it was generally thought that a political budget cycle (PBC) was primarily a phenomenon of developing economies. However, various recent studies (including Persson and Tabellini, 2002, Mink and De Haan, 2006 and Shi and Svensson, 2006) suggest that election-motivated budget deficits also occur in industrial countries.

Most recent studies on election-motivated fiscal policy are based on panel models in which it is assumed that the data can be pooled. However, in view of the heterogeneity of the countries generally included in those studies, this assumption may be questioned (Pesaran *et al.*, 1996). Pesaran *et al.* (1999) argue, for example, that the GMM estimation procedure for dynamic panel models can produce inconsistent and misleading estimates if the sample is very heterogeneous. We have gathered data on fiscal policy outcomes for some 70 democratic countries over the period 1970 to 2007 to test for election effects on fiscal policy. As it turns out that the data cannot be pooled, we use the (Pooled) Mean Group (PMG) estimator to control for panel heterogeneity. This estimator allows the short-run coefficients and error variances to differ freely across groups, but the long-run coefficients are constrained to be the same. We conclude that on average fiscal policy in the long run is not affected by elections. However, in the short run there exists significant heterogeneity in the effect of elections on fiscal policy. In several countries fiscal policy is affected by elections in the short run. Therefore, in the second part of our analysis, we try to discover whether those countries for which we find a PBC share particular characteristics. Our results suggest that the occurrence of a PBC is conditional on the level of development and democracy, government transparency, the country's political system, its membership of a monetary union, and its degree of political polarization.

The remainder of the paper is structured as follows. The next section gives some theoretical considerations and summarizes the results of earlier empirical studies. Section III describes the data and methodology used. Section IV presents the estimation

results. Section V examines whether countries with a PBC have common characteristics. Finally, section VI offers our conclusions.

II. Review of the literature

Older theoretical PBC models emphasize the incumbent's intention to secure re-election by maximizing its expected vote share at the next election (Nordhaus, 1975). It is assumed that the electorate is backward looking and evaluates the government on the basis of its past track record. As a result, these models imply that governments, regardless of ideological orientation, adopt expansionary fiscal policies in the late year(s) of their term in office in order to stimulate the economy. More recent PBC models emphasize the role of temporary information asymmetries regarding the politicians' competence level in explaining electoral cycles in fiscal policy. In these models, signalling is the driving force behind the PBC (see, e.g., Rogoff and Sibert, 1988, Persson and Tabellini, 2002 and Shi and Svensson, 2006). Drazen and Eslava (2006, 2010) explain the relationship between opportunistic spending of the government and the election outcome within a game theoretic framework. The incumbent uses public expenditure to attract votes. In equilibrium, a political budget cycle will exist in which expenditures targeted to voters are higher in an election period than in a non-election period. Swing voters will rationally vote for the incumbent who provides higher targeted expenditures even though they know that such expenditures may be electorally motivated.

Brender and Drazen (2005) argue that until recently a PBC was generally thought to be a phenomenon of less developed economies. For instance, Schuknecht (1996) reports evidence for a PBC in his sample of 35 developing countries over the period 1975-92. Likewise, Block (2002) finds for a cross-section of 44 Sub-Saharan African countries that the government's budget deficit increases by 1.2 percentage points in election years.¹ However, various recent studies present evidence for the existence of a PBC in a large cross-section of both developed and developing countries.

¹ Similarly, Schuknecht (2000) finds for a sample of twenty-four developing countries over 1973–1992 that incumbent governments tend to increase public investment prior to elections.

For instance, Shi and Svensson (2006) report significant pre-electoral increases in the government budget deficit for their panel of 85 developing and developed countries over the period 1975-95. Moreover, Persson and Tabellini (2002) find statistically significant tax decreases before elections in their sample of 60 democracies over the period 1960-98. According to Brender and Drazen (2005), the results of the studies of Shi and Svensson (2006) and Persson and Tabellini (2002) are driven by the experience of so-called ‘new democracies’, where fiscal manipulation may be effective because of lack of experience with electoral politics in these countries. They argue that once the ‘new democracies’ are removed from the sample, evidence in support of the PBC disappears. However, also some recent studies focusing on ‘established democracies’ find evidence for the existence of a PBC. For instance, Tujula and Wolswijk (2007) find support for a PBC in their sample of OECD countries for the period 1975-2002. Mink and De Haan (2006) provide similar evidence for European Union (EU) member states after the start of the monetary union.²

III. Data and methodology

We use a large unbalanced cross-country time-series dataset, comprising about 70 democratic developed and developing countries and spanning the years 1970 to 2007. As the PBC is based on the assumption that elections take place in a democratic way, we only include country-years with a Polity IV democracy score of at least two. Table A1 in the Appendix shows all countries and years included. The fiscal data are taken from the *International Financial Statistics* and the *Government Finance Statistics* of the IMF, while the election data come from *electionsource.org* and various issues of the *Political Handbook of the World*. Table A2 in the Appendix provides a detailed description of all data used and their sources.

² Other studies, however, do not find evidence for election motivated fiscal policy in industrial countries; see, for instance, Andrikopoulos *et al.* (2006). Jochimsen and Nuscheler (2011) even find that deficits were lower before elections for German regional governments.

The estimated model is shown in Equation (1). The variable $f_{i,t}$ is a fiscal indicator (budget balance or total spending) in country i in year t , $X_{j,i,t}$ is a vector of j control variables, $ELEC_{i,t}$ is an election indicator, and $\varepsilon_{i,t}$ is an error term.

$$\tilde{f}_{i,t} = \mu_i + \lambda_i \tilde{f}_{i,t-k} + \eta_i X_{j,i,t-k} + \delta_i ELEC_{i,t} + \varepsilon_{i,t} \quad (1)$$

where k indicates the number of lags.

We use an election variable suggested by Franzese (2000) that takes the timing of an election in the course of a year into account. It is calculated as $M/12$ in an election year and $(12 - M)/12$ in a pre-election year, where M is the month of the election. In all other years its value is set to zero. We only include elections if the government has sufficient time to change its fiscal policies. When there are, for instance, elections shortly after the fall of a cabinet, the government may have little opportunity to use expansionary fiscal policy. An election is included if the election is held on the fixed date (year) specified by the constitution, or if the election occurs in the last year of a constitutionally fixed term for the legislature. Also when an election is announced more than one year in advance, it is taken up in the analysis.

We include GDP per capita to control for the level of development of a country as this may influence voters' preferences for public goods as well as the size of the tax base (Brender and Drazen, 2005). The growth rate of real GDP is taken up to capture the influence of the business cycle. Sometimes globalization is argued to restrain governments' fiscal policies. We use the KOF globalization index (Dreher, 2006) to control for this. Also demographic factors may affect fiscal policies. We therefore include the so-called dependency ratio that measures the ratio of the elderly to people of working age. A higher share of the elderly will lead to increased government spending due to, for example, higher social security and public health expenditures. Inflation may affect government receipts and expenditures through nominal progression in tax rates and tax brackets, and via price-indexation of receipts and expenditures. On the other hand, unexpected inflation erodes the real value of nominal government debt so that the

overall effect of inflation on the budget balance is not clear a priori. Higher unemployment will increase government spending on social security and decrease revenues, and hence raise the budget deficit.³

Finally, we include a partisan variable to control for differences between right wing and left wing governments in fiscal policy. According to the partisan theory, right wing and left wing politicians will provide different policies in line with the preferences of their constituencies. There is evidence suggesting that spending priorities differ among right and left wing governments, but whether partisan factors influence budget deficits is less clear (Hallerberg and Clark, 2000). Our partisan variable is measured on a scale running from -1 (full left wing) to +1 (full right wing). The variable is based on the data provided by the *Database on Political Institutions* of the World Bank.

Most pooled estimators (like fixed and random effects, IV or GMM) presume that the data is suitable to be pooled. However, in panel models with large N and T the assumption of homogeneity of the slope coefficients is frequently rejected. Estimators that impose cross-country constraints dominate estimators that allow for heterogeneity in terms of efficiency if the restrictions are valid. If they are false, however, the restricted estimators give inconsistent estimates (Pesaran and Smith, 1995). To examine whether our data can be pooled, we perform a modified Chow test suggested by Baltagi (1995). This test compares the model under the restriction of common slopes across countries with the model that allows for heterogeneous slopes. The test statistic indicates that the null hypothesis that the data can be pooled is rejected at conventional significance levels (the p-value of the test is 0.03).

The econometric literature suggests two approaches to consistent estimation of parameters in dynamic panels with considerable heterogeneity. First, under the so-called Mean Group estimator an equation for each country is estimated and the distribution of the estimated coefficients across groups is examined. This produces consistent estimates of the average of the parameters in heterogeneous panels, provided that group specific

³ To check for multicollinearity problems, we calculated the correlation between all explanatory variables. We do not find much evidence for multicollinearity. The correlation matrix is shown in Table A3 in the Appendix.

parameters are independently distributed and the regressors are exogenous. However, it has also been shown that MG estimates will be inefficient if parameters are the same across groups, i.e., if the long-run slope homogeneity restriction holds (Pesaran *et al.*, 1999). In this case, Pesaran *et al.* (1999) propose a maximum likelihood-based pooled mean group (PMG) estimator that combines pooling and averaging of the individual regression coefficients. This estimator allows the short-run coefficients and error variances to differ freely across groups, but the long-run coefficients are constrained to be the same.⁴ Not imposing equality of short-run slope coefficients also allows the number of lags included to differ across groups.⁵

An important assumption for the consistency of the PMG estimates is the independence of the regression residuals across countries. In practice, non-zero error covariance usually arises from omitted common factors that influence the countries' Autoregressive Distributed Lag (ARDL) processes. We attempt to eliminate these common factors and, thus, ensure the independence condition by allowing for time-specific effects in the estimated regression. For each country, the order of the ARDL process must be augmented chosen to ensure that the residual of the error-correction model is exogenous and serially uncorrelated. At the same time, with a limited number of time series observations, the ARDL order should be restricted as the degrees of freedom affect the consistency of the parameter estimates. We impose a common lag structure across countries.

The PMG estimates the error correction formulation of Equation (1):⁶

$$\Delta \tilde{f}_{i,t} = \phi \left(\tilde{f}_{i,t-1} - \alpha_i - \beta_i X_{j,i,t-1} - \theta_i \Delta ELEC_{i,t} \right) + \theta_i \Delta X_{j,i,t-1} + \mu_i ELEC_{i,t} + \varepsilon_{i,t} \quad (2)$$

⁴ For our purposes, the pooled mean group estimator offers the best available compromise in the search for consistency and efficiency. This estimator is particularly useful when the long run is given by conditions expected to be homogeneous across countries, while the short-run adjustment depends on country characteristics.

⁵ See Hallerberg and Strauch (2001) and Catão and Terrones (2005) for further discussions on using Pooled Mean Group regressions in fiscal policy models.

⁶ For notational convenience we show the equations here with one lag in the dependent and explanatory variables for all countries. In the actual estimation procedures we allow the lags to differ.

Where

$$\phi_i = -(1 - \lambda_{ij}), \quad \alpha_i = -\frac{\mu_i}{\phi_i}, \quad \beta_i = \frac{\delta_i}{1 - \lambda_{i0}}, \quad \theta_i = \frac{\eta_i}{1 - \lambda_{i0}}$$

If all variables are stationary or are I(1) and cointegrated, u_{it} is an I(0) process for all i and is independently distributed across i . Therefore, the order of integration of the regressors is established first and if they are I(1), cointegration tests are performed.

Table 1 presents the p-values of panel ADF unit root tests for each variable applying the test suggested by Im *et al.* (2003). The null hypothesis of this test is that all series are non-stationary. An advantage of this unit root test is that it allows for heterogenous short-run dynamics. The lags included in the ADF regressions are selected on the basis of Akaike's Information Criterion (AIC). The results in the upper part of Table 1 suggest that most of the regressors can be considered I(1) at a significance level of five percent. Only the dependency ratio, economic growth, and the number of democratic years seem to be stationary; the other regressors are either non-stationary or borderline cases, so we proceed by treating them as non-stationary.

As the next step, we check for cointegration using the tests suggested by Pedroni (1999) that tests the null of no cointegration without imposing homogeneity of the cointegrating vector. The results are reported in the lower panel of Table 1. Our findings suggest that the null hypothesis of no-cointegration can be rejected most of the time. We therefore proceed by estimating the model presented above.

[Insert Table 1 here]

IV. Empirical results

This section reports the estimation results on the relation between elections and fiscal policy. In addition to the PMG and MG estimates, we report the Dynamic Fixed Effects (DFE) estimates to facilitate comparison. The DFE model allows for individual

intercepts to vary across countries, and is similar to the GMM procedure. To obtain robust and consistent standard errors we use the bootstrap method with 1,000 replications.⁷

We test for long-run homogeneity using a Hausman test based on the null of equivalence between the PMG and MG estimation (Pesaran *et al.*, 1996). Rejecting the null implies rejecting homogeneity of the cross-section's long-run coefficients. An alternative to the Hausman test is the likelihood ratio test for short- or long-run parameter heterogeneity that has homogeneity as the null (Hsiao *et al.*, 1999).

For all estimations we use a three-stage estimation procedure.⁸ In the first stage, we determine the optimal number of lags for each variable using the Schwarz Bayesian Information Criterion (SBC). All results are robust for alternative selection criteria like Akaike's Information Criterion (AIC) and the Hanna-Quinn Information Criteria (HQ). For the vast majority of the countries, specifications without a lagged dependent variable are rejected at conventional levels of statistical significance, indicating that dynamics are important. In the second stage, we search for a suitable initial value of the coefficients. We used standard OLS regressions to find our initial values. In the final stage, we use a Newton-Raphson optimization algorithm to maximize the likelihood function.

Table 2 and 3 show our baseline results using the three different estimators for government's budget balance and spending, respectively.⁹ Although, their magnitude

⁷ Due to the unequal distribution of the availability of the data across the countries, we clustered the standard errors using the White-Huber clustered standard errors. Furthermore, by weighting the observations we make the data more representative of the world population to account for missing data, which occurs more for the less developed economies.

⁸ As outlined in the previous section, the consistency and efficiency of the PMG estimates relies on several specification conditions. The first is that the regression residuals are serially uncorrelated and that the explanatory variables can be treated as exogenous. The second condition is that both country-specific effects and cross-country common factors are accounted for. We control for country-specific effects by allowing for an intercept for each country, and we attempt to eliminate cross-country common factors by demeaning the data using the corresponding cross-sectional means for every period (which is algebraically the same as allowing for year-specific intercepts).

⁹ The short-run parameter estimations along with the individual country MG results are available on request. One problem with the PMG method is that the results critically depend on the initial values given. As a robustness check we also used the coefficients reported by Brender and Drazen (2005) as the initial values. The results do not change substantially. Also these results are available on request.

differs, in the long run the budget balance and government spending are affected by the unemployment rate, the age dependency ratio and economic growth in all three estimations. In addition, in the DFE estimates government ideology has a significant effect. For the short-run coefficients, we find that in most estimates the change in inflation as well as economic growth have a significant effect on government spending and the budget balance.

Most importantly, we can draw several conclusions on the impact of elections on fiscal policy. First, while there is a significant long-run election effect in the DFE estimation, in the PMG and MG estimation this effect is not present. The joint Hausman test statistic accepts the long-run slope homogeneity restriction at the 5 percent level. This implies that consistency of the MG estimate is not warranted and so the PMG estimate should be preferred. The PMG results suggest that in the long run there is no significant effect of an upcoming election on fiscal policy. This result is strengthened by the Hausman test statistic, which is highly significant for the election coefficient in both the models for the government budget balance and government spending.

Second, for all three estimators we find a significant short-run election effect. Note, however, that the magnitude of the MG estimator is substantially different from those of the DFE and PMG estimators.

[Insert Tables 2 and 3 here]

Our results suggest that elections have a significant short-run effect on the budget balance and government spending. On average, elections increase government spending by 0.6 percent and decrease the budget balance by 0.8 percent. The average error correction term σ ranges between -0.7 and -0.9, indicating that about 70 to 90 percent of the adjustment to the steady state takes place each year. That is, government spending and the budget balance adjust fairly quickly to their equilibrium levels.

V. What drives differences across countries?

Our results suggest that elections on average have a short-run effect on fiscal policy, but also that there is much diversity across countries. In this section we examine what factors explain this cross-country variation. As a first step, we divide our sample into industrialized and developing countries.¹⁰ Although these samples are more homogeneous, the Hausman tests as shown in Table 4 suggest that the PMG estimation is preferred. The results show that the short-run election effect is much higher in developing countries than in industrialized countries. In addition, we find for industrialized countries, a small but significant negative long-run election effect on government spending and a positive effect on the budget balance. This implies that although fiscal policy turns expansionary before the elections, after the elections governments take restrictive measures to redress the resulting fiscal imbalances, perhaps because voters dislike budget deficits.

[Insert Table 4 here]

Next, we test the hypothesis put forward by Brender and Drazen (2005) that there is a 'learning effect', i.e., a PBC only shows up in countries with limited experience with democratic elections. We test for this learning effect by dividing the sample into young democracies and old democracies. We consider countries that have been democratic more than 20 years on a row since 1945 as old democracies. We count each country-year with a Polity IV score larger or equal to 2 as a democratic year.¹¹ The hypothesis tested is that in old democracies elections will have less (or even no) impact on fiscal policy as voters have become aware of fiscal manipulation before an election. As the final columns in Table 4 show, we find that in both samples the short-run election effect is significantly positive, but the effect is significant larger in young democracies. Furthermore, we find that there is a significant long-run election effect in

¹⁰ Following the classification in the IMF World Economic Outlook Report April 2008.

¹¹ We have also used a cut-off point of a Polity IV score of four. This yields very similar results (available on request).

young democracies. These results are in line with the findings of Brender and Drazen (2005).

Persson and Tabellini (2003) argue that elections may have a different effect on fiscal policy under proportional versus majoritarian electoral rules. Proportional elections induce politicians to seek support from specific groups in the electorate via targeted spending. We use data from the *Database of Political Institutions* to classify countries according to their electoral system. Likewise, there may be differences between parliamentary vs. presidential systems. In contrast to a parliamentary system, in a presidential system the executive cannot be brought down by the legislature, but is directly accountable to the voters. Thus, legislators have weaker incentives to vote according to party or coalition lines. If the president has no legislative powers in the realm of fiscal policy and the government is accountable to parliament through a confidence requirement, we classify the country concerned as a parliamentary regime.¹² Table 5 reports the results for the estimates on the effect of the political system on the existence of a PBC. They suggest that in presidential and proportional political systems the short-run PBC effect is significant larger compared to the other political systems. Again, we do not any long-run effect of elections on fiscal policy.

[Insert Table 5 here]

Next, transparency of fiscal policy allows voters to observe the causes and consequences of a government’s policy choices. The ability of voters to identify politicians’ opportunistic policy choices depends on the decision-making process and the information available to them (Alt and Lassen, 2006). We construct a proxy for transparency by the first principal component of the ICRG (2005) indicators of corruption, democratic accountability, bureaucracy, and the rule of law. Based on this measure, we split our sample in two equal subsamples: low transparency and high

¹² Thus, France and Finland are classified as parliamentary countries even though they have a directly elected president, since the government controls fiscal policy and the government can be brought down by a legislative vote of no confidence.

transparency countries. In line with the findings of Alt and Lassen (2006), our results as shown in the first part of Table 6 indicate that the short-run impact of an election on fiscal policy is significant higher in low-transparency countries than in high-transparency countries.

[Insert Table 6 here]

According to Alt and Lassen (2006), it becomes more desirable for a political party to stay in office in case of high political polarization. The farther away the opponent's platform, the greater is the utility loss from losing office and the more the incumbent is willing to risk in order to be re-elected. To examine whether polarization affects the likelihood of election-motivated fiscal policy, we split our sample in two samples with equal size: countries with low political polarization and countries with high political polarization. Our polarization measure is taken from the World Bank *Database on Political Institutions* (update of Beck et al., 2001) and is defined as the maximum difference between the ideological position of the government and the largest opposition party. The results in the second part of Table 6 show that in both samples there is a significant short-run election effect on fiscal policy, but in line with the prediction of Alt and Lassen (2006) the impact is significant higher in countries with high polarization.

Monetary unions frequently restrain fiscal policy of its member states. An example is the Stability and Growth Pact in the European Economic and Monetary Union (EMU). So members of a monetary union may have fewer possibilities for opportunistic fiscal policies. We therefore split our sample according to membership of a monetary union. The results as shown in the first part of Table 7 suggest that the short-run effect of elections on fiscal policy is significant lower in members of a monetary union.

Finally, it has been argued that countries ruled by a government consisting of one party with a majority in parliament may find it easier to implement fiscal austerity measures than countries ruled by a coalition government. Likewise, one-party

governments may find it easier to use fiscal policy for re-election purposes. Using information from Databanks International (2005), we split our sample into countries with a one-party government and countries with coalition governments. The results as shown in the second part of Table 7 indicate that the PBC effect is significant stronger in countries with a one-party government than in countries with a coalition government.

[Insert Table 7 here]

As a sensitivity check we used quarterly data instead of annual data. Turning to the quarterly data one can isolate the electoral year better. However, this reduced the countries included by about two-third. The results are not significantly different from the findings based on annual observations (results are available upon request).

VI. Conclusions

Most recent studies on election-motivated fiscal policy are based on panel models in which it is assumed that the data can be pooled. However, in view of the heterogeneity of the countries included in those studies, this assumption may be questioned. As it turns out that our data for about 70 countries for 1970 to 2007 cannot be pooled, we use the Pooled Mean Group (PMG) estimator to control for panel heterogeneity. This estimator allows the short-run coefficients and error variances to differ freely across groups, but the long-run coefficients are constrained to be the same. We conclude that in our full sample fiscal policy in general is not affected by elections in the long run. However, in the short run there exists significant heterogeneity in the effect of elections on fiscal policy. Therefore, in the second part of our analysis, we try to discover whether those countries for which we find a PBC share particular characteristics. Our results suggest that the occurrence of a PBC is conditional on the level of development and democracy, government transparency, the country's political system, its membership of a monetary union and its degree of political polarization.

References

- #Alt, J. and Lassen, D. (2006) Transparency, political polarization and political budget cycles in OECD countries, *American Journal of Political Science*, **50**, 530-550.
- #Andrikopoulos, A., Loizides, I. and Prodromidis, K. (2006) Taxation and political business cycles in EU economies, *Applied Economics*, **38**, 1761 – 74.
- #Baltagi, B. (1995) *Econometric Analysis of Panel Data*, Wiley, New York.
- #Banks, A., Overstreet, W., Muller, T., *Political Handbook of the World*, various issues, CQ Press, Binghamton.
- #Beck, T., Clarke, G., Groff, A., Keefer, P. and Walsh, P. (2001), New tools in comparative political Economy: The database of political institutions, *World Bank Economic Review*, **15**, 165-176.
- #Block, S.A. (2002) Political business cycles, democratization, and economic reform: the case of Africa, *Journal of Development Economics*, **67**, 205–228.
- #Brender, A. and Drazen, A. (2005) Political budget cycles in new versus established democracies, *Journal of Monetary Economics*, **52**, 1271-1295.
- #Catão, L. and Terrones, M. (2005) Fiscal deficits and inflation, *Journal of Monetary Economics*, **52**, 529-554.
- #Drazen, A. and Eslava, M. (2006) Pork barrel cycles. NBER Working Paper 12190.
- #Drazen, A. and Eslava, M. (2010) Electoral manipulation via voter-friendly spending: Theory and evidence, *Journal of Development Economics* **32**, pp.39-52.
- #Dreher, A. (2006) Does globalization affect growth? Evidence from a new index of globalization, *Applied Economics* **38**, 1091-1110.
- #Election resources, 2007. www.electionresources.org
- #Franzese, R. (2000) Electoral and partisan manipulation of public debt in developed democracies, 1956-1990, in *Institutions, Politics and Fiscal Policy*, (eds.) Strauch, R. and Von Hagen, J., Kluwer Academic Press, Dordrecht, pp. 61–83.
- #Hallerberg, M. and Clark, W.R. (2000) Mobile capital, domestic institutions, and electorally induced monetary and fiscal policy, *American Political Science Review*, **94**, 323-346.
- #Hallerberg, M. and Strauch, R. (2002) On the cyclicity of public finances in Europe, *Empirica*, **29**, 183-207.
- #Hsiao, C, Lahiri, K, Lee, L.F. and Pesaran, M.H. (eds) (1999) *Analysis of Panels and Limited Dependent Variable Models*, Cambridge University Press, Cambridge (UK).
- #IMF (2006). *International Financial Statistics*, CD-Rom, IMF, Washington.
- #International Labor Organisation (2006), *LABORSTA*, laborsta.ilo.org, ILO, New York.
- #Im, K., Pesaran, M. and Shin, Y. (2003) Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, **115**, 53-74.
- #Jagers, K., Marshall, M. and Gurr, T. (2007), *Polity IV: Political Regime Characteristics and Transitions, 1800-2007*, MI: Inter-university Consortium for Political and Social Research, Ann Arbor.

- #Jochimsen, B. and Nuscheler, R. (2011) The political economy of the German Länder deficits: weak governments meet strong finance ministers, *Applied Economics*, forthcoming.
- #Mink, M. and De Haan, J. (2006) Are there political budget cycles in the euro area?, *European Union Politics*, **7**, 191-211.
- #Nordhaus, W., 1975. The political business cycle. *Review of Economic Studies* **42**, 169-190.
- #OECD (2006) *OECD.stat. stats.oecd.org*, OECD, Paris.
- #Pedroni, P., 1999. Critical values for cointegration tests in heterogeneous panels with multiple regressors, *Oxford Bulletin of Economics and Statistics* **61**, 653-670.
- #Pesaran, M., Smith, R., 1995. Estimating long-run relationships from dynamic heterogenous panels. *Journal of Econometrics* **68**, 79-113.
- #Pesaran, M., Smith, R., Im, K., 1996. Dynamic linear models for heterogenous panels. In L. Matyas and P. Sevestre, (eds.), *The Econometrics of Panel Data: A Handbook of the Theory With Applications*, Kluwer Academic Publishers, 145-195.
- #Pesaran, M., Shin, Y, Smith, R., 1999. Pooled mean group estimation of dynamic heterogenous models. *Journal of the American Statistical Association* **94** (446), 621-634.
- #Persson, T., Tabellini, G., 2002. Do electoral cycles differ across political systems. mimeo, IIES, Stockholm University.
- #Persson, T., Tabellini, G., 2003. The economic effect of constitutions: What do the data say. MIT Press, Cambridge MA.
- #Rogoff, K., Sibert, A., 1988. Elections and macroeconomic policy cycles. *Review of Economic Studies* **55**, 1-16.
- #Schuknecht, L. (1996) Political business cycles and fiscal policies in developing countries, *Kyklos*, **49**, 155-70.
- #Schuknecht, L. (2000) Fiscal policy cycles and public expenditure in developing countries, *Public Choice*, **102**, 115-30.
- #Shi, M. and Svensson, J. (2006) Political budget cycles: do they differ across countries and why?, *Journal of Public Economics*, **90**, 1367-89.
- #Tujula, M. and Wolswijk, G. (2007) Budget balances in OECD countries: what makes them change?, *Empirica*, **34**, 1-14.
- #Summers R., Heston, A. and Aten, B. (2006) *Penn World Table Version 6.2*, Center for international comparisons of production, income and prices. University of Pennsylvania.
- #United Nations (2006) *United Nations Statistical Databases*, www.unstats.un.org, UN, New York.
- #World Bank (2006) *World Bank Development Indicators 2006*, CD-Rom, World Bank, Washington.

Table 1. Panel unit root and cointegration tests (p values)

Panel unit root	Level	First difference
Dependency ratio	0.412	0.041
Economic growth	0.231	0.047
Election	0.049	-
Globalization	0.045	0.036
Income per capita	0.081	0.018
Inflation	0.047	0.002
Partisan variable	0.008	-
Unemployment rate	0.032	0.006
Cointegration		
Panel τ -statistic p-value		0.412
Panel rho-statistic p-value		0.217
Panel pp-statistic p-value		0.031
Panel ADF-statistic p-value		0.049
Group rho-statistic p-value		0.287
Group pp-statistic p-value		0.035
Group ADF-statistic p-value		0.087

The upper part of the table shows the panel unit root test of Im et al. (2003) with no unit root as the null hypothesis. The bottom part shows the cointegration test of Pedroni (1999) with no-cointegration as the null hypothesis. In the panel unit root tests the critical values for 1%, 5% and 10% are -2.04, -1.90, and -1.81, respectively. Results and critical values for these tests were obtained by using the 'ipshin' command in STATA.

Table 2. Estimation results for government's budget balance

Dependent variable: Budget balance							
	Pooled mean group		Mean group		Hausman test	Dynamic fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Coeff	t-value	Coeff	t-value	h-test p-value	Coeff	t-value
Long run coefficients							
Lagged dependent variable	0.516**	4.59	0.645**	3.84	0.26	0.423	3.40
Partisan variable	-0.487	-1.56	-0.537	-1.17	0.57	-0.343**	-2.13
Globalization	-0.325	-1.23	-0.243	-1.00	0.38	-0.266	-1.13
Age dependency ratio	-0.912**	-2.68	-1.464**	-2.63	0.31	-0.713**	-2.82
Unemployment rate	-0.603**	-2.12	-0.330**	-2.01	0.02	-0.583**	-2.27
Economic growth	0.031**	2.97	0.019*	1.93	0.12	0.032**	3.16
Income per capita	0.495	1.61	0.404	0.97	0.18	0.409	1.27
Inflation rate	-0.138	-1.12	-0.096	-1.14	0.38	-0.109	-0.75
Election	-0.881	-1.49	-0.958	-1.28	0.04	-0.566**	-2.43
Error correction coefficient σ	-0.912	-2.29	0.853	-1.97		-0.709	-2.09
Short run coefficients							
Δ Lagged dependent variable	0.146	1.23	0.125	0.75		0.110	1.06
Δ Partisan variable	0.278	1.28	0.151	1.42		0.275	1.05
Δ Globalization	-0.182	-0.66	-0.196	-0.45		-0.137	-0.70
Δ Age dependency ratio	-0.255	-1.11	-0.176	-0.91		-0.216	-0.89
Δ Unemployment rate	-0.451**	-2.62	-0.305*	-1.93		-0.292**	-2.97
Δ Economic growth	0.026	0.82	0.014	0.87		0.015*	1.86
Δ Income per capita	0.109	0.70	0.119	0.66		0.098	0.47
Δ Inflation rate	-0.060*	-1.90	-0.036*	-1.81		-0.052**	-2.02
Δ Election	-0.637**	-1.99	-0.440*	-1.73		-0.363**	-2.13
Joint Hausman test (p-value)	0.353	0.358	0.390	0.367		0.390	0.326
Log likelihood test (p-value)	0.000	0.000	0.000	0.000		0.000	0.000
Number of observations	1615	1615	1615	1615		1615	1615

*t-values are shown in parentheses. ** indicates significance at 10 and 5 percent, respectively*

Table 3. Estimation results for government spending

Dependent variable: government spending							
	Pooled mean group		Mean group		Hausman test	Dynamic fixed effects	
	(1)	(2)	(3)	(4)	(6)	(7)	(8)
	Coeff	t-value	Coeff	t-value	p-value	Coeff	t-value
Long run coefficients							
Lagged dependent variable	0.612	2.01	0.569	2.02	0.26	0.462	1.34
Partisan variable	-0.532	-1.53	-0.313	-1.27	0.57	-0.407**	-2.18
Globalization	0.785	0.101	0.586	0.07	0.38	0.551	0.09
Age dependency ratio	0.329**	2.29	0.165**	2.07	0.31	0.327*	1.98
Unemployment rate	0.186**	1.97	0.135**	1.85	0.02	0.130**	2.22
Economic growth	-0.026**	-2.71	-0.024**	-2.27	0.12	-0.020*	-1.80
Income per capita	-0.464	-1.18	-0.491	-0.81	0.18	-0.391	-1.17
Inflation rate	-0.117	-0.86	-0.125	-0.73	0.38	-0.119	-0.64
Election	0.531	1.34	0.451	1.58	0.04	0.307**	2.07
Error correction coefficient σ	-0.901	-2.01	-0.812	-2.22		-0.694	-1.99
Short run coefficients							
Δ Lagged dependent variable	0.097	0.82	0.096	0.56		0.057	0.56
Δ Partisan variable	-0.368	-1.67	-0.303	-0.92		-0.207	-1.11
Δ Globalization	0.265	0.08	0.142	0.04		0.247	0.07
Δ Age dependency ratio	0.043	0.68	0.046	0.61		0.034	0.57
Δ Unemployment rate	0.054**	1.96	0.032*	1.79		0.032**	2.43
Δ Economic growth	-0.015	-1.29	-0.009	-1.54		-0.012**	-2.36
Δ Income per capita	-0.403	-0.57	-0.427	-0.51		-0.331	-0.53
Δ Inflation rate	-0.102*	-1.93	-0.096*	-1.81		-0.072**	-2.34
Δ Election	0.403**	2.20	0.160*	1.88		0.162**	2.26
Joint Hausman test (p-value)	0.350	0.348	0.304	0.322		0.351	0.331
Log likelihood test (p-value)	0.000	0.000	0.000	0.000		0.000	0.000
Number of observations	1615	1615	1615	1615		1615	1615

*t-values are shown in parentheses. */** indicates significance at 10 and 5 percent, respectively*

Table 4. Robustness test: Development and democracy

	Developing		Industrialized		Young democracies		Old democracies	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Balance	Spending	Balance	Spending	Balance	Spending	Balance	Spending
Short run effect	-0.881** [-2.51]	0.410** [2.78]	-0.209** [-1.87]	0.115** [2.11]	-1.104** [-2.04]	0.213** [2.76]	-0.754* [-1.88]	0.123 [1.45]
Long run effect	-1.363 [-1.12]	0.652 [1.37]	0.023* [1.88]	-0.019* [-1.92]	-1.199* [-1.95]	0.442* [1.89]	-0.668 [-0.90]	0.247 [1.27]
Error correction coefficient	0.973 [2.22]	0.938 [1.90]	0.938 [2.47]	0.818 [1.86]	0.851 [2.37]	0.895 [1.92]	0.956 [2.20]	0.820 [1.91]
Hausman test (p-value)	0.549	0.547	0.232	0.280	0.479	0.495	0.671	0.620
Log likelihood test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Number of observations	613	613	1002	1002	1091	1091	524	524

*Note: Estimated using the PMG methodology including the control variables of Table 2 and 3; t-values are shown in parentheses. */** indicates significance at 10 and 5 percent, respectively.*

Table 5. Robustness tests: Political system

	Proportional		Majority		Presidential		Parliamentary	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Balance	Spending	Balance	Spending	Balance	Spending	Balance	Spending
Short run effect	-0.986** [-2.09]	0.386** [2.25]	-0.762* [-1.83]	0.170* [1.76]	-1.290** [-2.02]	0.270** [2.37]	-0.775* [-1.93]	0.161* [1.94]
Long run effect	-1.201 [-1.46]	0.479 [1.38]	-0.789 [-1.50]	0.174 [1.48]	-0.974 [-1.56]	0.460 [1.59]	-0.766 [-1.37]	0.185 [1.47]
Error correction coefficient	0.931** [2.18]	0.887** [1.99]	0.895** [2.28]	0.935** [2.01]	0.995** [2.31]	0.983** [1.91]	0.888** [2.41]	0.990** [2.18]
Hausman test (p-value)	0.396	0.352	0.331	0.379	0.302	0.370	0.392	0.351
Log likelihood test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Number of observations	873	873	742	742	698	698	917	917

*Note: Estimated using the PMG methodology including the control variables of Table 2 and 3; t-values are shown in parentheses. */** indicates significance at 10 and 5 percent, respectively.*

Table 6. Robustness test: Transparency and polarization

	Low transparency		High transparency		High polarization		Low polarization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Balance	Spending	Balance	Spending	Balance	Spending	Balance	Spending
Short run effect	-0.979** [-2.72]	0.189** [2.67]	-0.257* [-1.91]	0.081* [1.83]	-1.165** [-2.96]	0.325** [2.85]	-0.671* [-1.88]	0.122** [1.97]
Long run effect	-1.065 [-1.56]	0.601 [1.61]	-0.779 [-1.18]	0.303 [1.02]	-1.718 [-1.62]	0.636 [1.57]	-0.792 [-1.24]	0.207 [1.44]
Error correction coefficient	0.901** [2.29]	0.871** [2.01]	1.002** [2.45]	0.884** [2.10]	0.963** [2.38]	0.919** [1.86]	0.986** [2.19]	0.882** [2.08]
Hausman test (p-value)	0.536	0.526	0.292	0.247	0.428	0.496	0.434	0.455
Log likelihood test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Number of observations	810	810	805	805	804	804	811	811

*Note: Estimated using the PMG methodology including the control variables of Table 2 and 3; t-values are shown in parentheses. */** indicates significance at 10 and 5 percent, respectively.*

Table 7. Robustness test: Monetary union and coalition governments

	No monetary union		Monetary union		One-party government		Coalition government	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Balance	Spending	Balance	Spending	Balance	Spending	Balance	Spending
Short run effect	-0.750** [-2.25]	0.425** [3.33]	-0.427* [-1.86]	0.213* [1.79]	-0.801** [-2.00]	0.362** [2.55]	-0.469* [-1.89]	0.201** [2.06]
Long run effect	-0.548 [-1.30]	0.498 [1.41]	-0.545 [-0.92]	0.351 [1.01]	-1.555 [-1.42]	0.591 [1.51]	-0.724 [-1.30]	0.299 [1.13]
Error correction coefficient	0.931** [2.07]	0.830** [2.00]	0.909** [2.42]	0.898** [1.84]	0.913** [2.31]	0.979** [1.97]	0.955** [2.21]	0.838** [2.10]
Hausman test (p-value)	0.421	0.433	0.164	0.185	0.366	0.356	0.305	0.343
Log likelihood test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Number of observations	540	540	1075	1075	698	698	917	917

*Note: Estimated using the PMG methodology including the control variables of Table 2 and 3; t-values are shown in parentheses. */** indicates significance at 10 and 5 percent, respectively.*

APPENDIX

Table A1. Countries included and the first year of the sample period

Country	Included since	Democratic years since 1945
Albania	1991	15
Argentina	1983	26
Australia	1976	61
Austria	1975	60
Bangladesh	1977	17
Belgium	1977	61
Bolivia	1985	24
Brazil	1982	39
Bulgaria	1990	16
Canada	1986	61
Chile	1975	45
Colombia	1975	52
Costa Rica	1975	61
Cyprus	1975	41
Czech Republic	1993	18
Denmark	1977	61
Dominican Rep	1978	29
Ecuador	1979	42
El Salvador	1977	22
Estonia	1991	15
Fiji	1975	32
Finland	1975	61
France	1977	60
Germany	1976	42
Greece	1975	53
Guatemala	1975	37
Honduras	1982	24
Hungary	1990	16
Iceland	1975	61
India	1977	56
Ireland	1977	61
Israel	1977	58
Italy	1975	58
Japan	1975	54

Korea South	1975	28
Lithuania	1992	15
Luxembourg	1976	61
Malaysia	1978	49
Mali	1979	14
Mauritius	1981	38
Mexico	1976	12
Nepal	1981	13
Netherlands	1977	61
New Zealand	1977	61
Nicaragua	1984	16
Norway	1977	61
Panama	1989	30
Paraguay	1978	17
Peru	1980	38
Philippines	1960	46
Poland	1991	17
Portugal	1976	30
Romania	1990	16
Slovakia	1994	13
South Africa	1994	59
Spain	1978	28
Sri Lanka	1978	58
Sweden	1978	61
Switzerland	1975	61
Trinidad	1976	44
Turkey	1976	54
United Kingdom	1975	61
United States	1976	61
Uruguay	1985	19
Zambia	1978	19

• indicates a significant political budget cycle effect (at 10 percent significance level). The figures in the columns show the estimated effect of elections on the fiscal variables.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table A2. Data used

Variable	Definition	Source
Partisan cycle	Government ideology measure from -1 full left wing to +1 full right wing	Update of Beck <i>et al.</i> (2001)
Number of democratic years	Number of years a country scores higher then zero in the Polity IV since 1945	Jaggers and Gur (2006)
Dependency ratio	The ratio of population older then 65 to the population between 15 and 64	World Bank (2006)
Unemployment rate	Total rate of unemployment of people in the working age	IMF (2006), World Bank (2006), United Nations (2006), ILO (2006), OECD (2006)
Economic growth	Growth rate of real GDP per capita	Summers <i>et al.</i> (2006)
Income per capita	Real GDP per capita in constant US dollar in 2000	Summers <i>et al.</i> (2006)
Inflation	Change in Consumer price index	IMF (2006)
Election	Election indicator (see main text for explanation)	Political handbook of the world (various issues)
Globalization	KOF Globalization Index	Dreher (2006)
Majority vs. proportional	Dummy variable 1, if the election is in a majority system, otherwise 0	Update of Beck <i>et al.</i> (2001), electionresources (2007)
Parliamentary vs. presidential	Dummy variable 1, if the election is in a parliamentary system, otherwise 0	Update of Beck <i>et al.</i> (2001), electionresources (2007)

Table A3. Correlation matrix control variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Partisan variable	(1)	1.000									
Democratic years	(2)	0.153	1.000								
Dependency rate	(3)	0.053	-0.433	1.000							
Unemployment	(4)	0.171	-0.141	0.143	1.000						
GDP growth	(5)	0.023	0.144	-0.183	-0.019	1.000					
GDP per capita	(6)	0.285	0.647	-0.558	-0.335	0.093	1.000				
Inflation	(7)	0.212	0.413	-0.318	0.095	0.231	0.266	1.000			
Globalization	(8)	0.164	0.611	-0.636	-0.053	0.136	0.692	0.485	1.000		
Majority system	(9)	0.179	-0.128	0.164	0.167	-0.072	-0.154	-0.125	-0.187	1.000	
Parliamentary system	(10)	0.034	0.129	-0.167	0.004	0.014	0.160	0.057	0.170	0.006	1.000