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# **DISCRETIONAL POLITICAL BUDGET CYCLES AND SEPARATION OF POWERS \***

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**Abstract:** In contrast to previous empirical work on electoral cycles, which implicitly assumes the executive has full discretion over fiscal policy, this paper contends that under separation of powers an unaligned legislature may have a moderating role. Focusing on the budget surplus, we find that stronger effective checks and balances explain why cycles are weaker in developed and established democracies. Once the discretionary component of executive power is isolated, there are significant cycles in all democracies. Whether the political system is presidential or parliamentary, or the electoral rules are majoritarian or proportional, does not change the basic results.

**JEL Classification:** D72, D78

**Keywords:** political budget cycles, asymmetric information, discretion, separation of powers, checks and balances, veto players, rule of law

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## I. Introduction

Without discretionary power, asymmetric information is not enough for political budget cycles (PBC). The degree of discretion of the executive has been overlooked in the empirical literature on PBC, perhaps because theoretical papers on opportunistic cycles usually model fiscal policy in terms of a single policy maker. However, in the U.S. two-party system Alesina and Rosenthal [1995] show how divided government is a tool to moderate the executive. A similar logic might apply in an opportunistic framework, where an opposition legislature may play a special role in moderating PBC. Indeed, Schuknecht [1996] suggests that stronger PBC in developing countries might be due to the existence of weaker checks and balances there.

Hence, what we add to the ongoing debate about the factors behind PBC is a look at the role of effective checks and balances that reduce the discretion of the executive. To measure nominal or formal checks and balances, we use the Henisz [2000] political constraints index based on the idea of veto players. We then construct a measure of effective checks and balances, as the product of political constraints and the International Country Risk Guide (ICRG) measures of rule of law.

We focus on the behavior of the budget surplus, because it is the most sensitive indicator of aggregate PBC. We also look at the effect of checks and balances on the persistence of the budget surplus, taking into account the suggestion in Tsebelis [2002] that more veto players imply that it is harder to change the status quo.

Section II briefly reviews the empirical literature on PBC most closely connected to our study. Section III presents the theoretical framework behind this study. Section IV describes the dataset, which draws mainly on the Brender and Drazen [2004] cross-country panel of democracies, and the Henisz [2002] political constraints dataset. Section V presents econometric

evidence on electoral budget cycles, isolating the discretionary PBC. Section VI has the conclusions and questions for further research.

## II. Empirical literature

There is a rich empirical literature on electoral cycles in fiscal policy. Tufte [1978] provides early evidence on opportunistic fiscal cycles in the United States and other countries. Recently, there has been a wave of empirical work on aggregate PBC using panels of countries. We concentrate on the studies by Shi and Svensson [2002a, 2002b], Persson and Tabellini [2002], and Brender and Drazen [2004], which are the basis for this research.

We describe these studies in detail below. Briefly stated, Shi and Svensson [2002a, 2002b] find PBC are widespread, being particularly pronounced in developing countries, something they relate to greater corruption and less informed voters. Looking at the subset of democratic countries, Persson and Tabellini [2002] also find PBC are widespread, being stronger in presidential countries and in countries with proportional elections. Brender and Drazen [2004] analyze democratic countries too. Once they take into account that new democracies have particularly strong PBC, cycles are not significant in the remnant countries, whether developed or developing, and whatever their form of government, electoral rules, or level of democracy.

### A. Shi and Svensson

Shi and Svensson [2002b] analyze, for a panel of 91 countries over the 1975-1995 period, the influence of a variable *ele* that takes value 1 in electoral years, and 0 elsewhere. They find that there is a pre-electoral cycle in the fiscal surplus that is much stronger in developing countries: the surplus falls 1.4 percentage points (p.p.) of GDP, against 0.6 p.p. in developed countries. The reason for this difference is not the revenue cycle, which falls 0.3 p.p. in both groups, but rather

that spending rises much more strongly in developing countries. They are able to explain these differences across groups of countries in terms of larger rents for incumbents in developing countries, using as proxies either the Transparency International measure of degree of corruption, or an average of five ICRG institutional indicators (rule of law, corruption in government, quality of the bureaucracy, risk of expropriation of private investment, and risk of repudiation of contracts).

Shi and Svensson [2002a] look at a panel of 123 countries over the 1975-1995 period. Besides the pre-electoral effects captured with *ele*, they look at the combined pre- and post-electoral effects with a variable *pbc* that equals 1 in electoral years, -1 in post-electoral years, and 0 otherwise. The variable *pbc*, which imposes the restriction that the contraction after elections is of the same magnitude as the expansion prior to elections, almost invariably turns out to be more significant in statistical terms than the *ele* variable. They again find that PBC are pervasive, and that cycles are stronger in developing countries: *pbc* has a coefficient of -1.0 in developing countries, and -0.4 in developed countries. They explain the differences in terms of a variable *sum*, a weighted average of two indicators. First, the variable *rents*, an average of the five ICRG indicators mentioned above. The rationale is that low rents (i.e., a higher value of *rents*) indicate smaller incentives to remain in power. Second, the variable *informed voters*, the product of number of radios per capita and a dummy that measures the freedom of broadcasting. The rationale is that a greater proportion of informed voters can reduce the problems of asymmetric information that allow cycles to take place. They find that the composite variable *sum* explains the differences between developing and developed cycles in regard to *ele* (however, they overlook to report the results with *pbc*).

### **B. Persson and Tabellini**

Persson and Tabellini [2002] restrict their panel to 60 democratic countries over the 1960-1998 period. They distinguish between the pre-electoral component of electoral cycles in fiscal policy,  $ele$ , and the post-electoral component,  $ele(+1)$ , which takes value 1 in post-electoral years, and 0 elsewhere.

Though they do not test whether the differences are statistically significant, there appears to be a clear asymmetry in government expenditure, which is significantly cut the year after elections, while there is no pattern in the year before elections. On the other hand, tax cuts before elections are followed by similar hikes after elections. This pattern is reflected in the electoral behavior of the budget surplus, which falls 0.1 p.p. of GDP before elections, and rises 0.4 p.p. afterwards. Controlling for the effect of the level of democracy, they find cycles not only in the whole range of democracies (polity index from the Polity IV dataset between 1 and 10), but also in the countries with the best democratic institutions (polity index of 9 or 10).

Persson and Tabellini also analyze the effect of electoral rules and forms of government on PBC. As to electoral rules, they find a statistically significant difference in the case of spending before elections, which tends to fall in majoritarian countries, and to rise in proportional countries (though these effects are not statistically significant in themselves, the difference is). As to the form of government, the differences are more prominent. In presidential countries, the post-electoral effects of a fall in expenditure, and a rise of taxes and surplus, are stronger than in parliamentary countries, and the differences tend to be statistically significant.

### **C. Brender and Drazen**

Brender and Drazen [2004] study a panel of 68 democratic countries over the 1960-2001 period. They concentrate on pre-electoral effects using the  $ele$  variable. They distinguish between new

and old democracies. Countries are new democracies during the first four competitive elections, before becoming established democracies. The idea behind this is that voting may require a local learning process that matures with electoral experience, so the problems of asymmetric information may be alleviated over time.

When all countries are pooled, the electoral effect on the budget surplus of the first four competitive elections is between -1 and -1.2 percentage points of GDP, while the rest of the elections have a negligible effect on the budget surplus. When they partition the data, Brender and Drazen find that PBC are statistically significant in new democracies. On the other hand, old democracies show no evidence of cycles using the *ele* variable, whether in OECD countries or not, and whatever the level of democracy (countries with a polity index between 0 and 9, or an index of 10), the form of government (presidential or parliamentary), or the electoral rules (majoritarian or proportional).

### III. Theoretical framework

Two key references on rational electoral cycles are Rogoff [1990] and Lohmann [1998]. They have different implications on the likelihood of PBC, and on the effects of PBC on the probability of reelection. Rogoff [1990] models electoral cycles in fiscal policy building on earlier work by Rogoff and Sibert [1988]. Under asymmetric information, he shows that cycles can be interpreted as a signal of the competency of the incumbent. In equilibrium, only competent incumbents engage in PBC, and PBC increase the probability of reelection. Lohmann [1998a] models electoral cycles in monetary policy. She makes the nice point that even if one abstracts from the signaling problem, there will still be cycles under asymmetric information about the policy process. The underlying issue is a credibility problem, by which the executive cannot credibly commit to not pursue expansionary policy before elections. This credibility problem carries over

to fiscal policy. Shi and Svensson [2002a], in a setup that includes government debt, show that the incumbent will have an incentive to raise total expenditure and lower taxes, thereby increasing the budget deficit. In equilibrium, all types of incumbents engage in cycles, so cycles do not increase the probability of reelection.

The standard results on rational PBC not only require asymmetric information, but also a fiscal authority with discretion over fiscal policy; once one drops the assumption of a single fiscal authority, the possibility of PBC will depend on the leeway that the legislature allows the executive in pursuing electoral destabilization [Streb, 2003]. This may be empirically relevant, since Alesina, Roubini, and Cohen [1997, chaps. 4 and 6] trace the lack of recent evidence on opportunistic cycles in the United States back to the fact that after 1980 many federal transfer programs have become mandatory by acts of Congress, so they cannot be easily manipulated for short run purposes.

Persson, Roland and Tabellini [1997] sparked off fruitful research on the implications of separation of powers for fiscal policy, but they did not consider its specific implications for PBC. Saporiti and Streb [2004] formally analyze the implications for PBC of considering that in constitutional democracies the process of drafting, revising, approving and implementing the budget requires the concurrence of the legislature.<sup>1</sup> In a framework of asymmetric information on the budgetary process similar to the Lohmann [1998a] timing, the moderating influence of the legislature is largest when the status quo is given by the previous period's budget. In terms of the time-consistency literature on "rules versus discretion" stemming from Kydland and Prescott [1977], which discusses how to solve the credibility problems faced by policy-makers, separation of powers is needed to make the budget rule credible, i.e., to commit the executive to not doing stimulative policies in electoral periods.



The interpretation we follow here is that separation of powers has a bite in the fiscal process when the executive and legislative branches are not perfectly aligned. This draws on the insight of Alesina and Rosenthal [1995] on the moderating influence of an opposition legislature. Through the metric of veto players [Tsebelis, 2002], this insight applies not only to divided government in presidential systems, but more generally to coalition governments (besides, coalition members start to compete for votes close to elections). Given this, the Saporiti and Streb [2004] model has sharp empirical implications. If there is perfect compliance with the budget law, the budget rule is credible when the party of the executive's leader does not control the legislature.<sup>2</sup> If there is imperfect compliance, however, the rule is not credible and PBC subsist. Hence, PBC should be larger either in countries with low legislative checks and balances, or with low observance of the rule of law.

#### IV. Data and Econometric Specification

We basically use the Brender and Drazen [2004] dataset. Additionally, we resort to the Henisz [2002] POLCON dataset. The precise definitions and sources of the variables used in the regressions are given in Table AI in the Appendix.

Brender and Drazen [2004] compile a panel data set that covers 68 developed and developing democracies, with annual observations for the period between 1960 and 2001. The sample is restricted to years in which the polity index from the Polity IV Project is non-negative, when the country is a democracy with competitive elections. They construct election dates with data from the Institute for Democracy and Electoral Assistance, the International Foundation for Electoral Systems, the Database of Political Institutions (DPI) Version 3, and several other sources.

Brender and Drazen deparure the IMF *International Financial Statistics* (IFS) fiscal series on government surplus, total expenditure, and total revenue and grants, and calculate them as percentage of GDP (drawn from the IFS). They draw on the World Bank *World Development Indicators* for control variables like per capita GDP, GDP growth rates and share of international trade.

From the Henisz [2002] POLCON dataset, we use the political constraints index  $polcon3$ . This index takes into account the extent of alignment across the executive and legislative branches of government, and was designed by Henisz [2000] to measure the political constraints facing the executive when implementing a policy.<sup>3</sup> More alignment increases the feasibility of policy change and implies less political constraints for the executive. The minimum is a value of 0, which implies no constraints and absolute political discretion for the executive. As the value of  $polcon3$  increases, more political constraints are implied. With a single legislative chamber,  $polcon3$  may reach a maximum of  $2/3$ ; while with two chambers the maximum is  $4/5$ , when neither of the chambers is aligned with the executive.

We define a variable  $p3$  that rescales  $polcon3$ , dividing it by  $2/3$ , and which equals 1 for values of  $polcon3$  equal to  $2/3$  or more, because values of  $2/3$  or more imply that the executive faces at least one veto player. In consequence,  $p3$  varies in the  $[0,1]$  interval. The POLCON dataset reports the ICRG index on Law and Order, which measures the degree of rule of law based on a scale from 0 (low) to 6 (high) characterizing the strength and impartiality of the legal system and the general observance of the law. In earlier years when the Law and Order index is not available, we use instead the ICRG Rule of Law index.<sup>4</sup> We divide these indices by 6, so  $lo$  varies in the  $[0,1]$  interval. Our measure of effective checks and balances is  $p3\_lo=p3*lo$ , which combines  $p3$  with  $lo$  to capture both the legislative checks and balances and the degree of compliance with the law.

Following our theoretical framework and the previous empirical literature on electoral cycles in fiscal policy, a relation between a given fiscal variable  $y$  in country  $i$  and year  $t$  ( $y_{i,t}$ ) and the electoral cycle can be described as follows:

$$(1) \quad y_{i,t} = \sum_{j=1}^k \beta_j y_{i,t-j} + \sum_{j=1}^m \gamma_j x_{j,i,t} + \delta_E E_{i,t} + \lambda z_{i,t} + \eta z_{i,t} E_{i,t} + \varphi z_{i,t} y_{i,t-1} + \mu_i + \varepsilon_{i,t} \quad ,$$

where  $E_{i,t}$  is a dummy election variable,  $x_{i,t}$  is a vector of  $m$  controls,  $z_{i,t}$  is a proxy variable for effective checks and balances conditioning the electoral policy manipulations,  $\mu_i$  is a specific country effect, and the term  $\varepsilon_{i,t}$  is a random error that is assumed i.i.d. This specification represents a dynamic panel model, where the dependent variable is a function of its own lagged levels, a set of controls and the electoral timing conditioned by effective checks and balances.

Estimates are performed using two methods, Fixed Effects (FE) and Generalized Method of Moments (GMM) for dynamic models of panel data using the procedure developed by Arellano and Bond [1991].

## V. Empirical Evidence

We now turn to the evidence on aggregate PBC using the budget surplus. We study the influence of effective checks and balances, and discretionary executive power on PBC in developed and developing countries. We then control for the influence of voter experience, form of government and electoral rules on discretionary PBC. Finally, to make sure the impact of executive discretion on electoral cycles is not driven by a larger degree of uninformed and inexperienced voters, we check the subset of developed countries that are established democracies.

## A. OECD and non-OECD countries

Our aim is to explore the Schuknecht [1996] conjecture that stronger PBC in developing countries might be related to weaker checks and balances there. We look at the influence of electoral cycles on the behavior of the budget surplus as a percentage of GDP, *bal*.

We use the same control variables as Brender and Drazen [2004], except for the use the growth rate of real GDP to control for cyclical effects (the use of the output gap measured with the Hodrick-Prescott filter does not affect the results). We additionally control for the effect of inflation and its square,  $\ln(1+pi)$  and  $\ln(1+pi)sq$ , to account for issues like tax collection lags. We exclude Sweden from the sample, due to a jump in the fiscal series in the early 1990s, so our panel is reduced to 67 countries.

The data is annual, though monthly data would be ideal. The estimates with annual data are downward biased, and may lead to underestimate the size of PBC: as Akhmedov and Zhuravskaya [2004] show for Russia, the effects of PBC are strongest in the months closest to elections, and shifts of opposite sign in fiscal policies around elections partly cancel out with low frequency (quarterly or annual) data.

We concentrate on the electoral dummy *pb*, which takes value 1 in electoral years, -1 in post-electoral years, and 0 otherwise. This variable is meant to capture both pre and post-electoral effects, following the approach in Shi and Svensson [2002a]. It is constructed with the *ele* variable in Brender and Drazen [2003], which only takes elections when the polity index is non-negative, combined with its lead,  $ele(+1)$ .<sup>5</sup> Persson and Tabellini [2002] remark that pre and post electoral effects may differ, so we first check in Table I if the restriction that the coefficient estimate of *ele* is equal to the coefficient estimate of minus  $ele(+1)$  is not rejected by the data.

<please see Table I>

Column (1) of Table I shows that the restriction that the pos-electoral contraction in the budget surplus as a percentage of GDP (*bal*) is of the same size as the pre-electoral expansion is not rejected by the annual data (columns (2) and (3), which separate OECD and non-OECD countries, are similar). We can interpret the effect of PBC as short-run displacements: the surplus falls below its trend, and then jumps above it, if expenditures are speeded up, and taxes postponed, around elections.<sup>6</sup>

Column (4) of Table I shows that the electoral cycle measured by the *abc* dummy variable shows a fall of 0.3 p.p. of GDP in the surplus before elections, and an equivalent rise after elections. The pattern observed by Shi and Svensson [2002a,b] that electoral cycles are stronger in developing countries appears here, though the difference is not statistically significant.<sup>7</sup> Columns (5) and (6) show that in OECD countries this effect is slightly smaller (0.24 p.p. of GDP), while in non-OECD countries it is slightly larger (0.36 p.p. of GDP).

Table II tests if effective checks and balances *p3\_lo* have a moderating influence on PBC, checking whether the coefficient estimate of the compound variable  $abc\_p3\_lo = abc * p3 * lo$  shows the theoretically expected positive sign.

<please see Table II>

Column (1) of Table II shows that effective checks and balances moderate PBC, though they do not have a significant influence by themselves (Columns (2) and (3) report estimates that are restricted to OECD and non-OECD countries).

However, we are interested in the net effect of checks and balances, given our conjecture that veto players will prevent PBC. Based on an F-test, we cannot reject the hypothesis that the coefficient of *abc* is equal to minus the coefficient of *abc\_p3\_lo*. In what follows we proceed to

isolate what can be called the discretionary component of PBC, adjusting the original  $pb$  variable by effective checks and balances:  $pbdis=pb-pb_{p3\_lo}=pb(1-p^3*lo)$ .<sup>8</sup> This adjustment implies, at one extreme, that if the legislature is perfectly aligned with the executive ( $p^3=0$ ), or if the observance of rule of law is very low ( $lo=0$ ), the original  $pb$  variable is unchanged. At the other extreme, if the legislature is not aligned with the executive and constitutes a veto player ( $p^3=1$ ), and there is a high value of rule of law ( $lo=1$ ), an election year would not be counted as such, because the electoral cycle would be completely counteracted by the legislative checks and balances.

Since the data on rule of law is only available since 1982, for comparison we defined a dummy variable  $lod$  that takes value 1 if  $lo$  is larger than 4 in all years that are reported for a given country, and 0 otherwise. This second treatment implies treating rule of law as a fixed characteristic, so each country has either low or high rule of law. This has the advantage of extending the available data, but the disadvantage of losing the variation over time of rule of law. In the alternative measure  $pb_{p3\_lod}$ ,  $pb$  is multiplied by  $p^3$  and  $lod$ . As column (4) shows for the complete sample over the whole period, this alternative measure of effective checks and balances, which affects PBC significantly, also allows to isolate a discretionary component.

Table III presents the estimates including our variable that captures the discretionary component of cycles,  $pbdis=pb*(1-p^3*lo)$ .

<please see Table III>

The estimates of the effect of discretionary PBC in column (1) of Table III are significant at the 1% level, as are those of PBC in column (4) Table I. However, the estimated impact is larger for a country with no effective checks and balances: 0.9 p.p. of GDP. Figure I depicts the time

path of the average budget surplus implied by the electoral cycle  $pb$  and the discretionary component  $pbdis$  around a year of elections  $t$  in the whole sample (on average, there are elections every four years).

<please see Figure I>

Table III does not give the slightest hint that discretionary PBC are different in OECD and non-OECD countries (columns (2) and (3) show coefficients for sub-samples).<sup>9</sup> However, discretionality is larger in non-OECD countries, where checks and balances are lower (Table AII in Appendix). Multiplying the average degree of discretionality in each group by the estimate in column (1) of Table III implies stronger PBC in developing countries: -0.6 p.p. of GDP in non-OECD countries, against -0.3 p.p. of GDP in OECD countries. This agrees with Shi and Svensson [2002a,2002b], though the channel is that conjectured by Schuknecht [1996]: larger checks and balances moderate cycles in developed countries.

Column (4) of Table III shows that with  $pbdisd=pb*(1-p3\_lod)$ , the effect is 0.5 p.p. of GDP. Since this captures average rather than marginal effects, showing the influence of political constraints with switch from a low rule of law to a high rule of law country, in what follows we focus on  $pbdis$ .

## **B. New and Old Democracies**

Given the fact that voters in established democracies might behave as fiscal conservatives that punish deficit spending, Brender and Drazen [2004] designed a filter variable  $newd$  to take into account whether a country is a new democracy or not. We classify a country as  $newd$  if, according to Brender and Drazen [2004], any of the elections in the sample period belongs to the

first four competitive elections. Besides the direct effect of checks and balances on the level of electoral cycles, in Table IV we consider their indirect effect on persistence, given the observation in Tsebelis [2002] that more veto players should lead to more persistence of policies.

<please see Table IV>

Column (1) of Table IV differs from column (1) of Table III in the lagged term  $bal(-1)_{dis} = bal(-1) * (1 - p^3 * lo)$ , where the past surplus interacts with the current degree of discretionary power. More discretion (less effective checks and balances) decreases the persistence of budget surpluses, or deficits. This might be an indication of how checks and balances can limit cyclical effects, also making it harder for governments to reduce the surplus in election years.

The degree of discretion is larger in new democracies (Appendix, Table AII), so the coefficient estimate in column (1) implies the result in Brender and Drazen (2003, 2004) that cycles are stronger in new democracies. In addition, the discretionary component of cycles  $pbcdis$  has a larger impact in new democracies, though the difference is not statistically significant.<sup>10</sup> Columns (2) and (3) show separate estimates for new and old democracies. Though PBC are particularly strong in new democracies, isolating the discretionary component leads to find significant PBC in established democracies.

All the regressions so far use country fixed effects. The use of fixed effects estimators in a regression with lagged dependent variables, as in our case with  $bal(-1)$ , introduces a potential bias. Since the order of the bias is  $1/T$ , where  $T$  is the length of the panel, we expect a small bias.<sup>11</sup> The Arellano-Bond procedure addresses this bias. Nevertheless, it makes use of the lagged values of the explanatory variables as instruments, and this reduces the set of observations. To make



sure the estimates are robust to different econometric methodologies, results from the two methods are reported.

The results from the GMM estimates confirm the results from FE estimates for the relevant variables. Columns (4) through (6) were carried out with the GMM estimator using the Arellano-Bond procedure. We used the one step heteroskedastic-consistent estimator of the variance-covariance matrix of the parameter estimates and the two-step estimator, presenting the best results according to the Sargan test and the second order correlation test.

To track the possible sources of discretionary PBC in the budget surplus, Tables V and VI show the results with total expenditure (*texp*) and total revenue and grants (*trg*) as dependant variables.

<please see Tables V and VI>

The discretionary PBC cycle is related to a tendency of expenditure to go up, and revenues to go down, in election years (a pattern that is reversed after elections). These effects are not always statistically significant by themselves in the FE estimates. However, it is clear that their combined effect leads to a significant electoral cycle in the budget in Table IV. In this sense, the budget surplus is a more sensitive indicator of PBC than its components. The GMM estimates of Tables V and VI show more clearly that effective checks and balances have significant impacts on PBC. On the other hand, effective checks and balances generally do not affect the persistence of either expenditure or revenue.

### C. Form of Government and Electoral Rules

Persson and Tabellini [2002] focus on the effects of different forms of government and electoral rules on PBC, but the approach followed here in principle attempts to reduce these institutional differences to a common metric of veto players [Tsebelis, 2002]. Table VII shows the influence of form of government (presidential or parliamentary) and electoral rules (proportional or majoritarian).

<please see Table VII>

Though the effect of discretionary cycles are more significant in presidential and proportional countries, in line with the findings of Persson and Tabellini [2002], according to the F-tests the coefficients do not differ significantly from parliamentary and majoritarian countries (this result is not affected when one distinguishes between new and old democracies). Hence, once one accounts for veto players, we cannot reject the hypothesis that cycles do not differ with different systems of government and with different electoral rules.

In relation to persistence, there is one significant difference. Presidential countries show less persistence than parliamentary countries in column (1). However, this can be ascribed to the fact that 29 of the 34 new democracies have presidential systems, compared to 8 of the 30 old democracies, and new democracies show less persistence (see Table VIII below). There seems to be no difference in persistence with different electoral rules in column (4). It must be kept in mind that most countries have proportional electoral rules: only 5 of the 34 new democracies, and 5 of the 30 old democracies, are majoritarian. Proportional systems might have a moderating effect, leaving less room for PBC, because there might be more veto players, but in principle that should be reflected in *polcon3*.

#### **D. Democracies All, Rich and Established, Poor and Young**

Finally, we present a specification for all democracies amended to take into account that discretion reduces persistence in new democracies more than in old democracies (cf. footnote 9). We also present the estimates for the two most typical groups: OECD countries that are established democracies (19 out of 23 OECD countries fall into that category) and non-OECD countries that are new democracies (32 out of 44 non-OECD countries).

<please see Table VIII>

The FE estimate in column (1) of Table VIII shows there is a significant PBC in democracies. This is also true of the GMM estimates of column (4), but the null hypothesis of no second-order autocorrelation in the differenced residuals is rejected, and this could imply that the estimates are inconsistent. PBC are significant even if one restricts the sample to rich, established democracies, where Shi and Svensson [2002a] and Brender and Drazen [2004] show that voters are more informed and more experienced.

#### **VI. Final remarks**

Aggregate electoral cycles are more controversial than electoral cycles in the composition of government spending, due to the weak evidence on aggregate PBC in OECD countries. Following the insight in Alesina and Rosenthal [1995] that divided government moderates executive discretion, we use the Henisz political constraints index, combined with the degree of rule of law, to have a measure of the effective checks and balances that the executive faces, and to isolate the discretionary component of PBC.

We find that effective checks and balances play a significant role in moderating PBC, reducing the size of cycles. Discretionary PBC are still present in the countries with the best-informed and experienced voters, namely, developed countries that are established democracies.

Econometrically, there is an errors-in-variables problem in the existing literature if the discretionary component of PBC is the relevant variable. We can also give an omitted variable interpretation to our results, where effective checks and balances is the missing variable. This omission is particularly serious in OECD countries and in old democracies, which are positively correlated with high checks and balances, biasing the estimate of PBC downwards.

We have an imperfect measure of legislative checks and balances, and we do not control for differences in the budget process across countries. This might point to a promising path using more exact measures of veto players and budget institutions.

Our results complement those of Alt and Lassen [2004], who find electoral cycles in fiscal balance in advanced industrialized democracies when there is low transparency, while no such cycles can be observed with high transparency. Together with asymmetric information and learning by voters (and policy players), the message here is that discretionality matters.

Finally, we find that less discretion increases the persistence of the budget surplus, in accordance with Tsebelis [2002, p. 8]. This might not only make it harder to adjust to shocks [Alt and Lowry, 1994], but also to manipulate the budget to provoke, among other things, PBC.

## Appendix

<please see Table A.I>

<please see Table A.II>

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<sup>1</sup> In the case of monetary policy, Lohmann (1998b) and Drazen (2001) study how the delegation to an independent central bank can moderate electoral cycles. However, a single authority decides fiscal policy.

<sup>2</sup> This is related to the approach in Lohmann (1998b) on the conditions for independent monetary policy in Germany.

<sup>3</sup> Tsebelis [2002, chap. 8] questions the Henisz measure for parliamentary systems, because the veto players do not depend on opposition parties but rather on members of governing coalition.

<sup>4</sup> When there are overlapping observations, Rule of Law is an unbiased predictor of Law and Order, since the intercept is zero and the coefficient is 1. Therefore, we use the more recent series on Law and Order, supplementing it with Rule of Law when the former has missing observations.

<sup>5</sup> Brender and Drazen (2004) adjust the election years in several countries, based on the difference between fiscal and calendar year. We prefer to stick to the original election dates in Brender and Drazen (2003).

<sup>6</sup> As to the short-run postponement of taxes, Stein, Streb and Ghezzi (2004) find that in Latin America the exchange rate becomes 3% more appreciated than average in the run-up to presidential elections, and 3% more depreciated after. This is because the government first steps down on the monthly rate of depreciation, and then releases it. In an environment where inflation is a means of taxation, this manipulation of nominal exchange rate policy is a short-run PBC: on average, the changes are concentrated in the four months up to elections, and the four months that follow.

<sup>7</sup> Dividing *pbcd* in column (4) of Table I into  $pbcd_{oecd}=pbcd*oecd$  and  $pbcd_{noecd}=pbcd*(1-oecd)$ , the coefficients are -0.214 (t=-2.14) and -0.401 (t=-3.60); with p-value 0.2118 an F-test cannot reject the equality of both coefficients.

<sup>8</sup> This also avoids multicollinearity, given the pairwise correlation of *pbcd* and *pbcd\_p3\_lo* of 0.90.

<sup>9</sup> Breaking down *pbcd* in column (1) of Table III into  $pbcd_{oecd}=pbcd*oecd$  and  $pbcd_{noecd}=pbcd*(1-oecd)$ , the coefficients are -0.856 (t=-2.31) and -0.850 (t=-3.99); with p-value 0.9875 an F-test cannot reject the hypothesis that both coefficients are identical.

<sup>10</sup> Considering the effects of discretion on PBC and on persistence in column (1) of Table IV leads to following results. The coefficient of  $pbcd_{newd}=pbcd*newd$  is -0.876 (t=-3.50) and that of  $pbcd_{oldd}=pbcd*(1-newd)$  is -0.546 (t=-2.17), but the hypothesis that both coefficients are equal cannot be rejected with p-value 0.3529. There is a significant difference in persistence: the coefficient of  $bal(-1)_{dis\_newd}=bal(-1)*dis*newd$  is -0.837 (t= -7.21) and that of  $bal(-1)_{dis\_oldd}=bal(-1)*dis*(1-newd)$  is -0.249 (-2.03), with p-value 0.0000.

<sup>11</sup> In old democracies there are on average 17 observations per country, in new democracies 11, and in the total 13.

Table I. PBC in OECD and Non-OECD Countries

Dependent variable:	All countries	OECD	Non-OECD	All countries	OECD	Non-OECD
<i>bal</i>	(1)	(2)	(3)	(4)	(5)	(6)
<i>bal(-1)</i>	0.613 (31.57)***	0.781 (35.26)***	0.483 (15.90)***	0.613 (31.57)***	0.781 (35.29)***	0.482 (15.91)***
<i>lngdp_pc</i>	0.463 (1.37)	0.672 (1.35)	0.021 (0.04)	0.475 (1.40)	0.675 (1.36)	0.033 (0.07)
<i>gdpr</i>	0.091 (5.01)***	0.153 (6.28)***	0.057 (2.21)***	0.091 (4.99)***	0.153 (6.29)***	0.056 (2.18)**
<i>trade</i>	0.003 (0.62)	-0.004 (-0.55)	0.010 (1.43)	0.003 (0.61)	-0.004 (-0.55)	0.010 (1.43)
<i>pop65</i>	-0.031 (-0.39)	-0.023 (-0.30)	0.301 (1.36)	-0.034 (-0.44)	-0.023 (-0.31)	0.297 (1.34)
<i>pop1564</i>	0.037 (0.98)	0.028 (0.61)	0.021 (-0.34)	0.037 (0.99)	0.028 (0.61)	0.021 (0.34)
<i>ln(1+pi)</i>	1.504 (2.54)**	-2.882 (-1.24)	1.219 (1.57)	1.499 (2.53)**	-2.886 (-1.24)	1.209 (1.56)
<i>ln(1+pi)sq</i>	-0.095 (-0.55)	2.710 (0.68)	-0.133 (-0.61)	-0.091 (-0.53)	2.721 (0.68)	-0.128 (-0.59)
<i>ele</i>	-0.223 (-1.75)*	-0.225 (-1.87)*	-0.270 (-1.21)			
<i>ele(+1)</i>	0.371 (2.92)***	0.246 (2.03)**	0.439 (1.97)*			
<i>pbc</i>				-0.297 (-3.99)***	-0.236 (-3.40)***	-0.355 (-2.67)***
<i>constant</i>	-8.065 (-2.12)*	-8.238 (-1.42)	-6.066 (-1.19)	-8.105 (-2.13)**	-8.248 (-1.42)	-6.102 (-1.20)
<b>Method of estimation</b>	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects
<b>R<sup>2</sup> within</b>	0.4822	0.7348	0.3232	0.4820	0.7348	0.3230
<b>R<sup>2</sup> between</b>	0.8577	0.9821	0.2728	0.8577	0.9820	0.2764
<b>R<sup>2</sup> overall</b>	0.6533	0.8466	0.3489	0.6534	0.8465	0.3504
<b>No. countries</b>	67	23	44	67	23	44
<b>No. observations</b>	1575	779	796	1575	779	796
<b>p-value F-test coef.</b>	0.4733	0.9152	0.6379	-	-	-
<i>ele = -ele(+1)</i>						

Notes: t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1960-64 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.



Table II. PBC and Effective Checks and Balances in OECD and Non-OECD Countries

Dependent variable: <i>bal</i>	All countries (1)	OECD (2)	Non-OECD (3)	All countries (4)	OECD (5)	Non-OECD (6)
<i>bal(-1)</i>	0.469 (16.17)***	0.777 (23.97)***	0.199 (4.62)***	0.615 (30.74)***	0.783 (35.38)***	0.472 (14.43)***
<i>lngdp_pc</i>	0.400 (0.55)	0.375 (0.41)	-0.093 (-0.09)	0.578 (1.64)*	0.678 (1.36)	0.172 (0.34)
<i>gdpr</i>	0.107 (4.27)***	0.198 (4.81)***	0.056 (1.80)*	0.106 (5.57)***	0.153 (6.31)***	0.069 (2.44)**
<i>trade</i>	0.010 (1.08)	-0.002 (-0.11)	0.029 (2.50)**	0.001 (0.24)	-0.004 (-0.57)	0.010 (1.22)
<i>pop65</i>	0.341 (1.85)*	0.229 (1.42)	-0.190 (-0.33)	-0.062 (-0.76)	-0.026 (-0.34)	0.188 (0.74)
<i>pop1564</i>	0.013 (0.15)	-0.956 (-0.81)	-0.071 (-0.44)	0.036 (0.87)	0.028 (0.60)	0.027 (0.40)
<i>ln(1+pi)</i>	1.555 (2.13)**	-2.947 (-0.76)	0.079 (0.09)	1.612 (2.68)***	-2.818 (-1.22)	1.322 (1.64)
<i>ln(1+pi)sq</i>	-0.187 (-0.93)	5.025 (0.88)	-0.010 (-0.04)	-0.107 (-0.62)	2.614 (0.66)	-0.155 (-0.68)
<i>p3_lo</i>	-0.975 (-1.42)	-0.441 (-0.50)	-0.698 (-0.75)			
<i>p3_lod</i>				-0.043 (-0.05)	-0.116 (-0.16)	0.970 (0.48)
<i>pbc</i>	-0.793 (-3.30)***	-1.250 (-3.03)***	-0.317 (-0.96)	-0.465 (-3.91)***	-0.703 (-3.15)***	-0.396 (-2.54)**
<i>pbc_p3_lo</i>	0.700 (1.59)	1.396 (2.25)**	-0.631 (-0.75)			
<i>pbc_p3_lod</i>				0.398 (1.82)*	0.730 (2.20)**	0.191 (0.34)
<i>constant</i>	-10.236 (-1.30)	-0.549 (-0.05)	0.657 (0.06)	-8.622 (-2.06)**	-8.217 (-1.42)	-7.179 (-1.23)
<b>Method of estimation</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>
<b>R<sup>2</sup> within</b>	0.3547	0.7100	0.1933	0.4850	0.7366	0.3082
<b>R<sup>2</sup> between</b>	0.2907	0.9770	0.2812	0.8601	0.9824	0.3275
<b>R<sup>2</sup> overall</b>	0.3131	0.8504	0.2279	0.6589	0.8474	0.3743
<b>No. countries</b>	64	23	41	64	23	41
<b>No. observations</b>	860	387	473	1488	779	709
<b>p-value F-test coef.</b>						
<i>pbc = - pbc_p3_lo</i>	0.7061	0.5519	0.1029	-	-	-
<b>p-value F-test coef.</b>						
<i>pbc = - pbc_p3_lod</i>	-	-	-	0.6538	0.8461	0.6957

Notes: t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1960-64 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

Table III. Discretionary PBC in OECD and Non-OECD Countries

Dependent variable: <i>bal</i>	All countries (1)	OECD (2)	Non-OECD (3)	All countries (4)	OECD (5)	Non-OECD (6)
<i>bal(-1)</i>	0.469 (16.19)***	0.777 (23.99)***	0.205 (4.75)***	0.615 (30.76)***	0.783 (35.41)***	0.472 (14.45)***
<i>lngdp_pc</i>	0.406 (0.56)	0.384 (0.42)	-0.016 (-0.02)	0.578 (1.64)*	0.678 (1.37)	0.173 (0.34)
<i>gdpr</i>	0.107 (4.27)***	0.199 (4.84)***	0.056 (1.80)*	0.106 (5.57)***	0.154 (6.31)***	0.069 (2.44)**
<i>trade</i>	0.010 (1.07)	-0.002 (-0.12)	0.277 (2.37)**	0.001 (0.24)	-0.004 (-0.57)	0.010 (1.22)
<i>pop65</i>	0.341 (1.85)*	0.228 (1.42)	-0.222 (-0.39)	-0.062 (-0.76)	-0.026 (-0.34)	0.186 (0.74)
<i>pop1564</i>	0.014 (0.16)	-0.097 (-0.82)	-0.048 (-0.30)	0.036 (0.87)	0.278 (0.60)	0.027 (0.41)
<i>ln(1+pi)</i>	1.545 (2.12)**	-2.999 (-0.77)	0.083 (0.09)	1.607 (2.67)***	-2.828 (-1.22)	1.325 (1.64)
<i>ln(1+pi)sq</i>	-0.184 (-0.91)	5.161 (0.90)	-0.004 (-0.02)	-0.105 (-0.61)	2.629 (0.66)	-0.155 (-0.68)
<i>p3_lo</i>	-0.978 (-1.43)	-0.456 (-0.51)	-0.756 (-0.81)			
<i>pbcdis</i>	-0.851 (-4.61)***	-1.061 (-4.02)***	-0.697 (-3.00)***			
<i>p3_lod</i>				-0.032 (-0.04)	-0.120 (-0.17)	0.972 (0.48)
<i>pbcdisd</i>				-0.483 (-4.30)***	-0.675 (-4.06)***	-0.405 (-2.61)***
<i>constant</i>	-10.345 (-1.32)	-0.518 (-0.05)	-0.940 (-0.08)	-8.633 (-2.06)**	-8.218 (-1.42)	-7.211 (-1.24)
<b>Method of estimation</b>	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects
<b>R<sup>2</sup> within</b>	0.3546	0.7097	0.1882	0.4849	0.7366	0.3080
<b>R<sup>2</sup> between</b>	0.2891	0.9771	0.3196	0.8600	0.9824	0.3310
<b>R<sup>2</sup> overall</b>	0.3118	0.8503	0.2438	0.6590	0.8474	0.3757
<b>No. countries</b>	64	23	41	64	23	41
<b>No. observations</b>	860	387	473	1488	779	709

Notes: t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1960-64 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

Table IV. Discretionary PBC in Old and New Democracies

Dependent variable:	All	New	Old	All	New	Old
<i>bal</i>	democracies	democracies	democracies	democracies	democracies	democracies
	(1)	(2)	(3)	(4)	(5)	(6)
<i>bal(-1)</i>	0.791 (11.87)***	0.439 (2.74)***	0.847 (12.60)***	1.099 (9.11)***	0.512 (2.82)***	1.078 (7.74)***
<i>lngdp_pc</i>	0.342 (0.48)	-1.755 (-1.02)	0.651 (0.90)	-1.74 (-0.61)	0.972 (0.26)	-1.148 (-0.43)
<i>gdpr</i>	0.105 (4.25)***	0.121 (3.28)***	0.065 (2.07)**	0.159 (4.35)***	0.111 (1.49)	0.089 (1.57)
<i>trade</i>	0.016 (1.75)*	-0.013 (-0.75)	0.031 (3.02)***	0.027 (1.56)	-0.004 (-0.13)	0.006 (0.39)
<i>pop65</i>	0.258 (1.42)	0.580 (1.81)*	0.399 (1.82)*	2.988 (0.96)	3.910 (1.45)	0.456 (0.54)
<i>pop1564</i>	0.058 (0.66)	-0.120 (-0.60)	0.159 (1.53)**	0.101 (0.11)	-1.197 (-1.55)	0.482 (1.34)
<i>ln(1+pi)</i>	1.096 (1.52)	1.517 (1.66)*	-1.405 (-0.65)	3.996 (2.21)**	0.414 (0.26)	1.256 (0.41)
<i>ln(1+pi)sq</i>	-0.141 (-0.71)	-0.396 (-1.62)	0.178 (0.11)	-0.862 (-2.32)**	-0.207 (-0.83)	2.370 (1.90)*
<i>p3_lo</i>	0.326 (0.46)	-2.575 (-2.17)**	1.652 (1.84)*	2.835 (1.94)*	-2.081 (-1.65)	2.864 (2.31)**
<i>pbcdis</i>	-0.787 (-4.33)***	-0.780 (-2.76)***	-0.505 (-2.26)**	-0.697 (-6.01)***	-0.967 (-3.68)***	-0.493 (-1.72)*
<i>bal(-1)_dis</i>	-0.604 (-5.34)***	-0.424 (-1.78)*	-0.585 (-4.49)***	-1.041 (-5.30)***	-0.561 (-2.50)**	-0.628 (-2.79)***
<i>constant</i>	-12.783 (-1.65)*	15.192 (1.11)	-24.884 (-2.66)***	-0.176 (-0.71)	0.045 (0.36)	-0.352 (-0.74)
Method of estimation	Fixed-effects	Fixed-effects	Fixed-effects	Arellano- Bond Two- Step	Arellano- Bond One- Step <sup>a</sup>	Arellano- Bond One- Step <sup>a</sup>
R <sup>2</sup> within	0.3773	0.1665	0.5892	-	-	-
R <sup>2</sup> between	0.3392	0.0832	0.2724	-	-	-
R <sup>2</sup> overall	0.3557	0.0030	0.3251	-	-	-
Sargan Test <sup>b</sup>	-	-	-	1.000	1.000	0.9609
2 <sup>nd</sup> Order Serial Correlation Test <sup>c</sup>	-	-	-	0.1107	0.0830	0.4140
No. countries	64	34	30	62	32	30
No. observations	860	362	498	725	295	430

Notes: for fixed effects estimates, t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1980-84 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

For GMM estimates, z statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. The instruments used in GMM regressions are two lags of the dependent variable and one lag of covariates. Reported coefficients correspond to the lagged first difference of the dependant variable (second lag not reported) and the first difference of covariates (lagged differences not reported). All instruments are treated as strictly exogenous. (a) Using heteroskedastic-consistent estimator of the variance-covariance matrix of the parameter estimates. (b) P-values for rejecting the null hypothesis in test of the over identifying restrictions, asymptotically distributed as a  $\chi^2$  under the null hypothesis of instruments uncorrelated with the residuals. In one-step estimations p-values come from the one step homoskedastic estimator. (c) P-values for rejecting the null hypothesis in test for second order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation.

Table V. Discretionary Political Expenditure Cycles in Old and New Democracies

Dependent variable: <i>texp</i>	All	New	Old	All	New	Old
	democracies	democracies	democracies	democracies	democracies	democracies
	(1)	(2)	(3)	(4)	(5)	(6)
<i>texp(-1)</i>	0.720 (9.61)***	0.517 (2.41)**	0.759 (18.49)***	0.995 (9.15)***	0.617 (2.49)**	0.797 (11.88)***
<i>lngdp_pc</i>	-1.737 (-1.21)	1.517 (0.34)	-1.358 (-1.75)*	-0.474 (-0.21)	-2.009 (-0.23)	1.596 (0.65)
<i>gdp</i>	-0.111 (-2.26)**	-0.121 (-1.24)	-0.085 (-2.56)**	-0.118 (-4.22)***	-0.081 (-0.82)	-0.153 (-2.99)***
<i>trade</i>	0.014 (0.74)	0.075 (1.74)*	-0.024 (-2.26)**	0.041 (3.30)	0.114 (1.78)*	-0.021 (-1.23)
<i>pop65</i>	1.422 (3.89)***	2.753 (3.27)***	-0.228 (-1.00)	5.615 (1.70)*	6.748 (0.60)	-0.236 (-0.33)
<i>pop1564</i>	0.181 (1.02)	-0.222 (-0.43)	-0.138 (-1.24)	-0.685 (-0.96)	-1.341 (-0.60)	-1.014 (2.39)**
<i>ln(1+pi)</i>	-2.245 (-1.57)	-2.093 (-0.85)	3.021 (1.32)	-1.540 (-0.80)	-3.159 (-1.67)*	-3.397 (-0.96)
<i>ln(1+pi)sq</i>	0.396 (1.00)	0.377 (0.58)	-1.517 (-0.85)	0.401 (1.09)	0.686 (1.93)*	-1.770 (-0.95)
<i>p3_lo</i>	-1.088 (-0.37)	-0.754 (-0.10)	0.332 (0.17)	-18.201 (-3.40)***	-1.949 (-0.28)	-0.906 (-0.51)
<i>pbcdis</i>	0.645 (1.79)*	0.876 (1.21)	0.411 (1.74)*	0.637 (2.51)**	0.789 (2.17)**	0.318 (1.04)
<i>texp(-1)_dis</i>	-0.007 (-0.07)	0.085 (0.31)	-0.018 (-0.31)	-0.645 (4.14)***	-0.134 (-0.37)	-0.035 (-0.61)
<i>constant</i>	-0.979 (-0.06)	-10.022 (-0.28)	32.788 (3.16)***	0.096 (0.57)	0.146 (0.46)	0.013 (0.28)
Method of estimation	Fixed-effects	Fixed-effects	Fixed-effects	Arellano- Bond Two- Step	Arellano- Bond One- Step <sup>a</sup>	Arellano- Bond One- Step <sup>a</sup>
R <sup>2</sup> within	0.3006	0.1720	0.7306	-	-	-
R <sup>2</sup> between	0.8497	0.7441	0.8856	-	-	-
R <sup>2</sup> overall	0.7621	0.5837	0.8630	-	-	-
Sargan Test <sup>b</sup>	-	-	-	1.000	0.9104	0.9399
2nd Order Serial Correlation Test <sup>c</sup>	-	-	-	0.9598	0.1208	0.3634
No. countries	64	34	30	62	32	30
No. observations	868	370	498	733	303	430

Notes: for fixed effects estimates, t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1980-84 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

For GMM estimates, z statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. The instruments used in GMM regressions are two lags of the dependent variable and one lag of covariates. Reported coefficients correspond to the lagged first difference of the dependant variable (second lag not reported) and the first difference of covariates (lagged differences not reported). All instruments are treated as strictly exogenous. (a) Using heteroskedastic-consistent estimator of the variance-covariance matrix of the parameter estimates. (b) P-values for rejecting the null hypothesis in test of the over identifying restrictions, asymptotically distributed as a  $\chi^2$  under the null hypothesis of instruments uncorrelated with the residuals. In one-step estimations p-values come from the one step homoskedastic estimator. (c) P-values for rejecting the null hypothesis in test for second order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation.

Table VI. Discretionary Political Revenue Cycles in Old and New Democracies

Dependent variable: <i>trg</i>	All	New	Old	All	New	Old
	democracies	democracies	democracies	democracies	democracies	democracies
	(1)	(2)	(3)	(4)	(5)	(6)
<i>trg(-1)</i>	0.569 (6.71)***	0.384 (1.79)*	0.636 (14.42)***	0.440 (5.48)***	0.341 (2.18)**	0.641 (11.06)***
<i>lngdp_pc</i>	-2.091 (-1.63)	-0.723 (-0.17)	-1.325 (-2.24)**	-1.379 (-0.80)	0.961 (0.09)	1.592 (0.83)
<i>gdp</i>	0.003 (0.06)	0.031 (0.34)	-0.018 (-0.72)	0.004 (0.20)	0.008 (0.08)	-0.074 (-1.98)**
<i>trade</i>	0.002 (0.12)	0.050 (1.20)	-0.019 (-2.32)**	0.017 (1.97)**	0.098 (1.85)*	-0.028 (-1.33)
<i>pop65</i>	1.859 (5.61)***	3.229 (4.09)***	0.335 (1.88)*	-0.120 (-0.07)	8.110 (0.83)	0.323 (0.41)
<i>pop1564</i>	0.157 (0.98)	-0.309 (-0.63)	-0.156 (-1.85)*	-2.481 (-3.22)***	-3.124 (-1.56)	-0.671 (-1.56)
<i>ln(1+pi)</i>	0.044 (0.03)	0.673 (0.30)	1.448 (0.81)	-2.681 (-2.23)**	-1.32 (-0.80)	-2.642 (-0.90)
<i>ln(1+pi)sq</i>	0.139 (0.39)	-0.037 (-0.06)	0.724 (0.53)	0.770 (2.26)**	0.304 (0.77)	1.457 (0.97)
<i>p3_lo</i>	0.825 (0.29)	1.657 (0.24)	0.767 (0.48)	-0.895 (-0.26)	-0.808 (-0.20)	0.724 (0.74)
<i>pbcdis</i>	-0.231 (-0.71)	-0.107 (-0.16)	-0.251 (-1.38)	-0.682 (-1.75)*	-0.265 (-1.21)	-0.295 (-1.71)*
<i>trg(-1)_dis</i>	0.093 (0.93)	0.274 (1.00)	0.003 (0.07)	-0.053 (-0.48)	0.045 (0.34)	-0.027 (-0.67)
<i>constant</i>	1.843 (0.13)	7.533 (0.23)	29.554 (3.83)***	0.380 (2.79)***	0.295 (1.07)	0.020 (0.36)
Method of estimation	Fixed-effects	Fixed-effects	Fixed-effects	Arellano- Bond Two- Step	Arellano- Bond One- Step <sup>a</sup>	Arellano- Bond One- Step <sup>a</sup>
R <sup>2</sup> within	0.2228	0.2016	0.5870	-	-	-
R <sup>2</sup> between	0.7606	0.7047	0.9758	-	-	-
R <sup>2</sup> overall	0.6867	0.5435	0.9527	-	-	-
Sargan Test <sup>b</sup>	-	-	-	1.0000	0.8670	0.9610
2nd Order Serial Correlation Test <sup>c</sup>	-	-	-	0.6452	0.2325	0.7713
No. countries	64	34	30	62	32	30
No. observations	860	362	498	725	295	430

Notes: for fixed effects estimates, t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1980-84 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

For GMM estimates, z statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. The instruments used in GMM regressions are two lags of the dependent variable and one lag of covariates. Reported coefficients correspond to the lagged first difference of the dependant variable (second lag not reported) and the first difference of covariates (lagged differences not reported). All instruments are treated as strictly exogenous. (a) Using heteroskedastic-consistent estimator of the variance-covariance matrix of the parameter estimates. (b) P-values for rejecting the null hypothesis in test of the over identifying restrictions, asymptotically distributed as a  $\chi^2$  under the null hypothesis of instruments uncorrelated with the residuals. In one-step estimations p-values come from the one step homoskedastic estimator. (c) P-values for rejecting the null hypothesis in test for second order serial correlation in the first-difference residuals, asymptotically distributed as  $N(0,1)$  under the null of no serial correlation.

Table VII. Form of Government, Electoral Rules and Discretionary PBC

Dependent variable: <i>bal</i>	All Countries (1)	New Democracies (2)	Old Democracies (3)	All Countries (4)	New Democracies (5)	Old Democracies (6)
<i>bal(-1)</i>	0.672 (9.51)***	0.412 (2.52)**	0.839 (11.58)***	0.792 (11.88)***	0.444 (2.78)***	0.823 (12.27)***
<i>lngdp_pc</i>	0.322 (-0.05)	-1.878 (-1.09)	0.637 (0.87)	0.360 (0.50)	-1.638 (-0.96)	0.792 (1.10)
<i>gdpr</i>	0.109 (4.48)***	0.124 (3.34)***	0.066 (2.10)**	0.105 (4.25)***	0.117 (3.17)***	0.059 (1.90)*
<i>trade</i>	0.004 (0.42)	-0.013 (-0.76)	0.030 (2.79)***	0.015 (1.50)	-0.015 (-0.87)	0.043 (3.95)***
<i>pop65</i>	0.352 (1.95)*	0.631 (1.94)*	0.400 (1.83)*	0.263 (1.44)	0.588 (1.83)*	0.309 (1.41)
<i>pop1564</i>	0.057 (0.65)	-0.096 (-0.47)	0.158 (1.51)	0.064 (0.71)	-0.105 (-0.52)	0.087 (0.82)
<i>ln(1+pi)</i>	0.742 (1.03)	1.454 (1.58)	-1.523 (-0.71)	1.049 (1.45)	1.389 (1.52)	-1.300 (-0.61)
<i>ln(1+pi)sq</i>	-0.115 (-0.59)	-0.385 (-1.58)	0.223 (0.13)	-0.132 (-0.67)	-0.373 (-1.53)	0.574 (0.35)
<i>p3_lo</i>	-0.170 (-0.24)	-2.571 (-2.16)**	1.657 (1.84)*	0.325 (0.45)	-2.683 (-2.26)**	1.057 (1.16)
<i>pbcdis_pres</i>	-0.882 (-4.10)***	-0.786 (2.65)***	-0.638 (-1.96)**			
<i>pbcdis_parl</i>	-0.506 (-1.55)	-0.996 (-1.05)	-0.377 (-1.22)			
<i>bal(-1)_dis_pres</i>	-0.595 (-5.33)***	-0.407 (-1.69)***	-0.592 (-4.37)***			
<i>bal(-1)_dis_parl</i>	-0.137 (-0.90)	-0.001 (0.00)	-0.558 (-3.55)***			
<i>pbcdis_prop</i>				-0.884 (-4.47)***	-0.930 (-3.06)***	-0.559 (-2.30)**
<i>pbcdis_maj</i>				-0.233 (-0.50)	-0.089 (-0.11)	-0.461 (-0.85)
<i>bal(-1)_dis_prop</i>				-0.613 (-5.30)***	-0.445 (-1.86)*	-0.395 (-2.78)***
<i>bal(-1)_dis_maj</i>				-0.579 (-4.11)***	0.027 (0.05)	-0.748 (-5.38)***
<i>constant</i>	-9.246 (-1.20)	14.512 (1.05)	-24.445 (-2.47)**	-13.214 (-1.70)*	13.564 (0.99)	-21.173 (-2.26)**
<b>Method of estimation</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>
<b>R<sup>2</sup> within</b>	0.3950	0.1695	0.5896	0.3787	0.1743	0.5981
<b>R<sup>2</sup> between</b>	0.2489	0.0746	0.2709	0.3224	0.0690	0.3428
<b>R<sup>2</sup> overall</b>	0.3045	0.0008	0.3249	0.3448	0.0041	0.3867
<b>No. countries</b>	64	34	30	64	34	30
<b>No. observations</b>	860	362	498	860	362	498
<b>p-value F-test <i>pbcdis_pres</i> = <i>pbcdis_parl</i></b>	0.3352	0.8328	0.5611	-	-	-
<b>p-value F-test <i>bal(-1)_dis_pres</i> = <i>bal(-1)_dis_parl</i></b>	0.0000	0.3010	0.7835	-	-	-
<b>p-value F-test <i>pbcdis_maj</i> = <i>pbcdis_prop</i></b>	-	-	-	0.1998	0.3180	0.8699
<b>p-value F-test <i>bal(-1)_dis_maj</i> = <i>bal(-1)_dis_prop</i></b>	-	-	-	0.7518	0.3095	0.0017

Notes: t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1980-84 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

Table VIII. Discretionary PBC: All Democracies, Rich and Established, Poor and Young

Dependent variable: <i>bal</i>	All democracies	OECD Old democracies	Non-OECD New democracies	All Democracies	OECD Old democracies	Non-OECD New democracies
	(1)	(2)	(3)	(4)	(5)	(6)
<i>bal(-1)</i>	0.724 (11.03)***	0.716 (10.75)***	0.347 (1.73)*	1.105 (7.85)***	0.774 (5.29)***	0.263 (1.07)
<i>lngdp_pc</i>	0.002 (0.00)	-0.104 (-0.12)	-1.948 (-1.00)	-3.593 (-1.24)	0.573 (0.17)	1.490 (0.35)
<i>gdpr</i>	0.101 (4.21)***	0.231 (5.12)***	0.114 (2.88)***	0.184 (4.61)***	0.235 (3.15)***	0.097 (1.27)
<i>trade</i>	0.010 (1.07)	-0.002 (-0.16)	-0.005 (-0.26)	0.001 (-0.09)	-0.020 (-0.83)	0.002 (0.06)
<i>pop65</i>	0.395 (2.21)**	0.517 (2.90)***	0.081 (0.12)	4.804 (2.18)**	0.483 (0.61)	9.437 (1.84)
<i>pop1564</i>	0.045 (0.52)	0.021 (0.14)	-0.005 (-0.02)	2.077 (2.47)**	0.223 (0.58)	-1.264 (-1.31)
<i>ln(1+pi)</i>	1.090 (1.55)	4.719 (1.17)	1.294 (1.25)	8.29 (2.93)***	8.600 (0.99)	0.256 (0.16)
<i>ln(1+pi)sq</i>	-0.285 (-1.47)	-9.611 (-1.33)	-0.391 (-1.46)	-1.772 (-3.13)***	-16.442 (-1.50)	-0.214 (-0.87)
<i>p3_lo</i>	-0.589 (-0.83)	-0.954 (-0.93)	-2.485 (-1.96)**	1.772 (1.14)	-0.373 (-0.25)	-1.952 (-1.49)
<i>pbcdis</i>	-0.711 (-4.01)***	-0.817 (-2.89)***	-0.626 (-2.01)**	-0.437 (-2.09)**	-0.749 (-3.32)***	-0.755 (-2.91)***
<i>bal(-1)_dis_newd</i>	-0.843 (-7.27)***			-1.439 (-8.25)***		
<i>bal(-1)_dis_oldd</i>	-0.244 (-1.99)**			-0.919 (-3.77)		
<i>bal(-1)_dis</i>		0.218 (1.17)	-0.423 (1.44)		-0.382 (-1.03)	0.327 (1.03)
<i>Constant</i>	-9.203 (-1.22)	-7.138 (-0.60)	12.398 (0.81)	0.433 (1.66)*	0.022 (0.31)	0.037 (0.27)
<b>Method of estimation</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Fixed-effects</b>	<b>Arellano-Bond Two-Step</b>	<b>Arellano-Bond One-Step<sup>a</sup></b>	<b>Arellano-Bond One-Step<sup>a</sup></b>
<b>R<sup>2</sup> within</b>	0.4102	0.7844	0.1379	-	-	-
<b>R<sup>2</sup> between</b>	0.2215	0.8790	0.0394	-	-	-
<b>R<sup>2</sup> overall</b>	0.3063	0.8292	0.0011	-	-	-
<b>Sargan Test<sup>b</sup></b>	-	-	-	1.000	1.000	1.000
<b>2nd Order Serial Correlation Test<sup>c</sup></b>	-	-	-	0.0170	0.2276	0.1134
<b>No. countries</b>	64	19	30	62	19	28
<b>No. observations</b>	860	319	294	725	279	235

Notes: for fixed effects estimates, t statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. To control for time effects, dummies are included for each five-year period from 1980-84 to 1995-99, while the years 2000-01 are the base level. These coefficients are not reported.

For GMM estimates, z statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level. The instruments used in GMM regressions are two lags of the dependent variable and one lag of covariates. Reported coefficients correspond to the lagged first difference of the dependant variable (second lag not reported) and the first difference of covariates (lagged differences not reported). All instruments are treated as strictly exogenous. (a) Using heteroskedastic-consistent estimator of the variance-covariance matrix of the parameter estimates. (b) P-values for rejecting the null hypothesis in test of the over identifying restrictions, asymptotically distributed as a  $\chi^2$  under the null hypothesis of instruments uncorrelated with the residuals. In one-step estimations p-values come from the one step homoskedastic estimator. (c) P-values for rejecting the null hypothesis in test for second order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation.

Table AI. Definition of Variables

Variable	Description	Source
<i>texp</i>	Total government expenditure as a percentage of GDP	B&D(2004)
<i>trg</i>	Total government revenue and grants as a percentage of GDP	B&D(2004)
<i>bal</i>	$trg - texp$ (Fiscal balance as a percentage of GDP)	B&D(2004)
<i>lngdp_pc</i>	Natural log of GDP per capita	B&D(2004)
<i>gdpr</i>	Annual growth rate of real GDP	B&D(2004)
<i>trade</i>	Share of international trade as a percentage of GDP	B&D(2004)
<i>pop65</i>	Fraction of population above 65	B&D(2004)
<i>pop1564</i>	Fraction of population between 15 and 64	B&D(2004)
$\ln(1 + \pi)$	Natural log of 1 plus the inflation rate	IFS
<i>polcon3</i>	Political constraints index	H(2002)
<i>p3</i>	Takes value 1 if $polcon3 \geq 2/3$ , and $3/2 * polcon3$ otherwise	O.C.
<i>lo</i>	Law and Order index, combined with the ICRG Rule of Law index in the early years when the former is not available, divided by 6	H(2002) and ICRG
<i>lod</i>	Takes value 1 for country if $lo \geq 4$ always, 0 otherwise	O.C.
<i>ele</i>	Takes value 1 in election year, 0 otherwise	B&D(2003)
<i>pbc</i>	<i>ele</i> minus its lead $ele(+1)$ , takes value 1 in election year, -1 in the following year, and 0 otherwise	O.C.
<i>pbcdis</i>	Discretionary component of cycle, given by $pbcdis = pbc * (1 - p3 * lo)$	O.C.
<i>pbcdisd</i>	Discretionary component of cycle, given by $pbcdisd = pbc * (1 - p3 * lod)$	O.C.
<i>pres</i>	Takes value 1 if presidential system, 0 otherwise	B&D(2004)
<i>parl</i>	Takes value 1 if parliamentary system, 0 otherwise	B&D(2004)
<i>prop</i>	Takes value 1 if electoral rule is proportional, 0 otherwise	B&D(2004)
<i>maj</i>	Takes value 1 if electoral rule is majoritarian, 0 otherwise	B&D(2004)
<i>oecd</i>	Takes value 1 if country belongs to OECD, 0 otherwise	B&D(2004)
<i>newd</i>	Takes value 1 if country is new democracy, 0 otherwise	B&D(2004)

Notes: B&D(2003) refers to Brender and Drazen (2003), and similarly for B&D(2004); H(2002), to Henisz (2002); IFS, to the IMF International Financial Statistics; O.C., to variables that are our own construction.



**Table AII. Descriptive Statistics**

	OECD countries					Non-OECD countries					Total				
	<i>I</i>	<i>bal</i>	<i>texp</i>	<i>trg</i>	<i>p3_lo</i>	<i>I</i>	<i>bal</i>	<i>texp</i>	<i>trg</i>	<i>p3_lo</i>	<i>I</i>	<i>bal</i>	<i>texp</i>	<i>trg</i>	<i>p3_lo</i>
<b>Old</b>	<b>19</b>	<b>-1.8</b>	<b>29.7</b>	<b>28.2</b>	<b>0.68</b>	<b>12</b>	<b>-2.8</b>	<b>25.7</b>	<b>22.6</b>	<b>0.32</b>	<b>31</b>	<b>-2.1</b>	<b>28.2</b>	<b>26.1</b>	<b>0.55</b>
<b>democracies</b>		<b>(3.6)</b>	<b>(10.3)</b>	<b>(9.5)</b>	<b>(0.15)</b>		<b>(4.6)</b>	<b>(11.0)</b>	<b>(9.9)</b>	<b>(0.18)</b>		<b>(4.0)</b>	<b>(10.7)</b>	<b>(10.0)</b>	<b>(0.23)</b>
<b>New</b>	<b>4</b>	<b>-5.1</b>	<b>27.9</b>	<b>22.9</b>	<b>0.47</b>	<b>32</b>	<b>-1.9</b>	<b>22.4</b>	<b>20.6</b>	<b>0.32</b>	<b>36</b>	<b>-2.4</b>	<b>23.4</b>	<b>21.0</b>	<b>0.34</b>
<b>democracies</b>		<b>(3.2)</b>	<b>(13.2)</b>	<b>(11.9)</b>	<b>(0.14)</b>		<b>(2.9)</b>	<b>(9.9)</b>	<b>(9.4)</b>	<b>(0.21)</b>		<b>(3.2)</b>	<b>(10.7)</b>	<b>(9.9)</b>	<b>(0.20)</b>
<b>Total</b>	<b>23</b>	<b>-2.2</b>	<b>29.5</b>	<b>27.5</b>	<b>0.64</b>	<b>44</b>	<b>-2.3</b>	<b>23.9</b>	<b>21.5</b>	<b>0.32</b>	<b>67</b>	<b>-2.2</b>	<b>26.6</b>	<b>24.4</b>	<b>0.46</b>
		<b>(3.7)</b>	<b>(10.7)</b>	<b>(10.0)</b>	<b>(0.17)</b>		<b>(3.8)</b>	<b>(10.5)</b>	<b>(9.7)</b>	<b>(0.20)</b>		<b>(3.8)</b>	<b>(11.0)</b>	<b>(10.3)</b>	<b>(0.24)</b>

Note: *I* refers to number of countries in each group; standard deviation reported in parenthesis below mean values.

**Figure I. Time Path of Budget Balance around Elections**

