Conditional Political Budget Cycles*

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Abstract

This paper uses a large new panel data set to examine the relationship between elections and fiscal policy. We find clear evidence of political business cycles in macroeconomic policy: spending increases before elections while revenues fall, leading to a larger deficit in election years. We also show that there are large systematic differences between developed and developing countries in the size and composition of the electoral policy cycles. We propose a moral hazard model of electoral competition to explain these differences. In the model, the size of the electoral budget cycles depend on the rents of remaining in power and the share of informed voters in the electorate. Using suitable proxies, we find that these institutional features explain a large part of the difference in policy cycles between developed and developing countries.

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1 Introduction

Are political budget cycles common in countries with elections? Are there any systematic differences in the size and composition of political budget cycles in developed and developing countries? If so, why? Despite a large literature on political budget cycles, these questions remain to a large extent unanswered.

In this paper we investigate the issues by assembling a new panel data set, covering 123 developed and developing countries over a 21-year period. A moral hazard model of electoral competition provides the analytical framework for the investigation. In the model policy outcomes – in particular, the government's budget balance – are influenced by the timing of elections. Prior to elections the government increases spending in order to enhance its chances of reelection, leading to a higher deficit in election years. We test this prediction on a large cross-section of countries using dynamic panel data techniques. Consistent with the model we find that spending increases before elections, while revenues fall, leading to a larger deficit in election years. Thus, political budget cycles appear to be a common phenomena in countries with elections.

The data also reveals that there are large systematic differences between developed and developing countries in the size and composition of the electoral policy cycle. Specifically, the election induced fiscal deficit as a share of GDP in the average developing country is more than twice the size of that in the average developed country, controlling for per capita GDP and GDP growth rates. Since the two groups of countries differ in many dimensions, it is important to identify the factors that may cause the significant difference in election induced policy cycles. We use the model as a guideline. In the model, the size of the electoral budget cycle depends on two variables. First, the more private benefits politicians gain when in power (i.e., higher rents of remaining in power), the higher the return of reelection, and the stronger the incentives to influence the voters' perceptions prior to the election. Second, the lower the share of informed voters, the more voters (ex ante) fail to distinguish pre-electoral manipulations from incumbent competence, and the higher the return from boosting spending prior to the election. We proxy for these institutional variables using cross-country data on corruption (to proxy for value/rent of remaining in power) and data on access to free media (to proxy for share of informed voters). The institutional indicators can explain a large part of the difference in policy cycles between developed and developing countries. Importantly, these results continue to hold once conditioning the political budget cycles on the degree of development (income) and an index of political rights. Thus, access to unbiased information and institutions and informal rules that constrain the government from using public resources and policies for private gains do appear to reduce the magnitude of political budget cycles.

The most recent phase of the political budget cycles literature started with the signaling models of Rogoff's (1990), Rogoff and Sibert (1988), and Persson and Tabellini (1990).[1] Rogoff (1990) showed that, by shifting government expenditure towards easily observed consumption spending and away from investment, the incumbent can signal his competence and increase his chance of reelection. We use a similar model.[2] As in the signaling models the electoral cycles here arise from information imperfection. However, in contrast to Rogoff (1990) and others, the underlying feature is a moral hazard problem: the incumbent's ability to manipulate policy instruments (which are observable to voters only with a lag) in order to bias the voters' inference process in his favor.[3] The electorate makes the voting decision based on the expected competence of the candidates. Competence is not observable, so the voters must extract information about the incumbent's type from observed economic outcomes, in this case the production of public goods. To increase the chances of reelection the incumbent has an incentive to boost the supply of public goods prior to the election, hoping that voters would attribute the boost to his competence. In our model all politicians (independent of their competence level) face the same incentives, implying that the empirical predictions are not conditional on type or ability. More importantly, the politicians' incentives depend on the politico-institutional environment.

The empirical literature on political budget cycles focuses mostly on advanced industrial countries.[4] There are exceptions, but in those cases the sample is either restricted to a specific region, or a sub-sample of developing countries, or a specific country.[5] This paper differs from the existing literature in three ways. First, unlike most existing studies we place weaker restrictions on the

[1]For a review of the literature see Alesina et al., 1997.

[2]Lohmann (1998) and Persson and Tabellini (2000) develop models with similar underlying features, but address different policy problem. Lohmann (1998) studies the inflationary consequences of pre-electoral monetary policy expansion in a Neo-Keynesian macro-model, and Persson and Tabellini (2000) deal with cycles in wasteful spending and rent-extraction.

[3]Some of the implications of the signaling model of Rogoff (1990) and others seem to be at odds with both empirical and anecdotal evidence. For example, more competent politicians distort the economy, rather than the incompetent ones, and only competent politicians will be reelected (in a separating equilibrium). Also, since only competent types signal by creating a boom, the testable implications are unclear without additional information on unobservables (e.g., government's type).

[4]There is a large empirical literature on political business cycles, dating back to Nordhaus (1975), McRae (1977), Hibbs, (1977), and Tufte (1978). Most of this literature is on U.S. data. Alesina and Roubini (1992) and Alesina et al. (1997) study electoral cycles across OECD countries. For futher references, see Alesina et al. (1997).

[5]Studies using data from developing countries include Block (1999); Magloire (1997); Khemani (1999); Kraemer (1997), Schuknecht (1996). Neither of these studies combine data from developed and developing countries, and restrict the sample to a subset of the developing world (for example African countries).

empirical specification by using dynamic panel data estimation.[6] Second, we estimate the size of the political budget cycles based on a large cross-section of countries. Finally, we study the differences in the political budget cycles between developed and developing countries, and what the sources of the differences may be.

The rest of this paper is structured as follows. The next section sets out a simple moral hazard model of electoral competition. Section 3 describes the specification and our estimation techniques. Section 4 discusses the data. The empirical results are reported in section 5. Finally, section 6 concludes.

2 A Model of Political Budget Cycles

The economy is composed of a large number of citizens, each of whom derives utility from a private consumption good and a public good. There are two politicians (parties), denoted with superscripts a and b. All agents are expected utility maximizers. The utility function of voter i in period t is

$$U_t^i = \sum_{s=t}^{T} \beta^{s-t} \left[g_s + u(c_s) + \theta^i z_s \right] \ , \tag{1}$$

where g_t is consumption of a government provided good (per capita) in period t, c_t is private consumption, z_t is a binary variable taking the value $-1/2$ if a is elected and $1/2$ if b is elected, and $u(c)$ is a standard concave utility function. Thus, all voters are alike in their preferences over consumption, but they differ in the parameter θ^i. If $\theta^i < 0$ voter i is biased in favor of party a (and vice versa). This bias can be interpreted as other dimension (policy or personal characteristics) on which the candidates differ. We assume that θ^i is uniformly distributed on $\left[-\frac{1}{2}, \frac{1}{2}\right]$.

At the beginning of each period, all citizens receive an exogenous income y. Government consumption is financed with a lump-sum tax τ. Thus

$$c_t = y - \tau_t \ . \tag{2}$$

The politicians (parties) are assumed to derive utility from consumption goods in the same way as other citizens. However, as in Rogoff (1990) and others, we also assume that being in power provide the politician with additional "ego rents" of $X_t = X > 0$ per period in office. We can conceptualize these ego rents in a variety of ways, from non-monetary benefits due to the great honor

[6] One exception is Block (1999), where dynamic panel data techniques are used to estimate political business cycles in Africa.

of being the chief executive, to misuse of public office for private gain.[7] Thus, candidate j's utility function is,

$$V_t^j = \sum_{s=t}^{T} \beta^{s-t} \left[g_s + u(c_s) + X_s \right] \tag{3}$$

for $j = \{a, b\}$. Elections take place at the end of every other period.

At a given period t, the incumbent determines taxes (τ_t) and borrowing (d_t). In addition to these inputs, the provision of public goods also requires administrative competence (e.g., ability to limit waste in the budget process, ability to deal with exogenous shocks) indexed by η_t^j. Public output (g_t) is then residually determined by,

$$g_t = \tau_t + d_t - R(d_{t-1}) + \eta_t^j \tag{4}$$

where $R(d)$ is a continuous cost function of public borrowing with $R(0) = 0$, $R'(0) = 1$, and $R''(d) > 0$ for all $d > 0$.[8],[9]

We assume that leadership competence follows a first-order moving average process,

$$\eta_t^j = \mu_t^j + \mu_{t-1}^j \tag{5}$$

where each μ^j is a i.i.d. random variable with zero mean, finite variance, and distribution function $F(\mu)$ with $f(0) > 0$. An important assumption we make is that the past competence shock is common knowledge to all agents. Thus, competence is persistent, although it may change over time. This is a plausible assumption since circumstances change over time and a policymaker that was competent in some key tasks in period t need not to be competent on other tasks in period $t + s$.

The incumbent is assumed to observe the shock η_t only after decisions about taxes (τ_t) and borrowing (d_t) have been made. This may appear odd at the first instance. However, given the large set of possible policy problems facing

[7] Implicitly we assume that in the latter scenario, the rents per capita is negligible as the population is sufficiently large. All results, however, continue to hold if we add a constant rent variable to the government's budget constraint.

[8] By $R'(0) = 1$ the "interest rate" on the first infintesimal unit of debt is assumed to be zero (to be consistent we also assume no discounting in the model). Convexity of R means that the marginal cost of borrowing is increasing in the amount of the principal.

[9] This set-up hence presumes that the government internalizes the total cost of running a politically induced deficit (public borrowing), which includes potential effects such as higher real interest rates, and lower savings and private investment. For countries that are restricted to borrow on a small domestic market (many developing countries), the assumption that the government can borrow at an exogenous interest rate is not particularly realistic.

the government, the assumption simply implies that the incumbent *ex ante* is uncertain about how well he will be able to handle these issues, and thus how well he will be able to transform government revenues to public output. An alternative interpretation is that while the government knows the tax code, it is uncertain about the tax revenues (τ_t) it will generate.

The voters' ability to assess the incumbent's policy choices differ. Specifically, a share σ of the electorate is assumed to be "informed" (has access to a free flow of information), in the sense that it observes both election year spending (g_t), taxes (τ_t), and the amount of borrowing (d_t) before casting their votes. A share $1-\sigma$ of the electorate is "uninformed" (does not have access to a free flow of information) and only observes the policy instruments that directly influence their utility; that is, g_t and τ_t. This seems like a reasonable assumption since the government can (through clever accounting techniques) obstruct voters' ability to assess its borrowing needs. Access to free media may help voters to overcome this problem and provide them with a good estimate of d_t, but such information requires both resources (radio, televisions, newspapers), skills to process information, and time, and neither is equally distributed across the population.[10]

2.1 Equilibrium without elections

As a reference point, we first solve the model with no elections. Thus, a randomly drawn candidate remains in power for ever. The equilibrium is easy to characterize. To simplify we let $\beta = 1$. Since the marginal utility of public consumption is constant (equal to one) and borrowing is costly, there will be no borrowing in equilibrium. Thus, $d_t = 0$ for $t = 1, 2, ...T$. Thus, given the simple production technology and quasi-linear preferences, the problem can be broken down into a sequence of static maximization problems,

$$\max_{\{\tau_t\}} E_t \left[g_t + u(c_t) + X \right] \tag{6}$$

$$\text{s.t.} \qquad g_t = \tau_t + \eta_t \ , \tag{7}$$

and (2). E_t is the expectation operator conditional on information at time t. The first-order condition equates the marginal disutility of taxes with the marginal utility of spending. Solving for τ_t yields,

$$\tau_t = \tau^* = y - u_c^{-1}(1) \quad \forall \ t \tag{8}$$

[10] González (1999) studies a related issue in a signaling model: how the degree of transparency (defined as the likelihood with which the voters learn the politician's competence) influences the incumbent's incentive to signal his type.

The competence shock η will only affect spending. Realized spending is $g_t = \tau^* + \eta_t$ for $t = 1, 2, ...T$.

2.2 Political budget cycles

With elections taking place every other period the problem becomes somewhat more complex. However, given the assumptions of quasi-linear preferences and the MA(1) process for competence, the problem can again be broken down into a sequence of simple two-period maximization problems.

Working backwards, consider first the elected (in period t) official's problem in the post-election period $t+1$. Given the process for competence and that past competence is observable to voters, the incumbent has no incentives to manipulate the voters' perception of his competence in the post-election period $t+1$, since the expected outcome in the next post-election period $(t+3)$, which determines the outcome in the coming election in period $t+2$, is uncorrelated with the competence shock in period $t+1$. That is, $E_{t+1}\left[\eta_{t+3} \left| \eta_{t+1}\right.\right] = E_{t+1}\left[\eta_{t+3}\right] = 0$. Moreover, since borrowing is costly and the marginal utility of public consumption is constant, the government will not borrow in period $t+1$, and will run a primary surplus to pay down its debt. Thus,

$$g_{t+1} = \tau^* - R(d_t) + \eta_{t+1} \ . \tag{9}$$

Similarly, there is no borrowing in period $t-1$ (also being a post-election period) so the budget constraint in period t is,

$$g_t = \tau^* + d_t + \eta_t \ . \tag{4'}$$

In period t, an election period, the citizens will vote for the candidate that will deliver the best expected outcome in period $t+1$, conditional on their party (or candidate)-specific preferences. Assume party a is in power in period t and let d_t^* denote the solution to the incumbent's optimization problem (yet to be determined). Since the electorate has no information about the challenger's competence (and no way to make an inference), the expected outcome if electing the challenger is

$$\tau^b = \tau^* \tag{10}$$

$$E_t\left[g_{t+1}^b\right] = \tau^* - E_t\left[R(d_t^*)\right] \tag{11}$$

since $E_t\left[\mu_t^b\right] = E_t\left[\mu_{t+1}^b\right] = 0$.

The expected outcome if re-electing the incumbent is

$$\tau^a = \tau^* \tag{12}$$

$$E_t\left[g_{t+1}^a\right] = \tau^* - E_t\left[R(d_t^*)\right] + E_t\left[\mu_t^a\right] \tag{13}$$

since $E_t\left[\mu^a_{t+1}\right] = 0$. Comparing (10)-(11) and (12)-(13), we see that voter i would vote for the incumbent provided that

$$E_t\left[\mu^a_t\right] - \theta^i \geq 0\ . \tag{14}$$

Thus, the incumbent's expected share of total votes is simply $\Pr(E_t\left[\mu^a_t\right] - \theta^i \geq 0) = E_t\left[\mu^a_t\right] + \frac{1}{2}$.

The electorate's ability to assess the incumbent's competence differs across voters. A share σ of the electorate is informed in the sense that these voters observe both election year spending (g_t), taxes (τ_t), and the amount of borrowing (d_t) before casting their votes. By ($4'$), these voters can thus determine the incumbent's competence prior to the election as,

$$\mu^a_t = g_t - \tau^* - d_t - \mu^a_{t-1}\ .$$

A share $1-\sigma$ of the electorate is uninformed and therefore must form an estimate about the incumbent's competence, say $\hat{\mu}^a_t$, by forming an estimate of d_t, say $\hat{d}_t$, based on the observable variables g_t, τ_t, and knowing the equilibrium strategy of the incumbent. Thus,

$$\hat{\mu}^a_t = g_t - \tau^* - \widehat{d_t} - \mu^a_{t-1} = \mu^a_t + d_t - \widehat{d_t}\ .$$

Combining the two types of voters' behavior we can compute the probability that the incumbent remains in power; i.e., the probability that he receives at least 50 percent of the votes, as perceived by the incumbent as

$$P_t = \Pr\left(\sigma\left[\mu^a_t + \frac{1}{2}\right] + (1-\sigma)\left[\mu^a_t + d_t - \hat{d}_t + \frac{1}{2}\right] \geq \frac{1}{2}\right) = \tag{15}$$

$$= \Pr\left(\mu^a_t \geq (1-\sigma)(\hat{d}_t - d_t)\right) = 1 - F\left((1-\sigma)(\hat{d}_t - d_t)\right) \tag{16}$$

At the begining of period t the incumbent sets τ_t and d_t to maximize expected utility summed over the next two periods. Since the incumbent cannot commit to follow a policy (budget) rule, he acts under discretion and takes $\hat{d}_t$ as given when calculating the probability of reelection. Exploiting the solution for the optimal tax rate, the incumbent's maximization problem can be stated as,

$$\max_{d_t} E_t\left[\tau^* + d_t + \eta^a_t + u(y-\tau^*) + X\right] \tag{17}$$

$$+ E_t\left[1 - F\left((1-\sigma)(\hat{d}_t - d_t)\right)\right]\left[\tau^* - R(d_t) + \eta^a_{t+1} + u(y-\tau^*) + X\right]$$

$$E_t F\left((1-\sigma)(\hat{d}_t - d_t)\right)\left[\tau^* - R(d_t) + \eta^b_{t+1} + u(y-\tau^*)\right]\ .$$

The first-order condition of the maximization problem (17) is,[11]

$$1 + (1-\sigma)F'\left((1-\sigma)(\hat{d}_t - d_t)\right)X - R'(d_t) \leq 0\ . \tag{18}$$

Equation (18) compares the marginal gain of higher pre-electoral spending, taking the form of higher public consumption in the election period and enhanced (ex-ante) likelihood of reelection times the value of getting reelected, with the marginal cost $R'(d)$. In equilibrium, the incumbent's optimal choice (d_t^*) must be consistent with the voters' expectations, so $d_t^* = d_t = \hat{d}_t$, and the first-order condition (18) becomes,

$$1 + (1-\sigma)f\left(0\right)X - R'(d_t^*) \leq 0\ . \tag{19}$$

Condition (19) defines the equilibrium deficit $d_t^* > 0$. Note that even though voters are rational and forward looking, the incumbent will overstimulate the economy before an election by borrowing in order to increase his chances of reelection. Note further that the chosen debt level is fully expected, and therefore in equilibrium it has no effect on the incumbent's reelection probability.

Moreover, it follows from (19) that the magnitude of the pre-electoral deficit is a function of two variables, X and σ; that is, $d^* = D(X, \sigma)$. Differentiating the first-order condition yields the following comparative statics results,

$$\frac{\partial D}{\partial X} > 0; \quad \frac{\partial D}{\partial \sigma} < 0 \tag{20}$$

The higher the rents of remaining in power, X, the stronger the incentives (the larger the expected gain) to increase spending so as to enhance the chance of reelection. As a result the incentive problem becomes more severe and the equilibrium level of pre-electoral borrowing (d^*) increases. A greater share of informed voters has the opposite effect since the voting decision of fewer voters can ex-ante be influenced by a pre-electoral spending boom. Thus, the expected gain of boosting spending falls.

Combining the first-order condition (19), the budget constraint (4), and the comparative statics results (20) yields the central results of the model: policy outcomes, particularly the government's budget balance, are influenced by the timing of elections. Prior to elections the incumbent engages in pre-electoral policy manipulations to increase his chance of reelection. As a result, a deficit is created. The magnitude of the deficit depends on two institutional features of the economy: the value (rents) of remaining in power and the share of informed voters in the electorate. In the period following the election, the winning government will run a primary surplus to cover for past policy actions.[12]

[11] The second-order condition holds strictly given the assumptions on $R(d)$.

[12] Primary surplus is defined as revenue τ less government consumption g and interest on government debt $R(d) - d$.

3 Specification

The model laid out above suggests that policy outcomes should be influenced by the timing of elections. We can state the relationship between a policy outcome $y_{i,t}$ and the electoral cycle generically as,

$$y_{i,t} = \sum_{j=1}^{k} \gamma_j y_{i,t-j} + \boldsymbol{\chi}\mathbf{w}_{i,t} + \beta_e e_{i,t} + \boldsymbol{\beta}_{me}\mathbf{m}_{i,t}e_{i,t} + \boldsymbol{\beta}_m\mathbf{m}_{i,t} + \xi_i + \varepsilon_{i,t} \qquad (21)$$

for $i = 1...N,\ t = 1...T$, where $e_{i,t}$ is a binary election variable indicating if a election is taking place or not in country i at time t, $\mathbf{w}_{i,t}$ is a vector of controls, and $\mathbf{m}_{i,t}$ is a vector of conditioning variables determining the incentives to engage in pre-electoral policy manipulations. This is a standard dynamic panel model in which the dependent variable is a function of lagged dependent variables, a set of other controls, the timing of elections, and an unobserved country-specific effect ξ_i. $\varepsilon_{i,t}$ is an iid error term.

Assuming that the unobserved country-specific effects are equal across countries; that the error term, ε, is not serially correlated; and that the explanatory variables are strictly exogenous, we can estimate (21) consistently with OLS. In a large panel of countries these assumptions are likely not to hold. In particular, the unobserved country-specific effects will most probably differ across countries. Allowing for country-specific effects renders the OLS estimator inconsistent, since the lagged dependent variable $y_{i,t-j}$ is correlated with the error term $\omega_{i,t} = \xi_i + \varepsilon_{i,t}$. We can control for country-specific effects (for example, by Within-transformation). However, by construction, the transformed error term $\left(\varepsilon_{i,t} - \frac{1}{T}\sum_{t=1}^{T}\varepsilon_{i,t}\right)$ will still be correlated with the lagged dependent variable.[13] The bias of the Fixed Effects (FE) estimator, which influences all variables, is a function of T, and only if $T \to \infty$ will the FE estimator of $\boldsymbol{\gamma}$ and $\boldsymbol{\beta}$ be consistent (see Nickell, 1981; and Kiviet, 1995). To avoid these problems, we consider the Generalized-Method-of-Moments (GMM) estimator developed for dynamic models of panel data by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). To eliminate the country-specific effects we can take first-differences of (21),

$$\Delta y_{i,t} = \sum_{j=1}^{k} \gamma_j \Delta y_{i,t-j} + \boldsymbol{\chi}\Delta\mathbf{w}_{it} + \boldsymbol{\beta}\Delta\mathbf{v}_{it} + \Delta\varepsilon_{i,t} \qquad (22)$$

where $\Delta y_{i,t} = y_{i,t} - y_{i,t-1}$ and $\mathbf{v}$ is a vector of election and conditioning variables. By construction, the new error term is correlated with the new lagged

[13] The least-squares dummy variables estimator suffers from the same bias because (the vector of) the lagged dependent variable is correlated with (the vector of) the error term.

dependent variable $\Delta y_{i,t-1}$. Arellano and Bond (1991) note that under the assumption that the error term $\varepsilon_{i,t}$ is not serially correlated, values of y lagged two periods or more are valid instruments for the new lagged dependent variables $\Delta y_{i,t-1}$. Similar concerns arise for the control variables. We assume that $\mathbf{w}_{it}$ is weakly exogenous (or predetermined); that is, $\mathbf{w}_{it}$ is uncorrelated with future realizations of the error term. Thus, the GMM dynamic first-difference estimator uses the following linear moment conditions,

$$E\left[y_{i,t-s}\Delta\varepsilon_{i,t}\right] = 0 \quad \text{for } s \geq 2,\ t = 3, ...T \tag{23}$$

$$E\left[\mathbf{w}_{i,t-s}\Delta\varepsilon_{i,t}\right] = 0 \quad \text{for } s \geq 2,\ t = 3, ...T \tag{24}$$

We will treat the election variable (indicating the year of election) as a strictly exogenous variable with respect to government fiscal policies, that is, $E[\mathbf{v}_{i,s}\varepsilon_{i,t}] = 0$, for all s and t. Clearly, some elections may result from a political crisis which in turn might have been triggered by the country's economic situation or outlook (including the government's fiscal stance). Although we adopt the assumption of exogenous election timing mainly in order to simplify our empirical analysis, we also have several compelling reasons for doing so. First, it is very often a matter of subjective judgement to decide whether the timing of an election was endogenous; we do not want to introduce such a bias and reduce the sample size in an ad hoc way. Second, our tests are robust to some degree of endogeneity in the timing of elections. For example, the election variable can be used for testing the model as long as the election had been announced or expected a year before it happened. Third, to the extent that the timing of an election may be endogenous, it would probably depend on the state of the economy (not the government's fiscal stance), which is controlled in all our regressions by including per-capita GDP and GDP growth rate variables. In addition, in section 5.4 we relax the exogeneity assumption and investigate how the empirical results would be affected by incorporating wars and governmental crisis variables into the regressions. Finally, if elections are not triggered by economic and/or political crises, but a result of strategic election date planning based on the government's fiscal stance, then the resulting bias will work against our results. Elections should be strategically set in "good times," that is, in periods with high government revenues and low deficits. To the extent this effect is important, our estimates provide a lower bound on the size of the average political budget cycle.

While the moment conditions above are sufficient to estimate the parameters of the model, GMM estimators obtained after first differencing have been found to have large finite sample bias and poor precision in simulation studies (see Arellano and Bover, 1995; Blundell and Bond, 1998). The intuition for this is simply that when the explanatory variables are persistent over time, lagged

levels of these variables are weak instruments for the regression equation in differences. To avoid this problem we follow Arellano and Bover (1995), and Blundell and Bond (1998), and include additional moment restrictions. The new estimator combines in a system the regression in differences with the regression in levels. The instruments for the regression in differences are those described above, while the instruments for the regression in levels are the lagged differences of the corresponding variables. These are valid instruments provided that there is no correlation between the differences of the explanatory variables and the country-specific effects (there still may be correlation between the level of the explanatory variable and ξ). The additional moment restrictions can be stated as

$$E\left[\Delta y_{i,t-s}\omega_{i,t}\right] = 0 \qquad \text{for } s \geqslant 1. \tag{25}$$

$$E\left[\Delta \mathbf{w}_{i,t-s}\omega_{i,t}\right] = 0 \qquad \text{for } s \geqslant 1. \tag{26}$$

Combining the moment conditions for the difference and level equations yields the system GMM estimator described in Arellano and Bover (1995) and Blundell and Bond (1998). Consistency of the system GMM estimator depends on the validity of the instruments. We consider two tests suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). The first test is a Sargan test of over-identifying restrictions, where the null hypothesis is that the instruments are uncorrelated with the residuals. The second test is a serial correlation test of the error term. The moment conditions (23) rely on the assumption of no serial correlation (in levels). Thus, in the difference equation we test whether the (differenced) error term is second-order serially correlated.[14]

Below we report the results of using all three estimators (OLS, FE, GMM). Since the system GMM estimator controls for unobserved country-specific effects as well as potential endogeneity of the explanatory variables, it is our preferred method. However, since the GMM estimator controls for endogeneity by using "internal instruments"; that is, lagged explanatory variables, we end up with a smaller set of observations when using GMM. For this reason we also report the OLS and FE results.

The political policy cycles are captured by adding a dummy variable ELE taking the value 1 in election years and 0 otherwise. We also use two alternative indicators, $ELEALT$ and PBC. $ELEALT$ takes the value 1 in year t if the election occurred the last six months of year t, it takes the value 0.5 in year t and 0.5 in year $t-1$ if election occurred the first six months of year t, and 0 otherwise. $ELEALT$ thus allow the effect to differ depending on if the election took place early or later in the year. PBC takes the value 1 in election year,

[14]By construction, the differenced error term is likely to be first-order serially correlated.

-1 in the year following the election, and 0 otherwise. This variable imposes the restriction that the expansion prior to the election and contraction after the election are of the same magnitude. While this specification follows from the model (the model predicts a primary deficit d^* prior to the election, and a primary surplus d^* the following period), the second effect is sensitive to assumptions on the competency shock and preferences.[15] In a more general specification, the contraction might be optimally spread out over several non-election years ("consumption smoothing").

We use three fiscal measures as dependent variable (y_t): government surplus, revenues, and expenditures. In the baseline model we include two controls, logarithm of per-capita GDP and growth of per-capita GDP.

4 Data

We construct a panel data set to test the predictions of the model. Our data set includes macroeconomic data on government surplus, revenues, expenditures, political data on election dates, conditioning controls such as measures of rents and share of informed voters, per capita GDP and growth. Our sample has annual observations for 123 developing and developed countries (including missing values) for the period between 1975 and 1995. The sample size is restricted by election and fiscal data.

The Database on Political Institutions (DPI) from the World Bank (Beck et al., 1999) provides a wide coverage on countries' political systems and elections between 1975 and 1995. Both legislative and executive elections are recorded whenever available. We include legislative elections for countries with parliamentary political system, and executive elections in countries with presidential system.[16] Only countries with elections during the sample period are included in the sample. Table A.1. in the appendix provides an overview of the countries in the sample and the numbers of elections that took place during the sample period.[17]

The model predicts that the size of election-induced policy cycle should depend on two institutional features of the economy: the value (rents) of remaining in power and the share of informed voters in the electorate. Obviously,

[15] Due to severe multicollinearity problems in the differenced equation between election and post election dummies, we cannot efficiently estimate the time profile of the election effects; that is, the exact post-election adjustment in the years following an election.

[16] About 20 countries have a third political system with assembly-elected president where the president is elected by the assembly but the assembly can not easily recall him. In this case, decisions on election dates are made based on where the executive powers rest (i.e. executive elections), based on information from the Political Handbook of various years.

[17] More detailed election dates are available from the authors upon request.

neither of these variables are directly observable. Our proxy for X, rents of being in power, is constructed from the institutional indicators provided by the International Country Risk Guide (ICRG), a private international risk service company.[18] The institutional indicators are meant to provide private investors with a measure of rent-seeking and protection of property rights, and thus is closely related to X in the model; that is, to what extent formal and informal rules and institutions constrain the government from using public resources and policies for private gains. ICRG provides five institutional indicators, namely "rule of law", "corruption in government", "quality of the bureaucracy", "risk of expropriation of private investment", and "risk of repudiation of contracts". We re-code each indicator to a 0-10 scale and create our rent measure by summing the five re-coded variables. A low value on *rents* indicates potentially large rents of being in power.

The proxy for the share of informed voters (σ) is created by combining data on access to media with information on the extent to which the media is free. Access to information is operationalized with the variable "radios per capita" from the Global Development Network Growth Database (World Bank). Data on freedom of information is taken from the "Freedom of press" data set (Freedom House). Based on the available scores from Freedom House we created a binary "freedom of broadcasting" variable taking the value 1 in year t if the country had freedom of broadcasting in year t, and 0 otherwise. The share of informed voters, *informed voters*, is the product of "radios per capita" and "freedom of broadcasting".

The macroeconomic data on fiscal variables are obtained from the *International Financial Statistics*, published by IMF. Government surplus, revenue (grants not included) and expenditures are expressed as shares of GDP. GDP per capita and growth of GDP per capita is taken from the Penn World Table 5.6. Table A.2-A.4 in the appendix presents descriptive statistics for the macroeconomic variables on the whole, as well as partitioned sub-samples for developed and developing countries. The country-specific development dummy, DEV, is constructed using the income level data of the IFS. The development dummy for a country equals 1 if the country belongs to the high income group with the IFS standard, i.e., its per capita GNP is above the threshold USD 9656 in 1997, and 0 otherwise. In our sample, 29 countries are classified as developed and 94 countries are classified as developing ones.

[18] These indicators have previously been used in the cross-country growth literature by for instance Knack and Keefer (1995) and Svensson (1998).

5 Results

5.1 Main findings

Table 1 reports the main unconditional findings with respect to the government budget surplus (deficit); that is equation (21) without the vector **m**. In the OLS estimation, ELE has the expected sign but is marginally insignificant at the 10 percent confidence level. However, the data reject the assumption that the unobserved country-specific effects are equal across all countries [F-test reported in regression (2)], rendering the OLS estimator inconsistent. Although the direction of the bias for a higher-order autoregressive process is difficult to identify a priori (Hsiao, 1986), in a model with one lagged dependent variable OLS biases the coefficient on the exogenous variables (ELE) towards zero. The within transformation [column (2)] eliminates the country-specific effects (although the estimator remain biased with lagged dependent variable). The coefficient produced by the fixed effects estimator is similar to the OLS estimate, but has smaller standard errors.

The GMM results are reported in column (3). The estimated coefficient is more than twice as large (in absolute terms) as that reported in column (2) and implies that the fiscal deficit as share of GDP is one percentage point higher in election years.[19]

Column (3) also reports the Sargan test, where the null hypothesis is that the instrumental variables are uncorrelated with the residuals, and a serial correlation test, where the null hypothesis is that the errors in the differenced equation exhibit no second-order serial correlation. The regression satisfies both specification tests. Thus, there is no evidence of first order serial correlation (in levels), nor of over-identifying restrictions.

It should be noted that each regression includes a three-period lag structure $(y_{t-1}, y_{t-2}, y_{t-3})$, which is not reported, as well as two controls, per-capita GDP and growth of per-capita income.[20] We have tested and confirmed that the government budget deficit is stable using the coefficient estimates on the lagged dependent variables. The coefficient on the one-period lagged deficit (based on the GMM estimation) imply that roughly 70 percent of the lagged budget deficit persists to the following period.

The results using $ELEALT$ are similar to those reported in columns (1)-(3). The coefficient on $ELEALT$ is slightly larger (in absolute values) in the GMM specification and highly significant [p-value: 0.0002]. The estimated political cycle in government surplus is depicted in Figure 1.

[19] Roughly half of the difference in the estimated coefficients can be explained by different sample size.

[20] Full results are available upon request.

Columns (4)-(6) in Table 1 report the results with PBC as a regressor for election. The OLS and FE estimates are both highly significant and suggest that the size of the electoral cycle (defined as the change in the deficit during the election year and the post-election year) is roughly 1 percent of GDP. The GMM estimate is again larger (in absolute terms), implying an electoral cycle in the magnitude of 1.4 percent of GDP.

Does the electoral budget cycle illustrated in Table 1 derive from increased spending, or reduced taxation? While the model laid out above suggests that the pre-electoral expansion is fueled by increased spending, this result is driven by simplifying assumption on preferences and policy instruments. More generally, depending on voters' valuation of private consumption versus public spending, the pre-electoral manipulations may take both forms. In fact, as argued by Alesina et al. (1997), conceptually the choice between increased spending and reduced taxes is ambiguous, and may vary both over time and across countries. In addition, there is statistical explanation for why it might be difficult to find a strong effect of elections on spending and taxes. The ratios of government spending and revenues over GDP are highly persistent.[21] Thus, we do not necessarily expect to find a clear pattern of the impact of elections on spending and taxation in a large panel of countries.

Despite these caveats it is interesting to study if there are systematic electoral cycles in government spending and revenues. Table 2 reports the relationship between elections and government revenues as a share of GDP. There is a strong negative relationship between elections and revenues in the data, independent of estimation technique. The coefficient estimates suggest that the ratio of revenues to GDP is 0.4 percentage points lower in election years and based on the GMM estimation [column (6)], the short-run cycle in revenues is about 0.5 percentage points of GDP.

Table 3 displays the results for the ratio of government spending to GDP.[22] In the OLS and FE regressions the coefficients are insignificantly different from zero, however in the GMM estimation ELE has a significantly positive effect on government expenditures, indicating an increase in government spending as share of GDP in election years of 0.5 percentage points. Using $ELEALT$ as election indicator produces similar results.

Estimations with PBC as explanatory variable, columns (4)-(6), Table 3, suggest a short-run cycle in spending in the magnitude of 0.4-0.7 percentage points of GDP, depending on estimation technique.

To summerize, the results in Tables 1-3 provide clear support for the hypothesis of political budget cycles, and hence validate the general prediction

[21]The AR(1) coefficient in the pooled time-series cross-country data is 0.97 for government revenues to GDP, and 0.98 for government expenditures to GDP, while (only) 0.79 for deficit.

[22]The results are similar for government consumption over GDP.

of the model in section 2. Spending increases before elections while revenues fall, leading to a larger deficit (on average one percentage point of GDP larger deficit based on the GMM estimate) in election years. The data also suggest that pre-election expansions are followed by post-election contractions, leading to a fiscal deficit cycle of a magnitude of 1.4 percent of GDP. The point estimates in the GMM regressions imply that the deficit cycles are driven both by reduction in taxes and increased spending, and that the two effects are of the same magnitude.

5.2 Developing and Developed Countries

The results above indicate that political budget cycles are not confined to OECD countries (or some other specific region or selected sample of countries), but appear to be a general pattern in countries experiencing elections. We turn next to an explicit examination of whether there are systematic differences between developing and developed countries.

Tables 4-6 report the results from splitting the sample into developed and developing countries. The election induced effects on the budget balance is reported in Table 4.[23] There is a large difference between the two samples of countries. The coefficient on ELE suggests that in election years, the deficit as a share of GDP increases by 1.3 percentage points in the average developing country and roughly 0.6 percent in the average developed country. The difference in statistically significant (z-test), and is further reinforced in the pooled regression (column 3, *Wald*-test).[24] Interestingly, the coefficient on ELE

[23]Only GMM results are reported. OLS and FE estimations produce qualitatively similar results (available upon request).

[24]We use two tests to examine if the election effect differs across samples. In the first test we include an interaction term of ELE and the development dummy DEV in the benchmark regression. The coefficient on the interaction term captures the additional impact that elections in developed countries have versus that in developing countries. Note, by construction, the differenced election and interactive terms are highly collinear. This resulting multicollinearity problem masks the individual effects of the two variables (the variances of the coefficients will be incorrectly estimated, though the point estimator of the two regressors are still consistent), but does not affect their joint effect (*Wald* test). The pooled regression imposes the restrictions that coefficients on the other explanatory variables are the same for the two groups of countries (and common error variance). This need not be the case in reality, and is not the focus of the study. The second test we use allow for different effects of the controls by running the benchmark regression separately for the two subgroups. We then test the hypothesis that the coefficients on the election variables are the same. We define what is reported as the z statistic: the ratio of the difference of the coefficients to the estimated asymptotic standard error of this difference. The GMM estimators are asymptotically normally distributed (Hansen, 1982). Assuming that the coefficients on the election dummies for the two subgroups are independent, the z statistic will also be asymptotically normal.

in column (2) is very similar to that reported in Alesina et al. (1997). They also estimate the political effects of fiscal policy using a fixed effects estimator, but confine their interest to OECD countries only. Using $ELEALT$ as election indicator further increases the estimated difference in $\hat{\beta}_e$. The estimated effects of elections in the two samples are illustrated in Figure 2 (pooled results) and Figure 3 (separate samples).

A closer inspection of the data reveal that the difference is driven primarily by countries in Latin America and Sub-Saharan Africa, as illustrated in Figure 4. While the fiscal deficit as share of GDP is around 0.5 percent larger on average in election years in the sample of developed countries, it is 1.4 and 1.6 percent larger in the samples of Sub-Saharan and Latin American countries, respectively.

The difference between developing and developed countries is even larger when using PBC as election variable. The pooled regression indicates that the average developing country experiences a 1.4 percentage points of GDP larger swing in the political budget cycle. In both specifications, the Wald-test strongly rejects the linear restriction that the sum of the coefficients on ELE and ELE*DEV (PBC and PBC*DEV) are equal to zero, while the Sargan and serial correlation tests provide support for our identifying assumptions.

Tables 5 and 6 show that there are also systematic differences in the source of the electoral deficit cycles. As reported in Table 5, we find clear evidence of election induced cycles in revenues, both in developed and developing countries. The point estimates are similar, suggesting that the difference in the election-induced deficit cycles is not driven primarily from the revenues side. This result is confirmed in Table 6, which shows that there is only weak evidence of election-induced expenditure cycles in developed countries (the electoral dummies ELE and PBC enter with appropriate signs; that is, government spending relative GDP tends to increase before elections, but the coefficient estimates are small and not statistically significant). In the sample of developing countries, on the other hand, the point estimates imply an increase in spending in election years of 0.7 percentage points of GDP.

5.3 Conditional findings: Rents and Informed voters

The results reported in Tables 4-6 suggest that there are systematic differences between developed and developing countries in the size and composition of political budget cycles. What can explain these patterns? We will focus on explaining the difference in the size of the deficit cycles, although we will also report separately the results on spending and revenues.

The model suggests two reasons for why the size of the election-induced policy cycles might differ between developed and developing countries: differences

in private gains (rents) of remaining in power and the share of informed voters in the electorate. As shown in Table A.3, both these institutional features differ significantly between the two samples. The difference is more than one standard deviation (of the pooled sample) for the mean of the share of informed voters and about two standard deviations for the mean of the rents indicator. In this section we attempt to test if they also can explain the systematic differences between developed and developing countries in the size and composition of political budget cycles.

The empirical model we use to test the conditional findings is,

$$y_{i,t} = \sum_{j=1}^{3} \gamma_j y_{i,t-j} + \boldsymbol{\chi} \mathbf{w}_{i,t} + \beta_e e_{i,t} + \beta_{ex} e_{i,t} X_{i,t} + \beta_{e\sigma} e_{i,t} \sigma_{i,t} + \delta_x X_{i,t} + \delta_\sigma \sigma_{i,t} + \omega_{i,t} \tag{27}$$

where $\omega_{i,t} = \xi_i + \varepsilon_{i,t}$, $\mathbf{w} = [gdp,\ growth]$, $e_{i,t}$ is the binary election variable, $X_{i,t}$ is the *rents* variable, $\sigma_{i,t}$ is the *informed voters* variable, and y is either government deficit, revenues, or expenditures. Thus we allow for both cross-country and within variation in institutional impact.

Table 7 presents the results with the budget balance as the dependent variable. In columns (1)-(2) and (4)-(5) *rents* and *informed voters* enter separately. In all specifications both the election term and the interactive term enter highly significantly and with the predicted signs. The magnitudes are also large. Regression (1) indicates that while the election-induced increases in the deficit in a country with an average score on *rents* is roughly 1 percentage point of GDP, the effect is much larger (1.7 percentage point of GDP) in a country with a one-standard deviation lower score on *rents*. Note that while institutional features are typically persistent, and the estimated effect is consequently driven mainly by cross-country differences, a small set of countries (including Bolivia, Ghana, Malta) have experienced large improvements (greater than one-standard deviation increase in *rents*). For the aforementioned countries, the estimated election effects suggest a reduction in the politically induced budget cycle over the sample period of almost 1 percent of GDP.

The estimated effect of *informed voters* is slightly smaller. Interestingly, the variable *informed voters* varies greatly in both samples. In the developed countries sample, a one-standard deviation increase in *informed voters* results in a reduction in the election induced increase in the deficit of 0.6 percent of GDP.

In column (3) we include both institutional variables in the regression, noting the severe multicollinearity problem this is likely to cause (the correlation coefficient between the two interaction terms is 0.96). The multicollinearity problem will mask the individual effect of the two variables (but not their joint

effect). The hypothesis that the sum of the coefficients on the election and the interaction variables is equal to zero is soundly rejected.

To (partly) solve the multicollinearity problem we combine the two institutional proxies into an index. In Table 8 we report the findings of using such an index. The index, denoted by *sum*, is constructed by standardizing and summing the two institutional variables. As shown in columns (1)-(2) the results are supportive of the model. ELE and $ELE \times sum$ are both individually and jointly highly significant and the estimated effect is large. A one-standard deviation reduction in *sum* is associated with an increase in the politically induced cycle of roughly 0.5 percentage point of GDP.

The conditional findings continue to hold (and are typically stronger) when using the alternative election indicator $ELEALT$. The estimated relationship between government surplus and election conditioning on the composite indicator *sum* is illustrated in Figure 5.

In columns (3)-(6) we report the results on government revenues and expenditures. Consistent with the results reported in Tables 5 and 6, the coefficient estimates suggest that the effect of elections on revenues is independent of the institutional index. However, we find clear evidence that the electoral cycles in expenditures is conditional on institutions.

While the findings reported in Tables 7-8 provide support for the hypothesis that access to unbiased information and having institutions that constrain the government from using public resources and policies for private gains reduce the magnitude of political budget cycles, the results are indicative. The group of developed and developing countries differ in many other dimensions and so far we have only provided necessary evidence that $X_{i,t}$ and $\sigma_{i,t}$ are important. It is plausible that the conditioning variables are simply proxying for development (or income) or degree of democracy (or some other relevant variable that is correlated with development and/or extent of political rights). Table 9, columns (1)-(2), suggest this is not the case. Adding $ELE \times DEV$ and ELE interacted with Freedom House's (1997) index on political rights (*democracy*) as additional controls in the conditional regressions (27) do not change the results. $ELE\times$ *sum* still enters significantly and with roughly unchanged positive coefficient estimate, while $ELE \times DEV$ and $ELE\times$ *democracy* enter insignificant with p-values of 0.63 and 0.95, respectively.

To sum up, the conditional findings reported above fit the prediction of the model and underline the general idea that the size of the electoral policy cycles critically depends on political and institutional features of the country. Variations in the institutional environment can in fact explain a large part of the differences between developed and developing countries.

5.4 Robustness

We ran a number of robustness tests on the results reported above. First, we tested the validity of the instruments in the GMM specification. As reported in the tables, we cannot reject the hypotheses of no over-identifying assumptions (Sargan test) and no higher-order correlation in the first-differenced residuals.

We also added additional controls, including terms-of trade shocks, share of population above 65, and share of population under 15. However, the additional controls had no robust significant relationship with the policy measures considered and are uncorrelated with the timing of elections. Since we would lose observations by adding these additional controls we leave them out of the base specification. We also included two common variables, the oil price and an international interest rate. Including them did not change our basic findings. In a similar vein we made cyclical adjustment to the fiscal variables, following the method described in Alesina and Perotti (1995), and Alesina and Ardagna (1998) (see appendix). The election effect is stronger when using these adjusted fiscal measures (for example the coefficient in the deficit regression is roughly 30 percent larger in absolute terms), but we end up with a smaller sample size.

There are a small number of outlying observations in the deficit data. While there is no theoretical justification for dropping these observations (in fact, based on the time series profile of the respective country they are not necessarily outliers), it would be of considerable concern if our results were completely driven by them. To examine this possibility we dropped all observations with absolute values larger than four standard deviations above the mean, a total of 11 observations. Reestimating the model with the outliers dropped, however, yields very similar result (coefficient estimates slightly smaller in absolute terms) to those reported above. We also dropped all country-year observations in which inflation was above 300%. Easterly (1996) argues that inflation is all that matters for output in high inflation times. All results remain intact.

We dropped all observations for countries with weak political rights; that is, countries with a score 1 (in a 1-7 scale) in Freedom House's (1997) index on political rights. In countries in which political competition is restricted, the mechanism described above may not be present. However, it is a well established fact that even in countries where elections can be manipulated and the political opposition is severely constrained, the incumbent still needs political support. Election outcomes typically are used as an indicator (by the political leadership) that the incumbent has such support. The empirical results remain intact (typically lower standard errors on the election variables) when dropping the countries with weak political rights. As shown in Table A.1., most of these countries are dropped from the sample for lack of data anyway, so only a handful countries are affected by this restriction.

So far, we have been treating the election variable as exogeous to government fiscal policies (see the discussion in Section 3). However, it is conceivable that the timing of elections and the fiscal variables could be both affected by the ocurrences of crises. If this is the case then the coefficient on ELE may partly capture a crisis-effect. To control for this we added two proxies of governmental crises. The variable *war* is a dummy taking the value 1 if the country is at war, and *crises* is a binary variable taking the value 1 if the country experiences a governmental crises as defined by Banks (1994), and 0 otherwise. As reported in Table 9, the results remain intact when adding *war* and *crises*. In column (3), *war* enters with the predicted sign but is marginally insignificant at the 10-percent level. The deficit is significantly larger in years when there is a governmental crises, column (4). However, this finding does not affect, qualitatively or quantitatively, the relationship between ELE and government surplus. Since Bank's (1994) crises data are only available up to 1993, we leave *crises* out from the base specification.

We also tried interacting several other variables, including measures of political polarization and fractionalization (gini coefficient, ethnic fractionalization, percentage of people who does not speak official language at home), and measures of economic development and structural features of the economy (including illiterate rate and urbanization rate). All these variables are highly correlated with the development dummy (and income) (simple correlation around 50 percent) and could thus potentially explain the differences between developed and developing countries. However, these conditional factors seem to have no or only weak explanatory power on the size and composition of the electoral policy cycles.[25]

To conclude, the results appear robust to several possible statistical problems.

6 Discussion

The contribution of this paper is fourfold. First, we provide (to our knowledge) the first test of political budget cycles based on a large cross-section of countries (all countries with available data). We find that electoral budget cycles appear to be a common phenomena across countries. Spending increases before elections while revenues fall, leading to a larger deficit in election years. In election years, the fiscal deficit as a share of GDP is 1 percentage point higher. This is a considerable effect given that our estimate most likely constitutes a lower bound of the effects of elections on policy since borrowing is just one of many

[25]Results available upon request.

instrument that politicians can use to achieve better outcome (substituting their ability).

Second, we show that there are large systematic differences between developed and developing countries in the size (and composition) of the electoral policy cycles. In election years, the fiscal deficit as a share of GDP is 1.3 percentage point higher in the average developing country, more than twice the effect of the average developed country.

Third, we develop a model that can shed some light on why the size of the political budget cycles might differ. In the model, the incentives for increasing spending prior to elections stem from a moral hazard problem: the incumbent's desire and ability to manipulate policy instruments to bias the voters' inference process in his favor. We show that these incentives are functions of two institutional variables. Specifically, the higher the rents of remaining in power and the lower the share of informed voters, the stronger the incentives to manipulate fiscal policy prior to elections. Both these institutional features differ markedly between the sample of developed and developing countries.

Finally, we use two institutional indicators to proxy for these features and find that they explain a large part of the difference in policy cycles between developed and developing countries. We believe that these conditional findings not only fit the predictions of the model, but underline an important area for future research, namely, that the size and composition of the electoral policy cycle critically depend on political and institutional features of the country. A contribution of this paper is that we have provided some evidence of what type of political and institutional features matter, but more work along these lines are likely to be fruitful.

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6.1 Data Appendix

The fiscal variables are from the International Financial Statistics (IFS). Government deficit (line 80 of IFS), government consumption (line 91 of IFS) and government revenues excluding grants (line 81 of IFS) are denominated in local currencies. We divide these variables by GDP (also denominated in local currencies, line 99 of IFS) to get percentages of GDP.

Inflation is defined as $(CPI_t - CPI_{t-1})/CPI_{t-1}$, where CPI refers to the Consumer Price Index (line 64 of IFS).

GDP per capita is taken from the Penn World Table 5.6.

GDP growth rates are calculated using data from the Global Development Network Growth Database, The World Bank, (originally from the Penn World Table 5.6).

Development dummy (DEV) equals 1 for high-income countries in which 1997 GNP per capita was \$9,656 or more. This definition comes from the IFS.

The election data are from the Database on Political Institutions from the World Bank (Beck et al., 1999).

The Election dummy $ELE_{i,t}$ equals 1 if an election occurred in country i at time t, 0 otherwise. $ELEALT_{i,t}$ equals 1 if an election occurred the last six months of year t in country i, it takes the value 0.5 in year t and in year $t-1$ if an election occurred the first six months of year t in country i, and 0 otherwise. $PBC_{i,t}$ takes value 1 when $ELE_{i,t}$ equals 1, and -1 if $PBC_{i,t-1}$ equals 1, 0 otherwise.

Ethnic fractionalization measures the probability that two randomly selected people from a given country will not belong to the same ethno-linguistic group. Ethnic fractionalization and the percentage of people who do not speak the official language at home are from Easterly and Levine (1997).

Gini coefficients which measure the wealth distribution of economies are from Deininger and Squire (1996).

Adult illiteracy rates are the proportions of adults aged 15 and above who cannot, with understanding, read and write a short, simple statement on their everyday life. Urbanization rates are the percentages of midyear population living in areas defined as urban in each country. The data are from the World Development Indicators CD-ROM.

The cyclical adjustment of fiscal variables follows the procedure proposed by Blanchard (1993) and used by Alesina and Perotti (1995), and Alesina and

Ardagna (1998). We regress each fiscal variable y on lags and the growth rate (g); $y_{i,t} = \sum_{j=1}^{3} \gamma_j y_{i,t-j} + \beta_g g_{i,t} + \varepsilon_{i,t}$. Then we derive what the value of y_i in period t would have been had the growth rate been the same as in the previous years. That is, we calculate $y^*_{i,t} = \sum_{j=1}^{3} \hat{\gamma}_j y_{i,t-j} + \hat{\beta}_g g_{i,t-1} + \hat{\varepsilon}_{i,t}$, where $\hat{\gamma}_j$, $\hat{\beta}_g$, and $\hat{\varepsilon}_{i,t}$, are given from the first stage regression.

Rents is the sum of the five institutional indicators from the International Country Risk Guide (Svensson, 1998): "rule of law", "corruption in government", "quality of the bureaucracy", "risk of expropriation of private investment", and "risk of repudiation of contracts". The index is on a scale 0-50.

Informed voters is the product of "radios per capita" from the Global Development Network Growth Database of the World Bank and the dummy variable on "freedom of broadcasting" based on informatin from the Freedom House.

Crises is a dummy variable created using data from Banks (1994). Banks define "governmental crises" as any rapidly developing situation that threatens to bring the downfall of the present regime. *Crises* takes the value 1 each year there is a "governmental crises".

War is a dummy variable created using data from Correlates of War Project: International and Civil War Data 1816-1996. *War* takes the value 1 in years a country is involved in either an international or civil war.

Table A.1: Number of Elections between 1975-1995, by Country.

Albania	1	Gambia,The[a]	3	Nigeria[a,b]	2
Algeria	3	Germany[a,b]	6	Norway[a,b]	5
Angola	1	Ghana[a,b]	2	Pakistan[a,b]	3
Argentina[a,b]	3	Greece[a,b]	5	Panama[a,b]	3
Australia[a,b]	6	Grenada[a]	3	PapuaNewGuinea[a,b]	4
Austria[a,b]	6	Guatemala[a,b]	4	Paraguay[a,b]	4
Bahamas,The[a,b]	4	Guinea	2	Peru[a,b]	4
Bangladesh[a,b]	3	Guinea-Bissau[a]	1	Philippines[a,b]	3
Barbados[a,b]	5	Guyana[a,b]	3	Portugal[a,b]	6
Belgium[a,b]	6	Honduras[a,b]	3	Romania[a,b]	2
Belize[a]	3	Hungary[a,b]	1	Rwanda[a]	3
Benin	3	Iceland[a,b]	5	Samoa	6
Bolivia[a,b]	4	India[a,b]	5	Senegal[a]	4
Botswana[a,b]	4	Indonesia[a,b]	4	SierraLeone[a,b]	2
Brazil[a,b]	2	Iran,IslamicRep.[a,b]	2	Singapore[a,b]	5
BurkinaFaso[a,b]	2	Ireland[a,b]	5	SlovakRepublic	2
Burundi[a,b]	2	Israel[a,b]	5	Slovenia	1
Cameroon[a]	5	Italy[a,b]	5	SolomonIslands[a,b]	4
Canada[a,b]	4	Jamaica[a,b]	5	Spain[a,b]	5
CapeVerde	2	Japan[a,b]	5	SriLanka[a,b]	3
CentralAfricanRep	2	Kazakhstan	2	St.Lucia[a]	4
Chad[a,b]	1	Kenya[a,b]	4	Sudan[a]	2
Chile[a,b]	2	Korea,Rep.[a,b]	2	Suriname[a,b]	1
Colombia[a,b]	5	Liberia[a,b]	2	Sweden[a,b]	7
Comoros[a]	3	Lithuania	1	Switzerland[a,b]	6
Congo,Dem.Rep.[a]	2	Luxembourg[a,b]	4	SyrianArabRep[a,b]	3
Congo,Rep.[a]	3	Madagascar[a]	4	Tanzania	5
CostaRica[a,b]	5	Malawi[a,b]	1	Thailand[a,b]	4
Coted'Ivoire	5	Malaysia[a,b]	5	Togo[a,b]	2
Cyprus[a,b]	3	Maldives[a,b]	4	TrinidadandTobago[a,b]	4
Denmark[a,b]	8	Mali[a,b]	3	Tunisia[a,b]	2
Djibouti[a]	2	Malta[a,b]	4	Turkey[a]	3
DominicanRep[a,b]	5	Mauritania[a]	1	Turkmenistan	2
Ecuador[a,b]	4	Mauritius[a,b]	4	Ukraine	2
Egypt,ArabRep.[a,b]	3	Mexico[a,b]	4	UnitedKingdom[a,b]	4
ElSalvador[a,b]	4	Mozambique	1	UnitedStates[a,b]	5
EquatorialGuinea	1	Nepal[a,b]	3	Uruguay[a,b]	3
Fiji[a,b]	3	Netherlands[a,b]	6	Vanuatu[a]	3
Finland[a,b]	5	NewZealand[a,b]	7	Venezuela[a,b]	4
France[a,b]	5	Nicaragua[a,b]	2	Zambia[a,b]	4
Gabon[a]	3	Niger[a]	2	Zimbabwe[a,b]	4

Superscript *a* means that the country is included in the fixed effects regression of deficit (sufficient data available)
Superscript *b* means that the country is included in the GMM regression of deficit (sufficient data available)

Table A2: Descriptive Statistics of the Macroeconomics Variables

		Mean	Std. Dev.	NOB
Government Surplus	All	-4.2	6.1	1883
	Income=1	-4.0	4.8	580
	Income=0	-4.3	6.6	1303
Government Revenue	All	23.7	11.0	1844
	Income=1	30.3	10.4	568
	Income=0	20.7	9.9	1276
Government Consumption	All	15.7	6.4	1871
	Income=1	18.7	6.0	371
	Income=0	14.9	6.2	1500

Table A3: Descriptive Statistics of the Institutional Variables

		Mean	Std. Dev.	Min	Max	NOB
Rents	All	29.69	11.57	7.33	50	1875
	Income=1	44.08	6.35	23.33	50	548
	Income=0	23.74	7.19	7.33	45.67	1327
Informed voters	All	0.183	0.339	0	2.144	2381
	Income=1	0.524	0.457	0	2.144	588
	Income=0	0.070	0.182	0	1.034	1793
Sum	All	0.080	1.865	-2.471	7.313	1862
	Income=1	2.336	1.629	-1.088	7.313	548
	Income=0	-0.861	0.901	-2.471	3.836	1314

Table A4: Correlation matrix

	Rents	Informed voters	Sum	GDP
Rents	1			
Informed voters	0.624	1		
Sum	0.893	0.910	1	
ln(GDP)	0.785	0.629	0.781	1

Table 1. Election and Government Surplus[a]

Equation	(1)[b]	(2)[c]	(3)[d]	(4)[b]	(5)[c]	(6)[d]
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Method	OLS	FE	GMM	OLS	FE	GMM
ELE	-0.414	-0.402	-1.005			
	(.257)	(.239)	(.210)			
	[.108]	[.093]	[.000]			
PBC				-0.569	-0.532	-0.701
				(.163)	(.156)	(.118)
				[.000]	[.001]	[.000]
F-test[e]		1.65			1.63	
		[.000]			[.000]	
Sargan[f]			7.86			8.63
			[.726]			[.656]
Serial corr.[g]			-0.45			-0.25
			[.650]			[.803]
No. countries	104	104	85	104	104	85
No. obs.	1460	1460	1177	1460	1460	1177
Adj. R^2	.67	.60		.67	.60	

Notes: (a) Dependent variable is ratio of government surplus to GDP (DE). Full regression: $DE_{it} = \beta_1 DE_{i,t-1} + \beta_2 DE_{i,t-2} + \beta_3 DE_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. Heteroskedastic-consistent standard errors reported in parentheses, and p-values in brackets. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. (b) OLS-specification imposes the restriction $\eta_i = \eta \ \forall$ i. (c) Country-specific effects not reported in FE-specification. (d) Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses. The instruments used in the GMM regressions are lagged levels (two periods and more) of DE, GDP, and GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (e) F-test is an F test of the null hypothesis that all country-specific effects in the FE-specification are equal, with p-values reported in brackets. (f) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (g) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 2. Election and Government Tax Revenues[a]

Equation	(1)[b]	(2)[c]	(3)[d]	(4)[b]	(5)[c]	(6)[d]
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Method	OLS	FE	GMM	OLS	FE	GMM
ELE	-0.476	-0.474	-0.401			
	(.183)	(.167)	(.135)			
	[.009]	[.005]	[.003]			
PBC				-0.365	-0.330	-0.247
				(.106)	(.098)	(.068)
				[.001]	[.001]	[.000]
F-test[e]		2.38			2.37	
		[.000]			[.000]	
Sargan[f]			9.17			10.4
			[.606]			[.492]
Serial corr.[g]			0.22			0.82
			[.829]			[.413]
No. countries	102	102	86	102	102	86
No. obs.	1433	1433	1162	1433	1433	1162
Adj. R^2	.95	.94		.95	.94	

Notes: (a) Dependent variable is ratio of government tax revenue to GDP (RE). Full regression: $RE_{it} = \beta_1 RE_{i,t-1} + \beta_2 RE_{i,t-2} + \beta_3 RE_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. Heteroskedastic-consistent standard errors reported in parentheses, and p-values in brackets. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. (b) OLS-specification imposes the restriction $\eta_i = \eta \; \forall$ i. (c) Country-specific effects not reported in FE-specification. (d) Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses. The instruments used in the GMM regressions are lagged levels (two periods and more) of RE, GDP, GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (e) F-test is an F test of the null hypothesis that all country-specific effects in the FE-specification are equal, with p-values reported in brackets. (f) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (g) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 3. Election and Government Spending[a]

Equation	(1)[b]	(2)[c]	(3)[d]	(4)[b]	(5)[c]	(6)[d]
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Method	OLS	FE	GMM	OLS	FE	GMM
ELE	-0.019	-0.025	0.454			
	(.262)	(.256)	(.249)			
	[.943]	[.922]	[.068]			
PBC				0.208	0.179	0.333
				(.177)	(.167)	(.152)
				[.242]	[.283]	[.028]
F-test[e]		2.48			2.48	
		[.000]			[.000]	
Sargan[f]			10.01			9.57
			[.530]			[.570]
Serial corr.[g]			0.428			0.74
			[.668]			[.459]
No. countries	102	102	84	102	102	84
No. obs.	1443	1443	1161	1443	1443	1161
Adj. R^2	.90	.90		.90	.90	

Notes: (a) Dependent variable is ratio of government spending to GDP (EX). Full regression: $EX_{it} = \beta_1 EX_{i,t-1} + \beta_2 EX_{i,t-2} + \beta_3 EX_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. Heteroskedastic-consistent standard errors reported in parentheses, and p-values in brackets. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. (b) OLS-specification imposes the restriction $\eta_i = \eta \ \forall$ i. (c) Country-specific effects not reported in FE-specification. (d) Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses. The instruments used in the GMM regressions are lagged levels (two periods and more) for the differenced equation, and lagged difference (one period or more) for the level equation. The election dummy is treated as strictly exogenous. (e) F-test is an F test of the null hypothesis that all country-specific effects in the FE-specification are equal, with p-values reported in brackets. (f) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (g) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 4. Election and Government Surplus in Developed and Developing Countries[a]

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Sample	Developed	Developing	Pooled	Developed	Developing	Pooled
Method	GMM	GMM	GMM	GMM	GMM	GMM
ELE	-0.625	-1.318	-1.257			
	(.188)	(.307)	(.295)			
	[.001]	[.000]	[.000]			
PBC				-0.359	-0.954	-1.030
				(.074)	(.192)	(.188)
				[.000]	[.000]	[.000]
ELE*INC			0.826			
			(.400)			
			[.039]			
PBC*INC						0.686
						(.253)
						[.007]
z-test[b]		1.93			2.89	
		[.03]			[.00]	
Wald[c]			20.93			38.07
			[.000]			[.000]
Sargan[d]	16.7	6.60	13.1	12.7	6.52	9.09
	[.116]	[.830]	[.365]	[.311]	[.837]	[.696]
Serial corr.[e]	-0.20	-0.42	-0.48	-0.12	-0.25	-0.03
	[.844]	[.674]	[.628]	[.901]	[.799]	[.979]
No. countries	27	58	85	27	58	85
No. obs.	406	771	1177	406	771	1177

Notes: (a) Dependent variable is ratio of government surplus to GDP (DE). Full regression: $DE_{it} = \beta_1 DE_{i,t-1} + \beta_2 DE_{i,t-2} + \beta_3 DE_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \gamma_i ELE*INC_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses, and p-values in brackets. The instruments used in the GMM regressions are lagged levels (two periods and more) of DE, GDP, and GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (b) z-test is a test of the hypothesis that the coefficients on ELE (and PBC) in the two samples (developing and developed countries) are equal, distributed as N(0,1) under the null of equal coefficients, with p-values reported in brackets. (c) Wald is a test of the linear restriction that the sum of the coefficients on ELE and ELE*INC (PBC and PBC*INC) are equal to zero, asymptotically distributed as χ^2 under the null that the linear restriction holds, with p-values reported in brackets. (d) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (e) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 5. Election and Government Tax Revenue in Developed and Developing Countries[a]

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Sample	Developed	Developing	Pooled	Developed	Developing	Pooled
Method	GMM	GMM	GMM	GMM	GMM	GMM
ELE	-0.396	-0.398	-0.326			
	(.123)	(.183)	(.209)			
	[.001]	[.029]	[.119]			
PBC				-0.208	-0.255	-0.208
				(.077)	(.099)	(.093)
				[.007]	[.010]	[.025]
ELE*INC			-0.165			
			(.278)			
			[.554]			
PBC*INC						0.094
						(.127)
						[.459]
z-test[b]		0.01			0.37	
		[.50]			[.36]	
Wald[c]			10.05			15.66
			[.005]			[.000]
Sargan[d]	14.0	9.43	9.16	13.55	10.05	10.54
	[.233]	[.583]	[.689]	[.259]	[.526]	[.569]
Serial cor.[e]	0.68	0.69	0.25	0.63	0.33	0.76
	[.495]	[.490]	[.803]	[.531]	[.739]	[.445]
No. countries	26	60	86	26	60	86
No. obs.	393	769	1162	393	769	1162

Notes: (a) Dependent variable is ratio of government tax revenue to GDP (RE). Full regression: $RE_{it} = \beta_1 RE_{i,t-1} + \beta_2 RE_{i,t-2} + \beta_3 RE_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \gamma_i ELE*INC_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses, and p-values in brackets. The instruments used in the GMM regressions are lagged levels (two periods and more) of DE, GDP, and GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (b) z-test is a test of the hypothesis that the coefficients on ELE (and PBC) in the two samples (developing and developed countries) are equal, distributed as N(0,1) under the null of equal coefficients, with p-values reported in brackets. (c) Wald is a test of the linear restriction that the sum of the coefficients on ELE and ELE*INC (PBC and PBC*INC) are equal to zero, asymptotically distributed as χ^2 under the null that the linear restriction holds, with p-values reported in brackets. (d) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (e) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 6. Election and Government Spending in Developed and Developing Countries[a]

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Sample	Developed	Developing	Pooled	Developed	Developing	Pooled
Method	GMM	GMM	GMM	GMM	GMM	GMM
ELE	0.062	0.657	0.662			
	(.231)	(.338)	(.363)			
	[.788]	[.052]	[.068]			
PBC				0.087	0.518	0.587
				(.123)	(.236)	(.246)
				[.477]	[.028]	[.017]
ELE∗INC			-0.477			
			(.432)			
			[.268]			
PBC∗INC						-0.469
						(.260)
						[.072]
z-test[b]		1.45			1.62	
		[.07]			[.05]	
Wald[c]			3.49			6.21
			[.175]			[.045]
Sargan[d]	11.46	6.57	14.43	10.93	8.12	9.10
	[.406]	[.833]	[.274]	[.449]	[.702]	[.695]
Serial cor.[e]	-0.56	0.44	0.28	-0.53	0.69	0.84
	[.575]	[.660]	[.776]	[.597]	[.491]	[.402]
No. countries	27	57	84	27	57	84
No. obs.	410	751	1161	410	751	1161

Notes: (a) Dependent variable is ratio of government expenditures to GDP (EX). Full regression: $EX_{it} = \beta_1 EX_{i,t-1} + \beta_2 EX_{i,t-2} + \beta_3 EX_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \gamma_i ELE*INC_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses, and p-values in brackets. The instruments used in the GMM regressions are lagged levels (two periods and more) for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (b) z-test is a test of the hypothesis that the coefficients on ELE (and PBC) in the two samples (developing and developed countries) are equal, distributed as N(0,1) under the null of equal coefficients, with p-values reported in brackets. (c) Wald is a test of the linear restriction that the sum of the coefficients on ELE and ELE*INC (PBC and PBC*INC) are equal to zero, asymptotically distributed as χ^2 under the null that the linear restriction holds, with p-values reported in brackets. (d) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (e) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 7. Election and Government Surplus conditional on rents of being in power and share of informed voters[a]

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Method	GMM	GMM	GMM	GMM	GMM	GMM
ELE	-2.626	-1.396	-2.483			
	(.641)	(0.299)	(0.634)			
	[.000]	[.000]	[.000]			
PBC				-1.451	-0.840	-1.637
				(.390)	(.190)	(.366)
				[.000]	[.000]	[.000]
ELE∗rents	0.049		0.048			
	(0.016)		(.018)			
	[.002]		[.008]			
ELE∗informed voters		1.206	-0.084			
		(0.398)	(.397)			
		[.002]	[.832]			
PBC*rents				0.028		0.039
				(.009)		(.010)
				[.003]		[.000]
PBC∗informed voters					0.592	-0.324
					(.254)	(.217)
					[.020]	[.135]
Wald[b]	27.86	23.68	26.87	20.03	28.25	30.59
	[.000]	[.000]	[.000]	[.000]	[.000]	[.000]
Sargan[c]	15.45	8.36	15.00	13.75	7.62	17.55
	[.492]	[.937]	[.823]	[.617]	[.959]	[.677]
Serial corr.[d]	0.53	-0.39	0.51	0.36	-0.18	0.23
	[.595]	[.697]	[.611]	[.720]	[.854]	[.818]
No. countries	73	84	73	73	84	73
No. obs.	995	1153	994	995	1153	994

Notes: (a) Dependent variable is ratio of government surplus to GDP (DE). Full regression: $DE_{it} = \beta_1 DE_{i,t-1} + \beta_2 DE_{i,t-2} + \beta_3 DE_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \gamma_{er} ELE*RENTS_{i,t} + \gamma_{ei} ELE*INFORMED_{i,t} + \gamma_r RENTS_{i,t} + \gamma_i INFORMED_{i,t} + \eta_i + \varepsilon_{i,t}$ not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses, and p-values in brackets. The instruments used in the GMM regressions are lagged levels (two periods and more) of DE, GDP, and GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (b) Wald is a test of the linear restriction that the sum of the coefficients on the election and interaction variables are equal to zero, asymptotically distributed as χ^2 under the null that the linear restriction holds, with p-values reported in brackets. (c) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (d) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

Table 8. Conditional Political Budget Cycles[a]

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Time	1975-95	1975-95	1975-95	1975-95	1975-95	1975-95
Dep. Variable	DE	DE	RE	RE	EX	EX
Method	GMM	GMM	GMM	GMM	GMM	GMM
ELE	-1.121		-0.363		0.501	
	(.243)		(.143)		(.295)	
	[.000]		[.010]		[.089]	
PBC		-0.674		-0.189		0.444
		(.174)		(.082)		(.196)
		[.000]		[.021]		[.024]
ELE∗SUM	0.241		-0.000		-0.237	
	(.084)		(.060)		(.121)	
	[.004]		[.999]		[.051]	
PBC∗SUM		0.151		-0.015		-0.166
		(.058)		(.032)		(.068)
		[.010]		[.647]		[.015]
Wald[b]	21.63	15.29	9.03	9.49	3.94	6.22
	[.000]	[.000]	[.011]	[.009]	[.139]	[.045]
Sargan[c]	14.25	8.79	15.25	13.32	18.38	17.62
	[.580]	[.922]	[.506]	[.649]	[.302]	[.347]
Serial corr.[d]	0.315	0.324	0.801	0.680	-0.037	0.450
	[.753]	[.746]	[.423]	[.496]	[.971]	[.652]
No. countries	73	73	74	74	73	73
No. obs.	994	994	981	981	977	977

Notes: (a) Dependent variable is ratio of government surplus to GDP (DE) in columns (1)-(2); ratio of government revenues to GDP (RE) in columns (3)-(4); ratio of government expenditures to GDP (EX) in columns (5)-(6). Full regression: $Y_{it} = \beta_1 Y_{i,t-1} + \beta_2 Y_{i,t-2} + \beta_3 Y_{i,t-3} + \gamma_l GDP_{i,t} + \gamma_g GROWTH_{i,t} + \gamma_e ELE_{i,t} + \gamma_{es} ELE*SUM_{i,t} + \gamma_s SUM_{i,t} + \eta_i + \varepsilon_{i,t}$, where Y=[DE RE EX] is not reported. The coefficient estimates on the lagged dependent variables add up to a value less than unity. The coefficients on ELE and PBC are multiplied by 100, thus indicating the percentage-point change in government surplus to GDP. Asymptotic standard errors, asymptotically robust to heteroskedasticity, are reported in parentheses, and p-values in brackets. The instruments used in the GMM regressions are lagged levels (two periods and more) of DE, GDP, and GROWTH for the differenced equation, and lagged difference (one period) for the level equation. The election dummy is treated as strictly exogenous. (b) Wald is a test of the linear restriction that the sum of the coefficients on ELE and ELE*SUM (PBC and PBC*SUM) are equal to zero, asymptotically distributed as χ^2 under the null that the linear restriction holds, with p-values reported in brackets. (c) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of instrument validity, with p-values reported in brackets. (d) Serial corr. is a test for second-order serial correlation in the first-difference residuals, asymptotically distributed as N(0,1) under the null of no serial correlation, with p-values reported in brackets.

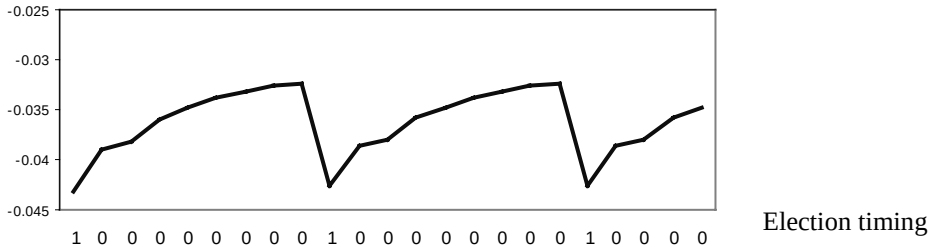
Table 9. Election and Government Surplus: Robustness tests[a]

Equation	(1)	(2)	(3)	(4)
Time	1975-95	1975-95	1975-95	1975-95
Method	GMM	GMM	GMM	GMM
ELE	-0.952	-0.952	-0.980	-0.984
	(.313)	(.313)	(.209)	(.242)
	[.002]	[.002]	[.000]	[.000]
War			-0.377	
			(.247)	
			[.128]	
Crises				-0.632
				(.303)
				[.037]
ELE∗sum	0.287			
	(.140)			
	[.040]			
ELE*democracy		0.280		
		(.134)		
		[.037]		
ELE*INC	-0.297	0.013		
	(.615)	(.201)		
	[.629]	[.950]		
Wald[b]	16.16	15.90		
	[.000]	[.000]		
Sargan[c]	15.33	12.87	9.74	16.06
	[.572]	[.745]	[.639]	[.188]
Serial corr.[d]	0.29	0.08	.05	-1.44
	[.770]	[.932]	[.959]	[.151]
No. countries	73	70	85	81
No. obs.	994	952	1177	1022

Notes: Dependent variable is ratio of government surplus to GDP (DE).
See footnotes of Table 8.

Figure 1. Estimated political budget cycles

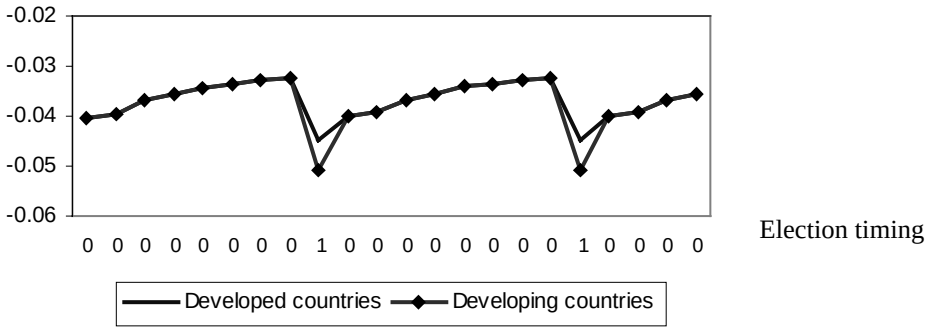
Government suplus to GDP



Note: Based on benchmark regression reported in Table 1 column (3) with *elealt* as election indicator. All control variables are evaluated at their means.

Figure 2. Estimated political budget cycles in developing and developed countries (pooled sample)

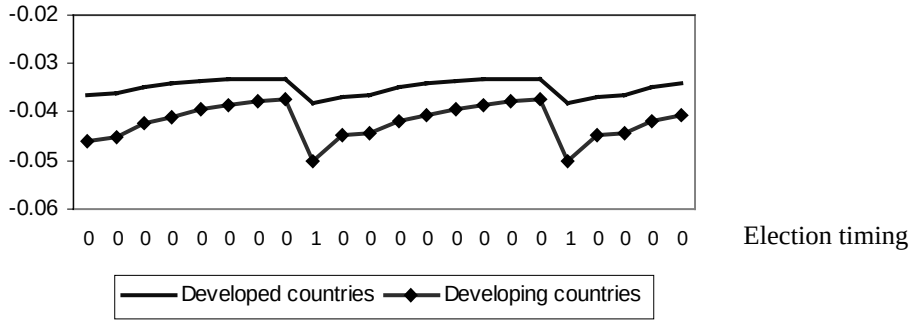
Government suplus to GDP



Note: Based on regression reported in Table 4 columns (3) with *elealt* as election indicator. All control variables are evaluated at their means.

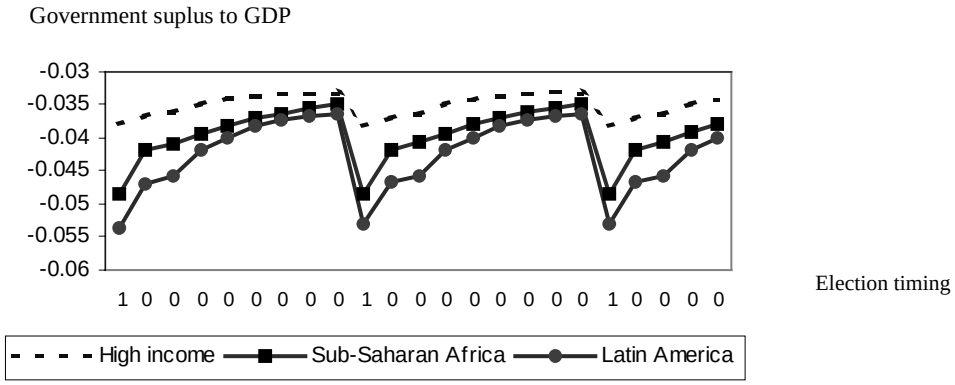
Figure 3. Estimated political budget cycles in developing and developed countries (pooled sample)

Government suplus to GDP



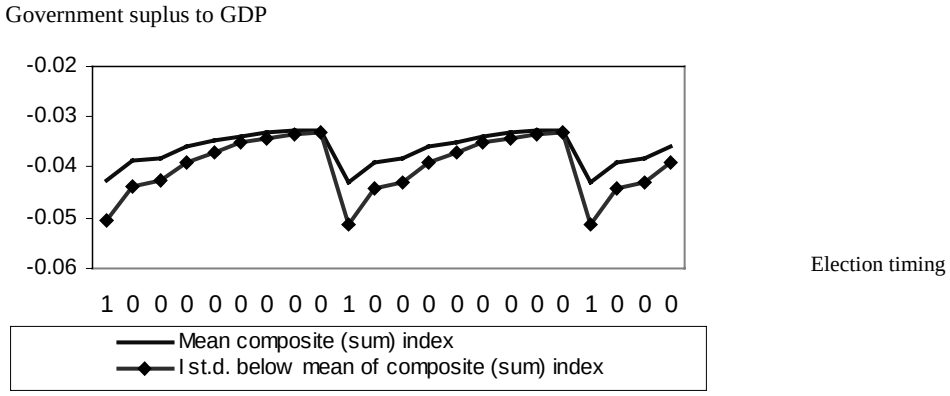
Note: Based on regressions reported in Table 4 columns (1) and (2) with *elealt* as election indicator. All control variables are evaluated at their means.

Figure 4. Estimated political budget cycles in Latin America and Sub-Saharan Africa (separate regressions)



Note: Benchmark specification estimated on relevant sample with *elealt* as election indicator. All control variables are evaluated at their means.

Figure 5. Estimated political budget cycles conditional on institutional index



Note: Based on regression reported in Table 8 column (1) with *elealt* as election indicator. All control variables are evaluated at their means.