Electoral Spending Cycles in Dictatorships

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Abstract

Do authoritarian leaders manipulate the economy around election time? Evidence from case studies suggests the presence electoral budget cycles in hegemonic dictatorships. However, we do not know if electoral budget cycles exist in other dictatorships. After providing global evidence for an electoral spending cycle, we explore one explanation for electoral fiscal manipulation in dictatorships. To deter investment in the opposition, dictators have an incentive to increase spending in election years. In institutionalized dictatorships that can make credible inter-temporal promises, increased short-term electoral spending signals dominance and secures political support. Spending therefore returns to the equilibrium level after an election. In dictatorships that lack firm institutional foundations and are thus less capable of making credible inter-temporal promises, short-term electoral spending increases are not sufficient to secure political support and deter opposition mobilization. Elections in these regimes therefore also increase long-term spending. Empirical analysis uses data on national elections and government spending to provide evidence consistent with these expectations in a sample of non-democracies from 1961-2006. This research has implications for authoritarian survival, international democracy promotion, and economic reform efforts.

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Introduction

Do authoritarian elections produce spending cycles? Evidence from single-country case studies suggests the presence electoral budget cycles in dictatorships that have dominant parties and relatively routine multiparty elections. However, we do not know if electoral spending cycles exist across all dictatorships. After providing global evidence for an electoral spending cycle, this paper explores why spending cycles occur in dictatorships.

The foundational literature on political budget cycles focuses on democracies, positing that myopic voters use retrospective evaluation to sanction incompetent politicians, prompting incumbents to pursue expansionary economic policy prior to elections (Nordhaus, 1975). Later developments incorporated insights from the rational expectations literature to show that politicians have an incentive in manipulate the economy during elections to signal competence even when facing rational voters who understand the incentives politicians face but cannot fully observe fiscal manipulation (Rogoff, 1990). These studies generated a large empirical body of research examining electoral economic cycles, most of which focuses on advanced democracies.1

The evidence for political budget cycles in advanced industrial democracies remains weak, however. One explanation may be that well-informed voters can rationally adjust their assessment of candidate competence when they observe economic manipulation. This possibility has lead scholars to examine evidence from outside of OECD countries and to develop theories for why political budget cycles are more prevalent in new democracies (Block, Ferree and Singh, 2003; Brender and Drazen, 2004; Shi and Svensson, 2006). Explanations for political budget cycles in developing countries focus on informational mechanisms such as inadequate voter information about government fiscal behavior, lack of budget transparency, and the rise of elections with new parties for which voters have little basis for evaluating competence.

The explanation for fiscal manipulation advanced in this paper focuses on the electoral strategies of incumbents vis-a-vis their opponents rather than the informational constraints faced by voters. Building on the extant literature on authoritarian elections, we argue that dictators should increase spending during elections to buy political support and signal incumbent strength. While most

1See Drazen (2001) and Franzese (2002) for reviews.
dictators have an incentive to boost spending around election time, the institutionalization of the regime changes the spending calculus between elections. Political institutions that enable collective action among regime supporters and raise the costs of reneging on concessions to the opposition enhance the credibility of inter-temporal promises made by the incumbent. Armed with credible institutions, dictators can use policy concessions and promises of future rents to secure political support between elections and thus safely lower spending after an election. However, for dictators who lack the institutions necessary to make credible promises, increased spending around elections persists.

The remainder of the paper is organized as follows. The next section provides evidence for electoral spending cycles across a global sample of dictatorships, and then examines whether the effect of elections is limited to hegemonic regimes. We find a broad pattern of increased government spending during election years and show that this pattern persists in dictatorships that do not fall into the category of hegemonic regimes. The second section presents a theory for why dictators employ fiscal manipulation. While authoritarian elections should produce short-term spending increases to buy political support and signal strength, institutionalized regimes that can make credible inter-temporal promises reduce spending after an election. Increased spending at election time in non-institutionalized dictatorships, however, should remain high to ensure continued political support. The following section tests these expectations with a model that estimates the short- and long-run correlates of government spending, by level of regime institutionalization. Next we discuss why endogenous election timing in dictatorships may account for the observed pattern of spending and examine evidence from regular, routine elections with fixed dates. The final section discusses the findings in the context of the literature on political budget cycles and suggests avenues for further research.

Spending cycles across dictatorships

To date we have evidence of electoral budget cycles from single-country case studies of dictatorships and from samples that mix democracies and dictatorships. Blaydes (2008), for example, shows that various economic indicators, such as inflation, the exchange rate, and even calorie consumption,
vary according an electoral cycle. Pepinsky (2007) finds similar evidence for spending cycles in Malaysia. There are numerous studies of Mexico which find evidence consistent with an electoral budget cycle (Heath, 1999; González, 2002; Magaloni, 2006). These countries share a similar set of political institutions: a relatively stable, long-ruling regime, with a dominant political party and routine multi-party elections. Further, in each of these countries, multiparty elections preceded the rise of donor-driven multiparty elections that began in the early 1990s, especially in sub-Saharan Africa (van de Walle, 2001).

The evidence from these country studies suggests two possible characteristics of dictatorships that may provide a stronger incentive for fiscal manipulation around election time. First, these regimes have multi-party elections. In Mexico, the PRI repeatedly defeated the center-right PAN and later contended with the break-away PRD. In Malaysia, UMNO’s National Front coalition (BN) has long faced the ethnic minority-supported Democratic Action Party and the Pan-Islamic Party (PAS), and more recently dealt with opposition parties formed by former UMNO leaders who have split from the party. While Egypt’s elections have been dominated by the ruling National Democratic Party (NDP), a handful of smaller opposition parties such as the Wafd and more recently the Tomorrow Party (Hizb al-Ghad) are allowed on the ballot. The largest opposition group, though, is comprised of candidates who are technically NDP independents but are publicly affiliated with the Muslim Brotherhood.

Second, the incumbent regimes in these countries are hegemonic. Typically this means that the ruling party dominates politics but allows multiparty elections, though various scholars use slightly different definitions of hegemonic. Magaloni (2006, p. 32-35) codes hegemonic regimes as those dictatorships in which: multiple parties contest power; the executive and legislature are elected; the incumbent party has ruled at least 20 years; and the incumbent party has never lost an election. Greene (2010) identifies a sample of seven dominant party regimes that all share similar characteristics: the chief executive and non-appointed legislature are chosen in routine elections; opposition parties can form and compete; and the incumbent regime does not engage in

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result-changing electoral fraud.³ Reuter and Gandhi (2011) have a more expansive definition of
gregemonic parties, examining all multiparty elections in non-democratic regimes. Finally, Geddes
(1999) defines a category of party-based regimes based on the observable relationship between the
incumbent party and its leader and.⁴ This latter category of party-based regimes also includes
strictly one-party regimes such as those in many Soviet bloc Eastern European dictatorships. With
the exception of the Geddes typology, the other definitions of hegemonic regime all entail multiparty
elections where the incumbent party almost always wins.⁵ The next section examines whether
spending cycles are evident outside of hegemonic regimes.

While the cross-national research on political budget cycles is dominated by studies of advanced
industrial democracies, a handful of papers examine samples that include developing countries that
include some non-democracies (Block, 2002; Block, Ferree and Singh, 2003; Shi and Svensson,
2006).⁶ These studies advance theories which suggest that dictatorships are likely to experience
political budget cycles. They highlight characteristics such as lack of transparency, high personal
rents for retaining office, and a large share of uninformed voters as features of the political system
that provide stronger incentives for incumbents to pursue fiscal manipulation around election time.

Shi and Svensson (2006) find empirical support for a theoretical model that pinpoints ego rents
for the leader and a large share of voters who are uninformed about the competence of the leader,
determinants of an electoral budget cycle. Relative to democracies, these characteristics should be
more prevalent in dictatorships.⁷ Block, Ferree and Singh (2003) find evidence of political budget
cycles in sub-Saharan African countries with multiparty elections, showing that the incentive for
fiscal manipulation is stronger in founding elections where voters have little information about new
political parties. These theories may explain why evidence of political budget cycles is stronger

³This latter criteria excludes Egypt from Greene’s dominant party category.
⁴Updates in Wright (2008) and Geddes, Wright and Frantz (2011). One criteria for coding party-based regimes,
for example, is whether the party existed before the leader took power.
⁵Levitsky & Way identify a sample of thirty ‘competitive authoritarian’ regimes in the period from 1990-1995.
Their study focuses on post-1990 politics in these regimes, all of which hold multiparty elections, though some
incumbents do lose during this period. Indeed, a sizeable share of these regimes – such as Benin, Malawi, Nicaragua,
Romania, and Zambia – experience a democratic transition during the period between 1989 and 1995, at least as
coded by some cross-country data sets (Cheibub, Gandhi and Vreeland, 2010; Geddes, Wright and Frantz, 2011).
⁶See Ames (1987) and Hyde and O’Mahoney (2010) for additional studies that contain large samples of developing
country democracies and some dictatorships.
⁷Their sample consists mostly of democracies but also includes a handful of non-democratic regimes with multiparty
elections such as Botswana, Egypt, Indonesia, Kenya, Malaysia, Mexico, Singapore, Syria, and Tunisia.
in developing countries than in developed democracies.\textsuperscript{8} Finally, even the logic of studies from industrialized democracies, such as Alt and Lassen (2006), suggests that incumbents in dictatorships should have strong incentives to pursue electoral fiscal manipulation. They show that low budget transparency – a feature of many dictatorships – exacerbates budget cycles.

These studies suggest that electoral budget cycles should be evident in dictatorships as well as developing democracies. There are no key theoretical concepts from these studies that limit their applicability to dominant party regimes, suggesting that electoral spending cycles may be present across a wider variety of authoritarian regimes.\textsuperscript{9} Therefore, the next section first examines whether there is a systematic pattern of fiscal manipulation across a sample of all dictatorships. We then divide the sample of non-democracies into hegemonic and non-hegemonic regimes to see if political spending cycles are evident only in the former.

**Data and methods**

We now turn to the global evidence for electoral spending cycles in dictatorships. Standard empirical specifications in this literature employ a lagged dependent variable model with country-fixed effects (Brender and Drazen, 2004; Shi and Svensson, 2006; Alt and Lassen, 2006; Hyde and O’Mahoney, 2010). The dependent variable is typically a change variable that contains a measure of the size of the economy in the denominator, for example $\Delta \frac{\text{BudgetBalance}}{\text{GDP}}$. The main independent variable is a dummy for pre-election, election, or post-election year. We depart from this specification in three ways, while still keeping the lagged dependent variable, country-fixed effects, and a change dependent variable.

First, we purge the dependent variable of the GDP measure in the denominator to allow for a more transparent test of the election effect.\textsuperscript{10} Country-fixed effects, a measure of economic size, and

\textsuperscript{8}See Brender and Drazen (2004) for more evidence of budget cycles in developing countries.

\textsuperscript{9}The one limiting feature of non-democracies which would mitigate evidence of budget cycles is the absence of multiparty elections. All the theoretical models of political budget cycles begin with the assumption of two-party/candidate elections where voters, given some constraints, can choose freely between the two.

\textsuperscript{10}If an unobserved shock increases the chances that an election is held (or in any other way is correlated with elections) and hurts the economy but has no effect on spending, it could induce a spurious correlation between elections and $\Delta \frac{\text{BudgetBalance}}{\text{GDP}}$ by lowering GDP in the denominator of the dependent variable. In this scenario elections could be positively correlated with $\Delta \frac{\text{BudgetBalance}}{\text{GDP}}$ (via changes in GDP) without elections having any effect on BudgetBalance.
population are included as right-hand side variables to ensure that the estimated effect of elections are conditioned on country size. Second, we estimate an error-correction model that allows for a more general test of the long- and short-run impact of elections. Empirical models that only include a dummy variable for elections on the RHS estimate the total effect of elections without separating short-term changes from long-run equilibrium relationships (De Boef and Keele, 2008). Finally, given the paucity of data on budget balance in non-democracies, we estimate the effect of elections on spending, where the dependent variable is $\Delta \ln(Total\ Government\ Expenditure)$ measured in constant dollars, with expenditure data from the World Development Indicators (2010).

The specification is:

$$\Delta \ln(Exp) = \ln(Exp)_{t-1} + \Delta E + E_{t-1} + \Delta X + X_{t-1} + \vartheta_i + \delta_t + \epsilon_{i,t}$$  \hspace{1cm} (1)$$

where $E$ is a binary indicator of election, $X$ is a vector of covariates, $\vartheta_i$ are country effects, $\delta_t$ are year effects, and $\epsilon_{i,t}$ is the error component. The election variable is a binary indicator of a national election for an elected office during a particular calendar year, from Hyde and Marinov (2010). For the election date, we code the year and month of the final round and only examine presidential and legislative elections at the national level. Referendums that do not contain a ballot for an elected office are excluded from the coding of the election variable. The covariates for the reported models include: $\ln(GDP)$ in constant dollars, $\ln(population)$, the AgeDependency ratio (share of population younger than 18 and older than 65), and constant dollar value of $Trade$, log transformed.\(^{11}\)

Finally, to our knowledge previous research marks elections that take place throughout the same calendar year as equivalent. However, because national account data is measured in calendar year increments, it is possible that elections in January of year $t$ would be more likely to have an effect on spending in year $t - 1$ than an election in December of year $t$. That is, elections separated by

\(^{11}\)Reported results are robust to the inclusion of other control variables, not reported: leadership changes (regular and irregular), coups (successful, failed, attempted), regime duration, leader duration, dummy variables for oil shock years (1973/74, 1979/80), oil rents per capita, international conflict, civil conflict, and foreign aid. The results for elections are slightly stronger when government debt service is included as a control. However, including this variable reduces the sample size by over a third. The slightly stronger results for elections are due to the change in sample size, not the inclusion of this variable, so we omit this in reported results.
only one month but also one calendar year (such as those in January_{t} and December_{t-1}) might be more similar than elections separated by more months but which still fall in the same calendar year (such as January_{t} and December_{t}). The results reported in tables mark elections in the standard way ($M < 1$)– coding as equivalent all elections within the calendar year ($\text{Jan}_{t} \equiv \text{Dec}_{t}$). We also test models that measure election time by grouping elections in the first two months ($M < 3$) of the calendar year with elections in the previous year ($\text{Jan}_{t} - \text{Feb}_{t} \equiv \text{Mar}_{t-1} - \text{Dec}_{t-1}$), as well as elections in the first four calendar months ($M < 5$) with elections in the previous year ($\text{Jan}_{t} - \text{Apr}_{t} \equiv \text{May}_{t-1} - \text{Dec}_{t-1}$).

**Global evidence of electoral spending cycles**

Table 1 reports results from four models. The first two use a sample of non-democracies from Cheibub, Gandhi, and Vreeland (2010, hereafter CGV) with non-missing data. The last two columns employ a sample of dictatorships from Geddes, Wright, & Frantz (2011, hereafter GWF).\textsuperscript{12} The sample covers the years 1961-2006 in 116 countries in the CGV sample and 100 countries in the GWF sample.\textsuperscript{13} In all four columns, the coefficient for $\triangle \text{Election}$ is positive and statistically different from zero. This suggests that on average, across a global sample, dictatorships increase spending during election years. Adding control variables and changing the sample slightly does not alter the substantive result. The lagged election coefficient estimates the long-run effect; while positive, it is smaller and not statistically significant. This suggests that elections produce a short-term boost to government spending but not necessarily a long-run increase, evidence consistent with an electoral spending cycle in dictatorships.

[Table 1 about here.]

Figure 1 depicts the substantive effect of elections from the model in column 2 of Table 1 where $M < 1$, meaning elections in all months in the same calendar are treated equivalently. Elections are associated a 1.9% one-time increase in government spending. The long-run effect on elections is estimated at 1% but this estimate is not statistically different from zero. Figure 1 also shows

\textsuperscript{12} Data from CGV data recoded to mark non-democracy as of January 1 of the observation year. GWF regime data coded for January 1 of the observation year.

\textsuperscript{13} Sample coverage for specifications with control variables in (2) and (4).
that the estimate for the short-term effect of elections is similar when we group elections in early
months with elections in the previous year (1.3% for $M < 3$ and 2.2% for $M < 5$).

[Figure 1 about here.]

Table 2 reports the results of sub-sample analysis. The first two columns separate the CGV
sample of non-democracies by hegemonic party status using the Reuter and Gandhi (2011) coding
of hegemonic regimes. This division of the sample captures the case studies of hegemonic regimes
from which we have evidence of electoral budget cycles. The second two columns divide the sample
by regime type, namely whether the regime is coded as a ‘dominant single-party’ regime or a hybrid
regime that includes elements of dominant parties. While many scholars have circumscribed the
universe of hegemonic party dictatorships, all these definitions are subsumed in this categorization
from the GWF data. Therefore, if spending cycles only occur in hegemonic regimes, we should not
find evidence in the sample of dictatorships that exclude hegemonic regimes (column 2) and party-
based regimes (column 4). Note that this is not a definitive test of the hegemonic category, but a
conservative test for the group of non-democracies that most scholars can agree are not hegemonic.

[Table 2 about here.]

The results in Table 2 indicate that electoral spending cycles occur in non-hegemonic regimes.
The coefficients for the differenced election variable in columns 2 and 4 are positive and statistically
different from zero. In the sample of non-hegemonic dictatorships, the results suggest that spending
increases by just under 3% in election years. In hegemonic regimes, this figure is lower, estimated
at roughly 1.7%. While this is not evidence that electoral cycles are absent in hegemonic regimes,
it suggests that they occur in non-hegemonic regimes. The results from the sub-sample analysis
using the Geddes data yields a similar pattern. In the sample of non-party-based dictatorships,
there is evidence of an electoral spending cycle.

14 This groups the following categories together: single-party, single-party/military, single-party/military/personal,
single-party/personal. Malaysia and Mexico are coded single-party; Egypt is coded single-party/military/personal.
15 The party category used for the sample in column 3 is not a good test of the hegemonic category because it includes
truly single-party regimes, such as China, Cuba, and Vietnam, where opposition parties are not on the ballot. It also
includes hegemonic regimes where candidates from opposition parties routinely contest national elections.
This section provides the first global evidence for electoral spending cycles in dictatorships.\textsuperscript{16} While research from single-country case studies suggests the same, these have mostly been conducted in countries with hegemonic regimes that hold multiparty elections. We have provided initial evidence that spending cycles occur in non-hegemonic regimes as well, suggesting that we need a theory of authoritarian electoral budget cycles that can account for their existence in a wide variety of authoritarian regimes.

\textbf{Elections and spending}

To understand how authoritarian elections affect government spending decisions, we begin by asking why dictators hold elections. The literature on authoritarian elections suggests a number of related answers: winning elections by large margins deters opposition investment; electoral victories signal incumbent strength in bargaining with the opposition; and elections provide information about supporter and opponents needed to secure a durable coalition purchased with government spending. Second, we examine why dictators create and maintain political institutions such as political parties and legislatures. Building on theories of cooptation, we argue that institutionalization provides the dictator with a mechanism to credibly promise future policy concessions and rent payments. Putting theories of elections and institutionalization together suggests that dictators in institutionalized regimes should increase spending during elections but then return spending to equilibrium levels once the signalling purposes are fulfilled. In regimes that lack institutions and have difficulty making credible promises, securing support via elections entails both a short- and long-term increase in government spending.

\textbf{Why do dictators hold elections?}

Scholars of dominant party regimes argue that winning elections by large margins signals incumbent party strength (Geddes, 1999; Magaloni, 2006).\textsuperscript{17} Large victory margins provide common informa-

\textsuperscript{16}Because these empirical tests rely exclusively on national level data, they do not give us purchase on the question of whether local elections in one-party regimes, such as China or Vietnam, induce cyclical fiscal behavior in subnational budgets (Li and Zhou, 2005; Guo, 2009; Malesky and Schuler, 2010).

\textsuperscript{17}See Gandhi and Lust-Okar (2009) for an excellent review of elections in non-democratic contexts.
tion to elites that the probability of electoral victory outside the incumbent party is low. Parties that can demonstrate electoral dominance thus deter investment in the opposition, both among activists and particularly elites. In the face of an ‘invincible’ party, elites will not defect to the opposition. Further, incumbent dominance means that the dominant party attracts candidates with stronger preferences for office-holding relative to ideology, leaving the most ideologically extreme candidates for the opposition. Note that the main audience for this type of signaling argument is not the voter but other elites, in particular elites within the incumbent party. Winning votes (via fiscal manipulation) is not necessarily about signaling economic competence to voters but rather altering the voter’s choice during the election period in a show of strength aimed at ambitious elites.

A second type of electoral signaling argument builds on theories of conflict between the ruler and the opposition (Acemoglu and Robinson, 2006; Cox, 2010). When the ruler bargains with the opposition, the breakdown of the bargain can lead to conflict in which the ruler is violently replaced. Because of the high cost of such an outcome, Cox (2010) argues that a dictator may accept the risk of electoral defeat by holding a (potentially fair) election to signal the strength of the regime and improve his bargaining position. Although costly, elections provide valuable information to the dictator’s opponent about the strength of the regime. With more information about the true state of the world, the dictator can lower the likelihood of bargaining breakdown and violent replacement.

Finally, a third argument for elections highlights the information they provide to the authoritarian regimes about the nature of their support (Ames, 1970; Brownlee, 2007; Blaydes, 2011). Elections help dictators identify supporters and opponents, so they can more easily target rewards – especially patronage – and punishment. Elections are thus a mechanism for maintaining a durable support coalition. When dictators rely on large scale government patronage networks, elections provide crucial information that helps the regime maintain ‘efficient’ distribution of resources for buying support (Blaydes, 2008). Elections, in this view, are instrumental for facilitating the exchange of material goods for loyalty.
Why do dictators institutionalize?

While dictators both repress and purchase loyalty as part of a strategy to stay in power, repression can be costly and potentially risky (Wintrobe, 1998; Haber, 2006; Svolik, 2010). Repression requires an organization, such as a security service or police force, with sufficient collective action capacity to carry out threats against potential opponents (Haber, 2006). Any organization with such a capacity can also coordinate to overthrow the dictator. Repression is thus an inherently risky strategy for surviving in power.

The risks associated with repression lead many dictators to turn to purchasing loyalty. The currency for this exchange can take the form of rents, if the dictator has sufficient resources, or policy and power-sharing concessions (Gandhi and Przeworski, 2006; Gandhi, 2008; Boix and Svolik, 2008). Political concessions, however, require the dictator to make credible promises, and political institutions provide a mechanism to make agreements – especially inter-temporal concessions – possible (Wright, 2008; Magaloni, 2008; Gehlbach and Keefer, 2011). Gandhi (2008), for example, argues that legislatures can be a forum for bargaining over the exchange of policy concessions for loyalty. By incorporating potential opponents into the formal structure of power, dictators can repeatedly bargain with the same groups and thus lower the transaction costs associated with political exchange. Institutions provide better information and lower uncertainty about future interactions. Boix and Svolik (2008) emphasize the informational role of legislatures. They posit that legislatures enhance power-sharing agreements among elites by providing information about the true size of dictator’s budget in an exchange of benefits for loyalty.

One implication of these arguments suggests that political institutions in non-democracies help dictators stay in power by co-opting potential opponents. Further, institutionalization in non-democratic settings can have important implications for economic outcomes (Gandhi, 2008; Wright, 2008; Gehlbach and Keefer, 2011; Gandhi and Kim, 2010). Gehlbach and Keefer (2011) show that institutionalized regimes foster collective action among party elites by providing common information about expropriation. By helping mobilize collective against regime leaders, institutions provide check on the predatory behavior of the regime, making promises not to confiscate the proceeds of investment credible. Gandhi and Przeworski (2006) and Gandhi (2008) emphasize the
economic rationale for coopting – via policy concessions – important segments of society necessary for economic cooperation.

Central to these theories is the role of institutions in helping dictators make credible inter-temporal promises. If non-democracies use institutions to enable the exchange of loyalty and policy concessions, for example, this exchange occurs even if the full value of the policy concession does not arrive until some point in the future. If legislatures help party elite mobilize against the regime in an effort to restrain the regime and encourage investment, the institutional mechanism for enforcement must persist into the future when the gains from investment are realized.

**Political institutions, elections, and spending**

The extant literature argues that dictators pursue elections to signal strength to potential opponents and facilitate the purchase of regime support. Authoritarian institutions can provide a mechanism for making credible commitments – either policy concessions or material rewards – to supporters and potential opponents. Importantly, institutions make inter-temporal agreements more credible.

The signaling explanation for elections contains an important time dimension. Elections are typically periodic events that do not occur every year. Thus for dominant electoral victories to be a credible signal of strength, the audience must believe that this strength will endure in the future. That is, when the incumbent dictator uses elections to signal strength – either to other elites in his coalition or to opponents who stand outside – the audience’s assessment of this signal depends on the likelihood that the current period estimate provides a good estimate of future strength. If electoral displays of strength deter investment in the opposition, current period investment in the opposition is a function not only of the current period incumbent strength but also of the estimated strength of the regime in the future when the rewards of opposition investment would be realized. Thus if political institutions help dictators secure stable political coalitions over time, the credibility of the signal via elections in the current period should be a function of institutions. A strong signal in the current period should be more likely to persist into the future for institutionalized dictatorships.

Political institutions in dictatorships also allow incumbents to credibly ensure their support coalition that the rewards of loyalty will be forthcoming in the future. If the distribution of rewards
and punishment can occur around an election cycle instead of every period, spending should increase around election time, but return to equilibrium levels afterwards. Similar to the logic in theories of political budget cycles in democracies, authoritarian leaders have an incentive to reduce spending after an election occurs precisely because there is a mechanism to ensure that rents exchanged for support will continue in the future. In democracies, retrospective voting can serve as a mechanism to punish leaders who renege on these political promises. In dictatorships where incumbents are rarely voted out of office, institutions serve this role by providing an arena for collective action against the regime in the event of broken promises. By making routine, periodic exchanges during election time, the regime can ‘efficiently’ reduce the overall cost of loyalty by distributing en masse during these years, and less in other times.

Finally, authoritarian elections are periods when the opposition can mobilize and potentially threaten the dictator. With an institutional mechanism to coopt the opposition – or at least some share of the opposition – dictators can spend less to secure political support. Policy concessions and the promise of a steady stream of rents in the future lower the current period price of buying support but require institutional guarantees. In this sense, institutions are a substitute for long-term spending on a support coalition – even if this observable support is only valued for signaling purposes. Note that this logic closely follows the assumptions in Gandhi & Przeworski’s (2006) model of institutional selection where dictators with more resources (rent from natural resource exports) have less need for institutions. They find evidence that resource wealthy dictators are less likely to institutionalize.

While the signaling and rent distribution explanations for elections suggest an increase in government spending during election periods, the institutional argument adds an important time dimension to the story of buying political support and signaling strength. A dictator’s capacity to do these things cheaply in the long-term depends the institutional structure of the regime. Institutions should therefore reduce the long-term cost of buying support.

Hypotheses:

1. In institutionalized regimes, authoritarian elections increase short-term spending but spending
returns to the equilibrium level after this one-time shock.

2. In non-institutionalized regimes, authoritarian elections increase short-term and long-term spending.

Evidence

To examine how elections affect spending in institutionalized and non-institutionalized regimes, we use data on prior multiparty representation in an elected legislature as a proxy for regime institutionalization.\(^1\) This variable captures both the institutional component of cooptation – the legislature itself – and the expressive element of representation in the form of participation by political parties from outside the regime front. Some dictatorships have elected legislatures but do not allow parties outside the regime front to participate. Some Soviet bloc regimes in Eastern Europe, such as Albania and Yugoslavia, fall into this category. Other dictatorships have defacto parties that operate despite legal restrictions on party activity and the absence of a legislature. For example, the Pinochet regime in Chile quickly outlawed leftist political parties and closed the legislature after the 1973 coup, and did not officially legalize parties until 1987 shortly before the referendum on a return to civilian democracy. Nonetheless, opposition political party activity emerged in mid-1983 with national protests against military rule (Garretón, 1988). Still others rule without the aid of formal political institutions, such as the Saudi Arabian monarchy. Finally, many dictatorships have elected legislatures that meet regularly and house multiple parties. These vary considerably and include dominant party regimes such as the PRI in Mexico and highly personalistic rulers such as Eyadema’s regime in Togo (in the 1990s) and Lukashenka’s dictatorship in Belarus.

Elections are common in both institutionalized and un-institutionalized regimes. In the main sample used below (NxT=2773, 587 elections), roughly one-quarter of country-year observations where the regime has a multiparty legislature are election years, whereas 19% of observations in dictatorships without a multiparty legislature are election years. This indicates that while elections are more common in institutionalized regimes, they are not uncommon in other types of regimes.

\(^1\)The \textit{LPARTY} variable from CGV codes whether an elected legislature contains more than one party outside the regime front.
In fact, over half of the elections in the sample occur in non-institutionalized dictatorships.

**Descriptive patterns**

In lieu of reporting the results in tables, I show the pattern of spending around elections for institutionalized and non-institutionalized dictatorships in Figure 2. These estimates are derived from error-correction models with the same specification as (1). The only difference that these specifications include a binary indicators of institutions (lag and difference) as well as interactions between *Institutions* and *Election* (lag and difference).

The left panel displays the spending pattern in institutionalized regimes. When we group all elections within the same calendar year together (*M* < 1), the average short-term change in spending is 2.0%. This estimate is similar in size and statistically different from zero when we change the grouping of elections by calendar months: 2.05% for *M* < 3 and 3.0% for *M* < 5. The long-term estimates fall between 0 and -1 but are not statistically different from zero for institutionalized regimes when *M* < 1 and *M* < 5. This pattern suggests that institutionalized dictatorships increase spending during election years, but elections do not increase long-term spending.

[Figure 2 about here.]

The right panel shows the short- and long-term electoral effect on spending for non-institutionalized regimes. The short-term effects are again positive (roughly 1.7%), and statistically different from zero for *M* < 1 and *M* < 5. These estimates are in the same range as the estimated short-term spending changes for institutionalized regimes, suggesting that spending increases in election years occur for both institutionalized dictatorships and those that lack them. The long-term changes associated with elections in non-institutionalized regimes, however, are positive, suggesting that elections increase spending beyond the election year itself. The point estimates for the long-term effect range between 1.9% and 3.4%. This result suggests that the long-term spending pattern associated with elections in these two types of regimes is different.

We demonstrate the key difference in spending patterns for elections by institutions with two more illustrations. These approaches use the exact same information as the models reported in Figure 2; they are just a slightly different way of presenting the data patterns.
First, we estimate an error-correction model similar to (1) but instead of using election year (difference and lag), we estimate the spending patterns for the post-election year (difference and lag). In this equation, the one-time (or short-term) change in spending in a post-election year is directly estimated by the difference variable. Note that this equation estimates the short- and long-term effect of a post-election year relative to all other years, including election years. The results are reported in Figure 3 for elections in both institutional settings. For elections in institutionalized regimes, the estimated change in spending is roughly -2.7% and -3.5% in the post election year. For non-institutionalized post-election years, however, this estimate is essentially zero (though the point estimates are positive) for all groupings of the electoral calendar. This suggests that spending in dictatorships drops steeply after elections in institutionalized dictatorships but not after elections in other regimes.

[Figure 3 about here.]

Second, we return to the model for election years (not post-election years) and show the short-term effect alongside the distribution of the long-term effect over six periods after an election. These long-term effects are modeled from the coefficient on the lagged explanatory variable and decay over time at rate estimated by the lagged dependent variable. Figure 4 shows the lag distribution for elections in both types of regimes, along with the 90% confidence intervals for these estimates, for $M < 1$. The election year is period 0 and the first year after an election is period 1. For both types of elections, there is a sharp increase in spending during the election year: 2.0% in institutionalized election years and 1.7% in election years in other dictatorships. The key difference in spending occurs after this initial shock. In subsequent years, the effect of elections in non-institutionalized regimes remains positive, slowly decaying over time, suggesting the spending remains high even after the election. For elections dictatorships with multiparty legislatures, the positive shock in the election year is offset by a sharp decrease in spending the following year. The size of this decrease then decays over time. Again, this pattern illustrates that spending spikes occur in election years for both types of dictatorships. However, spending then returns to the equilibrium level after election when institutions are present but remains high after elections when these institutions are absent. We do not report the long-run multiplier (LRM) but the same pattern persists.
Endogenous election timing

These spending patterns are descriptive; they show how government spending changes around elections. While much of the literature on political budget cycles assumes election timing is exogenous to spending and related budgetary decisions, scholars have begun to relax this assumption (Shi and Svensson, 2006; Kayser, 2005). The timing of an election and spending decisions may both be determined by un-modeled factors such political instability, international shocks, or domestic crises. For example dictators who want to demonstrate their popularity may call elections in good times and cancel elections when conditions look ripe for incumbent defeat. That is, authoritarian leaders may be surfing waves of popularity rather than manipulating the economy around election time (Kayser, 2005).

These cautions suggest the possibility that the patterns in Figures 2-4 may be due entirely to the endogenous timing of elections. Dictatorships may be more prone to opportunistic elections than democracies because institutional constraints, including fixed election schedules, are typically weaker. Further, Kayser (2005) shows that opportunistic elections should be more common when electoral uncertainty and economic volatility are higher. As Wintrobe (1998) highlights, one of the central dilemma’s faced by dictatorship is that these leaders do not know the true level of their support. Dictatorships also tend to exhibit more economic volatility than democracies (Przeworski and Limongi, 1997; North, 2009). The possibility that opportunistic elections rather than economic manipulation explain the spending patterns observed thus far is of particular concern for irregular elections where by definition the election date was not fixed ex ante.

Consider the events surrounding the 1990 Malaysian elections. Many observers expected the leader of Malaysia’s dominant party, UMNO, to call elections in 1989 after the national success in the Southeast Asia games and hosting the Commonwealth Heads of Government meeting (Hoong 1991, 2). Yet, the incumbent leader, Mohammed Mahatir, faced one of his toughest elections yet because the party had recently split when a former colleague who had challenged him for UMNO leadership, lost, and left the party (Tengku Razaleigh Hamzah). Despite a booming economy,
UMNO faced a series of scandals and Mahatir refused to schedule elections until he had toured the country to drum up support and convince himself that he had enough backing to defeat Razaleigh. In the end, Mahatir called for new elections in early October, leaving just nine days for campaigning between the announcement and the election itself.

One way to deal with the issue of potentially endogenous election timing is to separate elections with fixed election dates from elections that do not follow a fixed schedule. Shi and Svensson (2006), for example, code predetermined elections as: those held according an election schedule fixed by the constitution; elections held in the last year of constitutionally determined term; and those announced at least one year prior to the election date. In the next section, we consider the evidence for ‘regular’ elections, finding a similar pattern to that observed in Figures 2-4. We then discuss the possibility of using a Heckman-type model to estimate the effect of ‘irregular’ elections on spending while accounting for the observable probability that dictators may select into irregular elections.

**Evidence from regular elections**

To separate regular and irregular elections, we employ of variable from the NEDLA data set that codes whether “elections took place according to their scheduled date”.\(^{19}\) *Regular* elections meet this criteria, while all other elections are marked as *irregular*. This latter category includes elections that were “either delayed or took place earlier than schedule” as well as those where “domestic political actors have no shared expectation about when elections will be held.” While dominant party or hegemonic regimes typically have periodic elections, they need not be regularly scheduled in the sense that we use this term here. For example, elections in Mexico under PRI rule occurred on a predetermined schedule every six years and are thus coded as *regular*. Malaysian elections, however, are almost always *irregular* according to this coding scheme – as illustrated out by the 1990 election. In our main sample (NxT=2773, 587 elections) with non-missing data on covariates, 62% of elections are regular, including 71% of elections in institutionalized dictatorships and 53% of elections in regimes that lack a multiparty legislature.

\(^{19}\)NELDA6 is the variable name. See Hyde and Marinov (2010).
Figure 5 illustrates the distribution of the regular election effect over future time periods. Recall that period 0 is the election year and period 1 is the post-electoral year. The estimates for institutionalized regimes in the left panel show a one-period spike in spending followed by a quick return to equilibrium. This pattern is almost the same as that observed when we group regular and irregular elections together, except that the return to equilibrium does not entail a negative post-election shock. The pattern for non-institutionalized dictatorships in the right panel is roughly the same as we observed earlier: spending increases in election years and the increases persist for a number of years after the election. These results suggest the long-term spending effect is still quite different for regimes that have multiparty legislatures and those that do not—even when we restrict the analysis to regular elections.

Modeling elections

The first step to estimating a Heckman equation is to model selection into election years. We begin with the structural characteristics of the economy used in the spending equations: \( \ln(GDP_{pc}) \), \( \ln(population) \), \( \ln(Trade) \) and the \( AgeDependency \) ratio (change and levels for all four variables). To measure factors that capture political and economic instability, the model includes: a binary variable marking at least one Coup Attempt in the past two years, lagged civil conflict, and a measure of world Oil Prices.\(^{20}\) The change variable for \( \ln(GDP) \), or the economic growth rate, may also influence instability. We also include a binary indicator of whether the leader of the regime is a current or past member of the military, taken from the CGV data. To capture change in the international environment, the model includes a dummy variable for Post-Cold War years (> 1989). Foreign aid donors were more likely to pressure dictatorships to hold multiparty elections after the end of the Cold War. Finally, the model includes a vector of polynomial transformations of TimeSinceLastElection to model time dependence. If an election is held in year \( t \), the chances an election is held in year \( t + 1 \) should be lower than in subsequent years.

Table 3 reports the results for Irregular and Regular elections. Here we discuss time-varying

\(^{20}\)Coup data is from Powell and Thyne (2010), civil conflict data is from Gleditsch et al. (2002), and oil prices are Arabian Light crude until 1983 and Brent crude after 1983, from \textit{www.bp.com}. World oil prices only vary over time.
factors that help explain when authoritarian elections occur. The results indicate that the factors correlated with different types of authoritarian elections vary substantially. Regular elections are more likely after 1989, less likely after a coup attempt and when the leader is from the military, but are unaffected by neighbor conflict, growth, and changes in oil prices. Irregular elections, however, are more likely after a coup attempt, when growth is bad, after a civil conflict, when oil prices rise, and in dictatorships lead by a member of the military.

These results suggest that time-varying measures of potential instability – oil price increases, growth crises, coup attempts, civil conflict, and military leaders – are correlated with irregular elections, but are not correlated with regular elections. This should not be entirely surprising because irregular elections are not held on a fixed schedule, and therefore may be more likely to be timed according the expectations of incumbent victory (or ease of victory). That said, these findings indicate that irregular elections may not be timed to conditions that are especially propitious for incumbent victory. Rather, the correlations suggest just the opposite: they are frequently associated with destabilizing events and thus might be a reaction to bad times. Rather than surfing waves of popularity, the timing of non-democratic elections that do not follow an established electoral cycle is more consistent with a theory that elections are events where incumbents see an opportunity to buy additional support when it is lacking.

Consider an example from Kazakhstan. After yet another resounding electoral victory in 2005, the next elections were scheduled for late 2012, corresponding with the end of President Nazarbayev’s final term in office. In the wake of uprising in the Middle East, impending inflation, international criticism of his proposed referendum to extend term limits, and perhaps most importantly, signs that Russia was posed to curtail immigration, he called a snap election in April 2011. He won with 95% of the vote on 90% turnout. Rather than riding the tide of popularity, the timing of this election seemed to be more a calculated response to possible instability. To conduct the election, the government allocated 50 percent more spending on ‘election personnel’ for the 2011

---

21 The results for irregular elections are similar for time-varying factors when we estimate a conditional logit model. Logit models, however, cannot be easily used in a Heckman model because the linear predictions follow a logistic distribution.

contest than they had in 2005 ballot, suggesting the possibility that the Nazarbayev regime boosted government spending during an election timed in response to a potential for instability.\textsuperscript{23}

Estimating a Heckman model using an error correction model in the outcome stage presents some difficulties for error-correction models, an issue we discuss in the next section. That said, the observable determinants of irregular elections suggest that dictators use them as responses to destabilizing events. If authoritarian leaders call elections during bad times, this would be all the more reason to (exogenously) increase spending to buy additional support.

**Selection-corrected results**

To estimate the selection-corrected effect of elections, we might use the models in Table 3 as first stage equations to calculate the linear predicted values of regular and irregular elections. In the second stage we then estimate the outcome model but include the selection parameter ($\lambda_j, j \in (\text{Election}, \neg\text{Election})$) from the first stage.\textsuperscript{24} For each first-stage outcome ($j \in (\text{Election}, \neg\text{Election})$) we estimate the second-stage equation with $\lambda_j$:

$$
Y_{itj} = \beta_j X_{itj} + \theta_j \lambda_{itj} + \epsilon_{itj}
$$

(2)

This gives us unbiased estimates for $\beta_j$ for each first-stage outcome of interest. We can then calculate the predicted change in spending ($\hat{Y}_{itj}$) using all the observations in the sample, under each condition $j$, where $\hat{\beta}_j$ are the estimated coefficients from (1):

$$
\hat{Y}_{itj} = \hat{\beta}_j X_{itj}
$$

(3)

Calculating (3) for each first-stage outcome ($j \in (\text{Election}, \neg\text{Election})$) leaves us with the average change in spending in election years and non-election years: $\hat{Y}_{j=1}$ and $\hat{Y}_{j=0}$. The second stage model contains the same covariates as (1), but differs from the error-correction model because we


\textsuperscript{24}Because the first stage models selection into \textit{Election}, we calculate $\lambda_{\text{Election}}$ as truncation from above: $\lambda_{\text{Election}} = \phi(x, \hat{\beta})/[1 - \Phi(x, \hat{\beta})]$, where $\hat{\beta}$ are the estimated coefficients from the first stage. For truncation from below – in this case $\neg\text{Election}$ – $\lambda_{\neg\text{Election}} = -\phi(x, \hat{\beta})/\Phi(x, \hat{\beta})$. See William Greene. \textit{Econometric Analysis}. Fifth Edition, page 759.
do not have a differenced and lagged election variable. Rather, in the selection model we can only estimate the effect of Election$_t$, not the simultaneous effect of $\triangle Election$ and Election$_{t-1}$. Therefore the results capture the total contemporaneous effect of election year on spending and do not separate out the short- and long-term effects. If the primary difference between elections in institutionalized dictatorships and those in other regimes is the long-term election effect (conditional on the estimated short-term effect), then this estimation strategy may be of little use in capturing the long-run component of a dynamic process.

As Figure 3 suggests, the post-election year may be where the real action is located. However, modeling selection into the post-election year would mean the explanatory variables would be capturing the one-off effects of the elections year itself (e.g. civil conflict that results from holding an election). The next step in this paper is to estimate the long-run effect of elections using a dynamic model while still accounting for the possibility of endogenous election timing via selection.

**Discussion**

This paper provides preliminary evidence of electoral spending cycles in dictatorships. There exists a general pattern of increased government spending in election years across a wide range of non-democracies, including dictatorships that most scholars agree do not fall into the hegemonic regime category. Further, political institutions in dictatorships influence the long-term effect of electoral spending cycles. Elections in institutionalized regimes boost short-term spending, but have little effect on the long-run equilibrium spending level. In dictatorships that lack institutions, both short- and long-term spending increases around election time, suggesting that elections in these regimes boost the long-run equilibrium level of spending.

The literature on political budget cycles in developing countries has to date focused on informational mechanisms to explain why fiscal manipulation occurs in new democracies: voters in these contexts lack information about observable fiscal behavior and incumbents exploit this dearth of knowledge to their advantage. Even some of the most recent theories to explain variation in political budget cycles in OECD countries highlights the role of information – in this case budget transparency (Alt and Lassen, 2006). The theoretical starting point for this research is the
standard voting model which assumes two-candidate competition, albeit with various restrictions. Information is also central to the theory advanced in this paper. Building on the extant literature on authoritarian elections, information in this context is a signal of incumbent strength to potential opponents. In contrast to the theoretical literature on political budget cycles in democracies, voters are largely absent in this story, except insofar as they are (exogenous) instruments of elite manipulation.

The primary moving part that explains why elections increase long-term spending in some dictatorships but not others is political institutionalization. When institutions enable credible inter-temporal promises, elections do not increase long-term government spending. This suggests that institutions are a substitute for repeated, immediate political payoffs. Again, this explanation largely leaves voters aside and focuses on incumbents and the opposition. This inattention to voters stems from the observation that dictators rarely lose elections. As this is not always the case, new theories of political budget cycles in dictatorships may need to incorporate competition over voters by including a second (non-pecuniary) dimension to voter utility where the opposition has a distinct advantage over the incumbent, as Greene (2007) does by specifying a pro-democracy component in the case of Mexico.

These results have implications for research on how dictatorships survive, particularly the role of international factors. If dictators increase spending during elections to signal strength and secure political support, and if international aid donors simultaneously stipulate restrictions on government spending and condition aid on holding elections, authoritarian leaders face a dilemma. This dilemma may be more acute for dictatorships without reliable political institutions that can lower the long-term costs of holding elections. One explanation for why institutionalized dictatorships are more likely to survive may entail a story about how institutions lower the long-term costs of elections, especially in the face of internationally-imposed budget restrictions.

This research also has implications for the debate about economic reform. Block (2002) raises the concern that electoral budget cycles could undermine economic reforms in developing countries by providing leaders with a political incentive to boost government spending. Foreign aid donors often push multi-party elections as a concrete and easily observable step towards democratization.
The results from this paper speak to this debate, suggesting that if donors push elections in dictatorships they should be aware that elections in regimes which lack an institutional foundation are likely to permanently shift government spending upwards, possibly undermining other reform efforts that could help long-term economic growth. In dictatorships with political institutions, however, there should be less concern that elections will spur long-term spending increases. In these regimes, electoral spending cycles increase short-term spending — similar to what we observe in developing country democracies — but do not necessarily lead to long-term growth of the state sector.

Finally, the theoretical approach in this paper makes no assumptions about the composition of the support coalition or the identity of the recipients of government spending around election time. Neither do we address the composition of government expenditures. In some dictatorships, increased spending could boost calorie consumption around elections when the beneficiaries of spending are relatively poor citizens with elastic calorie intake. In other regimes, government spending could benefit a particular economic sector via direct subsidies or exchange rate manipulation. And for some, the key constituency may simply be the military, suggesting that elections increase military expenditure. Answering the question of who benefits is much more difficult than the task of demonstrating a broad-based pattern of increased spending around authoritarian elections because it requires knowledge of the marginal members of the support coalition as well as their preferences. If institutions coopt the opposition into the support coalition and lower long-term political payments to potential opponents, it would be helpful to know who comprises the ‘opposition’. Future research should address this question.
References


Figure 1: **Short- and long-run spending effect of elections.** Each line depicts the point estimate and 95% confidence intervals. Estimates obtained from an error-corrected model with country- and year-fixed effects. Dependent variable is $\Delta \ln(\text{Spending})$; reported estimates are coefficient estimates ($\beta$) transformed by: $(\exp(\beta) - 1) \times 100$. [Correct dummy interpretation for semi-logarithmic.]

Figure 2: **Short- and long-term effects elections, by institutionalization.** Each line depicts the point estimate and 90% confidence intervals. Estimates obtained from an error-corrected model with country- and year-fixed effects. Dependent variable is $\Delta \ln(\text{Spending})$; reported estimates are coefficient estimates ($\beta$) transformed by: $(\exp(\beta) - 1) \times 100$. [Correct dummy interpretation for semi-logarithmic.]
Figure 3: Post-election year change in spending (short-term only). Each line depicts the point estimate and 95% confidence intervals. Estimates obtained from an error-corrected model with country- and year-fixed effects. Dependent variable is $\Delta \ln(\text{Spending})$; reported estimates are coefficient estimates ($\beta$) transformed by: $(\exp(\beta) - 1) \times 100$. [Correct dummy interpretation for semi-logarithmic.]

Institutionalized

$\neg$Institutionalized

Figure 4: Distribution of election effect over future time periods ($M < 1$).
Figure 5: *Distribution of regular election effect over future time periods (M < 1).*
Table 1: Elections and spending in dictatorships

<table>
<thead>
<tr>
<th>Model</th>
<th>CVG sample (1-2)</th>
<th>GWF sample (3-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Differenced variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Election</td>
<td>0.018* (0.01)</td>
<td>0.019** (0.01)</td>
</tr>
<tr>
<td>ln(GDP)</td>
<td>0.620** (0.05)</td>
<td>0.615** (0.05)</td>
</tr>
<tr>
<td>Trade</td>
<td>0.034+ (0.02)</td>
<td>0.054** (0.02)</td>
</tr>
<tr>
<td>Age dependency</td>
<td>0.005 (0.00)</td>
<td>0.000 (0.00)</td>
</tr>
<tr>
<td>ln(population)</td>
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<td>-0.568 (0.35)</td>
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<td><strong>Lagged variables</strong></td>
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<tr>
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<td>0.010 (0.01)</td>
</tr>
<tr>
<td>ln(GDP)</td>
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<td>0.143** (0.02)</td>
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<tr>
<td>Trade</td>
<td>0.057** (0.01)</td>
<td>0.047** (0.01)</td>
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<td>0.000 (0.00)</td>
<td>0.000 (0.00)</td>
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<td>ln(population)</td>
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<td>-0.039 (0.03)</td>
</tr>
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<td>Observations</td>
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<td>2773</td>
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*p < 0.05; ** p < 0.01; Standard errors in parenthesis. Country- and year-fixed effects not reported.
Table 2: Elections and spending, by party category

<table>
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<th>Model</th>
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<th>→ Hegemonic</th>
<th>Party regime</th>
<th>→ Party regime</th>
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<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
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<td><strong>Differenced variables</strong></td>
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<td>0.027**</td>
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<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
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<td>ln(GDP)</td>
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<td>0.620**</td>
<td>0.551**</td>
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<td>(0.11)</td>
<td>(0.06)</td>
<td>(0.08)</td>
<td>(0.07)</td>
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<tr>
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<td>(0.04)</td>
<td>(0.02)</td>
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<td>0.006</td>
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<td>(1.21)</td>
<td>(0.38)</td>
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<td>(0.04)</td>
<td>(0.06)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Expenditures</td>
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<td>-0.236**</td>
<td>-0.189**</td>
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<td>(0.01)</td>
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<td>(0.46)</td>
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<td>(0.63)</td>
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*p < 0.05; **p < 0.01; Standard errors in parenthesis. Country- and year-fixed effects not reported.
Table 3: Selection into election year

<table>
<thead>
<tr>
<th>Election type</th>
<th>Irregular</th>
<th>Regular</th>
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</thead>
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<tr>
<td>Coup attempt</td>
<td>0.311**</td>
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<td></td>
<td>(0.11)</td>
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<td>Conflict</td>
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<td></td>
<td>(0.10)</td>
<td>(0.09)</td>
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<tr>
<td>Military</td>
<td>0.259**</td>
<td>-0.120</td>
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<tr>
<td></td>
<td>(0.08)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Post-Cold war</td>
<td>0.222*</td>
<td>0.140</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>( \Delta \ln(\text{GDP}) )</td>
<td>-1.268*</td>
<td>0.600</td>
</tr>
<tr>
<td></td>
<td>(0.56)</td>
<td>(0.56)</td>
</tr>
<tr>
<td>( \ln(\text{GDP})_{t-1} )</td>
<td>-0.033</td>
<td>0.159</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>( \Delta \ln(\text{Population}) )</td>
<td>-2.204</td>
<td>-5.081</td>
</tr>
<tr>
<td></td>
<td>(2.96)</td>
<td>(2.70)</td>
</tr>
<tr>
<td>( \ln(\text{Population})_{t-1} )</td>
<td>-0.013</td>
<td>-0.075</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>( \Delta \text{Age dependency ratio} )</td>
<td>0.026</td>
<td>-0.030</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Age dependency ratio_{t-1}</td>
<td>0.002</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>( \Delta \text{Trade} )</td>
<td>-0.224</td>
<td>-0.152</td>
</tr>
<tr>
<td></td>
<td>(0.23)</td>
<td>(0.22)</td>
</tr>
<tr>
<td>( \text{Trade}_{t-1} )</td>
<td>0.112</td>
<td>-0.051</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Time since last election</td>
<td>1.039**</td>
<td>2.747**</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.27)</td>
</tr>
<tr>
<td>Time since last election^2</td>
<td>-0.243**</td>
<td>-0.797**</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.804**</td>
<td>-4.863**</td>
</tr>
<tr>
<td></td>
<td>(0.99)</td>
<td>(0.89)</td>
</tr>
</tbody>
</table>

Log likelihood        -706.2     | -949.4
Observations          2615       | 2615
Number of elections of type 216 | 358
Area under ROC        0.68       | 0.73

* p<0.05; ** p<0.01; Standard errors clustered on country in parentheses.