The Political Economy of Sovereign Borrowing
Explaining the Policy Choices of Highly Indebted Governments

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Abstract

In newly democratized and developing countries, political economy theory expects politicians to use budget deficits to engineer an election-timed boom, known as the political business cycle. In this paper, we challenge this view by incorporating the financial constraints faced by government into an electoral political framework. Debtor governments must often borrow from foreign creditors to fund their domestic spending. Employing a formal model, we show theoretically that the extent of ownership dispersion among these creditors has an important effect on governments' economic policy autonomy. Based on our theoretical results, we argue when highly-indebted governments become more reliant on international bond markets – as opposed to traditional bank lending – politicians alter the way they respond to domestic constituents. These theoretical results find support in both quantitative and qualitative empirical findings. In an econometric test of 16 Latin American countries from 1961 to 2011, we show that the 1990's financial decentralization breeds austerity through its disciplining effect on fiscal policy. These results are consistent with case studies of recent elections in Southern European countries; there too we find that politicians exhibit greater fiscal discipline when they fund a greater share of their spending through decentralized bond markets. These findings have important scholarly implications, suggesting that governments' social responsiveness may in part reflect the structure of their international borrowing.

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1 Introduction

"The old saying holds. Owe your banker one thousand pounds and you are at his mercy; owe him 1 million pounds and the position is reversed." -John Maynard Keynes

In response to the 2008-2009 global financial crisis, some countries such as the United States attempted to stimulate their economies to protect jobs and wages. When facing financial crises, developing-country governments – and highly indebted countries more generally – often face a more limited set of options. Narrow tax bases and shallow domestic financial markets can leave them dependent on foreign financing to fund their budgetary expenditures.[1] These global creditors frequently impose austerity on their sovereign borrowers, expecting that such restrictive budgetary policies provide economic stability and ultimately make debt repayment more likely. If politicians achieve discipline by shrinking welfare programs, however, their efforts to stabilize the economy could aggravate social tensions. For example, throughout Latin America, when austerity translated into lower public payrolls, pensions, and social benefits, fiscal overtures that were intended to appease creditors often catalyzed pot-banging popular protests, known as *cacerolazos*. In light of these tensions between markets and democracy, what determines whether or not debtor governments ultimately comply with creditor demands for austerity?

In this paper, we argue that an increase in their reliance on international bond markets altered the way politicians in indebted countries respond to domestic constituents. We first develop a formal model of political behavior among incumbent politicians around elections. Using this model, we derive results showing that the way a country finances its debt has implications for its pre-election public spending decisions. Specifically, we show that financial decentralization constrains incumbents from using public spending to signal competence to the electorate in managing the economy. We then examine our theoretical predictions using both Latin American quantitative data that spans the past five decades and qualitative studies of recent Southern European elections.

Based on a combination of our theoretical and empirical findings, we claim that global financial securitization has changed the traditional political logic, making political business cycles less common. Budget deficits, intended to engineer economic booms and win votes, were once considered critical weapons of political survival in Latin America and beyond. However, after the 1980s debt

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[1] Gavin and Perotti 1997.

crisis in Latin America and more recently in other highly-indebted countries, a shift in external funding from centralized bank lending to decentralized bond financing transformed creditor-debtor relations. Creditors interacting with these indebted countries have changed from a limited number of large institutions – typically large banks – to a substantial number of globally dispersed bond market investors. This shift toward securitization diluted the tight, financial linkage between creditors and their heavily-indebted borrowers, allowing them to escape the Keynesian paradox referenced above. Compared to vested bankers, bondholders can more readily exit their lending relationships, leaving governments with less room to manage the economy. Their constant threat of capital withdrawal compels sovereign debtors to pursue austerity with commitments to balanced budgets and low inflation.

These theoretical claims mark a notable departure from political business cycle theories that assert an electoral inflationary bias.[2] Such cycles may at times occur, as evidenced by President Cristina Fernández Kirchner's 2011 election-timed expansion in Argentina, but they are most likely to appear in countries that are less reliant on global capital markets. Argentina, for example, has been shut out of global capital markets since its 2002 debt default. By comparison, we find that governments with high bond market indebtedness often pursue restrictive policies that yield electoral cycles marked by slowing rates of election-year inflation and growth. These findings are in line with recent research by Canes-Wrone and Park that show a similar reverse electoral business cycle trend[3] – though their work is focused on OECD countries and pertains specifically to sectors of irreversible investment, while we consider the total economy and place greater emphasis on developing and highly indebted countries. Moreover, the theory we develop is unique in that it explicitly considers the role of international investors in electoral politics.

This analysis also gives us new insights into the political business cycle in developing countries, which scholars have recently and extensively analyzed using models of asymmetric information. In these fiscal policy models, voters are typically cognizant of politicians' motivations. However, they lack perfect information about their policy actions, which allows politicians to increase public spending to improve their re-election chances. This literature is based on a first generation of signaling models by Kenneth Rogoff, and a second generation of moral hazard models spurred by

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[2] Nordhaus 1975; Lindbeck 1976; Tufte 1978.

[3] See Canes-Wrone and Park 2012. Note that our results also support Remmer's 1993 notion that elections catalyze economic reforms.

Brender and Drazen and Shi and Svensson.[4] Our formal theory builds on the latter. In our model, voters are rational but imperfectly informed about government actions. Politicians are also less than perfectly informed about the consequences of their policy decisions. Our results are consistent with both empirical studies that find a political deficit cycle in developing economies,[5] and those that predict the pattern is more common in new democracies.[6] However, we make the novel contribution that such cycles are conditional on the structure of government debt. When a nation's external debt is comprised mostly of global bonds, politicians are constrained from using budget deficits to manage the economy before elections.

The arguments in the article also engage the important debate in international and comparative political economy about the relationship between modern financial globalization and democracy, as explored by Frieden in 1991.[7] On one side, some argue that contemporary global market integration represents a setback for democracy, finding that governments pursue policies that favor capitalists over other social groups.[8] On the other side are those who have long argued that markets and democracy can live in harmony. Governments either intervene to offset globalization's dislocations,[9] or boost investor confidence to improve living standards and help stabilize democracies.[10] Most recently, political economy scholars have sought to advance the globalization debate by exploring both the nature of the external constraint and the ability of governments to insulate their populace from global market pressures.[11] For example, recent research on financial market-government relations establishes that financial integration constrains different types of governments (i.e. developing vs. developed; democracies vs. autocracies; crisis vs. non-crisis countries in distinct ways.[12] Our analysis brings a new set of considerations to this work, arguing that different creditors – from bankers to bondholders – often behave quite uniquely, creating important differences in policy climates for sovereign debtors. We show that creditors who fail to overcome their collective action problem are counterintuitively more likely to influence governments' policy choices.

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[4] Rogoff 1990; Brender and Drazen 2005; Shi and Svensson 2006.

[5] Barberia and Avelino 2011; Shi and Svensson 2006; Gonzalez 2002; Block 2001; Schuknecht 2000; Ames 1987.

[6] Brender and Drazen 2005.

[7] Frieden 1991.

[8] Frieden 1991; Andrews 1994; Helleiner 1994; Cerny 1995; Keohane and Milner 1996; Rodrik 1997; Boix 2003.

[9] Cameron 1978; Garrett 1998.

[10] Przeworksi and Wallerstein, 1982; Przeworksi et. al. 2000.

[11] McNamara 1998; Mosley 2000, 2003; Rudra 2002; Swank 2002; Bearce 2003; Wibbels and Arce 2003; Wibbels 2006; Pepinsky 2008; Nooruddin and Simmons 2009.

[12] Mosley 2003; Saiegh 2005; Wibbels 2006.

Finally, the analysis has implications for the study of partisan politics in developing democracies. In Latin America, for instance, scholars have identified broad ideological swings, where the left either tolerated or advanced neoliberal reforms in the 1990s[13] only to later reverse these policies.[14] In a region where government's budget is key to addressing redistributive pressures, however, why would the left tolerate austerity? Recent studies suggest that these actions reflect the region's attitudes, finding that Latin American citizens surprisingly hold centrist economic policy preferences,[15] and that voters prefer governments to comply with international financial commitments rather than default on debt.[16] Our analysis presents a supply-side explanation for this demand-side phenomena. We find that in Latin America – a region where bond financing accounts for almost half of public external debt – governments with a high exposure to global capital markets are more likely to adopt economic discipline to appease bondholders.

The article unfolds as follows. The next section contains the main theoretical contribution; here we explain how a government's debt structure induces politicians to prioritize budget discipline and price stability over fiscal stimulus. In Section 3, we provide quantitative empirical support for this theory using data from Latin America, a region known for its historically high external indebtedness. In Section 4, we use the insights derived from our theoretical and quantitative results to interpret a number of recent elections in Southern Europe – a region which more recently has become highly indebted to global bond markets. Finally, we close by discussing the study's broader implications and suggesting some potentially fruitful research extensions.

2   Theoretical Framework

Why are politicians in highly indebted countries sometimes willing to impose austerity? We propose that the composition of developing country debt is a key determinant of budgetary discipline. More specifically, we suggest that the extent of ownership dispersion among international creditors has an important effect on a government's policy autonomy. Our reasoning is based on a counterintuitive collective action logic. In the world of finance, we can think of a country's solvency as a collective good for creditors. Steady debt repayment benefits all creditors, no matter their size

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[13] Roberts 1998; Stokes 2001; Murillo 2002; Weyland 2002; Levitsky 2003; Campello 2013; Roberts 2013.
[14] Roberts 2013.
[15] Baker 2008; Baker and Greene 2011.
[16] Tomz 2001.

or stake in the borrower's financial affairs. However, when a borrower flirts with default, we argue that concentrated bank creditors are more likely to incur restructuring costs to keep a country afloat than decentralized bondholders (see Section 2.3 for a full summary of the creditor-debtor strategic environment). This reasoning becomes precise in the following model.

2.1 Formal Setup

In our model an incumbent political decision-maker interacts with a number of investors and the citizens (voters) of a country, over an infinite number of periods. In each period, the incumbent politician has to decide how much to borrow and spend on public goods. Voters care both about their private consumption and their access to public goods. Incumbent politicians share voters' preferences, but also care about holding political office. By comparison, investors care only about maximizing their investment returns.

Formally, the players of the model are two parties or politicians, A and B, a group of M voters indexed by $i \in \{1, 2, 3, .., M\}$, and N political investors indexed by $j \in \{1, 2, ..., N\}$. We will first specify the incentives of voters, politicians, and investors, before outlining the constraints they each confront. The utility function for an individual voter is:

$$U_i = \sum_{t=1}^{\infty} \beta^t \left[u(c_i^t) + g^t \right].$$

The first component of the voter's utility function, $u(c_i^t)$, is an increasing and concave function that represents the utility voter i receives from from private consumption in time period t. Specifically, we assume that it takes the following functional form: $u(c_i^t) = \log(c_i^t)$. All citizens have the same income, w, in every period, and their consumption in period t equals their income minus what they pay in taxes: $c_i^t = w - \tau^t$. The second component, g^t, is the utility received from the public good provided by the government. Since the income and tax payment, as well as the utility from public spending, is the same for all voters within a period, we will leave out the subscript, so $u(c^t)$ and g^t will denote the utility from consumption and public spending for a *representative voter* in period t. To get the total utility of a voter, these two utility components are summed over all time periods with later periods discounted by the factor $\beta \in (0, 1)$.

Similar to voters, politicians and their parties care about private consumption and the provision

of public goods. However, they also have intrinsic preferences about holding political office. We are agnostic about the justification of this intrinsic value – it may be due to an inherent value placed on holding political office or to explicit financial benefits – and simply assume that a benefit E is received by any elected politician. The utility of a politician is thus:

$$U_p = \sum_{t=1}^{\infty} \beta^t \left[u(c_i^t) + g^t + E \mathbb{I}^t \right],$$

where $\mathbb{I}^t$ is an indicator that takes on the value of one if the politician is elected and in office at time t, and zero otherwise.

We assume that the value of holding political office, E, is greater when the number of investors is smaller (holding everything else, including total investments, fixed). Our reasoning behind this assumption, which will play an important role in the equilibrium analysis, is that a world with a smaller number of (large) investors is one where politicians and investors are more likely to know each other. It is therefore likely to be a more comfortable and stable world for the politicians, where politicians and investors can readily exchange information in boardroom negotiations.

Turning to the investors: they only care about maximizing their investment returns. At the beginning of the game, each investor has pre-existing investments in this country equal to $x = X/N$, where X is the total amount of capital already invested and N is the total number of investors. This ratio will be instrumental in our analysis; a larger (smaller) ratio represents a more (less) concentrated ownership structure which is meant to resemble a country where a small number of banks (multitudes of bondholders) hold a large share of the country's debt. Furthermore, each investor has access to additional funds, which may be used to finance new government debt or placed in alternative forms of investments outside of this country. We let b_j^t denote the amount of new funding provided by investor j to the government in period t, and B^t the total amount of new funding by all investors with existing ties to the country.

The payoff to investor j from lending new funds is the return it receives from the government plus the return it receives on its current investments in the country. The former can be compared to the return the investor could get by placing the same amount of capital in alternative assets located outside the country. We assume that an investor's best alternative investment is a risk-free asset that pays a time-invariant interest rate R between any two adjacent periods. We let r^t denote

the *endogenously* determined interest rate the investors receive when providing new funds to the government. In what we call "normal times," this interest r^t multiplied by any new amount lent to the government, together with a time-invariant interest received at rate I on the pre-existing investments in this country, is the period-t payoff of investor j. There is, however, also a chance that the country will undergo an economic crisis. In such "times of turmoil," the values of of the pre-existing investments are negatively affected. After having specified the timing of the game we will describe formally what happens if the country enters such a time of turmoil.

The formal timing within each period of the game is the following: any government debt accumulated in previous periods first has to be re-paid with interest, and the government has to tax its citizens to raise the funds necessary for this re-payment. The investors receive interest payments on their pre-existing investments in the country. Second, the incumbent politician chooses how much to spend on new public goods in this period. We denote this spending by G^t. Third, the politician attempts to borrow the funds necessary for the provision of public goods from its pre-existing investor base; formally, it does so by offering to pay an interest rate r^t on any new lending provided to the government in this period (for instance by issuing one-period fixed rate bonds). These investors simultaneously decide how much to lend to the government, with their total amount of lending denoted B^t. Fourth, if the new lending provided (in the third stage) is not sufficient to fund the spending on public goods (determined in the second stage), the government has to scramble for additional borrowing from international investors who lack pre-existing ties to the country. Fifth, the impact of the public good is felt by the citizens. The impact on each citizen is the same, and we denote it g^t. This impact is determined by the amount of government spending on public goods and the incumbent politician's competence. Finally, if there is an election in this period, the voters decide whether to elect the candidate from party A or party B. Elections take place every other period.

Asymmetry in the information available to the different players has a key role in the model. The investors are assumed to be better informed than the voters. Specifically, the investors observe the amount of government borrowing. The investors also observe the amount of public goods that is eventually delivered. The voters, however, are imperfectly informed about the behavior of the government. They perfectly observe the impact of the public goods in the fifth stage, but not the amount of government borrowing in the second stage. The idea is that the voters are perfectly

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informed about the economic variables that directly affect their own lives and their utility, but not all the details of the financial decisions made by the government. Finally, no one in this model is perfectly informed about the intrinsic characteristics of politicians. It is common knowledge that the "quality" Q_p of a politician is drawn from a uniform distribution with zero mean and density $1/2a$. This Q is a measure of how capable a politicians is at delivering public services that have a positive impact on citizens' lives. The realization of this variable is *initially* unknown to everyone, including the politicians themselves.[17]

Politicians are limited to one term in office in our model. Hence, a party in control of political office has to change its candidate between elections. We assume this occurs in the middle of the electoral cycle, between a non-election period and an election period. In the beginning of any election period, the party in control appoints a new candidate. This candidate becomes the de-facto (though not necessarily the formal) leader of the party and makes the decisions about public spending and government borrowing, and is thought of as the "incumbent" in the upcoming election. If the party in power again wins the election, this incumbent stays and leads the party through the post-election period, then (de-facto) hands over control to its successor at the beginning of the next election period. If, instead, the challenger wins the election, it makes the spending and borrowing decisions in the post-election period; then, as it too is term limited and cannot run for election a second time, it hands over control of its party at the beginning of the next (election) period, and its successor runs as the incumbent in the election.

These assumptions, regarding term limits and the handover of political leadership, may seem extreme. However, while the setup can be interpreted literally, as describing a system where a ruling party changes its leader between elections, it may also be thought of as a presidential system where (term-limited) presidents choose "anointed successors", with the effect that these successors run as de facto incumbents.[18] For our setup to be appropriate, it is (only) necessary that the voters credit the chosen successors with at least some of the responsibility for economic successes or failures.

To further specify the details of the model, we need the exact expression for the government's

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[17] This "moral hazard" assumption regarding the (lack of) information available about the politician's quality follows the seminal work of Holmstrom 1992 on career concerns, and the assumptions about information structure used by Lohmann 1998 and Shi and Svensson 2006.

[18] During much of the twentieth century, many Latin American countries constitutionally prohibited presidents from immediate re-election, lending credence to this party continuity assumption.

budget constraint and voters' constraints, establishing how taxes, borrowing and competence trans-
lates into consumption, public goods and utility levels. These constraints are:

$$c^t = w - \tau^t$$

$$g^t = G^t + Q_p$$

$$B^{t-1}r^{t-1} + \left(G^{t-1} - B^{t-1}\right)I^{t-1} = Mw\tau^t$$

The first constraint shows that the consumption of a representative citizen in period t equals
its income minus its taxes paid. The second constraint represents the utility the representative
citizen receives from public goods, and is determined by the amount of public spending (G^t) and
the quality (Q_p) of the incumbent politician. The third condition is the government's budget
constraint. The right hand side is the amount collected in taxes in period t. It has to equal the
sum of the repayments for the borrowing in the previous period from the investors with pre-existing
ties (repaid with interest r^{t-1}) and from the investors without such ties (repaid with interest I^{t-1}).

As mentioned above, the possibility of economic turmoil can affect investment returns in the
country. The probability of such turmoil is affected by public borrowing. One could imagine a
number of different possible links between borrowing and the possibility of economic turmoil. Here
we assume that the probability of turmoil increases if the government has to scramble among lenders
with *no* pre-existing ties to the country. This implies that, for a given level of public borrowing
G, the probability of there *not* being a crisis increases relative to the amount of new funding B
extended by vested investors. Formally, if we define this probability

$$p : [0, G] \rightarrow [0, 1]$$

as a function of the share of funding provided by pre-existing lenders to cover public spending
G, we assume that $p' > 0$. We furthermore assume that this function is linear (so $p'' = 0$), and
that there will be no crash if the government manages to borrow all of the money it needs for new
spending from investors with standing financial ties ($p(G) = 1$).[19]

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[19] Although one could imagine further "endogenizing" this probability with an explicit theory of economic turmoil,
in our view, the assumption that $p' > 0$ is one that any such theory would deliver. Moreover, it is a natural assumption
that there will be no crash if the government manages to finance all of its needs with exisiting investors because this
removes uncertainty. The linearity assumption is made for the purpose of analytical simplicity and transparency.

When it comes to the *consequences* of an economic crash/turmoil, we presuppose that it negatively affects the value of existing investments in the country. More specifically, we assume that no return is received on existing investments in the period following the crash. We also assume, however, that the government can repay its outstanding debt issued in the period preceding the turmoil, and that nothing else changes as a consequence of turmoil. One could imagine other factors, such as wages, changing as a result of economic turbulence, but we hold these factors constant to focus on the changes most relevant to our analysis.

2.2 Equilibrium Predictions

We now turn to describing the behavior of the players in equilibrium. With the term "equilibrium" we will refer to symmetric markov perfect equilibrium. Because of the stationary nature of much of the analysis, we will often drop the superscript indicating time.

As a first step, it is helpful to derive the equilibrium behavior of an incumbent politician in a world without elections or financing considerations (i.e. with the interest rate and the probability of turmoil fixed). In this case, the incumbent politician would not pay attention to the intrinsic benefit derived from holding office because he could not influence the probability of receiving this benefit. Hence, the politician would choose levels of borrowing and spending to maximize the utility of the citizens.

In this case, if the incumbent decides to borrow and spend G, and its level of competence is Q, the government will be able to deliver public goods at a level $g = G + Q$. This delivers an immediate increase in citizens' utility, but it comes with a cost in the form of higher taxes and lower consumption in the future. Specifically, raising G in one period will lead to private consumption $c = w(1 - \tau)$ in the following period, where τ is determined by the amount that has to be repaid: $M\tau w = Gr => \tau = (Gr)/(Mw) => c = w - (Gr)/M$. Since periods beyond the following one are not affected by this borrowing, the problem for the incumbent politician is simply to maximize the expected sum of the utility from public goods and private consumption, with the latter weighted by the discount rate β as it takes place in a later period:

$$\max_{G} E \left\{ G + Q + \beta u \left(w - \frac{Gr}{M} \right) \right\}.$$

Maximizing this with respect to G leads to the following condition:

$$\beta u' \left(w - \frac{Gr}{M} \right) = \frac{M}{r}.$$

(1)

From this condition, we can see that a decrease in the interest rate r, or in the discount rate β, will lead the government to spend more on public goods. Both outcomes follow from a straightforward trade-off between the present and the next period. We also observe a wealth effect; a representative citizen in a richer country (higher w) would prefer more spending on public goods.

Proposition 1 *If the government can borrow at a fixed interest rate, the probability of economic turmoil is zero and the incumbent politician is confident to remain in power from any period to the next, the equilibrium level of borrowing is given by condition (1). In this case, the borrowing and spending on public goods decreases with the interest rate (r) and the discount rate (β), while it increases with the wealth (w) of the country.*

We now consider governments' financing constraints by endogenizing interest rates and adding the possibility of economic turmoil to our model. We begin by characterizing investor behavior. Suppose that in an arbitrary period, an investor purchases government bonds at a one-period interest rate r. This new lending benefits the creditor both through its investment return (the interest rate paid to an investor) and the new liquidity support it provides for the creditor's initial investment (which makes the government less likely to default, and an economic crisis less probable). The opportunity cost of this lending for the investor is the foregone interest it could have received by investing in alternative assets located outside of the country: $b_j R$. Formally, placing this amount b_j outside the country would deliver the following expected returns for investor j: $b_j R + \frac{X}{N} I p (0; B_{-j})$, where B_{-j} is the total amount of national lending done by the other investors with pre-existing ties. If the initial creditor decides to lend b_j to this country's government, it delivers the following expected returns: $b_j^t r^t + \frac{X}{N} I p (b_j; B_{-j})$.

Comparing the marginal rates of return, keeping in mind the linearity of the function p, we see the lenders will invest exclusively outside the country if $R > r + \frac{X}{N} I$, while they will invest as much as they can inside the country (i.e. fully fund the new government debt) if this inequality is reversed. Under this constraint, optimal behavior for the government implies paying the lowest

possible interest rate where vested creditors are still willing to fund the government. The interest rate is in part determined by creditors' ownership dispersion, which will ultimately play a vital role in deriving our final results. In our current equilibrium, it must be the case that $R = r + \frac{X}{N}I$. Hence, if we let r^E denote the equilibrium interest rate paid by the government, we have:

$$r^E \equiv R - a\frac{X}{N}I, \tag{2}$$

where a is the slope of the function $p(\cdot)$.

Having characterized the equilibrium behavior of the investors, we turn to the incumbent politicians. In non-election periods, their objective is again identical to that of the voters. The maximization problem for the politician is therefore:

$$\max_{G,r}\left\{G + E\left(Q\right) + \beta u\left(w - \frac{Gr^t}{M}\right)\right\}.$$

Using expression (2) gives us the following optimization problem for the incumbent:

$$\max_{G}\left\{G + E\left(Q\right) + \beta u\left(w - \frac{G\left(R - a\left[I\left(X/N\right)\right]\right)}{M}\right)\right\}.$$

This expression will be useful as a comparison with the election-period optimization problem, but is of less interest in itself. Hence, we now turn to election years. For these years, we have to add the exogenous benefit of holding office to the above utility function to describe the maximization problem for the incumbent:

$$\max_{G}\left\{G + E\left(Q\right) + \beta u\left(w - \frac{G\left(R - a\left[I\left(X/N\right)\right]\right)}{M}\right) + eE,\right\}$$

where e denotes the incumbent's (endogenously determined) probability of winning the election, as perceived at the time when the choice of G is made. To solve this maximization, we need to determine how the probability of winning, e, depends on the level of spending, G. In a given election period, we assume that ex-ante there are no known differences in politicians' intrinsic competence; hence, the level of spending will not depend on the incumbent politician's characteristics.

Having inferred the level of competence, the citizens' rational response is then to use a cutoff rule such that incumbent politicians are re-elected if and only if their competence exceeds a certain

level, which is determined by the expected competence of the challenger. We can show that

$$e = \frac{1}{2} + \frac{G - G^*}{2a},$$

(3)

where G^* is the equilibrium value of public spending, and G is the level chosen by the incumbent. Using this expression for the probability of winning, we can express the incumbents problem as:

$$\max_{G} \left\{ G + E(Q) + \beta u \left(w - \frac{Gr^*}{M} \right) + \left(\frac{1}{2} + \frac{G - G^*}{2a} \right) E \right\}.$$

Still assuming the incumbent perceives the interest rate as beyond its control, we have the following first-order condition:

$$\beta u' \left(w - \frac{Gr}{M} \right) = \left[1 + \frac{E}{2a} \right] \frac{M}{r}.$$

(4)

We can gain insights into the behavior of incumbent politicians by comparing this condition (4) with the base model condition (1). The left-hand side of these two expressions are identical, while the right-hand side of (4) is greater than the right-hand side of equation (1). From this we can infer that the equilibrium level of G is greater in (1). This result establishes the existence of political budget cycles in the baseline version of our model, and we summarize it in the following proposition:

Proposition 2 *If the incumbent politicians take the interest rate as given, the equilibrium level of public spending is greater in election years than in non-election years.*

Finally, looking at the full model with elections and financing constraints (i.e. an endogenous interest rate and the possibility of an economic crash), we have the following optimization problem for the politician:

$$\max_{G} \left\{ G + E(Q) + \beta u \left(w - \frac{G(R - a[I(X/N)])}{M} \right) + \left(\frac{1}{2} + \frac{G - G^*}{2a} \right) E \right\}$$

Differentiating gives us the following first-order condition:

$$1 - \beta u' \left(w - \frac{G((R - axI))}{M} \right) \left[\frac{R - axI}{M} \right] + \frac{E}{2a} = 0.$$

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Using the functional form for the utility function, $u(c) = \log(c)$, we can rewrite this first order condition as:

$$\frac{G(R - axI)}{M} = w - \beta \left[\frac{R - axI}{M}\right]\left[\frac{2a}{2a + E}\right].$$

Solving for G gives us an expression:

$$G = \frac{wM}{R - axI} - \beta \left[\frac{2a}{2a + E}\right]. \tag{5}$$

To analyze the implications of a country's debt structure, recall that greater creditor ownership concentration (an increase in x) is due to either an increase in the total pre-existing investments, X, or a decrease in the number of investors, N. Let $G^*(x)$ be the function that gives the equilibrium value of G as a function of x from expression (5). If we differentiate this function, we have:

$$\frac{dG^*(x)}{dx} = \left(\frac{wM}{R - axI}\right)aI + \beta \left(\frac{2a}{2a + E}\right)\frac{dE}{dx}.$$

Now, remember that dE/dx is assumed to be positive, which means that dG/dx is greater than zero. This means that an increase in x (a rise in ownership concentration) will lead to an increase in the amount of new public spending (and associated borrowing). Conversely, this result signifies that a decrease in x (a rise in ownership dispersion) will lead to a decrease in the amount of new public spending (and associated borrowing). Furthermore, note that this happens through a direct effect, captured by the first term in (5), and through an "election effect", captured by the second term. We summarize in the following proposition, which is our main theoretical result:

Proposition 3 *The public deficit is smaller in countries where creditor ownership dispersion is greater, meaning either the total number of vested creditors is greater, or the total stock of invested capital is smaller. This holds for both election and non-election years, but the effect is stronger in election years.*

2.3 Summarizing the Model: Debt Structure's Policy Implications

These theoretical results suggest that bankers are the types of creditors most likely to provide their debtors with a financial backstop. Bankers' willingness to inject new money into their debtors

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reflects the nature of commercial bank lending, which is characterized by a small, centralized pool of creditors with high concentrated exposures to their borrowers. As a result, the return of their money is directly linked to debtors' financial health. If they were to cut financing fully, it would accelerate their debtors' road to economic turmoil. By keeping borrowers afloat, these centralized creditors are safeguarding their own balance sheets from profitability shocks. One real-world interpretation of this result is that the promise of new funds allows debtors to veer from calls for budget discipline often embedded in loan agreements. Ironically, our model suggests that being able to solve a collective action problem leaves bankers with less sway over debtor government policies.

By contrast, we surmise that collective action failures are more common in global bond financing, given its ownership dispersion among creditors. When credit risk is channeled across such a large pool of financiers, creditors not only reduce their exposure to borrowers, but also their stake in their financial futures. They hold too small a share of borrowers' debt exposure to warrant providing new funds. These predictions are in line with Olson's collective action theory, which claims that large, heterogeneous groups often experience coordination failures.[20] Group members, with low personal stakes in the collective good, often prefer to survive without it than pay their share. However, collective action failures typically impede societal groups from pressuring governments. In this case, decentralized creditors benefit from their coordination problem, as it indirectly increases their influence over debtor governments. If countries do not demonstrate their commitment to economic policies that ensure debt repayment, bondholders can cut their financial ties without incurring a severe profitability shock. Hence, our model suggests that compared to vested bankers, bondholders' credible threat to discontinue new funding allows them to more crudely impose their austerity demands.

In addition to this generalized effect, our model also anticipates that elections intensify the disciplining effect of bond market indebtedness. In line with previous political business cycle models, our model shows that information asymmetries between the government and the people can often lead to political budget cycles, or spending increases before elections (see Proposition 2). However, we find that such electoral cycles are also conditional on the government's debt structure (decentralized versus centralized creditors). To draw new investments from decentralized bondholders during periods of political uncertainty, governments must raise interest rates on new

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[20]Olson 1965.

public debt, which induces austerity. Capital flight vulnerability constrains politicians from using deficit spending before elections. If governments do not meet bondholders' policy expectations, they risk precipitating capital exit, higher risk premiums, and a destabilizing shock. Hence, our model suggests that – holding constant the total investment in a country – greater ownership dispersion among creditors (i.e. an increase in total investors) should decrease macroeconomic cyclicality around elections. Additionally, any reduction in each creditor's standing investment (i.e. a dilution of creditor exposure) – holding constant the number of investors – should also decrease electoral cyclicality.

3   Empirical Tests

3.1   Empirical Hypotheses

To evaluate these statements systematically, we translate our theoretical propositions into the following testable hypothesis:

> H1: A shift to decentralized bond finance (characterized by greater ownership dispersion) will lead to improved fiscal balances, with a particularly strong effect in election years. Relative to a centralized finance regime (characterized by high creditor concentration), such a shift will also lead to a decrease in inflation and economic growth during election years.

To test our hypothesis, we journey to Latin America, a region that is ideally suited for our analysis because it offers significant variation in public debt composition. Throughout the 1970s and 1980s, large banks had provided the majority of cross-border capital flows to the region.[21] The 1990s Brady Restructuings converted this commercial bank debt, which many countries had defaulted on during the 1980s debt crisis, into market-traded debt held by a diversified group of global investors. These restructurings helped fuel a surge in Latin American bond issuance, which quickly replaced commercial bank loans as the region's primary funding source (Figure 1).

How did this dramatic change in debt financing affect creditors and debtors in Latin America? Before these restructurings, creditors often injected new money into their debtors during hard economic times. For example, when Mexico ignited the 1982 debt crisis by announcing a 90–day

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[21]Frieden 1987.

Figure 1: Bond Issuance Supplants Bank Lending
(16 Latin American Countries, Aggregate)
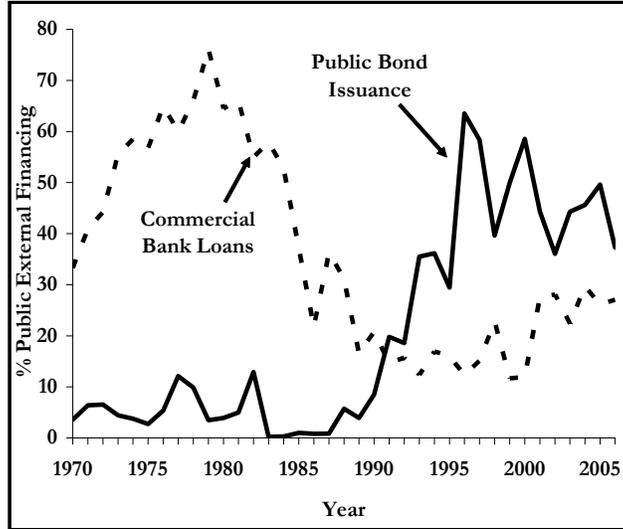
Figure 2: Bank Claims on Latin America
(US$billion, 1982-1988)

17
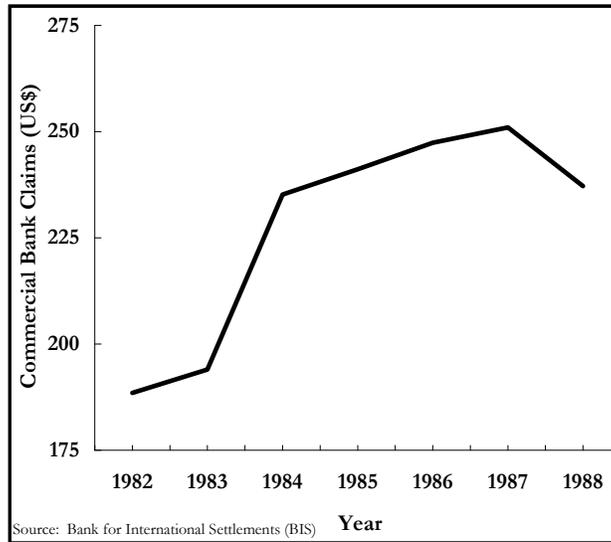
Figure 3: Capital Volatility in Latin America
(16 Latin American Countries, Aggregate)
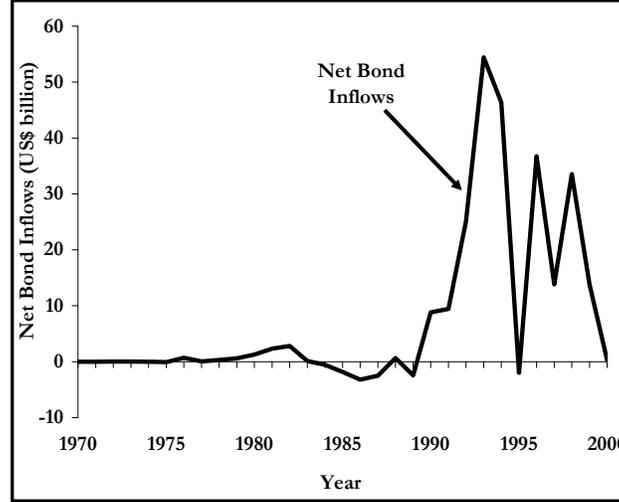
debt moratorium, a small core of global bankers collectively responded by providing new loans to the region rather than cutting financial ties (see Figure 2).[22] By comparison, after the Brady restructurings, creditors had redistributed risk across a large decentralized pool of financiers – who were more likely to sell their bondholdings than lend defensively during hard times – making the region more susceptible to sudden capital withdrawals (see Figure 3). Recall that to prevent such outflows, we expect governments to exhibit greater discipline generally, and particularly during election years. In the rest of this section, we will test this proposed explanation more rigorously. Specifically, in what follows we operationalize our hypothesis (H1) with the following baseline regression equation:

$$
\begin{aligned}
Y_{it^k} \;=\; & \alpha + \beta_1 Elections_{it} + \beta_2 d_{it} + \beta_3 Elections_{it} * d_{it} \\
& + \hat{\beta}_4 X_{it} + \hat{\beta}_5 Y_{it^k, t-1} + n_i + \varepsilon_{it}
\end{aligned}
\tag{1}
$$

where Y_{it^k} =economic indicator; where $k = a, b, c$ with a = fiscal balance, and b = inflation, and c = GDP growth; where $Elections_{it}$ = election variable; where d_{it} = the share of decentralized bond finance relative to total external public debt; and $Elections_{it} * d_{it}$ = the interaction between

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[22] To help protect their investments, banks embedded IMF conditionality into these loan agreements (Thacker 1999; Vreeland 2003). Right-leaning governments were the most likely to initiate these reforms (Pop-Eleches 2009).

decentralized financing and elections. The index i = country and t = year. X_{it} = vector of control variables; and $Y_{it^k,t-1}$ = economic dependent variable (one year lag). The term n_i = dummy for each country, intended to capture unobserved country effects, while ε_{it} = error term.

To test the hypotheses, we focus on the coefficients on the interaction terms between the variables $Elections_{it}$ and d_{it} (decentralized bond finance). A positive coefficient when the government's fiscal balance is the dependent variable, would provide support for the hypothesis that decentralized finance improves fiscal balances (i.e. bolsters budget surpluses or narrows budget deficits) before elections. Similarly, a negative coefficient when inflation / growth is the dependent variable would confirm the hypothesis that bond financing has a deflationary electoral effect.

3.2 Data and Methodology

This section evaluates the evidence for our model in Latin America, using a panel of data covering 16 democratic countries from 1961-2011. Employing the dataset, we can observe how Latin America – a region known for its high indebtedness – governed through considerable financial volatility beginning with the 1982 debt crisis and through the most recent global financial crisis. In our statistical tests, we also adjudicate between our theoretical priors about debt structure and the effect of IMF conditionality using a variable that measures whether a country participated in the IMF-led Baker Plan, a debt restructuring that called for austerity and predated Latin America' bond market securitization (see Section 3.4).

Latin America's predominance of presidential systems makes it an ideal setting to examine political business cycles. The presence of election-timing that is fixed and constitutionally-mandated avoids endogeneity problems,[23] or the possibility that current economic conditions reflect political tinkering with election dates.

We present our findings using both fixed effects and generalized methods of moments (GMM) estimators. The empirical analysis proceeds in two stages. First, we use a series of basic regression models to test for the traditional political business cycle, presenting evidence about the effect of elections on government budgets and core macroeconomic indicators: inflation and growth. Second, in the crux of the analysis, we condition decentralized debt on elections to observe its effect on fiscal

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[23]To confirm that the election variable is exogenous (and that the incumbent did not disregard the constitution by changing election timing), we verified that the fixed election dates in our time series corresponded to constitutionally-mandated election dates.

policy and the economy. All models are estimated with robust standard errors, clustered by country. Fixed year effects were tested and removed since they were not statistically significant and have not affected the main results. In the appendix, we include data sources and descriptive statistics.

3.2.1 Data Description: Independent Variables

Elections According to political business cycle theorists, politicians' desire to maintain office compels them to aggressively intervene in the economy. In line with this premise, we limit our unit of analysis to democratically competitive elections. We classify democratic elections based on whether there is electoral alternation.[24] Employing this classification, we code a total of 139 contested presidential elections that span the entire dataset from 1961 to 2011 (see Figure A.1 in appendix). We study presidential rather than legislative contests because historically Latin American economic policy is more strongly influenced by the executive than by other public actors.

After classifying these elections, we then constructed a binary variable, $Election_{it}$, as a pre-election dummy for fiscal stimulus and growth, but as a post-election dummy for inflation. We employ the separate post-election dummy variable to account for the expected lag between economic policy decisions and inflation. According to macroeconomic theory, monetary policy affects the economy incrementally, with inflationary pressures mounting over the course of six to eighteen months. Fiscal policy may also have a lag, but generally affects the economy more quickly.[25] Given such potential lags, we use the post-election dummy to track inflation both during the election year and subsequent years.

$$pre\_election_{it} = \begin{cases} 1 \text{ in the election year, and the preceding N-1 years} \\ 0 \text{ otherwise, where N=2 or 3} \end{cases}$$

$$post\_election_{it} = \begin{cases} 1 \text{ in the election year, and the subsequent years} \\ 0 \text{ otherwise} \end{cases}$$

Decentralized Bond Debt To test our theory, we construct a variable, $Bondfinancing_{it}$, that measures global bond issuance as a percentage of government's total external financing. If our theory is correct, political business cycles may exist when countries have a low level of global bond

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[24]We use Przeworski et. al. 2000's classification of countries, which employs Dahl 1971's concept of contestation.
[25]Friedman 1970; Mankiw 2003.

indebtedness. However, as global bond account for a higher share of government debt – relative to alternative external financing sources such as bank lending – we should be more likely to observe fiscal discipline and inflation control.

Control Variables   In the regression analysis, we control for a variety of global economic factors, domestic economic variables, and institutional factors that may affect national fiscal balances, growth, and inflation. Based on the assumption that past economic performance influences present economic conditions, we also include a lagged dependent variable (see Appendix).

3.3   Empirical Results

The first series of basic regression models display the unconditional effects of the independent variables on budget balances and the economy. These effects are unconditional in that they ignore the government's debt structure at the time of elections, which in the regressions means the inter-action variables between elections and bond financing are omitted. We find evidence that primary budget deficits deteriorate more during elections than other time periods. In fact, the coefficient on the election variable is negative and statistically significant (see model 1 in Table 1). These results are consistent with empirical studies that have found a political deficit cycle both in Latin America and developing economies more generally.

Does such fiscal tinkering have an effect on the macroeconomy? Perhaps, governments increase deficit spending to target political supporters with public works projects, social benefits, or salary increases before elections, but do not provide sufficiently large stimulus to affect the broad economy. For example, the OECD literature finds evidence of pre-electoral fiscal stimulus, but no significant increase in aggregate economic activity before elections.[26]   We find a similar pattern in Latin America. Despite the appearance of a political deficit cycle, there is no evidence that elections stimulate Latin American economies. The election coefficients for both the *inflation* and *growth* regressions are statistically insignificant (see model 1 in Tables 2 and 3).

We find considerable support for a general bond financing effect on policy making and infla-tion control. Across the first two basic regression models, the bond-financing coefficient exhibits a statistically significant relationship with both governments' budget balances and inflation. In

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[26]See Drazen 2001.

other words, a greater reliance on global bond financing corresponds to improved budget balances (narrower budget deficits or higher budget surpluses) and lower inflation.[27]

Finally, the control variables results indicate that the coefficients for global growth, inflation, and terms of trade are statistically significant across the unconditional models (Tables 1-3). Global growth is associated with improved budget balances, higher domestic growth, and moderate inflation. In line with expectations, inflation is negatively correlated with domestic growth, and terms of trade gains appear to bolster budget balances.

Does this estimated impact of bond financing differ between election and non-election years? Our theory suggest that the cyclicality around elections should decrease as governments become more dependent on decentralized bond markets. In the conditional regression models (see model 2 and models 4-7 in Table 1), decentralized bond finance has a strong and statistically significant mitigating effect on budget deficits, lending support to our primary hypothesis.

Figure 4 below shows the marginal effects of these conditional models. When countries have little or no exposure to global bond markets, elections have a negative and statistically significant effect on budget balances. Elections tend to increase government budget deficits by as much as 1.3 percent of GDP (see Table 1), confirming the expectations of the political budget cycle literature.

Figure 4: Marginal Effect of Elections on Latin American Budget Balances

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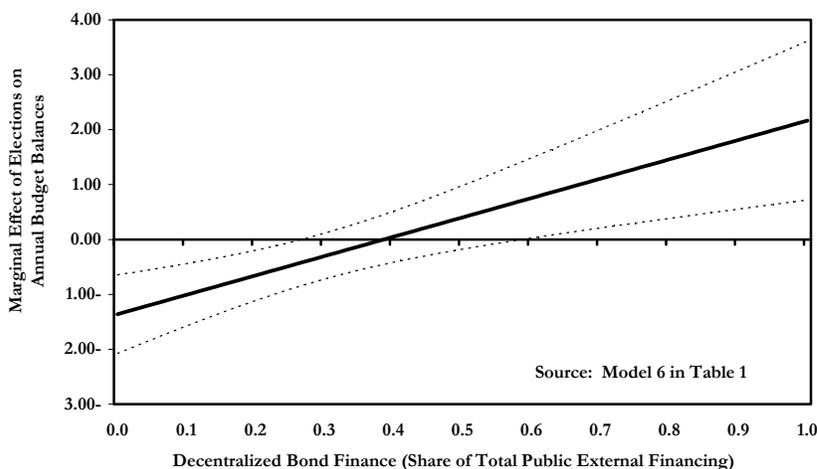
[27]By contrast, we do not find a statistically significant relationship between bond financing and growth. Our findings, however, are in line with the financial-governance literature, which anticipates that budget discipline and inflation control are among the most scrutinized factors by international investors (Mosley 2003).

Notably, however, as global bonds outstanding account for a growing share of external financing, this statistically significant relationship narrows in magnitude and eventually swings into positive territory (see Figure 4). For instance, when bonds comprise about one-fifth of public external debt – or the equivalent of Latin America's average historical stock of bond debt– government budget deficits shrink by about seven-tenths of 1 percent of GDP compared to election years where governments have little or no bond financing. With greater bond indebtedness, fiscal austerity becomes even more acute. For countries where global bonds account for three-fifths of a country's external financing, average budget deficits narrow by 1.4 percentage points of GDP compared to election years where governments have little or no bond debt outstanding.

Elections might promote budgetary discipline in highly indebted countries, but what is their effect on growth and inflation? Does electoral uncertainty magnify the disciplining effect of global bond markets as predicted by our theoretical framework? The conditional models (see Tables 2 and 3) examine the relationship between decentralized bond finance and the economy during elections. The regression results show that bond finance has a statistically significant and strong moderating effect on inflation and growth during elections. In other words, the higher a country's share of bond financing, the less likely its politicians are to craft a high growth, high inflation election cycle.

The coefficients for the control variables generally correspond to expectations (Tables 1-3). In line with the region's historic inflation crises, domestic price instability is statistically significant and inversely related to economic growth. As expected, higher global growth and domestic investment are associated with higher domestic growth. Finally, when the primary fiscal balance (lagged by one year) is a control variable; its coefficient has a negative and statistically significant relationship with inflation. In other words, a narrower budget deficit is associated with lower average inflation.

To extract a meaningful relationship between bond financing and elections, we can calculate the marginal effects of elections over different values of decentralized bond finance. In Figures 5 and 6, we observe that as global bond markets account for a higher share of government financing, the effect of elections on inflation and economic growth not only becomes greater in magnitude, but also more highly statistically significant. These results provide considerable support for our theoretical framework, which expects that electoral uncertainty magnifies the deflationary effects of high bond market indebtedness on the economy.

**Figure 5: Marginal Effect of Elections
on Latin American Inflation Rates**

Marginal Effect of Elections on Annual Inflation Rates

Source: Model 6 in Table 2

Decentralized Bond Finance (Share of Total Public External Financing)
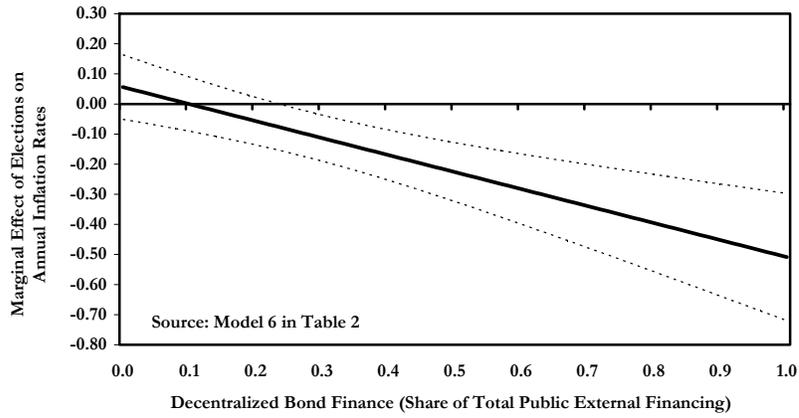
**Figure 6: Marginal Effect of Elections
on Latin American Growth Rates**

Marginal Effect of Elections on Annual Growth Rates

Source: Model 5 in Table 3

Decentralized Bond Finance (Share of Total Public External Financing)

24
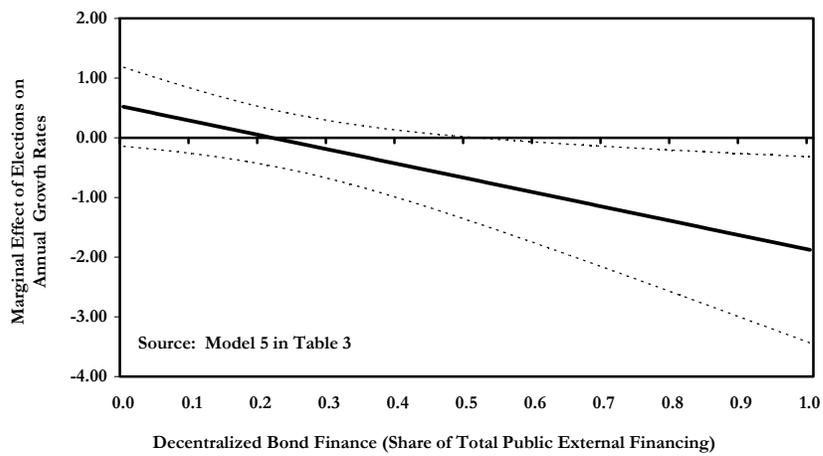
3.4 Robustness Checks

In a series of robustness checks, we found that the correlation between decentralized financing and the economy is markedly resilient. First, we repeated the statistical tests just described using the Arellano-Bond GMM estimator to help mitigate concerns about the possibility of endogeneity in the independent variables. Overall, the GMM results support the governing hypothesis that the relationship between elections and the economy is contingent on decentralized finance.[28] Elections occurring under decentralized bond financing are positively correlated with government budget balances, but negatively correlated with inflation and growth (see Tables 1-3).

We also inserted several additional control variables - including left partisanship, institutional constraints on executive power,[29] and the existence of an IMF program[30] - into the original models to account for the potential influence of political and institutional factors on government budgets and the economy. None of these additional controls significantly changed the size, direction, or statistical significance of the key results (see models 5 and 6 in Table 1 and 2 and models 4 and 5 in Table 3).

Notably, the statistically significant IMF coefficients suggest that governments under IMF programs tend to improve budget balances and reduce inflation, but IMF programs alone do not appear to be a sufficient condition for austerity. Before the 1990s' debt securitizations that developed Latin American bond markets, the Baker Plan variable captures the years where an IMF-led sovereign debt restructuring was in effect. Embedded with conditionality agreements, these restructurings should make narrower fiscal deficits more likely if an IMF agreement alone was a sufficient condition for budget discipline. The Baker Plan coefficients, however, are statistically insignificant, suggesting that we cannot reject the null hypothesis that IMF programs during the Baker years had no effect on budget balances. At the same time, we should also expect inflation control to be more likely under IMF programs. While the Baker Plan coefficient is statistically significant, its positive sign suggests that average inflation tended to be higher during these years. These findings support scholarship that has found that Latin American governments exhibited low rates of compliance

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[28] The Arellano-Bond test for the GMM-estimators presents no significant evidence of serial correlation in the first-differenced errors at the second order. The Hansen-Sargan test suggest that the model has the correct specification and that the overidentifying restrictions are valid.

[29] We use executive constraint variables from both Polity IV and Henisz 2000.

[30] We employ two different IMF participation measures: Vreeland 2003 and Dreher 2006.

with their IMF programs during the 1980s.[31] This relationship appears to change in the 1990s as bonds comprise a larger share of sovereign debt, when both bond finance and IMF agreements are strongly correlated with budget discipline. Hence, our work does not rule out the possibility that conditionality *may* lead to greater fiscal discipline, but it does show that the magnitude of its effects depend on the structure of government debt.

Notwithstanding these findings about the importance of debt composition, might the size of external debt itself be an important driver of austerity? We expect that high indebtedness should at least be a basic prerequisite for electoral austerity. Noting that external debt in Latin America has rarely been manageable – averaging 40 percent of GDP in the region during the last fifty years, a level that is well-above the 20 percent threshold that is considered "safe" for many emerging market countries[32] – we reran the statistical tests dropping any observations below the 20 percent threshold and later omitting those below a more conservative 25 percent threshold. Importantly, the coefficients on the interaction effects do not change sign but are greater in magnitude, strengthening the initial positive relationship between decentralized finance and election-year budget balances (see model 7 in Table 1) and negative relationship between decentralized finance and the economy (see models 7 and 6 in Tables 2 and 3 respectively).

As a final robustness check, we modified the structure of the binary election variable to account for longer/shorter-than-expected policy lags between economic decisions and inflation. Our theory predicts that when bonds account for a large share of external debt, we should observe a deflationary effect not only in the election year, but also the subsequent year. To account for a potentially even-longer monetary policy lag, we also varied this lag structure by adding second year to the binary election variable. We also shifted the election variable to capture the possibility of a shorter policy lag by tracking inflation patterns that predate the electoral campaign. These robustness tests did not yield any material changes.

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[31] Haggard 1985; Edwards 1989; Edwards 2001.

[32] Reinhart, Rogoff, and Savastano 2003 find that "safe" debt thresholds are as low as 15 percent of GNP.

4 Comparative Case Analysis: Debt Structure and Austerity in Southern Europe

Does the relationship between debt financing and electoral behavior simply reflect Latin America's unique circumstances, where the Brady Restructurings swiftly transferred debt ownership from bankers to bondholders, or might these patterns also hold in other highly indebted regions? To glean some insight into these questions, we conduct an "out-of-sample" plausibility probe in Southern Europe. We select this region for several reasons. First, the recent financial crisis has generated tremendous interest among scholars, policy-makers and the general public, and we hope to contribute to the ongoing discussion about the political and financial roots of the crisis. Secondly, there has been considerable regional variation in our main variable of interest, bond market indebtedness. The region's bonds outstanding were manageable at the dawn of the Eurozone in 2001 before reaching crisis-inducing levels by decade's end. With such high bond market indebtedness, our theoretical model expects that the dilution of creditor ownership will induce austerity by increasing interest rates on new public debt. If we find that bond indebtedness also catalyzes austerity in Southern Europe, it suggests that our central findings may generalize beyond Latin America.

We chose a regional rather than global focus for our out-of-sample probe because it allows us to hold fixed many broader, potentially confounding economic and political factors. By exploiting the cross-national variation in bond indebtedness, we can also adjudicate between our theory and common alternative explanations for austerity grounded in the coercive power of international institutions like the IMF, the European Commission, and the European Central Bank.[33] If austerity simply reflects such institutional coercion, we should observe that Southern European countries adhere to the fiscal requirements of the European Union's Stability and Growth Pact, from the euro's initial inception. Otherwise, if we observe a lack of fiscal discipline, it would suggest that institutional explanations do not sufficiently account for electoral austerity.

Unfortunately, extending our empirical work to Southern Europe is not entirely without problems. Given the recency of these events compared to Latin America's 1990s market securitization, there are relatively few elections that follow the region's shift in debt structure (i.e. bond market indebtedness). The ongoing and unfolding nature of the region's crisis also makes it difficult to

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[33]Stiglitz 2002; Barnett and Finnemore 2004; and Woods 2006.

operationalize statistical measures for all potentially confounding measures. We have furthermore encountered serious challenges to collecting reliable historical data for Southern European debt structures. For these reasons, we have limited this out-of-sample probe to a comparative case study analysis rather than attempting a large-sample econometric analysis.

Figure 7: Bonds Outstanding Dramatically Increase (Selected European Countries)
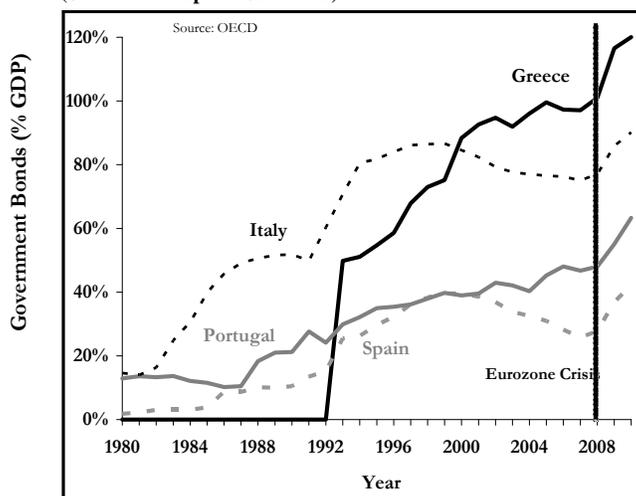
Compared to the Latin American experience, the accumulation of bond debt in Southern Europe was more gradual. During the early 1980s, bonds outstanding averaged about 13 percent of GDP in Greece, Italy, Portugal, and Spain (see Figure 7). By the European Union was established in 1993, they swelled to 44 percent of GDP, then neared 60 percent of GDP with the euro's inception, and finally averaged almost 74 percent of GDP by the onset of the 2009 eurozone crisis.[34]

Initially, this bond issuance may have helped fuel deficit spending, but as governments amass their stockpile of bonds outstanding, they tend to exhibit greater fiscal constraint (see Figure 8). When bond issuance accounts for less than 30 percent of GDP, for instance, Southern European governments on average have primary budget deficits of about 4 percent of GDP. As their bond tally increases, average deficits tend to shrink and when bonds' share of GDP exceeds 60 percent governments are highly disciplined, averaging a primary budget surplus of almost 1 percent of GDP. This is in line with our theoretical prior, which expects that austerity should intensify with greater sovereign bond indebtedness (i.e. creditor ownership dispersion).

Does such high bond indebtedness also promote *electoral*, and not just general, austerity in

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[34]Notably, this pattern holds if reliance on bond markets is normalized by public debt rather than GDP.

Figure 8: Decentralized Bond Finance Boosts
Southern European Government Budget Balances
(Selected Countries, 1980-2011)
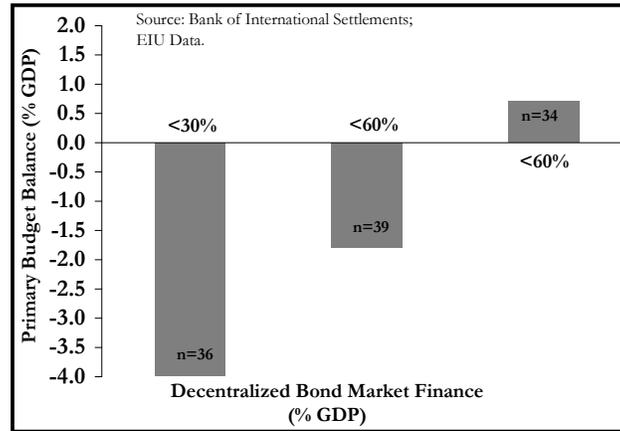
highly-indebted countries? To answer this question, we will examine the recent round of elections in Italy, Greece, Portugal, and Spain. If standard political business cycle theory holds, we should observe that elections catalyze deficit spending. However, like in Latin America, we observe the opposite pattern. In the two years before national elections, primary budget deficits steadily narrowed in all four recent election cases (see Figure 9).

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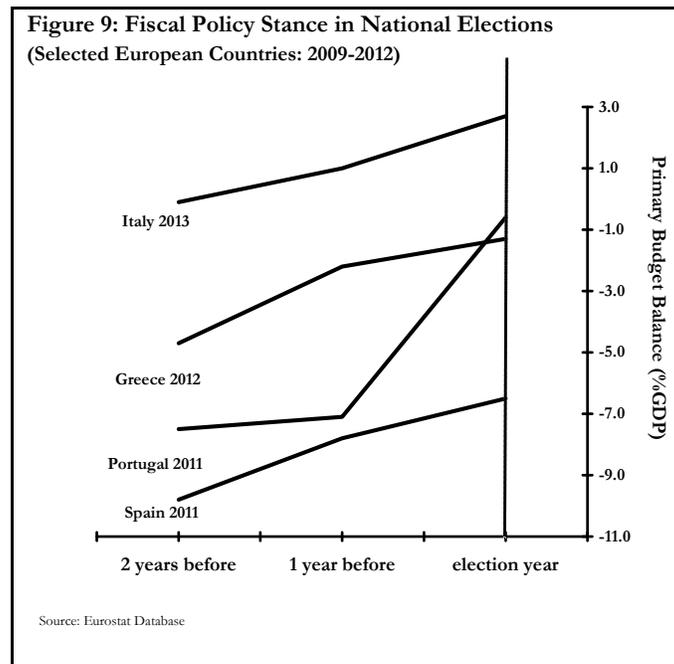
4.1 Spain and Portugal

In 2011, a high reliance on bond finance[35] during Spanish and Portuguese elections left politicians with few options beyond budget austerity. Facing severe capital flight and surging interest rates,[36] Prime Minister and Socialist Party leader (PSOE), José Luis Rodríguez Zapatero announced a fiscal adjustment package in late August, a mere three months before Spain's November 20th elections.[37] While his party's chosen successor, Alfredo Pérez Rubalcaba, was facing a tough challenge from the conservative opposition party (PP), Zapatero marched forward with austerity. In hopes of assuaging creditor concerns about fiscal solvency, he pledged to meet Spain's year-end deficit target of 6 percent of GDP. The prime minister also controversially capped regional government spending by decree and introduced a constitutional amendment mandating strict deficit and debt limits, notwithstanding ongoing protests from the trade union movement – an important part of the PSOE's political base.

A similar austerity pattern emerged in Portugal, where ironically a Socialist Party (PS) was also governing at the time. In dire need of US$80 billion in emergency credit to help repay its debt and stem capital outflows,[38] the Portuguese government pursued austerity. Unable to secure approval for a new fiscal adjustment package that featured pension and spending cuts, Prime Minister José Sócrates resigned in March 2011. In the prelude to newly announced June elections, the entire campaign centered around raising financing from a troika of institutional creditors, the IMF, the European Commission, and the European Central Bank. This financing was crucial to signaling Portugal's creditworthiness, restoring investor confidence, and containing capital flight, but it came at a price. Portugal formally pledged its commitment to budget consolidation through a memorandum of understanding (MOU).

To limit the political fallout, the ruling Socialist Party's main electoral tactic was to blame the opposition (PSD) for its lack of austerity resolve. According to their narrative, the PSD's failure to approve its austerity package precipitated the creditor intervention and Portugal's loss of economic

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[35]Bonds accounted for 42 and 63 percent of GDP in Spain and Portugal in 2011, compared to 34 and 39 percent of GDP respectively during the 2004 and 2002 elections (OECD).

[36]In early August, Spanish government ten-year bond yields surged well-above 6 percent, trading more than 400 basis points above comparable German bonds (Reuters; Haver Analytics)

[37]Endogeneity between elections and economic policy is unlikely to be a major problem because Zapatero introduced this fiscal austerity package on August 19th, well-after he had called for an early election on July 29th.

[38]Portugal's borrowing costs on its benchmark 10-year bond reached 8.5 percent in early April after the parliament rejected the PS's austerity package, leaving the country unable to service its debt.

autonomy. Accompanying this rhetorical sparring about the importance of pro-active austerity, the fiscal deficit fell during the first half of 2011, as the government retrenched its personnel spending in an effort to calm jittery markets. Note that Portugal's higher level of bond indebtedness compared to Spain[39] translated into a more acute pre-electoral austerity (Figure 9).

In summary, there is little trace of the political business cycle during these two elections, with austerity taking center stage. Governments adhere to fiscal discipline in an environment where creditors' ownership dispersion imposes a credible capital exit threat. How does this recent prevalence of electoral austerity in Southern Europe compare to earlier election periods when these same countries were less indebted to global bond markets? If our theoretical priors are correct, we should be more likely to observe political business cycles, controlling for other factors that may vary over time like the exchange rate regime.

The 2002 and 2004 elections in Portugal and Spain respectively are ideal cases for examining these patterns. During this time, these two governments were already Eurozone members, but less reliant on global bond markets for their financing. Bond indebtedness accounted for only three-fifths and four-fifths of their 2011 levels.[40] Governments were more dependent on other types of financing, like bank lending, that were characterized by high creditor concentration. Under these conditions, capital was less likely to flee the region. In fact, both Portugal and Spain's sovereign risk premiums were negligible, supported in part by their recent Eurozone entry. Ten-year government yield spreads in both countries traded on par with those of Germany from the euro's 1999 inception through the 2002 and 2004 election periods, which stands in stark contrast to the wide differentials recorded during the 2011 elections.[41]

In light of their manageable bond indebtedness, the political impulse to spend was not constrained by global financial markets. Moreover, institutional constraints on fiscal expenditures, such as the EU's Stability and Growth Pact (SGP), proved to be an insufficient check on spending. We observe a fiscal relaxation in both countries during their election periods. Before Portugal's 2002 elections, for instance, Finance Minister Guilherme d'Oliveira Martins called for and received a more "flexible interpretation" of the EU's Stability and Growth Pact, after the government missed

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[39]See footnote 28.

[40]Ibid.

[41]The average Portuguese and Spanish 10-year yield spreads over comparable German bonds were 12 and 3 basis points during the 2002 and 2004 election years, but reached 1,156 and 33 basis points by 2011 elections (Bloomberg).

its 2001 target under the fiscal consolidation program and neared its 3 percent deficit ceiling.[42] The slowdown in economic growth partly explained the fiscal deterioration. However, the ruling Socialist Party (PS) also did not want to cut public spending and wages before the March 2002 national elections, after a poor performance in local elections led to Prime Minister António Guterres' resignation. When the European Commission recommended that the government amend its deficit in January 2002, Martins insisted that he would not change Portugal's budgetary policies.[43] Unlike financial markets, regional institutions appeared to have little disciplining effect on governments.

A similar fiscal pattern occurred in Spain during the country's 2004 elections. Charged with long-run fiscal consolidation under the same Stability and Growth Pact, Spain departed from fiscal discipline in the prelude to the conservative People Party's (PP) re-election bid. Beginning in 2003, the government sidelined its zero-deficit for an expansionary fiscal stance. Heralding new public investment and tax cuts, the budget was designed to add about 1 percentage point of GDP to growth. Aimed partially at offsetting Spain's mild economic slowdown, the shift in policy stance also coincided with the electoral campaign of Mariano Rajoy, the chosen successor of Prime Minister José María Aznar. Battling a close challenge from the social democratic PSOE,[44] the PP oversaw a fiscal expansion before the 2004 elections.[45]

In both of these cases, we observe that the Stability and Growth Pact did not guarantee fiscal discipline, particularly during election years. In fact, recent scholarship suggests that this pattern may also be representative of the broader region, finding that Eurozone budget deficits tend to increase during election years between 1999 and 2004.[46]

4.2 Greece

To further advance our plausibility probe, let us turn to the 2004 and 2012 elections in Greece, the country with the largest bond indebtedness in the region. The 2004 elections are noteworthy because they are the first to follow the country's 2001 Eurozone entry. Furthermore, between 2004 and 2012, public bond debt increased by one third. How do policy choices compare during these

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[42]The deficit reached 2.2 percent of GDP by 2001-end, or double Portugal's target under its stability program.

[43]*The Times*, January 31, 2002.

[44]Most polls gave the PP a slight lead over PSOE (Opina, Sigma Dos, TNS Demoscopia, Citigate Sanchis, Celeste-Tel, and Vox Pública).

[45]Spain's budget surplus moved into deficit during the election year, falling almost 1 percentage point of GDP (World Development Indicators).

[46]Mink and Haan 2005.

two election periods?

Similar to Portugal and Spain, Greece's eurozone membership was predicated on adhering to a strict institutional framework. Through the EMU Stability and Growth Pact, Greece pledged to keep its budget deficit below the 3 percent target set by the Maastricht Treaty. However, contrary to the predictions of a rich scholarship emphasizing the coercive effects of such institutions on national policy choices,[47] Greece's formal membership in eurozone institutions did not check popular spending pressures.

Figure 10: Fiscal Policy Stance in National Elections (Greece: 2004 and 2012)

Source: Eurostat and EIU Data
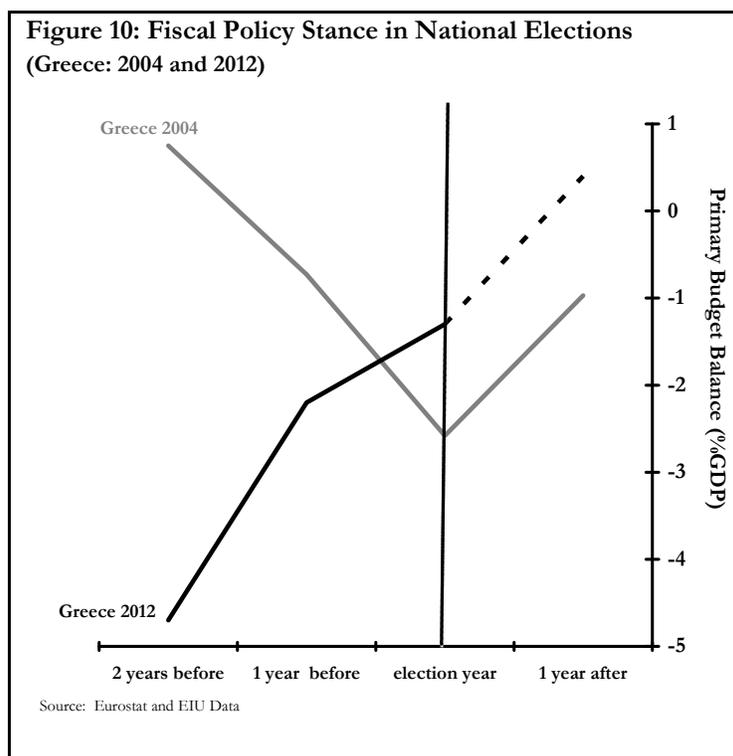
In 2004, Greece's first post-euro election, we observe that the EMU's Stability and Growth Pact does not deter government spending. The governing socialist party, the Panhellenic Socialist Movement (Pasok), responded to election-year demands for new spending by devoting considerable resources to infrastructure projects in the prelude to the 2004 Summer Olympics. It also responded to voter discontent with a pledge to create 25,000 new jobs, increase public sector salaries and cut business taxes. To deliver these political benefits, Pasok steadily widened the government's primary deficit in the two years before elections (see Figure 10).[48] Theoretically, the 3 percent deficit ceiling

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[47]See footnote 26.

[48]Endogeneity between elections and economic policy is unlikely to be a major problem because Pasok formulated

imposed by the Stability and Growth Pact should have checked government spending, but the EU finance ministers relaxed its criteria during the election year.

By 2012, the government's bond indebtedness had reached 120 percent of GDP, nearly one-third higher than in 2004, and almost two-thirds higher than its pre-euro tally. Eurozone membership had initially opened the spigots of global bond finance to Greece, but in the wake of the global financial crisis, credit slowed as capital markets became increasingly concerned about the government's ability to manage its growing debt. Investors demanded a higher rate of return to hold Greek bonds, which translated into a lofty risk premium as the country's interest rates surged higher in the years following the crisis (see Figure 11). This high interest rate burden left little fiscal scope for electoral stimulus. Rather, Greece's political mandate was increasingly characterized by austerity, as its leaders collectively negotiated a creditor agreement to stem the financial turbulence.

Figure 11: Greece's Bond Indebtedness & Sovereign Risk Rise in Tandem (Annual Data: 1999 to 2012)

Source: Global Development Finance/Eurostat
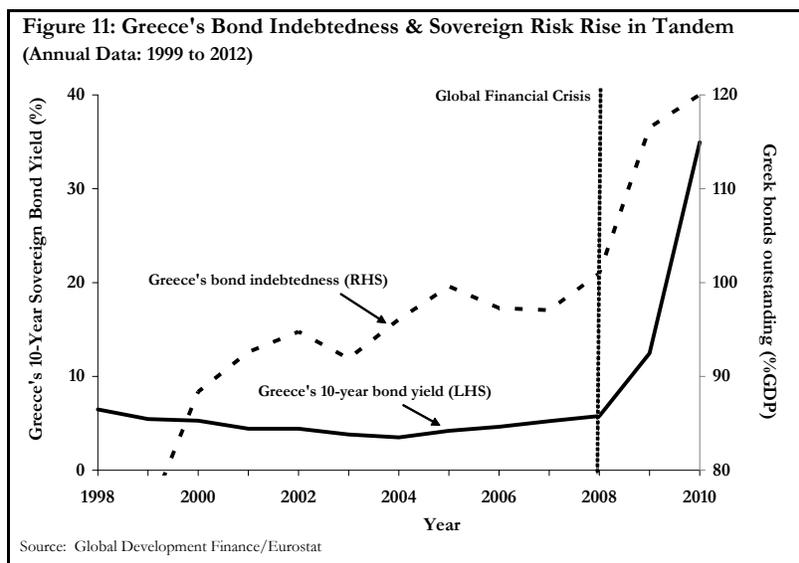
Following a call for new elections in November 2011, a unity government consisting of both the socialist party, Pasok, and the center-right party, New Democracy, announced a variety of austerity measures. For instance, they drafted a 2012 budget that called for nearly 4 percentage points of belt-tightening, including both minimum wage and pension cuts. Recall that Pasok had previously used deficit-spending to provide its constituents with new jobs and higher salaries before the 2004 elections. In another election year with their constituents deeply troubled by a stubborn recession

its economic policy in 2003 when elections had already been scheduled for March 2004, the end of its 4-year term.

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and high unemployment,[49] why wouldn't Pasok again advocate for fiscal stimulus?

We argue that this political about-face reflected Greece's high indebtedness to global bond markets during 2012. The Greek government faced an unenviable catch-22: with financing for new spending hovering at a lofty 35 percent interest rate (compared to 4 percent in 2004), such stimulative policies carried a steep price tag. Moreover, even if the unity government decided to address ongoing social unrest by ignoring creditor calls for austerity, such actions risked extreme turmoil, perhaps even a collapse of the domestic economic system (with an exit from the euro as a possible consequence). By promising a further 1.5 percentage points of GDP in budget cuts, the government secured an EU-IMF rescue package in March 2012, which was essential to avoiding a disorderly default and resuscitating bond market confidence. Austerity helped mitigate economic volatility – stemming the US$25 billion in capital (or 8 percent of GDP) that was fleeing the country per year – but it also limited the government's social responsiveness amid a deepening recession.

4.3 Slovenia

In a different credit environment, stimulating the economy may have been more of an option for Greece. Without Greece's high level of bond indebtedness, the unity government would likely have had more policy flexibility even during the eurozone crisis. In this regard, Slovenia provides a useful counterfactual case. The country is similar to Greece along many political and economic development indicators; Slovenia is a parliamentary, high-income[50] democracy that is also a member of the European Union as well as the Eurozone, and the OECD. Unlike Greece, however, it has far less reliance on global bond markets for its financing. Slovenia's total bond indebtedness was 19.5 percent of GDP at the onset of the eurozone crisis, or about one-fifth of Greece's total exposure.

With a more manageable level of bond indebtedness, Slovenia benefited from an investment grade credit rating and a relatively low cost of capital. While Fitch had downgraded Greece's long-term sovereign credit rating four notches to BBB- (the lowest investment grade category) by early 2010, Slovenia retained its AA rating over the same time period.[51] Its sovereign risk premium

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[49]Real GDP growth fell for a third consecutive year prior to the May 2012 elections, while unemployment nearly doubled over the same period (WDI database; IMF 2012).

[50]At the onset of the eurozone crisis, Greece and Slovenia were ranked 55th and 56th respectively in the World Bank's 2010 country income classifications (Atlas method and PPP).

[51]It was not until May 2013 that Fitch was downgraded to BBB+, and it was mostly a reflection of its domestic banking difficulties rather than its external indebtedness.

was also about one half of that of Greece, with Slovenia's government bond yield averaging 4.2 percent during 2009 and 2010, compared to 9.1 percent in Greece. Despite being exposed to the same global shock in 2009, Slovenia had more fiscal space to stimulate the economy than Greece. By 2010, Slovenia was paying a mere 1.4 percent of GDP to interest payments on its debt, compared to Greece's 5.8 percent of GDP.[52] Unlike Greece, Slovenia was able to both engage in countercyclical fiscal policies through 2009-2010,[53] and then delay fiscal reforms until after its 2011 elections.[54] Slovenia's experience suggests that had Greece had a lower level of bond indebtedness, its government may have also had more fiscal maneuverability.

4.4   Summarizing the Cases

Our plausibility probe suggests that the effect of bond market indebtedness on public spending choices is not unique to Latin America. Comparative case evidence from Southern Europe – a region that has more recently become highly indebted – supports our theory, albeit at a different level of empirical rigor. It shows that public deficits tend to be lower when debt is held by bondholders, who compared to other sovereign creditors typically have greater ownership dispersion.

Their similarity to the Latin American findings is also noteworthy, given that historically financial investors have considered these two regions to be institutionally distinct.[55] Europe had long benefited from a sound institutional framework that allowed it to readily attract capital. Investors deemed that such established democracies with a history of stable economic governance were free from default risk. By contrast, Latin America often struggled to overcome investor concerns about its less developed institutional infrastructure and legacy of debt crises.

Notwithstanding these institutional differences, these two regions share the common characteristic of bond market indebtedness, suggesting that the structure of sovereign borrowing may be a similar cause of austerity.[56] Hence, our central findings may not only contribute to our knowledge of Latin American political economy, but also our understanding of political behavior during financial crises in other parts of the world.

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[52] IMF.

[53] The government delivered fiscal expansions of 1.8 and 0.2 percent of GDP in 2009 and 2010 (IMF 2011).

[54] Notwithstanding Slovenia's long-run fiscal consolidation plans – including tighter control over public-sector wages and pensions – the government slowed its fiscal reform pace before December 2011 elections.

[55] Mosley 2003.

[56] Mill 2011.

5   Conclusion

When countries have weak institutional transparency and few executive constraints, political economy theory expects politicians to use budget deficits to engineer an election-timed boom, known as the political business cycle. But, why might we observe austerity in countries notwithstanding their level of institutional development? In this paper, we have shown that the financialization of the global economy has profound effects on domestic politics. When politicians rely on decentralized bond markets (rather than centralized lending), they often exhibit greater fiscal discipline. We have also shown that this disciplining effect is particularly strong during election periods.

Our large-N empirical results, based on 139 contested elections that span five decades in Latin America, find that democratic elections in highly indebted countries are often associated with budgetary discipline and economic stability rather than fiscal deficits and economic expansion. Moreover, our comparative case analysis in Southern Europe – a region that has more recently become highly indebted to global capital markets – also shows that growing bond indebtedness has led to a higher prevalence of electoral austerity.

Moving forward, our theoretical model offers many promising future research opportunities. In this paper, we developed and tested a model that shows that pre-election deficit spending declines with the greater dispersion of creditor ownership that is characteristic of bond markets. Moving beyond this setting, it would be interesting to explore how recent changes in the global financial architecture might eventually affect this dynamic. For example, the European Stability Mechanism, established in 2013, has sought to insulate euro-area citizens from capital flight by mandating that all new euro-area sovereign bonds have collective action clauses. These clauses facilitate creditor-debtor negotiations by allowing a supermajority of bondholders to overrule holdout creditors and, as a result, ease the pathway to restructuring. We have argued that greater magnitudes of creditors under bond financing catalyzes creditor exit, making restructuring more difficult and austerity more likely. However, if the adoption of collective action clauses helps forge a bondholder consensus, these creditors may behave more like centralized bank lenders, making debt restructuring easier and default less likely. Falling borrowing costs may then help pave the way for more deficit spending, potentially allowing governments to be more socially responsive to their domestic constituents.

A related and important question is how litigation from 'holdout creditors' – as observed in

Greece and Argentina – will affect restructuring attempts and public policy. These holdout creditors typically refuse to accept negotiated bondholder settlements, demanding that their borrowers repay them fully. Fearing that consensus-driven restructuring efforts will create a new precedence, they prefer to uphold the legal tradition that governments cannot renege on their contracts with individual creditors. If such litigation strategies become more common, they could threaten to forestall debt restructurings by diluting creditor coordination and intensifying bondholder exit. Under these conditions, default becomes more likely as governments struggle to restructure their debt. Rising borrowing costs may then constrain deficit spending and decrease governments' room to manage the economy – thereby upsetting their efforts to maintain social safety nets during financial crises.

These examples suggest that our theoretical framework could be fruitfully extended in several ways. We have shown that global ownership diffusion can plague creditor coordination and breed austerity in highly indebted countries, complicating cash-strapped governments ability to achieve a delicate political balance between economic stability and social responsiveness. Further exploring the effects of such changes in creditor-debtor relationships will be important for understanding the economic and political dynamics of future sovereign crises, and for thinking about the compatibility of markets and democracy more broadly.

Table 1: The Effect of Elections on Fiscal Balances (16 Latin American Countries)

	(1) FE	(2) FE	(3) GMM	(4) GMM	(5) GMM	(6) GMM	(7) GMM/debt>25%
Elections	-0.576*	-1.132***	-0.566**	-1.166***	-1.244***	-1.235***	-1.360***
	(0.264)	(0.337)	(0.269)	(0.317)	(0.354)	(0.345)	(0.433)
Bond Financing	1.537***	2.900**	1.498***	3.081**	2.996**	2.931**	0.656
	(0.497)	(1.291)	(0.393)	(1.392)	(1.406)	(1.467)	(1.396)
Elections*Bonds		1.800*		1.801**	1.935**	1.908**	3.534***
		(0.916)		(0.880)	(0.890)	(0.877)	(1.197)
Global Growth	0.385**	0.357***	0.431***	0.391***	0.392***	0.399***	0.396***
	(0.130)	(0.109)	(0.123)	(0.107)	(0.107)	(0.112)	(0.131)
Output Gap	0.044	0.038	0.025	0.006	0.004	0.004	0.092
	(0.055)	(0.052)	(0.045)	(0.042)	(0.049)	(0.049)	(0.064)
Terms of Trade	1.314*	1.912***	1.899***	2.615***	2.573***	2.594***	2.380***
	(0.715)	(0.530)	(0.707)	(0.576)	(0.535)	(0.543)	(0.595)
Inflation	0.249	-0.043	0.270**	-0.047	-0.052	-0.036	0.115
	(0.189)	(0.236)	(0.115)	(0.147)	(0.159)	(0.179)	(0.163)
Interest Rates	-0.002***	-0.001***	-0.002***	-0.001***	-0.001***	-0.001***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Foreign Reserves	0.023**	0.032***	0.019**	0.028***	0.028***	0.027***	0.062***
	(0.010)	(0.010)	(0.008)	(0.007)	(0.009)	(0.009)	(0.018)
Fiscal Balance (t-1)	0.354**	0.297*	0.262	0.196	0.185	0.188	0.054
	(0.146)	(0.146)	(0.175)	(0.164)	(0.160)	(0.161)	(0.124)
Fiscal Balance (t-2)			0.222	0.227*	0.242*	0.246*	0.343***
			(0.161)	(0.134)	(0.140)	(0.138)	(0.092)
Left Governments					0.403	0.424	0.488
					(0.386)	(0.359)	(0.448)
IMF Program					0.528**	0.525**	0.894***
					(0.227)	(0.227)	(0.331)
Baker Plan						-0.252	-0.466
						(0.602)	(0.643)
Observations	230	230	213	213	213	213	107
R^2	0.54	0.59					

Standard errors in parentheses

FE=Fixed effect models. GMM=GMM estimator, using first differences. All models use robust standard errors.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 2: The Effect of Elections on Inflation (16 Latin American Countries)

	(1) FE	(2) FE	(3) GMM	(4) GMM	(5) GMM	(6) GMM	(7) GMM/debt>25%
Elections	-0.063	0.025	-0.066	0.019	0.001	-0.013	0.056
	(0.040)	(0.059)	(0.041)	(0.055)	(0.058)	(0.056)	(0.065)
Bond Financing	-0.786***	-0.707***	-0.794***	-0.722***	-0.752***	-0.580***	-0.342
	(0.255)	(0.232)	(0.254)	(0.226)	(0.234)	(0.176)	(0.233)
Elections*Bonds		-0.370**		-0.361**	-0.361**	-0.328**	-0.565***
		(0.140)		(0.142)	(0.144)	(0.146)	(0.165)
Global Growth	0.090***	0.095***	0.092***	0.099***	0.101***	0.085***	0.106***
	(0.025)	(0.022)	(0.023)	(0.021)	(0.021)	(0.020)	(0.032)
Terms of Trade	0.270**	0.269**	0.235**	0.235***	0.243***	0.227**	0.160*
	(0.116)	(0.110)	(0.093)	(0.087)	(0.091)	(0.088)	(0.083)
Trade Openness	0.004*	0.004	0.005***	0.004*	0.003	0.003	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Fiscal Balance (t-1)	-0.026***	-0.025***	-0.023***	-0.022***	-0.023***	-0.028***	-0.044***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)	(0.009)
Growth	-0.052***	-0.050***	-0.052***	-0.050***	-0.050***	-0.047***	-0.064***
	(0.011)	(0.012)	(0.010)	(0.011)	(0.011)	(0.011)	(0.009)
Financial Depth	0.009	0.007	0.009	0.006	0.006	0.007	0.009
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Inflation (t-1)	0.780***	0.794***	0.879***	0.900***	0.895***	0.866***	0.773***
	(0.023)	(0.024)	(0.052)	(0.050)	(0.049)	(0.041)	(0.038)
Exec. Constraints					0.011	0.009	0.045**
					(0.017)	(0.014)	(0.023)
IMF Program					-0.113	-0.126	-0.247**
					(0.079)	(0.078)	(0.103)
Baker Plan						0.423***	0.436***
						(0.117)	(0.141)
Observations	432	432	414	414	413	413	230
R^2	0.85	0.84					

Standard errors in parentheses

FE=Fixed effect models. GMM=GMM estimator, using first differences. Robust standard errors. Inflation=log(CPI).

$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 3: The Effect of Elections on Economic Growth (16 Latin American Countries)

	(1) FE	(2) FE	(3) GMM	(4) GMM	(5) GMM	(6) GMM/debt>25%
Elections	-0.015	0.517	0.509	0.442	0.459	0.551
	(0.312)	(0.344)	(0.334)	(0.306)	(0.306)	(0.427)
Bond Financing	-1.139	-0.443	-0.590	-0.823	-1.172	1.964
	(1.246)	(1.185)	(1.109)	(1.233)	(1.340)	(2.193)
Elections*Bonds		-1.737**	-1.678**	-1.591**	-1.597**	-2.417**
		(0.800)	(0.743)	(0.720)	(0.740)	(1.230)
Global Growth	0.459***	0.443***	0.445***	0.436***	0.466***	0.323**
	(0.106)	(0.104)	(0.096)	(0.095)	(0.096)	(0.141)
Terms of Trade	0.309	0.284	0.252	0.269	0.296	-0.426
	(0.279)	(0.281)	(0.261)	(0.250)	(0.220)	(0.310)
Trade Openness	0.028*	0.026*	0.027**	0.025**	0.026**	0.054***
	(0.014)	(0.013)	(0.012)	(0.012)	(0.011)	(0.012)
Fiscal Balance (t-1)	0.083**	0.080**	0.084***	0.067**	0.079***	-0.009
	(0.036)	(0.036)	(0.031)	(0.029)	(0.029)	(0.047)
Domestic Investment	0.140***	0.142***	0.139***	0.141***	0.140***	0.124***
	(0.033)	(0.033)	(0.031)	(0.030)	(0.030)	(0.026)
Inflation	-0.551**	-0.548**	-0.572***	-0.573**	-0.505**	-0.976***
	(0.213)	(0.218)	(0.222)	(0.231)	(0.208)	(0.239)
Growth (t-1)	0.195***	0.198***	0.207***	0.205***	0.205***	0.173***
	(0.052)	(0.052)	(0.044)	(0.043)	(0.043)	(0.054)
Exec. Constraints				0.128	0.133	0.373**
				(0.105)	(0.107)	(0.176)
IMF Program				-0.073	-0.033	-0.423
				(0.250)	(0.259)	(0.401)
Baker Plan					-0.990*	-0.920
					(0.519)	(0.707)
Observations	386	386	370	370	370	203
R^2	0.58	0.59				

Standard errors in parentheses

FE=Fixed effect models. GMM=GMM estimator, using first differences. Robust standard errors.

$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

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A Appendix

Table A.1: Variable Definitions and Sources

Variable	Definition and Measurement	Source(s)
Primary Fiscal Balance	Government revenues - expenditures Net of interest payments (+/- percent of GDP)	Comision Economica para America Latina y El Caribe (CEPAL).
GDP Growth	Change in real GDP (annual percentage change)	World Development Indicators (WDI)
Inflation	Change in log CPI (annual percentage change)	World Development Indicators (WDI)
Election Dummy	For the inflation regressions, the binary variable takes on the value of 1 in election year and subsequent year, and 0 otherwise. For the fiscal balance and growth regressions, the binary variable takes on the value of 1 in an election year and the preceding N-1 years, and 0 otherwise, where N = 2 or 3.	Political Handbook of the World (2006-2007; 2007-2008; 2008-2009); EIU; Cheibub and Kalandrakis (2004), Global Database of Political Institutions and Economic Performance.
Decentralized Bond Financing	The government's total bond issuance as a percentage of its public external debt.	Calculated from the World Bank's Global Financial Development (GFD) Database.
Global GDP Growth	Average global real GDP growth (annual percentage change).	Calculated from World Bank's World Development Indicators (WDI).
Global Commodity Price Index	Percentage change in global commodity (CRB) index; comprised of 17 primary commodities weighted by their importance to global trade.	Global Financial Database; Reuters's Global Commodity Index (CRB).
Terms of Trade	Export value index (2000=100) / import value index (2000=100).	Calculated from World Bank's World Development Indicators (WDI).
Trade Openness	Total exports plus total imports as a percentage of GDP.	Calculated from World Bank's World Development Indicators (WDI).
Domestic Output Gap	Measure of the output gap, calculated as the log difference between real GDP and its country specific trend.	Country specific trend calculated using the Hodrick-Prescott filter on real GDP change.
Domestic Financial Depth	Broad money (M2), or money in circulation, as a percentage of GDP.	World Bank's World Development Indicators (WDI).
Domestic Investment	Gross capital formation (annual percentage change).	World Bank's World Development Indicators (WDI).
Population	Total population in billions.	World Bank's World Development Indicators (WDI).
Unemployment	Change in unemployment (percentage of total labor force).	CEPAL.
Interest Rates	The rate on short-term lending between financial institutions (percent per annum).	International Financial Statistics (IFS).
Total Public External Debt	Total public external debt as a percentage of GDP.	Calculated from the World Bank's Global Development Finance (GDF) Database.
Executive Constraints (Polity IV)	Measure of checks and balances on executive power; employs a seven-category scale from unlimited authority to executive parity.	Polity IV Codebook and Database.
Executive Constraints (Henisz)	Measure of political constraints; estimates the feasibility of policy change relative to institutional checks and balances.	Henisz, W.J. (2000).The Institutional Environment for Economic Growth. *Economics and Politics*, 12(1).
Central Bank Independence	Measures autonomy of central banks as written into countries' laws and legal systems. Updates Cukierman, Webb, and Neyapti (1992) Index.	Polillo, S. and Guillen, M. (2005). Globalization Pressures and the State: The Global Spread of Central Bank Independence. *American Journal of Sociology*, 110(6).
IMF Participation (Vreeland, 2003)	Participation in IMF programs: Dummy variable coded 1 for country-years when there was a conditioned IMF agreement in force, 0 otherwise.	Vreeland, James Raymond (2003). *The IMF and Economic Development*. Cambridge University Press.
IMF Participation (Dreher, 2006)	IMF Participation: Dummy variable coded 1 for country-years when there was IMF standby or EFF agreement for at least five months, 0 otherwise.	Dreher, Axel (2006). IMF and Economic Growth: The Effects of Programs, Loans, and Compliance with Conditionality, *World Development* 34(5).
Baker Plan	Binary variable for 1980s' IMF-led sovereign debt restructuring; takes on a 1 for those years when a country received funding through the Baker Plan, and 0 otherwise.	Cline (1989). The Baker Plan: Progress, Shortcomings, and Future. World Bank's International Economics Department.

Table A.2: Summary Statistics (16 Latin American Countries)

	mean	sd	min	max
Fiscal Balance	-2.22	3.41	-25	19
Growth	3.83	4.30	-26	18
Inflation	2.83	1.25	-0	10
Bond Financing	19.54	24.91	0	81
Global Growth	3.55	1.72	-2	7
Commodity Prices	1.85	16.62	-66	48
Terms of Trade	1.18	0.50	0	7
Trade Openness	42.86	23.96	9	146
Financial Depth	32.32	16.35	7	111
Domestic Investment	5.41	16.56	-65	152
Population	4.98	2.16	2	14
Unemployment	8.87	3.81	2	21
Interest Rates	58.02	615.22	0	12875
External Debt	40.88	60.99	0	830
Exec. Constraints	4.68	2.06	0	7
Central Bank Independence	0.50	0.19	0	1
IMF Program	0.34	0.47	0	1
Observations	867			

Average inflation is converted to its natural logarithm.

Control Variable Discussion   When employing national fiscal balances as the dependent variable, there are several standard control variables that are unique to such regressions. They are an output gap measure (*Domestic output gap*) to control for a country's position in its economic cycle, a demographic variable capturing the fraction of a country's working age population between 15-64 (*Population*),[57] and a country's terms of trade position (*Terms of trade*), which accounts for commodity volatility that tends to ease or tighten budgetary constraints.

In all of the regressions, we also use a series of control variables to account for alternative factors beyond the structure of finance that may influence the economy. First, we control for the global growth (*Global growth*), given that our sample includes many small open economies. Because many Latin American countries are dependent on primary commodity exports, we also include commodity prices (*Commodity price index*) in our regressions. Finally, we also account for economic openness, employing a measure of imports plus exports as a percentage of GDP (*Trade*). In general, we expect global fluctuations in growth, trade, and commodities to influence domestic budget balances, growth, and inflation.

Some other control variables are exclusive to the growth and inflation regressions. We control for the primary fiscal balance as a percentage of GDP (*Fiscal balance*)—lagged by one year to avoid any possible endogeneity—based on the assumption that fiscal stimulus drives both economic growth and inflation. We use the primary fiscal balance (net of interest payments on public debt) rather than the general government balance (inclusive of interest payments) because it is the more appropriate measure of the government's fiscal policy stance in highly-indebted countries. When

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[57]These control variables are the same as those employed by Brender and Drazen (2005).

economic growth is the dependent variable, we also control for the rate of domestic investment as a percentage of GDP (*Domestic investment*) because investment is often a key engine of growth. In addition, we include the inflation rate (*Inflation*) to control for the effect of price instability on economic growth. When inflation is the dependent variable, we include annual GDP growth (*Growth*) to account for its effect on price cyclicality. We also employ M2 as a percentage of GDP as a proxy for financial sector size (*Domestic financial depth*), assuming that nations with stronger financial systems tend to have lower inflation.

Finally, to account for institutional factors that may affect budget balances, growth, and inflation, we add several control variables in our robustness checks, including measures of constraints on executive power (*Executive constraints*), IMF participation (*IMF*), and legal central bank autonomy (*Central bank independence*).[58]

Figure A.1: Latin American Presidential Elections (16 Latin American Countries, 1961-2011)

Source: Political Handbook of the World, EIU, Cheibub and Kalandrakis (2004).

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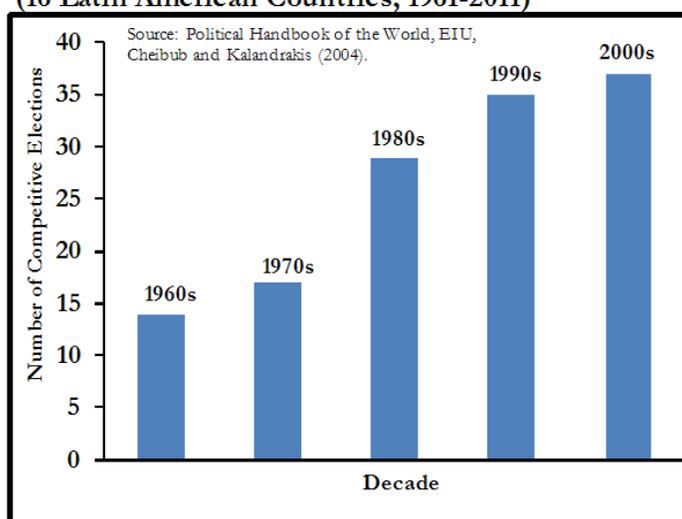
[58]This measure assigns numerical values to countries that do not vary over time, making it indistinguishable from the country dummies already incorporated in the model.