

# Checks and Balances and Vote Buying in Legislatures\*

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## Abstract

Why do checks and balances work well in some countries, but not in others? This paper studies the conditions under which a system of checks and balances may be beneficial to a society. Our analysis yields the result that, under certain circumstances, checks and balances may actually lead to more corruption by stimulating vote buying in the legislature. We show that such perverse equilibrium is more likely to exist the larger the degree of political polarization in the society, the more unequal the distribution of resources under the status quo and the less career-oriented are the legislators. Our theoretical analysis is consistent with the main stylized facts obtained from the study of the "*mensalão*" corruption scandal in Brazil.

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# 1 Introduction

The principle of checks and balances is a cornerstone of modern democracy. Originally proposed by Montesquieu (1748/1989) in "*The Spirit of Laws*", it establishes the idea that the government should be organized in such a way as to allow its different branches to control each other. According to James Madison (1788/2008), an effective system of checks and balances works by so contriving "*the interior structure of the government as that its several constituent parts may, by their mutual relations, be the means of keeping each other in their proper places*". A well-designed system of checks and balances provides protection against abuse of power by office-holders and prevents any single group from unilaterally imposing its interests on others. The result would be a political system with a larger degree of accountability (Persson, Roland and Tabellini, 1997, 2000) and more moderate policies (Alesina and Rosenthal, 1995).

However, in spite of the traditional arguments in favor of the system of checks and balances, history shows us that under certain conditions the checks and balances may not work as well as it would be to expect. For instance, Linz (1978, 1990), Stepan and Skach (1993) and Fukuyama, Dressel and Chang (2005) attribute the institutional crises experienced by many Latin American and Southeast Asian countries to the political tensions generated by the type of checks and balances adopted in these democracies. Similarly, Ames (2001), Binder (1999, 2003) and Krehbiel (1996, 1998) argue that, in some circumstances, checks and balances may generate deadlocks and governability problems. More recently, Acemoglu, Robinson and Torvik (2013) observed that proposals to dismantle constitutional checks and balances have received strong popular support in several weakly-institutionalized countries such as Bolivia, Ecuador and, most notably, Venezuela.

Why do checks and balances work well in some cases, but not in others? This paper studies the conditions under which a system of checks and balances may be beneficial to a society, resulting in more equitable policies and less corruption. The key trade-off highlighted in our analysis derives from the fact that checks and balances may in certain cases generate incentives for vote buying in the legislature. Our study is motivated by several cases of vote buying observed throughout history. Perhaps the most famous is that involving the American president Abraham Lincoln. According to some accounts, Lincoln instructed some of his closest aides to "*do whatever it takes*" to guarantee the votes required for the approval of the Thirteenth Amendment, which abolished slavery in the United States in 1865 (Goodwin, 2005). With respect to this

case, the congressman Thaddeus Stevens was quoted as saying: "*The greatest measure of the nineteenth century was passed by corruption, aided and abetted by the purest man in America*" (Scovel, 1898). More recent cases of vote buying in legislatures include the "mensalão" scandal in Brazil in 2005 and the "cash-for-votes scandal" in India in 2008.<sup>1</sup>

Our theoretical analysis combines a bargaining game in the style of Baron and Ferejohn (1989) with a retrospective voting model à la Barro (1973) and Ferejohn (1986). The basic model consists of an infinitely repeated game with two groups of voters, each represented in the legislature by a representative. At the beginning of each period, an agenda-setter is randomly chosen between legislators and given the right to propose a division of a fixed amount of resources among transfers to each group of voters and political rents to each legislator. The notion of a system of checks and balances is captured by the simple requirement that the agenda-setter's proposal be approved by the other legislator in order to be implemented; otherwise, the status quo is kept in place. At the end of the period, voters decide whether to re-elect or not their representatives based on their actions during the period and the policy outcomes.

We solve the model for a stationary equilibrium using as benchmark for comparative analysis the equilibrium obtained from a model without checks and balances, where the agenda-setter is able to implement any policy without the need to approve it in the legislature. Our analysis yields the surprising result that, under certain conditions, the system of checks and balances may actually exacerbate the problem of political corruption by leading to an increase in the amount of rents extracted by legislators.

The main intuition behind this result is that checks and balances increase the opposition faced by the agenda-setter and his group of voters. There are two ways in which this tension can be resolved in the legislature. First, the agenda-setter may choose to obtain the necessary support for his proposal by satisfying the "demands" of voters of the opposition group, in which case the system checks and balances leads to better policies in equilibrium, i.e. lower political rents and a more balanced distribution of resources between groups. Alternatively, the agenda-setter may choose to approve his proposal by using political rents to "buy" the vote of the opposition legislator, in which case the system of checks and balances leads to a "perverse" equilibrium, where political rents increase and the distribution of resources become more concentrated. It

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<sup>1</sup>The cash-for-votes scandal consisted of a supposed scheme of vote-buying by the United Progressive Alliance (UPA) coalition, led by Sonia Gandhi, to secure support in a confidence vote held in 2008.

is interesting to note that in this case vote buying is actually supported by voters of the agenda-setter's group.

Our analysis emphasizes the idea that the proper functioning of a system of checks and balances depends crucially on the characteristics of the society and the political environment in which it operates (Dahl, 1963). In particular, we show that the higher the degree of political polarization, the larger the likelihood that the equilibrium will involve vote buying in the legislature. Intuitively, any factor that exacerbates the distributive conflict in a society lowers the chances of a compromise solution between groups. The model also implies that the more unequal the distribution of resources under the status quo, the less likely it is for the system of checks and balances to work well. In particular, we show that the group receiving the smaller share of transfers under the status quo always has the largest incentive to resort to vote buying in equilibrium. Finally, we show that the less career-oriented are the legislators, as measured by the value which they attribute to staying in office, the more likely it is for the equilibrium to be perverse since vote buying is cheap in this case.

Our theoretical analysis is preceded and motivated by a study of the "*mensalão*" scandal in Brazil. The "*mensalão*" (or big monthly payment) was a corruption scandal that occurred during the first term of president Luiz Inácio Lula da Silva's administration (2003-2007) and involved accusations of misappropriation of public resources, money laundering and vote buying in congress. Our study uses microdata from several opinion surveys to investigate the dynamics of Lula's popularity in the months around the outbreak of the scandal, complementing previous work by Desposato (2006) and Hunter and Power (2007). The analysis of the data reveals an interesting fact: different groups of the Brazilian electorate reacted differently to the accusations of corruption against the government. In particular, we show that a significant fraction of the Brazilian population, especially the poor voters who benefited from social programs such as the "*Bolsa Família*", dismissed the charges of corruption against the government. The Brazilian experience raises a number of fundamental questions about the functioning of a democracy and, in particular, about the limitations of the system of checks and balances in the context of a highly politically polarized society.

The present paper is related to a number of studies that have examined the impact of the system of checks and balances on economic and institutional performance. The idea that checks and balances lead to better protection against abuse of power and to an overall reduction in corruption is prevalent in the literature (Persson, Roland

and Tabellini, 1997, Acemoglu Johnson and Robinson, 2001 , Tsebelis, 2002, Aghion, Alesina and Trebbi, 2004, Glaeser and Goldin, 2006, Acemoglu, Robinson and Torvik, 2013, Besley and Muller, 2018).<sup>2</sup> Our study contributes to this literature by providing a formal framework to analyze the conditions under which checks and balances can, in fact, be beneficial to a society.

From a theoretical point of view, our analysis is related to the literature on legislative bargaining, particularly Rubinstein (1982), Baron and Ferejohn (1989), Baron (1998) and Diermeier and Feddersen (1998).<sup>3</sup> Our model differs from previous studies in that we consider the presence of voters, thus explicitly taking into account the role of electoral incentives in determining political outcomes (Barro, 1973, and Ferejohn, 1986). In this sense, our analysis is closest to Persson, Roland and Tabellini (1997, 2000), although their main focus is on the comparison between presidential and parliamentary systems and the impact of separation of powers on fiscal policy. The present paper contributes to this literature by emphasizing the fact that, under certain conditions, checks and balances can lead to an increase in political rents.

Our work is also related to a recent literature on the implications of political polarization (McCarty, Poole, and Rosenthal, 2006, Abramowitz and Saunders, 2008, Bishop, 2008, Gentzkow, 2016; Autor et. al. 2017), and the causes and consequences of the rise to power of populist leaders in recent years (Guiso et al., 2017 and Rodrik, 2017). Several scholars have recently expressed doubts about the ability of checks and balances to contain abuses of power in the context of highly polarized societies (Acemoglu, 2017; and Fukuyama, 2017). Our analysis provides a theoretical basis for such concerns by formally establishing the result that political polarization hinders the effective functioning of constitutional checks and balances.

The present paper also contributes to a growing literature on endogenous political institutions (Acemoglu and Robinson, 2000, Aghion, Alesina and Trebbi, 2004, Trebbi, Aghion and Alesina, 2008, Ticchi and Vindigni, 2010 and Nakaguma, 2015). The results derived here are consistent with a number of recent studies that have shown that, under certain circumstances, voters may be willing to support a reduction in the degree of constitutional checks and balances. Acemoglu, Robinson and Torvik (2013), for instance, argue that by making it more difficult to extract political rents, checks and

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<sup>2</sup>See Alt and Lassen (2003, 2008), Persson and Tabellini (2003), La Porta et al. (2004), Kunicová and Rose-Ackerman (2005) and Alston et. al. (2010) for empirical evidence on this issue.

<sup>3</sup>Our study is also related to papers on lobbying and vote buying in legislatures. See, in particular, Groseclose and Snyder (1996), Kochin and Kochin (1998) and Dekel, Jackson and Wolinsky (2008).

balances may make legislators cheaper to be bribed by the members of an organized elite. Diermeier, Egorov and Sonin (2016), in turn, have shown that the introduction of a formal system of checks and balances may destroy previously existing informal arrangements that limited the occurrence of expropriation in equilibrium. Finally, Fortez and Pereyra (2017) argue that, while limiting the extraction of political rents, checks and balances may make it more difficult to approve necessary structural reforms, while Gratton and Morelli (2018) show that a strengthening of checks and balances leads to a reduction in type-I errors but to a potential increase in type-II errors in policy-making. Our analysis provides an alternative rationale for why voter might support a reduction in the degree of checks and balances which is in line with the high levels of distrust in democratic institutions observed in many developing countries.

## 2 The "Mensalão" Scandal

### 2.1 Background

The "*mensalão*" (or big monthly allowance) was a corruption scandal that took place in Brazil during the first term of leftist president Luiz Inacio Lula da Silva (2003-2007), a member of the *Partido dos Trabalhadores* PT (Labor Party). The scandal erupted on June 6th, 2005, when the then congressman Roberto Jefferson, president of the *Partido Trabalhista Brasileiro* PTB (Brazilian Labor Party), amid accusations of involvement in a corruption scheme at the Brazilian Postal Service, and feeling abandoned by his former allies in the government, denounced the existence of a scheme of periodic transfers of illegal resources to congressmen and parties, the so-called "*mensalão*". According to Jefferson, the treasurer of the PT, Delubio Soares, was offering a monthly allowance to members of the government coalition and wanted to buy the support of the PTB for about R\$ 30,000 per deputy/month, which at the time corresponded to approximately US\$ 12,000.<sup>4</sup>

Subsequent investigations by the Brazilian Public Prosecutor's Office (*Ministério Público*), the Federal Police and several parliamentary inquiry commissions revealed that the "*mensalão*" consisted of a complex scheme involving expropriation of public resources, money laundering and vote-buying in congress. The scheme was run by

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<sup>4</sup>Source: *Folha de São Paulo*, Junho 6th, 2005. Available at: <https://bit.ly/3paGfFY> (in portuguese).

Lula's Chief of Staff, José Dirceu, and other important members of the PT.<sup>5</sup> The resources used to finance the "*mensalão*" came from the diversion of funds from public companies, mainly through fictitious contracts and overbilling. A key person in the scheme was the businessman Marcos Valério de Souza, whose advertising agencies had contracts with several state-owned companies. According to a report from the Brazilian Federal Police, at least R\$ 73 million were diverted from the marketing sector of *Banco do Brasil* (Bank of Brazil), the largest public bank in the country, through fictitious advertising contracts signed with several of Marcos Valério's agencies. According to the complaint filed by the Attorney General's Office (*Procuradoria Geral da República*), overall the "*mensalão*" was associated with a number of fraudulent operations that amounted to more than R\$ 140 million.

The diverted funds were used to negotiate support for the then weak government coalition and to cover campaign expenditures of the PT and other parties. Congressmen who agreed to vote with the government on key issues received payments ranging from R\$ 15,000 to R\$ 50,000 per month. The general strategy was to co-opt leaders of "ideologically flexible" center parties, such as the *Partido Progressista* (PP), *Partido Liberal* (PL), *Partido Trabalhista Brasileiro* (PTB) and *Partido do Movimento Democrático Brasileiro* (PMDB). Together, the leaders of these parties had influence over the votes of about 175 congressmen, i.e. more than a third of the Brazilian Congress. Although it has never been established that all members of these parties received illicit money, there is evidence that many of them benefited, at least indirectly, from the "*mensalão*". For example, in the PMDB at least 55 out of 81 congressmen supposedly received direct bribes, according to Antônio Celso Garcia, another businessman implicated in the scheme. When asked in an interview about which members benefited from the "*mensalão*", Garcia said: "*Just look at who used to vote with the government*".<sup>6</sup>

In spite of the severity of the accusations leveled against his party and the main minister of his government, Lula was never directly implicated in the "*mensalão*" and in public always denied knowledge about it, claiming that he was "*as indignant as any other Brazilian*".<sup>7</sup> At the same time, Lula frequently suggested that the practices used

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<sup>5</sup>Most notably the party's treasurer, Delúbio Soares, the general secretary, Silvío Pereira, and the party's president, José Genoíno.

<sup>6</sup>Source: *Folha de São Paulo*, March 12th, 2006. Available at: <https://bit.ly/2KI8cpR> (in Portuguese).

<sup>7</sup>Source: Presidential speech, August 12th 2005. Available at: <https://bit.ly/3mzTrSZ> (in Portuguese).

by the PT were equally employed by other parties. To his colleague José Mujica, the Uruguayan president (2010-2015), Lula supposedly confided that he had to deal with "*many immoral things and blackmail*" during his government and that this was "*the only way to govern the country*" (Tulbovitz and Danza, 2015). Indeed, part of Lula's defence of his government consisted of shifting the blame for the corruption scandal to the "system" (Hunter and Power, 2007).

In the months following the outbreak of the scandal, Lula's approval ratings fell dramatically. The percentage of voters who rated his government as "excellent" or "good", which at the peak of 2004 had surpassed 42%, reached 31% in October of 2005. Furthermore, during the worst of the political crisis, a poll conducted by the Datafolha found that 83% of respondents believed that Lula had at least some responsibility in the corruption cases associated with his government.

During the second half of 2005, new accusations occurred almost every week, putting the government in the worst possible light in the media. Figure 1a plots the evolution of Google searches for the word "*mensalão*" between January 2005 and December 2006, showing that the peak of the searches occurred between June and October 2005. The figure also suggests that starting in January 2006 the scandal began to attract less attention from the press and the public. The recovery of Lula's popularity starts exactly at this point (see Figure 1b), driven by the favorable economic environment and the positive performance of his government in the social area, as a consequence of the implementation of broad income transfer programs such as the "*Bolsa Família*".

Lula's popularity ratings continued to grow steadily throughout the remainder of his term, returning to pre-crisis levels in the second half of 2006. With such an impressive recovery, Lula secured his re-election in October 2006 with a solid victory over Geraldo Alckmin (PSDB), obtaining 60.8% of the valid votes in the runoff election.

## 2.2 Empirical Evidence: Stylized Facts

This subsection analyzes in more detail the dynamics of Lula's approval ratings during the period 2005-2006 with the goal of understanding the main elements behind the fall and rise of his popularity amid the corruption scandals that plagued his administration. Our analysis uses microdata from three surveys conducted by the Ibope Institute and carried out at three periods of interest for our study: (i) the pre-crisis period (January 2005), (ii) the crisis period (October 2005) and (iii) the post-crisis period (May 2006).

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tuguese).

Figure 2 presents Lula's approval ratings on these three periods, showing first a sharp fall followed by a recovery of his popularity.

The analysis of the aggregate data conceals important differences in the dynamics of the government's approval ratings among voters of distinct social classes. Figure 3 shows Lula's approval ratings separately for individuals with household income above and below the minimum wage. Note, first, that the drop in approval ratings during the height of the "*mensalão*" crisis is considerably higher among relatively richer voters – the approval ratings drop by 15 percentage points (pp) among richer voters against only 8 pp among poorer voters. Second, the post-crisis increase in Lula's popularity is substantially larger among low-income voters – the approval ratings increase by 17 pp among poorer voters versus only 9 pp among richer ones. Finally, it is interesting to note that the difference in approval ratings between the two groups rises from 3 pp in January 2005 to 18 pp in May 2006, with the approval ratings of the richer voters never recovering to the pre-crisis levels.

Figure 4 presents the dynamics of the government's approval ratings among individuals with low schooling (incomplete primary education or less) and high schooling (complete primary education or higher), showing a similar pattern to the one described above. Moreover, Figure 5 shows that a similar dynamics can be observed when comparing Lula's approval ratings in the poor Northeast region and in the rest of the country.

In order to check the robustness of the stylized facts documented above, we use micro-data from the Ibope opinion surveys to test whether there are, in fact, systematic differences in the way voters of different social classes reacted to the corruption scandals that occurred during this period. The analysis is divided into two parts. First, we use individual level data from the two surveys conducted in January and October 2005 to estimate the following logistic regression model:

$$\Pr(\text{aprov}_{it} = 1) = \Phi(\beta\text{Oct}/2005_{it} + \delta\text{Oct}/2005_{it} \times T_{it} + \gamma X_{it}), \quad (1)$$

where  $\text{aprov}_{it}$  is a dummy variable that indicates whether individual  $i$  interviewed in period  $t$  approves the Lula administration,  $\text{Oct}/2005_{it}$  is a dummy that indicates whether the individual was interviewed in October 2005 and  $T_{it}$  is a dummy that captures whether the individual can be classified as belonging to the lower-income class, i.e. whether he has low household income, low schooling or lives in the Northeast region. The function  $\Phi(\cdot)$  represents the cumulative density of the logistic distribution.

The coefficient ( $\delta$ ) on the interaction  $\text{Oct}/2005_{it} \times T_{it}$  measures the impact of belonging to the lower-income class on the change in Lula’s popularity between January and October 2005, the period in which the corruption scandal erupted.

We then use data from the two opinion polls conducted in October 2005 and May 2006 to estimate the following similar regression model:

$$\Pr(\text{aprov}_{it} = 1) = \Phi(\alpha \text{May}/2006_t + \rho \text{May}/2006_t \times T_{it} + \pi X_{it}), \quad (2)$$

where the coefficient ( $\rho$ ) on the interaction  $\text{May}/2006_t \times T_{it}$  captures the impact of belonging to the lower class on the change in the government’s approval rating between October 2005 and May 2006, the post-crisis period. In both models discussed above, we include a number of explanatory variables,  $X_{it}$ , in order to control for basic individual characteristics, such as household income, schooling, sex and age, as well as certain specific characteristics of the municipality of residence, such as region of the country, population size and type of municipality (capital, suburb or interior).

Table 1 presents the estimates for the logistic regression models using data from January and October 2005. As discussed before, three proxies for lower-income status are used: (i) low income (household income lower than a minimum wage), (ii) low schooling (incomplete primary) and (iii) residence in the Northeast region. Columns (1), (3) and (5) present the values of the estimated coefficient, while columns (2), (4) and (6) report the marginal effects calculated at the sample mean. Robust standard errors are reported in parentheses. Note that the estimated coefficients for the interaction terms are always positive and statistically significant. The results obtained using the proxy schooling, for instance, indicate that from January to October 2005 the probability of a more educated individual rating the government positively falls by 15.7 pp, while this same probability for a low schooling individual decreases by only 6.8 pp (= 15.7 pp - 8.9 pp). Similar results are obtained for the other proxies.

Next, Table 2 presents the results obtained using data from October 2005 and May 2006. Again, note that the estimated coefficients for the interaction terms are all positive and statistically significant. In particular, the estimates obtained using the Northeast dummy indicate that from October 2005 to May 2006 the likelihood that an individual who does not reside in the Northeast rates the government positively grows 9.7 pp, while the same probability for a resident of the Northeast region increases 22.5 pp (= 9.7 pp + 12.8 pp).

Finally, we supplemented our analysis by presenting results using data from January

2005 and May 2006 in order to examine the evolution of the government's approval ratings throughout the entire period. The estimates reported in Table 3 show that during this period there was a significant divergence in the opinion of voters of different social classes. In particular, observe that while Lula's popularity increases significantly among the poorest voters, it declines among the rest of the population.

Taken together, our results show that Brazilian voters reacted differently to the accusations of corruption leveled against the Lula administration. In fact, Lula's solid victory in the 2006 election and his high popularity among poor voters show that a significant fraction of the Brazilian population dismissed the charges against his government. For Francisco Weffort, a political scientist and one of the founders of the PT, Lula's victory could be explained as follows: "*The poor who depend on the Bolsa Família to live must consider the controversies over embezzlement of public money very distant. If he does not pay taxes, why worry about that?*".<sup>8</sup> According to a loyal voter of Lula, resident of a slum in Recife, one of the largest cities in the Northeast region: "*To me, Lula was the father of the poor. If he stole, he was a Robin Hood.*"<sup>9</sup>

## 2.3 Discussion

This section presented a description of the "*mensalão*" scandal together with an analysis of the dynamics of Lula's popularity in the period following the outbreak of the corruption scandal. Our analysis suggests that, in certain cases, corruption and vote buying may be rewarded by voters, particularly by those who benefit from the policies adopted in association with these practices. From a theoretical point of view, the Brazilian experience poses some fundamental questions about the nature of democracy and, in particular, about the functioning of a system of checks and balances. Under which circumstances corruption may be rewarded by voters in a democracy? What types of societies are more likely to get stuck in such a perverse equilibrium? The next sections attempt to provide a formal analysis of these and other related issues.

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<sup>8</sup>Source: *Folha de São Paulo*, September 10th, 2006. Available at: <https://bit.ly/3mJDIAZ> (in portuguese).

<sup>9</sup>Source: *Valor Econômico*, January 28th, 2018. Available at: <https://glo.bo/3mB5Bew> (in portuguese).

### 3 Model

In this section, we propose a model that captures the main features of a system of checks and balances. Our main goal is to study the conditions under which checks and balances can lead to better outcomes for a society. Consider a discrete time model with an infinite number of periods and a society composed of two groups of voters  $i \in \{A, B\}$ , each consisting of a continuum of identical agents with measure one. Each group is represented in the legislature by a representative  $\ell \in \{A, B\}$ .

In each period, the legislature is responsible for choosing a policy vector  $\mathbf{p}^t = (\mathbf{x}^t, \mathbf{r}^t)$  specifying non-negative transfers for each constituency,  $\mathbf{x}^t = (x_A^t, x_B^t)$ , and a non-negative amount of political rents for each legislator,  $\mathbf{r}^t = (r_A^t, r_B^t)$ , where political rents represent expropriated resources that do not benefit voters in any way. Suppose that there is a fixed amount of resources available to be allocated in every period and that any feasible policy must satisfy the following budget constraint:

$$\sum_{i \in \{A, B\}} x_i^t + \sum_{\ell \in \{A, B\}} r_\ell^t \leq 1, \quad (3)$$

where, for simplicity, we normalize the total amount of resources to unity.

The per period utilities of voters and legislators are given, respectively, by:

$$u_i(\mathbf{p}^t) = x_i^t + (1 - \phi) x_{-i}^t \quad (4)$$

and

$$v_\ell(\mathbf{p}^t) = r_\ell^t, \quad (5)$$

where the term  $\phi \in (0, 1)$  captures the idea that voters benefit more from transfers targeted to their own group,  $x_i$ , rather than from those targeted to the other group,  $x_{-i}$ . Intuitively, the parameter  $\phi$  can be interpreted as a measure of the degree of political polarization in the society.<sup>10</sup> Legislators, on the other hand, care only about their own rents. All players discount future periods according to a common discount factor,  $\delta \in (0, 1)$ , and their expected utility is given by the discounted sum of the expected payoffs obtained in each period.

Each legislator is elected and held accountable by voters from their own group

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<sup>10</sup>Note that at one extreme, when  $\phi \rightarrow 1$ , transfers benefit only the group that directly receives them, while at the other extreme, when  $\phi \rightarrow 0$ , they benefit both groups equally, in which case they can be viewed as a public good.

and is unable to commit to policy platforms prior to elections. This creates a moral hazard problem in that, once elected, they will have an incentive to expropriate rents as much as possible. In this context, voters are able to discipline their representatives only retrospectively, by threatening not to re-elect them at the end of the period. For simplicity, we assume that a legislator who is not re-elected is replaced by another agent with the same preferences and can never return to office again.

The basic feature of a system of checks and balances is captured in our model by the requirement that a policy proposed by one legislator must receive the approval of other representative in order to be implemented. Specifically, in each period, the policy vector  $\mathbf{p}^t = (\mathbf{x}^t, \mathbf{r}^t)$  is determined according to the following protocol. At the beginning of the period, an agenda-setter  $a$  is selected with equal probability between the two legislators and given the right to make a proposal  $\tilde{\mathbf{p}}^t = (\tilde{\mathbf{x}}^t, \tilde{\mathbf{r}}^t)$  specifying the entire vector of policies. The proposal is, then, submitted to the legislature, where it can be approved or rejected. A proposal is approved if it receives the support of the other representative, in which case it is implemented,  $\mathbf{p}^t = \tilde{\mathbf{p}}^t$ . Otherwise, a default policy  $\mathbf{p}^o$  is adopted, with  $x_A = x_A^o > 0$ ,  $x_B = x_B^o > 0$  and  $r_A = r_B = r^o > 0$ , where  $x_A^o + x_B^o + 2r^o = \xi$ , with  $0 < \xi \leq 1$ .<sup>11</sup> Intuitively, the term  $\xi$  captures the idea that the status quo may be "bad" for the society in the sense that the available resources can be smaller than those available when an agreement is reached. Finally, citizens from both groups perfectly observe the actions of their representatives and all elements of the policy vector  $\mathbf{p}^t$  and decide whether to re-elect or not their representatives.

## 4 Equilibrium Analysis

A common well-known feature of infinitely repeated games is the existence of multiple of equilibria. In order to be able to derive meaningful implications from our model, and following a standard approach in the literature, we focus our main analysis on the characterization of the set of equilibria where players use stationary strategies, i.e. strategies that do not depend on the current date and past history.<sup>12</sup> Stationary equilibria are those where the players' strategies prescribe identical behavior in all

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<sup>11</sup>The restriction that the political rents are equal for both legislators under the status quo,  $r_A = r_B = r^o$ , is imposed for simplicity and is not crucial for our main qualitative results.

<sup>12</sup>Baron and Ferejohn (1989) show that without restricting the strategies followed by players, "anything can happen". See Eraslan and Evdokimov (2019) for a comprehensive review of the recent literature on legislative and multilateral bargaining.

periods where the payoff-relevant state is the same. Note that in our model the state is completely determined by the identity of the agenda-setter, so that in any stationary equilibrium players must behave in the same way in all periods where the agenda-setter is the same.

A strategy for voters consists of a retrospective voting rule, which specifies the conditions under which the legislators are to be re-elected at the end of each period. We assume that citizens choose their voting rules at the beginning of the period, after the role of their representatives (i.e. whether they are the agenda-setter or not) have been determined.<sup>13</sup> Moreover, we impose that in equilibrium any voting rule must be credible in the sense that voters must not have an incentive to deviate from them later in the period, after additional information resulting from decisions taken during the period becomes available. The legislators take these voting rules as given and choose which policies to propose and how to vote on the proposals.

#### 4.1 Benchmark: Model without Checks and Balances

We begin our analysis by examining a version of the model without checks and balances. Here, we assume that the agenda-setter is able to implement any policy without having to obtain approval in the legislature. Suppose that the representative of group  $a \in \{A, B\}$  is chosen to be the agenda-setter and let  $n$  denote both the legislator and voters of the opposition group. Note that in a model without checks and balances representative  $n$  does not play any role in a given period, so that the optimal policy for the agenda-setter and his group of voters involves setting  $x_n = r_n = 0$ , i.e. the amount of transfers and political rents offered to the opposition should be zero in equilibrium.

Observe that the policy outcome in this case is determined by a bargaining game between the agenda-setter and his constituency. Given the voting rule of citizens, the problem of the agenda-setter is to allocate the available resources between transfers to voters,  $x_a$ , and political rents for himself,  $r_a$ . Note that when the agenda-setter decides not to pursue re-election, his optimal strategy is to expropriate all resources (outside option). Citizens anticipate this incentive and, at the beginning of the period, formulate their voting rule in order to minimize the amount of political rents expropriated by the agenda-setter conditional on him wanting to pursue re-election in equilibrium.

Formally, voters in the agenda-setter's group "demand" a policy that solves the

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<sup>13</sup>Intuitively, this assumption amounts to selecting the more interesting equilibria where voters have all the bargaining power.

following problem:

$$\max_{r_a, x_a \in \mathbb{R}_+} x_a \quad (P^N)$$

subject to:

$$x_a + r_a \leq 1 \quad (\text{BC})$$

$$r_a + \delta W \geq 1, \quad (\text{IC}_a^N)$$

with  $x_n = r_n = 0$ . The term  $W$  represents the continuation value of legislators and is defined recursively as:<sup>14</sup>

$$W = \frac{r_a}{2} + \delta W \quad (6)$$

Note that the incentive compatibility constraint on the agenda-setter,  $\text{IC}_a^N$ , guarantees that he prefers to pursue re-election rather than to expropriate all resources and be ousted from office.

At the optimal solution both the budget constraint and the incentive compatibility constraint must bind, so that  $r_a = 1 - \delta W$ . Substituting this expression into (6) and solving for the continuation value, we obtain  $W^N = \frac{1}{2-\delta}$ . Thus, it follows that in equilibrium the aggregate amount of political rents is:

$$r^N = \frac{2 - 2\delta}{2 - \delta},$$

while the amount of transfers targeted to voters in the agenda-setter's group is:

$$x_a^N = \frac{\delta}{2 - \delta}$$

In equilibrium, both legislators are re-elected.

**Proposition 1.** *In a model without checks and balances ( $N$ ), the aggregate amount of political rents is given by:*

$$r^N = \frac{2 - 2\delta}{2 - \delta}$$

*Moreover, the amount of the transfers to each group of voters is given by:*

$$x_a^N = \frac{\delta}{2 - \delta} \quad \text{and} \quad x_n^N = 0$$

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<sup>14</sup>We assume that the opposition legislator is always re-elected in equilibrium, given that there is nothing he can do to influence the policy outcome in a given period.

In equilibrium, both legislators are re-elected in all periods and their continuation value is:

$$W^N = \frac{1}{2 - \delta}$$

## 4.2 Model with Checks and Balances

We now proceed to analyze the version of the model with checks and balances, where the agenda-setter must obtain the approval of the legislature in order to have his proposal implemented. Observe that, since we are focusing on stationary equilibria, for any given proposal  $\tilde{\mathbf{p}}$ , it is in the interest of voters of the opposition group to have it approved if, and only if, it yields a payoff larger than that obtained under the status quo:

$$\tilde{x}_n + (1 - \phi)\tilde{x}_a \geq \bar{x}_n^o, \quad (*)$$

where  $\bar{x}_n^o \equiv x_n^o + (1 - \phi)x_a^o$ . Thus, whenever condition (\*) holds, opposition voters would want to incentivize their representative to approve the proposal by promising to re-elect him if he does so. Conversely, whenever condition (\*) does not hold, they would want to incentivize their representative to reject the proposal by promising to re-elect him in this case. Formally, it is possible to show that such re-election rule is the only one to which opposition voters are able to credibly commit at the beginning of the period.<sup>15</sup>

**Proposition 2.** *In any stationary equilibrium, the voting rule of opposition voters specifies that legislator  $n$  is re-elected if and only if he votes: (i) to approve a proposal  $\tilde{\mathbf{p}}$  that satisfies condition (\*) or (ii) to reject a proposal  $\tilde{\mathbf{p}}$  that violates condition (\*).*

Next, voters of the agenda-setter's group anticipate this behavior and formulate their own re-election rules. As we shall discuss below in more detail, there are two types of symmetric equilibria in pure strategies in this game. In a *conciliatory equilibrium*, the agenda-setter obtains support for his proposal by making large enough transfers to opposition voters in order to satisfy condition (\*). In a *perverse equilibrium*, on

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<sup>15</sup>Note that at the beginning of the period any choice of voting rule different than the one described above would not be credible in the sense that opposition voters would have a potential incentive to deviate from it once a particular proposal is put forward in the legislature. Conversely, at the end of the period, after the policy vector has been determined, any voting rule is credible, given that at this stage voters are basically indifferent between re-electing or not their representative.

the other hand, the agenda-setter makes zero transfers to the opposition and obtains support for his proposal by using political rents to "buy" the vote of the opposition legislator. Finally, note that there may also exist an asymmetric equilibria, which we call *semi-conciliatory equilibrium*, where the agenda-setter of one group makes positive transfers to the opposition, while the agenda-setter of the other group engages in vote-buying.

In what follows, we provide a detailed characterization of both types of symmetric equilibria, the conciliatory equilibrium (Subsection 4.2.1) and the perverse equilibrium (Subsection 4.2.2). While the main qualitative results and insights of our model can be derived from the study of these two cases, we also provide a detailed analysis of the semi-conciliatory equilibrium in the Appendix.

#### 4.2.1 Conciliatory Equilibrium

In a conciliatory equilibrium, the agenda-setter and his group of voters make large enough transfers to opposition voters – in the sense that condition (\*) is satisfied – in order to gain their "support" for the proposal. In the context of our model, this support consists of opposition voters providing electoral incentives for legislator  $n$  to approve the proposal.

In the bargaining game between the agenda-setter and his constituents, voters of group  $a$  formulate their re-election strategies in order to maximize their payoff, taking into account the budget constraint and the incentive compatibility constraints on all other agents. Formally, they "demand" a policy that solves the following problem:

$$\max_{x_a, x_n, r_a, r_n \in \mathbb{R}_+} x_a + (1 - \phi) x_n \quad (P^C)$$

subject to:

$$\sum_i x_i + \sum_\ell r_\ell \leq 1 \quad (BC)$$

$$x_n + (1 - \phi) x_a \geq \bar{x}_n^o \quad (*)$$

$$r_n + \delta W \geq r^o \quad (IC_n^C)$$

$$r_a + \delta W \geq 1 - r^o - \delta W \quad (IC_a^C)$$

In equilibrium, both legislators are re-elected so that their continuation value can be

defined recursively as:

$$W = \frac{r}{2} + \delta W, \quad (7)$$

where  $r \equiv r_a + r_n$  is the aggregate amount of political rents.

The main feature of a conciliatory equilibrium is that condition (\*) is satisfied, which ensures that the opposition voters are willing to back the proposal. The incentive compatibility constraint on legislator  $n$ ,  $IC_n^C$ , then guarantees that he prefers to approve the proposal and be reelected rather than to reject it and get the status quo rents,  $r^o$ . Moreover, the incentive compatibility constraint on the agenda-setter,  $IC_a^C$ , ensures that he is willing to propose the policy "demanded" by his voters and be re-elected rather than to go for his outside option.<sup>16</sup>

The complete characterization of the solution to this problem involves considering three possible cases. In particular, it is possible to show that: (i) if  $\frac{\delta}{2+\delta} < r^o < \frac{2-\delta}{2+\delta}$ , then the incentive compatibility constraints on both legislators are binding; (ii) if  $r^o \leq \frac{\delta}{2+\delta}$ , then only the incentive constraint on the agenda-setter is binding; and (iii) if  $r^o \geq \frac{2-\delta}{2+\delta}$ , then only the incentive constraint on legislator  $n$  is binding. Furthermore, the following lemma provides conditions for the existence of a solution.

**Lemma 1.** *The optimization problem  $P^C$  has a solution if, and only if, for any  $n \in \{A, B\}$ : (i)  $r^o \leq \frac{\delta}{2+\delta}$  and  $\bar{x}_n^o \leq \delta + (1 - \delta)r^o$ ; or (ii)  $\frac{\delta}{2+\delta} < r^o < \frac{2-\delta}{2+\delta}$  and  $\bar{x}_n^o \leq \frac{3\delta}{2+\delta}$ ; or (iii)  $r^o \geq \frac{2-\delta}{2+\delta}$  and  $\bar{x}_n^o \leq 1 - \frac{(2-2\delta)r^o}{2-\delta}$ .*

Intuitively, the problem above does not admit a solution if the status quo utility of voters  $\bar{x}_n^o$  is too large, in which case there are not enough resources available to approve a policy that simultaneously satisfies condition (\*) and the incentive compatibility constraints on the legislators. Intuitively, a compromise solution is too costly in this case. The next proposition provides a general characterization of the conciliatory equilibrium.<sup>17</sup>

**Proposition 3.** *In a conciliatory equilibrium, the aggregate amount of the political*

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<sup>16</sup>Out of the equilibrium path, the agenda-setter transfers to legislator  $n$  the minimum amount of rents required to induce him to approve the proposal,  $r_n = r^o + \delta W$ , keeping all the remaining resources for himself.

<sup>17</sup>All proofs can be found in the Appendix.

rents is given by:

$$r^C = \begin{cases} (1 - \delta)(1 - r^o) & \text{if } r^o \leq \frac{\delta}{2+\delta} \\ \frac{2-2\delta}{2+\delta} & \text{if } \frac{\delta}{2+\delta} < r^o < \frac{2-\delta}{2+\delta} \\ \frac{(2-2\delta)r^o}{2-\delta} & \text{if } r^o \geq \frac{2-\delta}{2+\delta} \end{cases}$$

Furthermore, the amount of transfers received by each group is such that:

$$x_n^C = \max \left\{ \frac{1}{\phi} (\bar{x}_n^o - (1 - \phi)(1 - r^C)), 0 \right\} \geq 0,$$

with  $x_a^C = 1 - r^C - x_n^C \geq 0$ . In equilibrium, both legislators are always re-elected and their continuation value is given by:

$$W^C = \begin{cases} \frac{1-r^o}{2} & \text{if } r^o \leq \frac{\delta}{2+\delta} \\ \frac{1}{2+\delta} & \text{if } \frac{\delta}{2+\delta} < r^o < \frac{2-\delta}{2+\delta} \\ \frac{r^o}{2-\delta} & \text{if } r^o \geq \frac{2-\delta}{2+\delta} \end{cases}$$

#### 4.2.2 Perverse Equilibrium

In a perverse equilibrium, the agenda-setter and his group of voters do not make any transfer to the opposition and condition (\*) is not satisfied. In this case, opposition voters will want to incentivize their representative to reject the proposal, so that the agenda-setter and his group of voters need to push it through the legislature by using political rents to buy the vote of legislator  $n$  against the interests of his constituents.

In the bargaining game between the agenda-setter and his constituents, voters of group  $a$  "demand" a policy that solves the following problem:

$$\max_{x_a, x_n, r_a, r_n \in \mathbb{R}_+} x_a + (1 - \phi) x_n \quad (P^P)$$

subject to:

$$\sum_i x_i + \sum_\ell r_\ell \leq 1 \quad (\text{BC})$$

$$x_n + (1 - \phi) x_a < \bar{x}_n^o \quad (\neg*)$$

$$r_n \geq r^o + \delta W \quad (\text{IC}_n^P)$$

$$r_a + \delta W \geq 1 - r^o - \delta W \quad (\text{IC}_a^P)$$

In equilibrium, only the agenda-setter is re-elected and the continuation value of legislators is given by:

$$W = \frac{r}{2} + \frac{1}{2}\delta W, \quad (8)$$

The main feature of a perverse equilibrium is that condition (\*) is not satisfied, so that opposition voters are against the agenda-setter's proposal – hence, condition (¬\*) above must hold. The incentive compatibility constraint on legislator  $n$ ,  $IC_n^P$ , guarantees that he prefers to receive an amount of political rents  $r_n$  and approve the proposal rather than to reject it and be re-elected. As before, the incentive compatibility constraint on the agenda-setter,  $IC_a^P$ , ensures that he prefers to propose the policy "demanded" by his voters and be re-elected rather than to go for his outside option.

Note that the amount of rents obtained by legislator  $n$  is always strictly positive in equilibrium, since  $r_n^P = r^o + \delta W > 0$ . Furthermore, it is possible to show that: (i) if  $r^o < 1 - \delta$ , then the incentive compatibility constraints on both legislators are binding; and (ii) if  $r^o \geq 1 - \delta$ , then only the incentive constraint on legislator  $n$  is binding. The following lemma provides conditions for the existence of a solution.

**Lemma 2.** *The optimization problem  $P^P$  has a solution if, and only if, for any  $n \in \{A, B\}$ : (i)  $r^o \leq 1 - \delta$  and  $\bar{x}_n^o \geq (1 - \phi) \frac{2-\delta}{2}$ ; or (ii)  $1 - \delta < r^o \leq \frac{2-2\delta}{2-\delta}$  and  $\bar{x}_n^o \geq (1 - \phi) \left(1 - \frac{(2-\delta)r^o}{2-2\delta}\right)$ .*

The problem above does not admit a solution if the status quo rents  $r^o$  are too large and/or the status quo utility for at least one group  $\bar{x}_n^o$  is too small. Intuitively, when  $r^o$  is very large, vote buying becomes too costly for the agenda-setter so that there are not enough resources to satisfy all the constraints of the problem simultaneously. Moreover, when  $\bar{x}_n^o$  is too small, the status quo is so bad for opposition voters that a compromise solution can be reached without cost for the agenda-setter and his group of voters, i.e. condition (\*) can be satisfied even when  $x_n = 0$ . The next proposition provides a general characterization of the perverse equilibrium.

**Proposition 4.** *In a perverse equilibrium, the aggregate amount of political rents is given by:*

$$r^P = \begin{cases} \frac{2-\delta}{2} & \text{if } r^o < 1 - \delta \\ \frac{(2-\delta)r^o}{2-2\delta} & \text{if } 1 - \delta \leq r^o \end{cases}$$

Furthermore, the amount of transfers received by each group is such that:

$$x_a^P = 1 - r^P,$$

with  $x_n^P = 0$ . In equilibrium, only the agenda-setter is re-elected in each period and the continuation value of legislators is given:

$$W^P = \begin{cases} \frac{1}{2} & \text{if } r^o < 1 - \delta \\ \frac{r^o}{2(1-\delta)} & \text{if } 1 - \delta \leq r^o \leq \frac{2-2\delta}{2-\delta} \end{cases}$$

## 5 Main Comparative Results

In this section, we present and discuss the main comparative results of our study.

### 5.1 Policies: Political Rents and Transfers

We start by comparing the policies adopted under each type of equilibrium analyzed above. First, based on the results derived in Propositions 1 and 3, we can show that the total amount of political rents extracted under a conciliatory equilibrium is strictly smaller than that extracted under a system without checks and balances,  $r^C < r^N$ . This result is consistent with the classical view that checks and balances lead to more accountability by creating conditions for legislators to control each other (Madison, 1788). On the other hand, based on the results derived in Propositions 1 and 4, we can also show that the total amount of political rents extracted under a perverse equilibrium is strictly larger than that extracted under a system without checks and balances,  $r^P > r^N$ . Thus, we conclude that, under certain conditions, the system of checks and balances may actually exacerbate the problem of political corruption.

The intuition behind these results is that the system of checks and balances creates political tension by placing both groups of voters directly in conflict with each other. In a conciliatory equilibrium, this tension leads to more accountability and to a better distribution of transfers, with  $x_n^C \geq 0$ . In a perverse equilibrium, on the other hand, the political tension leads to a waste of resources in the form of political rents that are used to buy the vote of the opposition legislator, without any benefit in terms of a better distribution of resources,  $x_n^P = 0$ . Interestingly, in this case, voters in the agenda-setter's group actually support vote buying and corruption in equilibrium. Finally,

it is important to note that the fact that one of the legislators is not re-elected in equilibrium further contributes to weaken the power of electoral incentives in this case, thus making the perverse equilibrium particularly inefficient. Our main comparative results are stated in the following proposition.

**Proposition 5.** *The total amount of political rents under each type of equilibrium are such that:*

$$r^C < r^N < r^P,$$

for any  $\delta \in (0, 1)$  and  $0 \leq r^o \leq 1/2$ . Furthermore, the amount of transfers to voters of the opposition group are always such that:

$$x_n^C \geq x_n^N = x_n^P = 0$$

## 5.2 Existence Conditions and Comparative Statics

As discussed above, the system of checks and balances is guaranteed to result in better policies if, and only if, it leads to a conciliatory equilibrium. Thus, it is crucial to understand the characteristics of a society where such equilibrium is likely to exist. The conditions for the existence of a conciliatory equilibrium can be derived by applying the one-shot deviation principle. Note that, given our focus on stationary equilibria and considering the sequential nature of the bargaining game in each period, opposition voters will never have an incentive to deviate from the voting rule characterized in Proposition 2. Moreover, given the incentive compatibility constraints on both legislators, none of them will ever have an incentive to deviate as well. Therefore, we only need to consider one-shot deviations from the part of the voters belonging to the agenda-setter's group.

Note that starting from a conciliatory equilibrium the only potentially profitable deviation for voters of group  $a$  is to change their strategy in order to induce the agenda-setter to make zero transfers to the opposition and use political rents to buy the vote of legislator  $n$ , exactly as in a perverse equilibrium. Observe that since this deviation lasts for a single period the continuation value of the legislators is still given by  $W^C$ . Thus, the condition for the existence of a conciliatory equilibrium is given by the requirement that the cost of approving the proposal for voters of the agenda-setter's group should be smaller when they follow their equilibrium strategy rather than when they deviate

from it. Formally, this condition can be expressed as:

$$\phi x_n^C + r_n^C \leq r^o + \delta W^C, \quad (9)$$

for  $n \in \{A, B\}$ , where  $\phi x_n^C + r_n^C$  represents the cost in terms of transfers and political rents paid to the opposition under a conciliatory equilibrium, while  $r^o + \delta W^C$  represents the cost of vote-buying in the legislature.<sup>18</sup> The following proposition characterizes the conditions required for the existence of a conciliatory equilibrium.<sup>19</sup>

**Proposition 6.** *Suppose that the conditions stated in Lemma 1 are satisfied. A conciliatory equilibrium exists if and only if:*

$$x_i^o \leq \bar{x}^C(\phi, \delta, r^o) - (1 - \phi) x_j^o$$

for  $i, j \in \{A, B\}$ ,  $i \neq j$ , where:

$$\bar{x}^C(\phi, \delta, r^o) = \begin{cases} \frac{2(2-\phi)r^o + (3-2\phi)(1-r^o)\delta}{2} & \text{if } r^o \leq \frac{\delta}{2+\delta} \\ \frac{(5-3\phi)\delta}{2+\delta} & \text{if } \frac{\delta}{2+\delta} \leq r^o \leq \frac{2-\delta}{2+\delta} \\ \frac{2(1-\phi)(1-r^o) - (1-\phi-2(2-\phi)r^o)\delta}{2-\delta} & \text{if } r^o \geq \frac{2-\delta}{2+\delta} \end{cases}$$

Figure 6 provides a graphical representation of the conditions for the existence of a conciliatory equilibrium, where the axes represent the amount of transfers received by each group under the status quo,  $x_A^o$  and  $x_B^o$ , and the dashed line represents the resource constraint under the status quo,  $x_i^o + x_j^o + 2r^o = \xi$ .<sup>20</sup> A conciliatory equilibrium exists in the shaded area in the bottom-left part of the graph where the status quo transfers are relatively small. Intuitively, the worse the status quo is for voters the easier it is for a compromise solution to be reached. Outside of this region, at least one of the groups will have an incentive to deviate from the equilibrium.

<sup>18</sup>Note that out of every dollar given to the opposition, voters of group  $a$  benefit by  $(1 - \phi)$ , so that the actual cost of such transfer is  $\phi \in (0, 1)$ .

<sup>19</sup>For the sake of clarity and in order to avoid cumbersome mathematical expressions, we assume in Proposition 6 that the conditions stated in Lemma 1 – which guarantee the existence of a solution to problem  $P^C$  – are satisfied. We believe that this is the more relevant case for our analysis, since those can be viewed as absolutely minimal conditions for the existence of the equilibrium.

<sup>20</sup>This figure was constructed using the following parameter values:  $\phi = 0.7$ ,  $\delta = 0.6$ ,  $r^o = 0.1$  and  $\xi = 0.9$ . A society is represented by a point on the dashed line. We note that the basic qualitative properties of the existence conditions for the equilibrium are independent of the specific parameter values.

Next, we examine how the conditions for the existence of a conciliatory equilibrium depend on the main parameters of the model. First, as discussed above, the equilibrium is more likely to exist when the status quo is bad for voters, i.e. when  $x_A^o$  and  $x_B^o$  are both small. An immediate implication of this observation is that a reduction in the amount of resources available under the status quo, as captured by a decrease in  $\xi$ , makes the equilibrium more likely to exist. Note that a reduction in  $\xi$  shifts the resource constraint line inward in Figure 6. This result is consistent with Alesina and Drazen (1991) and Drazen and Grilli (1993) who showed that the adoption of socially beneficial reforms is more likely during periods of crises when the status quo is bad for the society. In our model, an inefficient status quo erodes the bargaining power of both groups, thus making it easier for a compromise solution to be reached.

Second, the existence of the equilibrium also depends crucially on how the transfers are distributed between the two groups under the status quo. Observe that, given the resource constraint under the status quo, a more symmetric distribution of transfers makes the existence of the equilibrium (weakly) more likely. For example, in Figure 6, a conciliatory equilibrium exists at point  $X$ , where the resource constraint line crosses the 45°-degree line, but does not at point  $Y$ , where  $x_B^o$  is relatively large, in which case voters of group  $A$  would have an incentive to deviate.<sup>21</sup> Formally, it is possible to show that if the equilibrium does not exist when  $x_A^o = x_B^o = \frac{\xi}{2} - r^o$ , then it will not exist for any  $x_A^o$  and  $x_B^o$  such that  $x_i^o + x_j^o + 2r^o = \xi$ . Thus, we conclude that a system of checks and balances may not work well when the status quo inequality is too high.

Third, we show that an increase in the degree of political polarization makes a conciliatory equilibrium less likely to exist. Intuitively, an increase in  $\phi$  raises the cost of making transfers to the opposition, so that a compromise between the two groups becomes less likely to be achieved. In particular, we show that the equilibrium always exists when  $\phi \rightarrow 0$ . Finally, the region of parameters where a conciliatory equilibrium exists expands when the discount factor increases. Note that the more career-oriented are the legislators, the larger the value which they attribute to staying in office (in the sense that their continuation value is higher), so that the "price" of their votes becomes more expensive. Conversely, when they do not care about staying in office they are very cheap to bribe. Indeed, it is possible to show that the equilibrium never exists when  $\delta \rightarrow 0$ . Figure 7 provides a graphical representation of the effects of increasing

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<sup>21</sup>Note that there are situations, such as those in which the resource constraint line is entirely inside or outside the shaded region, where changes in the distribution of status quo transfers do not affect the chances that a conciliatory equilibrium exists.

the degree of political polarization (Panel A) and increasing the discount factor (Panel B) on the region of the parameters where a conciliatory equilibrium exists. Note that such region shrinks in the first case and expands in the latter.

The following proposition provides a summary of our main comparative static results.

**Proposition 7.** *Suppose that the conditions stated in Lemma 1 are satisfied. The following properties hold:*

- i. A conciliatory equilibrium becomes (weakly) more likely to exist when the amount of status quo transfers,  $x_A^o$  and  $x_B^o$ , decreases for both groups.*
- ii. A conciliatory equilibrium becomes (weakly) less likely to exist when the distribution of status quo transfers becomes more unequal, i.e. when the distance  $|x_A^o - x_B^o|$  increases.*
- iii. A conciliatory equilibrium becomes less likely to exist when the degree of political polarization  $\phi$  increases.*
- iv. A conciliatory equilibrium becomes more likely to exist when the discount factor  $\delta$  increases.*

## 6 Constitutional Choice

In this section, we use our model to study the issue of institutional choice. Suppose that a hypothetical constitutional stage is introduced at the beginning of the game. In particular, assume that, at that stage, society has to choose between adopting a constitution with or without checks and balances. What type of constitution would voters and legislators choose? Following Buchanan and Tullock (1962), we examine this question from a positive point of view by assuming that both voters and legislators will keep the same roles after the constitutional stage, i.e. choices are not made under the veil of ignorance. Moreover, we assume that the parameters of the model, i.e. the characteristics of the society, including the specification of the status quo, are all known and taken as given.

Observe that the constitutional preferences of voters and legislators depend crucially on which type of equilibrium is expected to prevail under a constitution with checks

and balances and we restrict our analysis to the classes of equilibria examined above. Note that the expected utility of voters under an equilibrium of type  $j$  is given by  $V^j = \frac{1-r^j}{2(1-\delta)}$ . From Proposition 4, it follows that, for voters, a constitution with checks and balances under a conciliatory equilibrium is preferred to a constitution without checks and balances, which in turn is preferred to a constitution with checks and balances under a perverse equilibrium,  $V^P < V^N < V^C$ . The expected utility of legislators, on the other hand, is given by the value of being in office under a certain equilibrium, which is represented by their continuation value. Using the expressions derived above, we can show that, for legislators, a constitution without checks and balances is preferred to a constitution with checks and balances under a perverse equilibrium, which in turn is preferred to a constitution with checks and balances under a conciliatory equilibrium,  $W^C < W^P < W^N$ . Interestingly, legislators prefer no checks and balances to a perverse equilibrium even though  $r^P > r^N$  because they are not always re-elected in the latter.

The next proposition summarizes the main results of this section.

**Proposition 8.** *Regarding the constitutional preferences of voters and legislators, we have:*

*i. The expected utility of voters under each type of equilibrium is such that:*

$$V^P < V^N < V^C$$

*ii. The expected utility of legislators under each type of equilibrium is such that:*

$$W^C < W^P < W^N$$

Note that while legislators always prefer a constitution without checks and balances, the preferences of voters may vary depending on their beliefs about the equilibrium in the continuation game under checks and balances. When a conciliatory equilibrium is expected, the constitutional preferences of both groups will be divergent with voters preferring a constitution with checks and balances. On the other hand, when a perverse equilibrium is expected, preferences will be aligned with both groups preferring no checks and balances. Note that our results provide a rationale for situations observed in various societies where measures to reduce the degree of checks and balances have received broad support from both politicians and the population in general (Acemoglu,

Robinson and Torvik, 2013). Our theory also helps to explain why voters in many countries seem to be dissatisfied with democratic institutions, particularly in unequal and polarized societies.

## 7 Extensions

In this section, we discuss various ways in which our basic model could be extended.

### 7.1 Accountability Institutions

Our model can be extended to capture the quality of accountability institutions in a society, e.g. the media and the judiciary. In order to do so, we assume that when a legislator is not re-elected, society is able to detect corruption and recover the appropriate resources with probability  $\iota \in (0, 1)$ . Thus, under a conciliatory equilibrium, the incentive compatibility constraints on legislators are given by:

$$r_n + \delta W \geq (1 - \iota) r^o \quad (10)$$

and

$$r_a + \delta W \geq (1 - \iota) (1 - r^o - \delta W) \quad (11)$$

Note that the assumption that accountability institutions operate only when a representative is ousted from office is consistent with the idea that a full investigation of a corruption scandal may be hindered by the fact that a legislators, while in office, is in a privileged position to conceal evidence and is often protected by certain constitutional immunities. In any case, the main qualitative results of our analysis would remain the same as long as the probability of being prosecuted is higher when a legislators is not re-elected.

Observe that in this case the condition for the existence of a conciliatory equilibrium should be re-expressed as:

$$\phi x_n^C + r_n^C \leq \frac{1}{1 - \iota} (r^o + \delta W^C), \quad (12)$$

where the right-hand side now captures the fact that the cost of vote-buying is affected by the quality of accountability institutions.<sup>22</sup>

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<sup>22</sup>Note that in order to receive  $r^o + \delta W^C$  in expected rents, a legislator now needs to receive

Our analysis shows that, under a conciliatory equilibrium, both the total amount of political rents  $r^C(\iota)$  and the continuation value of legislators  $W^C(\iota)$  are strictly decreasing in the quality of accountability institutions. Moreover, with more resources available to voters, the distribution of transfers adjust so that  $x_a^C(\iota)$  increases while  $x_n^C(\iota)$  decreases exactly in such a way as to make condition (\*) hold. With respect to the existence of the equilibrium, note that while an increase in the quality of institutions raises the direct cost of vote-buying, it also reduces the continuation value of legislators, thus producing the opposite effect. We show that the expected cost of vote-buying  $\frac{1}{1-\iota}(r^o + \delta W^C(\iota))$  is always increasing in  $\iota$ , so that the direct effect of institutional quality dominates. Thus, a conciliatory equilibrium is always more likely to exist when the quality of accountability institutions increases.

We summarize the main implications of our analysis in the following proposition.

**Proposition 9.** *The total amount of political rents under a conciliatory equilibrium is strictly decreasing in the quality of accountability institutions  $\iota$ . Furthermore, a conciliatory equilibrium is always more likely to exist when the quality of institutions increases.*

## 7.2 A Model with N Groups

Next, we extend our framework to consider a model with  $N \geq 2$  groups. We assume that the per period utility of voters is given by  $u_i = x_i + (1 - \phi) \sum_{j \neq i} x_j$ , while legislators only care about rents as before. The amount of resources available is normalized to  $N/2$ , so that our basic model consists of a particular case where  $N = 2$ , and the budget constraint is given by  $\sum_i x_i + \sum_\ell r_\ell \leq N/2$ . To simplify our analysis, we assume that the status quo is symmetric, where  $x_i^o = x^o$  and  $r_\ell^o = r^o$ , with  $x^o + r^o = \frac{\xi}{2}$  and  $0 < \xi \leq 1$ .<sup>23</sup> The number of votes required for the approval of a proposal is now given by an integer  $\kappa$ , with  $1 \leq \kappa \leq N$ , which we interpret as measuring the degree of checks and balances.<sup>24</sup> We denote the set of legislators belonging to the government coalition by  $\mathcal{C}$ .

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$(r^o + \delta W^C) / (1 - \iota)$  in "gross" terms.

<sup>23</sup>Such symmetry assumption allows us to avoid having to keep track of agents of all the different groups by making the agenda-setter indifferent among which opposition legislators to include in the government coalition. The main qualitative results of our analysis are robust to relaxing this assumption.

<sup>24</sup>Observe that  $\kappa = 1$  represents the case of a constitution without checks and balances, whereas  $\kappa = N$  represents the case where every proposal has to be approved by unanimity.

As before, we focus our analysis on the characterization of symmetric stationary equilibria in pure strategies and we assume that agents do not use weakly dominated strategies. Note that a version of Lemma 1 still holds in this case, since voters of opposition groups are willing to re-elect their representatives if, and only if, they approve (reject) a proposal that is better (worse) than the status quo. Thus, condition (\*) can be expressed in this case as:

$$x_n + (1 - \phi) \sum_{j \neq n} x_j \geq \bar{x}^o, \quad (13)$$

where  $\bar{x}^o = (1 + (1 - \phi)(N - 1))x^o$ .

Next, observe that in a symmetric environment there cannot "generically" exist equilibria where the agenda-setter obtains support for his proposal by buying the vote of some legislators but not others, i.e. in equilibrium, he either buys the votes of all representatives or none.<sup>25</sup> Intuitively, this must occur because the "price" of all legislators are the same. Thus, there can only be "pure" conciliatory or "pure" perverse equilibria.

Note that the incentive compatibility constraint on the agenda-setter under both conciliatory and perverse equilibria is given by:

$$r_a + \delta W \geq \frac{N}{2} - (\kappa - 1)(r^o + \delta W) \quad (14)$$

Moreover, in a conciliatory equilibrium, the incentive compatibility constraints on legislators belonging to the minimal government coalition,  $n \in \mathcal{C}/\{a\}$ , and the continuation value of legislators are given respectively by:

$$r_n + \delta W \geq r^o \quad (15)$$

and

$$W = \frac{r_a + (\kappa - 1)r_n}{N} + \delta W, \quad (16)$$

where representatives are chosen to form the government coalition with equal probability. Conversely, under a perverse equilibrium, we have:

$$r_n \geq r^o + \delta W \quad (17)$$

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<sup>25</sup>The term "generically" is used here to mean that we are ignoring the knife-edge case where the agenda-setter is exactly indifferent between buying a vote and making transfers to opposition voters.

and

$$W = \frac{r_a + (\kappa - 1)r_n}{N} + \frac{N - (\kappa - 1)}{N}\delta W, \quad (18)$$

where, as before, legislators who belong to the government coalition are not re-elected in equilibrium.

For a given degree of checks and balances  $\kappa$ , we can characterize both types of equilibria. Consistently with our previous results, we show that the amount of political rents is always strictly smaller under a conciliatory equilibrium, i.e.  $r^C(\kappa) < r^P(\kappa)$  for any  $1 \leq \kappa \leq N$ . Furthermore, focusing on the more interesting case where the incentive compatibility constraint on the agenda-setter (14) is binding, we show that political rents are always strictly decreasing in  $\kappa$  under a conciliatory equilibrium, while they are strictly increasing in  $\kappa$  under a perverse equilibrium.<sup>26</sup> These findings emphasize the idea that an increase in the degree of checks and balances is not generally desirable from a social point of view and may have different consequences depending on the characteristics of society. The next proposition summarizes our main comparative results of this subsection.

**Proposition 10.** *Consider a symmetric model with  $N \geq 2$  groups. The following properties hold:*

- i. For any degree of checks and balances  $1 \leq \kappa \leq N$ , the amount of political rents under a conciliatory equilibrium is smaller than that under a perverse equilibrium:*

$$r^C(\kappa) < r^P(\kappa)$$

- ii. There exists an amount of status quo rents  $\bar{r}^o > 0$  such that if  $r^o \geq \bar{r}^o$ , then the incentive compatibility constraint on the agenda-setter is binding, in which case we have:*

$$\frac{\partial r^C(\kappa)}{\partial \kappa} < 0 \quad \text{and} \quad \frac{\partial r^P(\kappa)}{\partial \kappa} > 0$$

Next, observe that the condition for the existence of a conciliatory equilibrium now

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<sup>26</sup>A sufficient condition for the incentive constraint on the agenda-setter to be binding is that  $r^o$  is not too large. We believe this to be the most interesting case of our analysis, since it is one in which the agenda-setter has some degree of bargaining power, which is likely to happen in most real-world applications of our model.

depends on  $\kappa$  and can be expressed as:

$$\phi x_n^C(\kappa) + r_n^C(\kappa) \leq r^o + \delta W^C(\kappa) \quad (19)$$

for any  $n \in \mathcal{C}/\{a\}$ , where we define  $g(\kappa) := r^o + \delta W^C(\kappa) - \phi x_n^C(\kappa) - r_n^C(\kappa)$ , so that the equilibrium exists if, and only if,  $g(\kappa) \geq 0$ . Assuming that the agenda-setter's incentive compatibility constraint is binding, it is possible to show that if the degree of political polarization is large enough, then an increase in  $\kappa$  makes the equilibrium less likely to exist; otherwise, the equilibrium becomes more likely to exist. Formally, there exists  $\bar{\phi} < 1$  such that if  $\phi \geq \bar{\phi}$  then  $\partial g(\kappa)/\partial \kappa \leq 0$ , otherwise  $\partial g(\kappa)/\partial \kappa > 0$ .

The intuition for this result is that, conditional on a conciliatory equilibrium, an increase in the degree of checks and balances reduces the amount of political rents extracted by legislators. Note that a reduction in  $r(\kappa)$  raises the "net" resources available to voters,  $N/2 - r(\kappa)$ , which in turn makes the equilibrium more likely to exist.<sup>27</sup> On the other hand, a reduction in  $r(\kappa)$  also decreases the continuation value of legislators  $W(\kappa)$ , which in turn makes them cheaper to bribe. We show that the first effect dominates as long as the degree of political polarization is small enough, in which case a reduction in political rents benefits all voters considerably.

**Proposition 11.** *Suppose that the incentive compatibility constraint on the agenda-setter is binding. There exists a threshold  $\bar{\phi} < 1$  such that if  $\phi \geq \bar{\phi}$ , then an increase in the degree of checks and balances makes a conciliatory equilibrium less likely to exist, i.e.  $\partial g(\kappa)/\partial \kappa \leq 0$ . Otherwise, the equilibrium becomes more likely to exist, i.e.  $\partial g(\kappa)/\partial \kappa > 0$ .*

These results have interesting implications for the design of political institutions. Note that in the context of our model it makes sense to define the optimal degree of checks and balances as the largest value for  $\kappa$  such that a conciliatory equilibrium still exists. Suppose that  $x^o$  is not too large, so that there are enough resources available to allow a conciliatory equilibrium to exist for at least one value of  $\kappa$ .<sup>28</sup> It follows from our previous result that if  $\phi < \bar{\phi}$ , then the optimal degree of checks and balances is always maximum, i.e.  $\kappa^* = N$ . Otherwise, if  $\phi > \bar{\phi}$ , then the optimal degree of

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<sup>27</sup>Specifically, an increase in  $N/2 - r(\kappa)$  allows the agenda-setter to raise  $x_a(\kappa)$  and simultaneously reduce the amount of resources transferred to the opposition  $x_n(\kappa)$ , so that condition (13) is "just" satisfied.

<sup>28</sup>It makes sense to impose this assumption in the current context for otherwise a conciliatory equilibrium would not exist.

checks and balances may be interior, i.e.  $\kappa^* \leq N$ . Figure 8 illustrates these results by plotting the function  $g(\kappa)$  for low (Panel *a*) and high (Panel *b*) values of political polarization. A conciliatory equilibrium exists as long as  $g(\kappa) \geq 0$  and the optimal degree of checks and balances is the largest value for  $\kappa$  such that  $g(\kappa) \geq 0$ . Interestingly, we conclude that the optimal degree of checks and balances may be smaller in societies where polarization is large.

## 8 Conclusion

Why do checks and balances work well in some cases, but not in others? Our paper studies the conditions under which the system of checks and balances can be beneficial to a society. Our theoretical analysis yields the surprising result that, under certain circumstances, checks and balances can exacerbate the problem of political corruption by encouraging vote buying in the legislature. Our analysis emphasizes the fact that the effective functioning of checks and balances depends crucially on the characteristics of society and the political environment in which it operates. In particular, we show that a perverse equilibrium is more likely to occur the higher the degree of political polarization, the more unequal the distribution of resources under the status quo and the lower the value attributed to staying in office by legislators.

## References

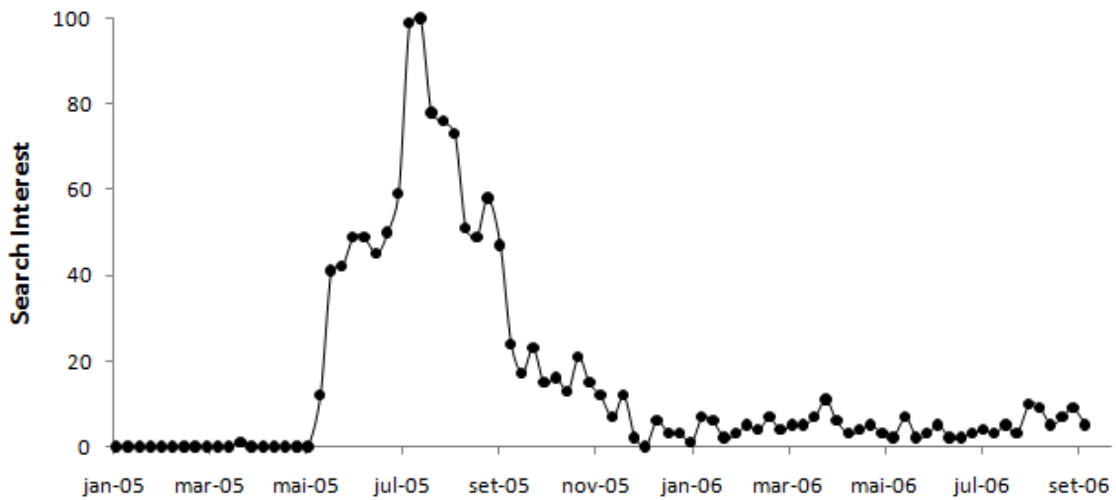
- [1] Abramowitz, A. I. and K. L. Saunders. 2008. "Is Polarization a Myth?" *Journal of Politics*, 70(2): 542-55.
- [2] Acemoglu, D. 2017. "We Are the Last Defence Against Trump." *Foreign Policy*, January, 2017.
- [3] Acemoglu, D., S. Johnson and J. A. Robinson. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review*, 91(5): 1369-1401.
- [4] Acemoglu, D. and J. A. Robinson. 2000. "Why did the West Extend the Franchise? Democracy, Inequality and Growth in Historical Perspective." *Quarterly Journal of Economics*, 115(4): 938-63.
- [5] Acemoglu, D., J. A. Robinson and R. Torvik. 2013. "Why do Voters Dismantle Checks and Balances?" *Review of Economic Studies*, 80(3): 845-75.
- [6] Aghion, P., Alesina, A. and Trebbi, F. 2004. "Endogenous Political Institutions", *Quarterly Journal of Economics*, 119(2): 565-611.
- [7] Alesina, A. and A. Drazen. 1991. "Why are Stabilizations Delayed?" *American Economic Review*, 81(5): 1170-88.
- [8] Alesina, A. and H. Rosenthal. 1995. *Partisan Politics, Divided Government, and the Economy*. New York: Cambridge University Press.
- [9] Alston, L., M. Melo, B. Mueller and C. Pereira. 2010. "The Predatory or Virtuous Choices Governors Make: The Roles of Checks and Balances and Political Competition." *Working paper, Fundação Getúlio Vargas*.
- [10] Alt, J. E. and D. D. Lassen. 2003. "The Political Economy of Institutions and Corruption in American States." *Journal of Theoretical Politics*, 15: 341-65.
- [11] Alt, J. E. and D. D. Lassen. 2008. "Political and Judicial Checks on Corruption: Evidence from American State Governments." *Economics and Politics*, 20(1): 33-61.

- [12] Ames, B. 2001. *The Deadlock of Democracy in Brazil*. Ann Arbor: University of Michigan Press.
- [13] Autor, D., D. Dorn, G. Hanson and K. Majlesi. 2017. "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *Working paper, Massachusetts Institute of Technology*.
- [14] Baron, D. P. 1996. "A Dynamic Theory of Collective Goods Programs." *American Political Science Review*, 90(2): 316-330.
- [15] Baron, D. P. and J. A. Ferejohn. 1989. "Bargaining in Legislatures." *American Political Science Review*, 83(4): 1181-1206.
- [16] Barro, R. J. 1973. "The Control of Politicians: An Economic Model." *Public Choice*, 14(Spring): 19-42.
- [17] Besley, T. and H. Muller. 2018. "Institutions, Volatility and Investment." *Journal of the European Economic Association*, forthcoming.
- [18] Binder, S. A. 1999. "The Dynamics of Legislative Gridlock, 1947-96." *American Political Science Review*, 93(3): 519-533.
- [19] Binder, S. A. 2003. *Stalemate: Causes and Consequences of Legislative Gridlock*. Washington, DC: The Brookings Institution Press.
- [20] Bishop, B. 2008. *The Big Sort: Why the Clustering of Like-Minded America is Tearing US Apart*. New York: Houghton Mifflin.
- [21] Dekel, E., M. O. Jackson and A. Wolinsky. 2008. "Vote Buying: General Elections." *Journal of Political Economy*, 116(2): 351-80.
- [22] Desposato, S. W. 2006. "From Revolution to Rouba mas Faz?" *Harvard Review of Latin America*, 5(1):29-32.
- [23] Diermeier, D., G. Egorov and K. Sonin. 2017. "Political Economy of Redistribution." *Econometrica*, 85(3): 851-870.
- [24] Diermeier, D. and Feddersen, T. J. 1998. "Cohesion in Legislatures and the Vote of Confidence Procedure." *American Political Science Review*, 92(3): 611-21.

- [25] Dahl, R. A. 1963. *Preface to Democratic Theory*. Chicago: University of Chicago Press.
- [26] Drazen, A. and V. Grilli. 1993. "The Benefits of Crises for Economic Reforms." *American Economic Review*, 83(3): 598-607.
- [27] Ferejohn, J. A. 1986. "Incumbent Performance and Electoral Control." *Public Choice*, 50(1-3): 5-25.
- [28] Forteza, A. and J. S. Pereyra. 2017. "The Trade-off Between Governance and Checks and Balances." Mimeo.
- [29] Fukuyama, F. 2017. "Is American Democracy Strong Enough for Trump?" *Politico Magazine*, January, 2017.
- [30] Fukuyama, F., B. Dressel and B-S. Chang. 2005. "Challenge and Change in East Asia: Facing the Perils of Presidentialism." *Journal of Democracy*, 16(2): 102-116.
- [31] Gentzkow, M. 2016. "Polarization in 2016." *Toulouse Network for Information Technology Whitepaper*.
- [32] Glaeser, E. and C. Goldin. 2006. "Corruption and Reform: An Introduction." In E. Glaeser e C. Goldin (Eds.), *Corruption and Reform: Lessons from America's Economic History* (pp. 2-22). Chicago: The University of Chicago Press.
- [33] Goodwin, D. K. 2005. *Team of Rivals: The Political Genius of Abraham Lincoln*. New York: Simon & Schuster.
- [34] Gratton, G. and M. Morelli. 2018. "Optimal Checks and Balances under Policy Uncertainty." *Working paper*.
- [35] Groseclose, T. J. and J. M. Snyder Jr. 1996. "Buying Supermajorities." *American Political Science Review*, 90(2): 303-15.
- [36] Guiso, L., H. Herrera, M. Morelli and T. Sonno. 2017. "Populism: Demand and Supply." *Working paper, Warwick University*.
- [37] Hunter, W. and T. Power. 2007. "Rewarding Lula: Executive Power, Social Policy and the Brazilian Elections of 2006." *Latin American Politics and Society*, 49(1): 1-30.

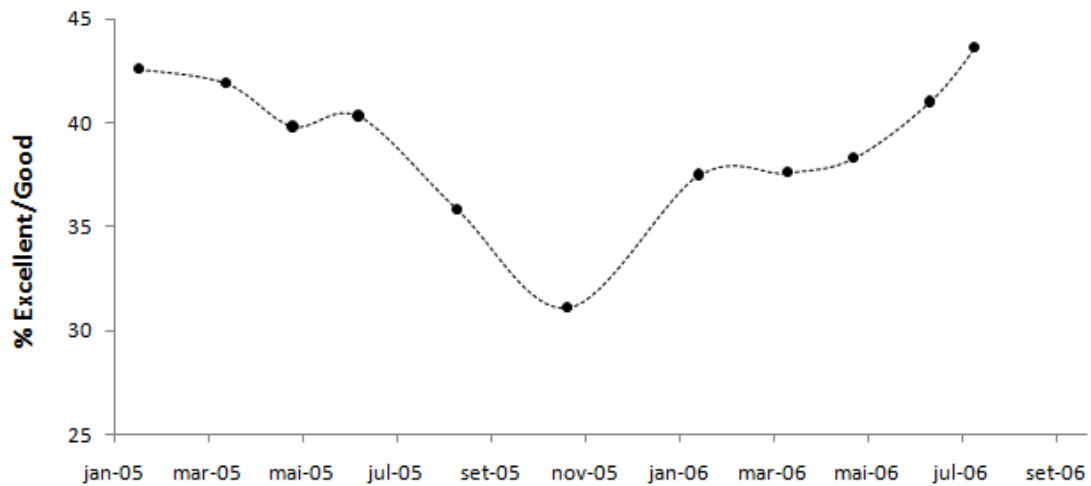
- [38] Kochin, M. S. and L. A. Kochin. 1998. "When Is Vote Buying Wrong?" *Public Choice*, 97(4): 645-62.
- [39] Krehbiel, K. "Institutional and Partisan Sources of Gridlock: A Theory of Divided and Unified Government." *Journal of Theoretical Politics*, 8(1): 7-40.
- [40] Krehbiel, K. *Pivotal Politics: A Theory of U.S. Lawmaking*. Chicago: The University of Chicago Press.
- [41] Kunicová, J. and Rose-Ackerman, S. 2005. "Electoral Rules and Constitutional Structures as Constraints on Corruption." *British Journal of Political Science*, 35(4): 573-606.
- [42] La Porta, R., F. Lopez-de-Silanes, C. Pop-Eleches and A. Shleifer. 2004. "Judicial Checks and Balances." *Journal of Political Economy*, 112(2): 445-470.
- [43] Linz, J. J. 1978. *The Breakdown of Democratic Regimes. Crisis, Breakdown and Reequilibration*. Baltimore: Johns Hopkins University Press.
- [44] Linz, J. J. 1990. "The Perils of Presidentialism." *Journal of Democracy*, 1(1): 51-69.
- [45] Mattozzi, A. and A. Merlo. 2008. "Political Careers or Career Politicians?" *Journal of Public Economics*, 92(3-4): 597-608.
- [46] McCarty, N., K. T. Poole and H. Rosenthal. 2003. "Political Polarization and Income Inequality." *Working paper, Russell Sage Foundation*.
- [47] McCarty, N., K. T. Poole and H. Rosenthal. 2006. *Polarized America: The Dance of Ideology and Unequal Riches*. Cambridge: The MIT Press.
- [48] Madison, J. 1788/2008. "Federalist 51: The Structure of the Government Must Furnish the Proper Checks and Balances Between the Different Departments." In L. Goldman (Ed.), *The Federalist Papers*. Oxford: Oxford University Press.
- [49] Montesquieu, C. 1748/1989. *The Spirit of the Laws*. Cambridge: Cambridge University Press.
- [50] Nakaguma, M. Y. 2015. "Choosing the Form of Government: Theory and Evidence from Brazil." *Economic Journal*, 125(December): 1986-2023.

- [51] Persson, T., G. Roland and G. Tabellini. 1997. "Separation of Powers and Political Accountability." *Quarterly Journal of Economics*, 112(4): 1163-202.
- [52] Persson, T., G. Roland and G. Tabellini. 2000. "Comparative Politics and Public Finance." *Journal of Political Economy*, 108(6): 1121-61.
- [53] Persson, T. and G. Tabellini. 2003. *The Economic Effects of Constitutions: What do the Data Say?* Cambridge: MIT Press.
- [54] Rodrik, D. "Populism and the Economics of Globalization." *Working paper, Harvard University*.
- [55] Rubinstein, A. "Perfect Equilibrium in a Bargaining Model." *Econometrica*, 50(1): 97-109.
- [56] Scovel, J. 1898. "Thaddeus Stevens." *Lippincott's Monthly Magazine*, April: 548-550.
- [57] Stepan, A. and Skach, C. 1993. "Constitutional Frameworks and Democratic Consolidation: Parliamentarism versus Presidentialism." *World Politics*, 46(1): 1-22.
- [58] Ticchi, D. and A. Vindigni. 2010. "Endogenous Constitutions." *Economic Journal*, 120(March): 1-39.
- [59] Trebbi, F., P. Aghion and A. Alesina. 2008. "Choosing Electoral Rules: Theory and Evidence from US Cities." *Quarterly Journal of Economics*, 123(1): 325-57.
- [60] Tulbovitz, E. and A. Danza. 2015. *Una Oveja Negra al Poder: Confesiones e Intimidaciones de Pepe Mujica*. New York: Penguin Random House.



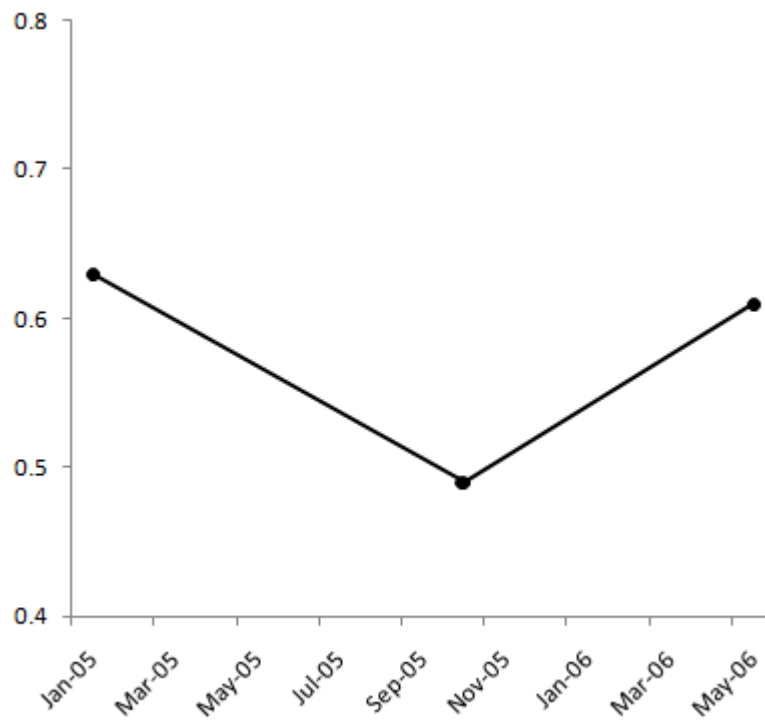
**Note.** This Figure plots an index of Google searches for the term "mensalão" in Brazil for the period between January 2005 and November 2006. The reported numbers represent search interest relative to the highest point on the chart, which occurs in the first week of August 2005. Source: Google Trends.

**Figure 1a: Goolge Seaches - "Mensalão"**



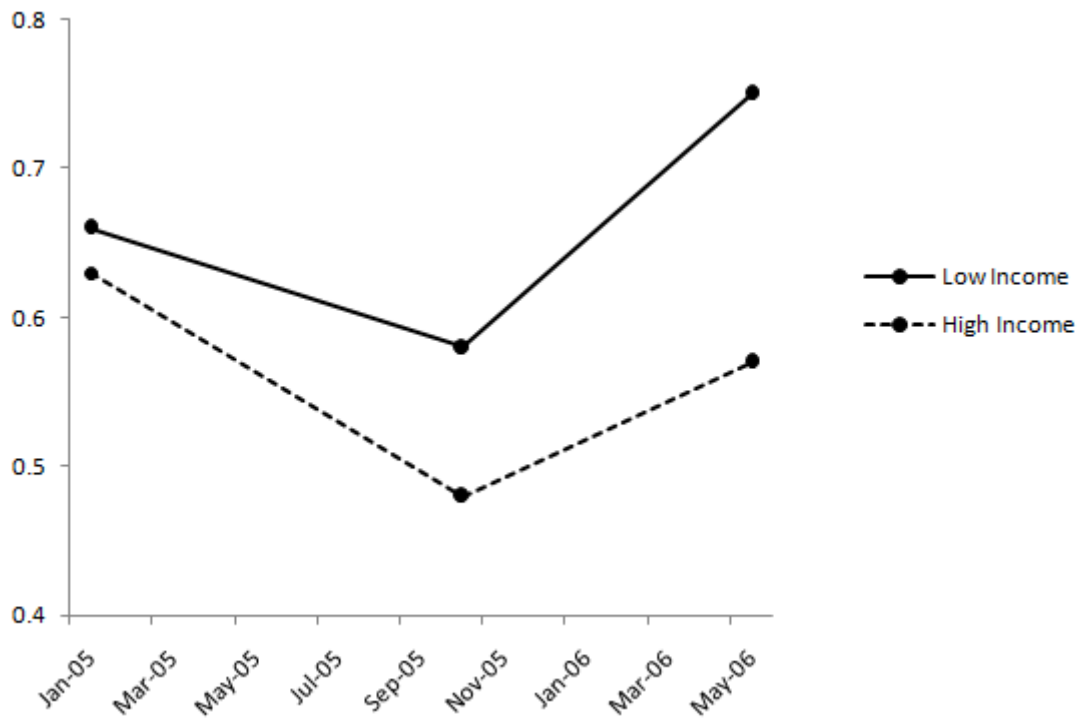
**Note.** This Figure plots the popularity ratings of Lula as given by the percentage of individuals who rated his government as "excellent" or "good" during the period between January 2005 and July 2006. The 2006 presidential elections were held on October, 1st (first round election) and October, 15th (runoff election), in which Lula received 48.6% and 60.8% of the valid votes, respectively. Source: CNT/Sensus.

**Figure 1b: Popularity Ratings - Lula**



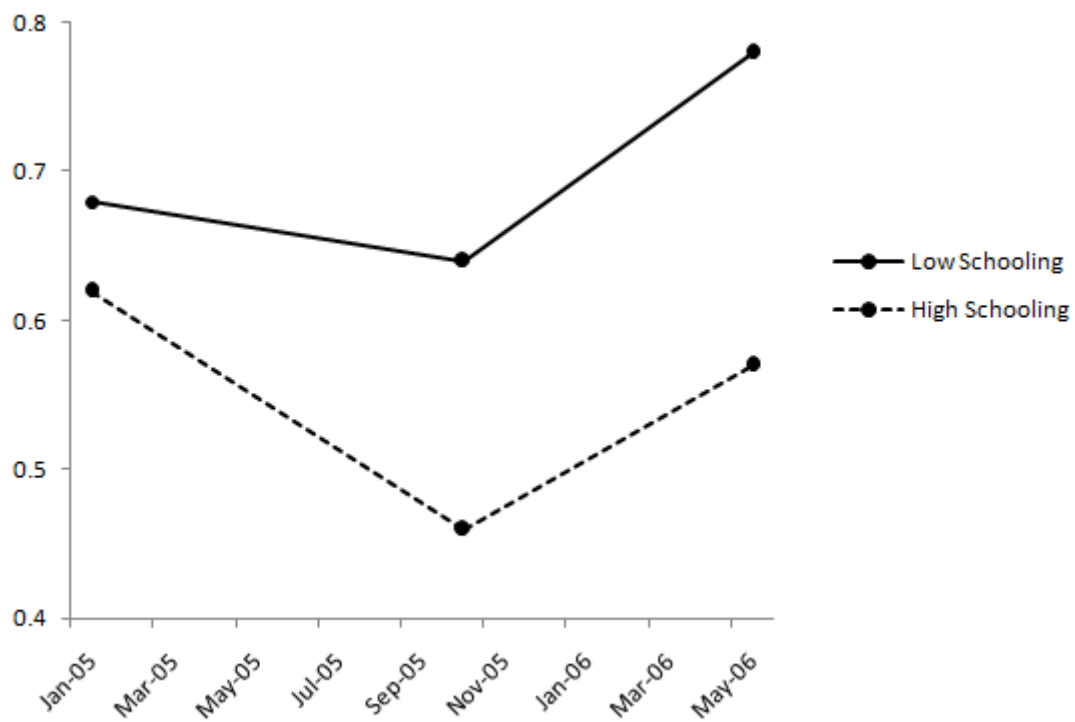
**Note.** This Figure plots the aggregate approval ratings of Lula in January 2005 (pre-"mensalão" crisis), October 2005 ("mensalão") and May 2006 (post-"mensalão" crisis). Source: Ibope (microdata).

**Figure 2: Approval Ratings - Lula**



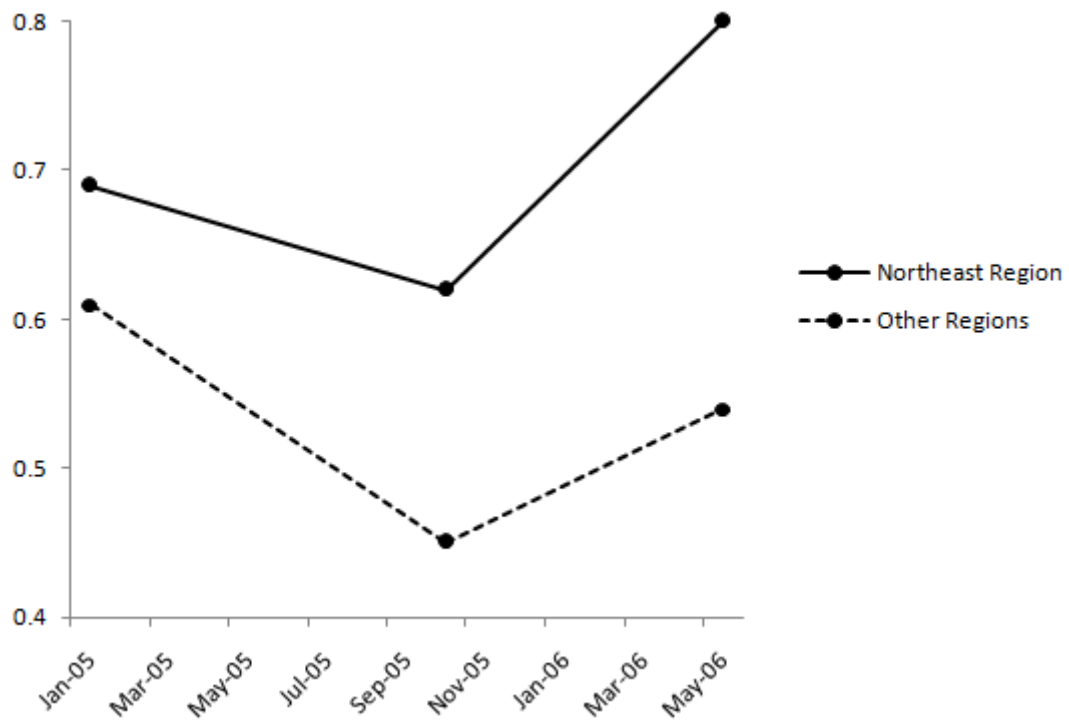
**Note.** This Figure plots the approval ratings of Lula by income level in January 2005 (pre-"mensalão" crisis), October 2005 ("mensalão") and May 2006 (post-"mensalão" crisis). The sample is divided into low income individuals (with household income below the minimum wage) and high income individuals (with household income above the minimum wage). Source: Ibope (microdata).

**Figure 3: Approval Ratings by Income Level**



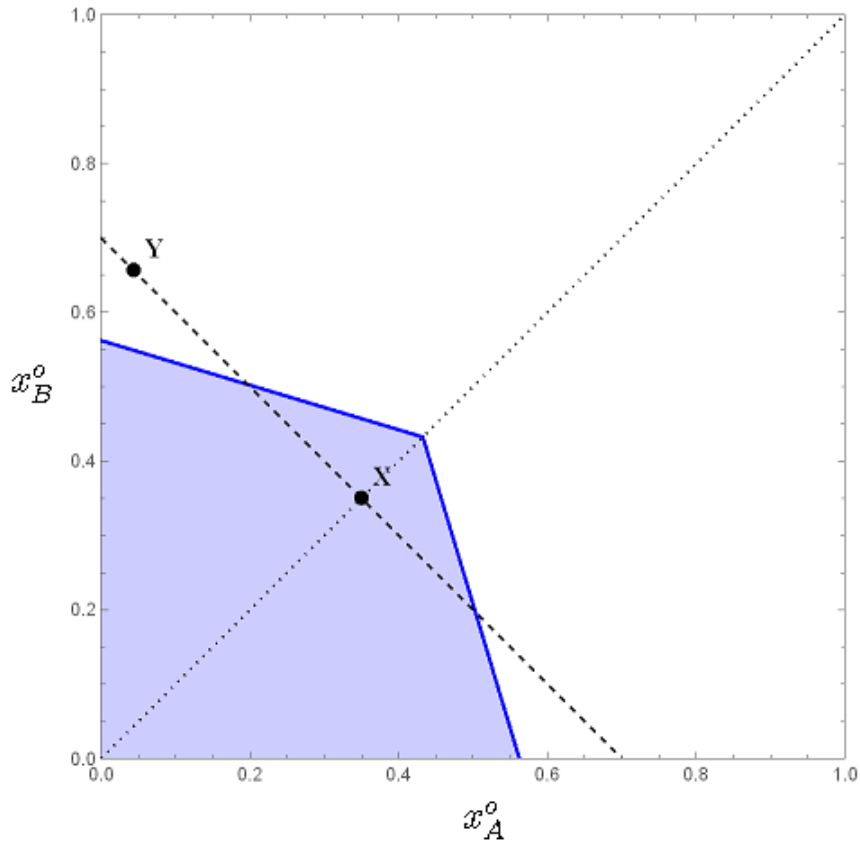
**Note.** This Figure plots the approval ratings of Lula by schooling level in January 2005 (pre-"mensalão" crisis), October 2005 ("mensalão") and May 2006 (post-"mensalão" crisis). The sample is divided into low schooling individuals (with incomplete primary education or less) and high schooling individuals (with complete primary education or more). Source: Ibope (microdata).

**Figure 4: Approval Ratings by Schooling**



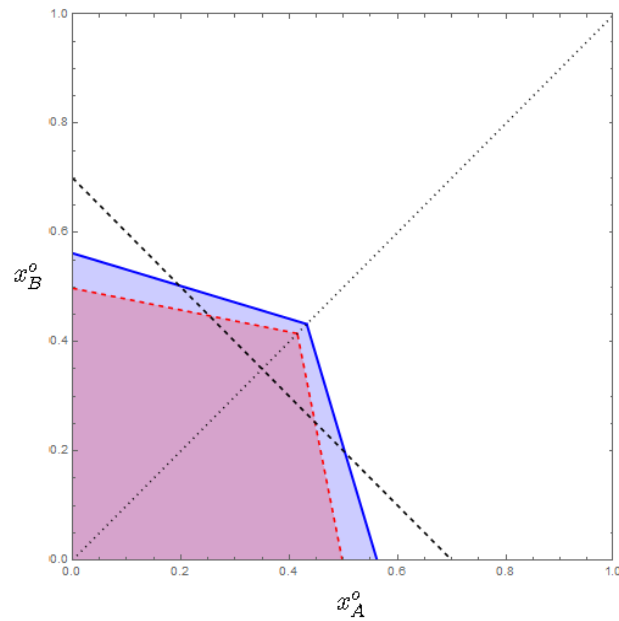
**Note.** This Figure plots the approval ratings of Lula by Brazilian region in January 2005 (pre-"mensalão" crisis), October 2005 ("mensalão") and May 2006 (post-"mensalão" crisis). The sample is divided into individuals from the Northeast and individual from other regions. Source: Ibope (microdata).

**Figure 5: Approval Ratings by Region**



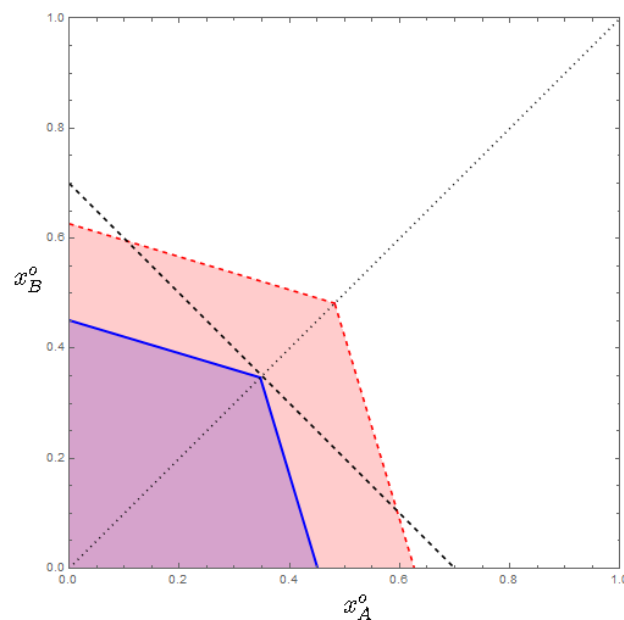
**Note.** This Figure depicts the conditions for the existence of a conciliatory equilibrium as a function of the status quo transfers,  $x_A^o$  e  $x_B^o$ , assuming the following parameter values:  $\phi = 0.7, \delta = 0.6, r^o = 0.1$  and  $\xi = 0.9$ . The dashed line represents the resource constraint under the status quo,  $x_A^o + x_B^o + 2r^o = \xi$ . A conciliatory equilibrium exists in the shaded region of the graph.

**Figure 6: Conciliatory Equilibrium - Existence Conditions**



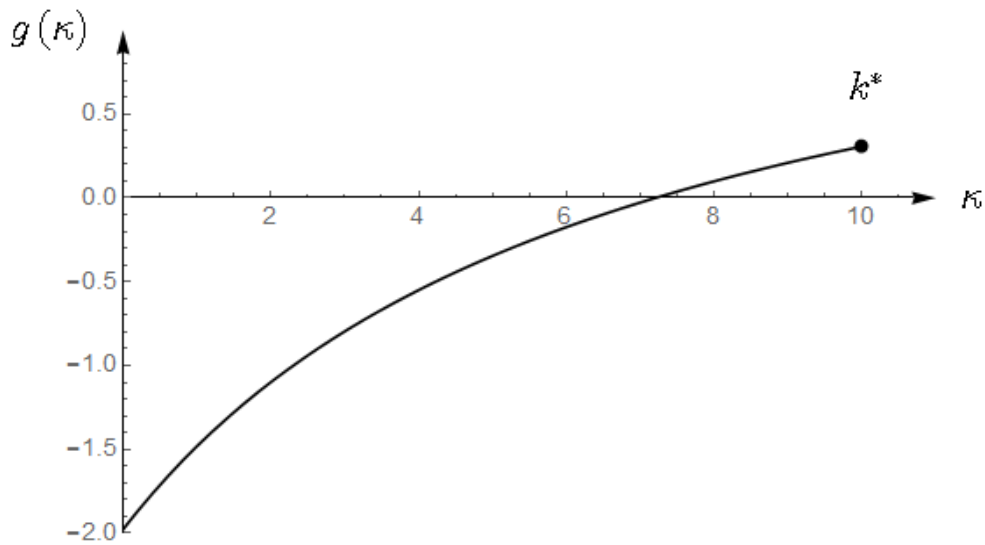
**Note.** This Figure provides a graphical representation of the effect of an increase in the degree of political polarization from  $\phi = 0.7$  (blue solid line) to  $\phi' = 0.9$  (red dashed line) on the conditions for the existence of a conciliatory equilibrium, assuming that  $\delta = 0.6$ ,  $r^o = 0.1$  and  $\xi = 0.9$ . Note that the boundaries of the region shift inward, so that the equilibrium becomes less likely to exist.

**Figure 7a: Comparative Statics - Increase in the Degree of Political Polarization**



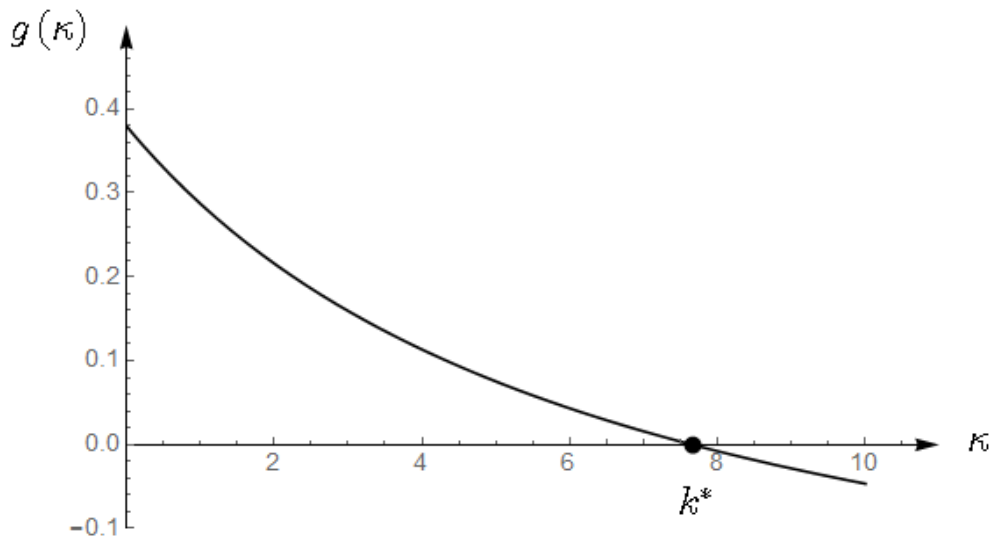
**Note.** This Figure provides a graphical representation of the effect of an increase in the discount factor from  $\delta = 0.6$  (blue solid line) to  $\delta' = 0.9$  (red dashed line) on the conditions for the existence of a conciliatory equilibrium, assuming that  $\phi = 0.7$ ,  $r^o = 0.1$  and  $\xi = 0.9$ . Note that the boundaries of the region shift outward, so that the equilibrium becomes more likely to exist.

**Figure 7b: Comparative Statics - Increase in the Discount Factor**



**Note.** This Figure plots the function  $g(\kappa)$  for the following parameter values:  $\phi = 0.1, N = 10, \delta = 0.6, r^o = 0.01$  and  $x^o = 0.30$ . The conciliatory equilibrium exists if, and only if,  $g(\kappa) \geq 0$ . Note that in this case the optimal degree of checks and balances is  $\kappa^* = 10$ .

**Figure 8a: Optimal Checks and Balances - Low Polarization Case**



**Note.** This Figure plots the function  $g(\kappa)$  for the following parameter values:  $\phi = 0.99, N = 10, \delta = 0.6, r^o = 0.01$  and  $x^o = 0.35$ . The conciliatory equilibrium exists if, and only if,  $g(\kappa) \geq 0$ . Note that in this case the optimal degree of checks and balances is given by the point  $\kappa^*$  where the function  $g(\kappa)$  crosses the horizontal line, where we ignore the integer constraint for simplicity.

**Figure 8b: Optimal Checks and Balances - High Polarization Case**

Dependent Variable : Approval - Lula (0/1)

Sample: Jan/2005 and Oct/2005

	Logit Regressions					
	(1)	(2)	(3)	(4)	(5)	(6)
	Estimates	Marg. Effects	Estimates	Marg. Effects	Estimates	Marg. Effects
Dummy Oct/2005	-0.630*** (0.076)	-0.153*** (0.018)	-0.650*** (0.077)	-0.157*** (0.018)	-0.666*** (0.081)	-0.161*** (0.019)
Dummy Oct/2005 × Low Income	0.294*** (0.191)	0.070 (0.044)				
Dummy Oct/2005 × Low Schooling			0.376** (0.180)	0.089** (0.041)		
Dummy Oct/2005 × Northeast Region					0.324** (0.159)	0.077** (0.037)
Individual Characteristics		Yes		Yes		Yes
Municipal Characteristics		Yes		Yes		Yes
Observations		3,581		3,581		3,581

**Note.** This Table reports Logit regressions where the dependent variable is a dummy indicating whether the individual approves the Lula administration. The sample consists of observations from an opinion survey conducted by the Ibope on January 2005 (pre-crisis period) and October 2005 (crisis period). Individual characteristics include household income, schooling level, sex and age. Municipal characteristics include region of the country, population size and type of municipality. Columns (1), (3) and (5) report the Logit coefficient estimates, while columns (2), (4) and (6) report the marginal effects calculated at the sample mean. Robust standard errors are reported in parentheses. \*\*\*, \*\* and \* denote significance at 10%, 5% e 1%, respectively.

**Table 1: Lula's Approval Ratings (January 2005 and October 2005)**

Dependent Variable : Approval - Lula (0/1)

Sample: Oct/2005 and May/2006

	Logit Regressions					
	(1) Estimates	(2) Marg. Effects	(3) Estimates	(4) Marg. Effects	(5) Estimates	(6) Marg. Effects
Dummy May/2006	0.163*** (0.078)	0.113*** (0.018)	0.472*** (0.078)	0.115*** (0.018)	0.401*** (0.545)	0.097*** (0.128)
Dummy May/2006 × Low Income	0.366* (0.189)	0.087** (0.043)				
Dummy May/2006 × Low Schooling			0.336* (0.192)	0.080* (0.044)		
Dummy May/2006 × Northeast Region					0.545*** (0.170)	0.128*** (0.037)
Individual Characteristics		Yes		Yes		Yes
Municipal Characteristics		Yes		Yes		Yes
Observations		3,603		3,603		3,603

**Note.** This Table reports Logit regressions where the dependent variable is a dummy indicating whether the individual approves the Lula administration. The sample consists of observations from an opinion survey conducted by the Ibope on October 2005 (crisis period) and May 2006 (post-crisis period). Individual characteristics include household income, schooling level, sex and age. Municipal characteristics include region of the country, population size and type of municipality. Columns (1), (3) and (5) report the Logit coefficient estimates, while columns (2), (4) and (6) report the marginal effects calculated at the sample mean. Robust standard errors are reported in parentheses. \*\*\*, \*\* and \* denote significance at 10%, 5% e 1%, respectively.

**Table 2: Lula's Approval Ratings (October 2005 and May 2006)**

Dependent Variable : Approval - Lula (0/1)

Sample: Jan/2005 and May/2006

	Logit Regressions					
	(1) Estimates	(2) Marg. Effects	(3) Estimates	(4) Marg. Effects	(5) Estimates	(6) Marg. Effects
Dummy May/2006	-0.163** (0.079)	-0.037** (0.018)	-0.163** (0.079)	-0.037** (0.018)	-0.250*** (0.083)	-0.057*** (0.019)
Dummy May/2006 × Low Income	0.674*** (0.192)	0.141*** (0.035)				
Dummy May/2006 × Low Schooling			0.721*** (0.196)	0.149*** (0.035)		
Dummy May/2006 × Northeast Region					0.893*** (0.174)	0.182*** (0.030)
Individual Characteristics		Yes		Yes		Yes
Municipal Characteristics		Yes		Yes		Yes
Observations		3,542		3,542		3,542

**Note.** This Table reports Logit regressions where the dependent variable is a dummy indicating whether the individual approves the Lula administration. The sample consists of observations from an opinion survey conducted by the Ibope on January 2005 (pre-crisis period) and May 2006 (post-crisis period). Individual characteristics include household income, schooling level, sex and age. Municipal characteristics include region of the country, population size and type of municipality. Columns (1), (3) and (5) report the Logit coefficient estimates, while columns (2), (4) and (6) report the marginal effects calculated at the sample mean. Robust standard errors are reported in parentheses. \*\*\*, \*\* and \* denote significance at 10%, 5% e 1%, respectively.

**Table 3: Lula's Approval Ratings (January 2005 and May 2006)**