

Revista do Serviço Público

# R S P

**Editorial**

Claudio D. Shikida

**Introduction**

Francisco Gaetani

**Democracy, regime duration, and growth**

Kevin Grier & Michael Munger

**Partisan intergovernmental transfers: empirical evidence, political and economic effects, and the electoral rationale**

Maurício S. Bugarin & Ivan Ferreira

**Who will guard the guards from corruption?**

João Rogério Sanson

**Making sense of health corruption in times of COVID-19**

Roberta Muramatsu, Paulo Rogério Scarano & Caroline Cipolla Bertan

**Size of government and political coalition in Brazil (1980-2019)**

Mariângela Ghizzellini & Vladimir Fernandes Maciel



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# Contents

<b>Editorial</b>	<b>5</b>
Claudio D. Shikida	
<b>Introduction</b>	<b>9</b>
Francisco Gaetani	
<b>Democracy, regime duration, and growth</b>	<b>12</b>
Democracia, duração de regime, e crescimento	
Kevin Grier & Michael Munger	
<b>Partisan intergovernmental transfers: empirical evidence, political and economic effects, and the electoral rationale</b>	<b>42</b>
Motivação partidária nas transferências intergovernamentais: evidência empírica, efeitos políticos e econômicos, e lógica eleitoral	
Mauricio S. Bugarin & Ivan Ferreira	
<b>Who will guard the guards from corruption?</b>	<b>68</b>
Quem fiscaliza os fiscais na luta contra a corrupção?	
João Rogério Sanson	
<b>Making sense of health corruption in times of COVID-19</b>	<b>86</b>
Entendendo a corrupção na saúde em tempos de COVID-19	
Roberta Muramatsu, Paulo Rogério Scarano & Caroline Cipolla Bertan	
<b>Size of government and political coalition in Brazil (1980-2019)</b>	<b>110</b>
Tamanho de governo e coalizão política no Brasil (1980 – 2019)	
Mariangela Ghizellini & Vladimir Fernandes Maciel	

# Editorial<sup>1</sup>

“I have found myself trying to clarify the constitutional perspective on policies, and on the economy as well, with demonstrable but quite limited success.” [James M. Buchanan, “Better than plowing and other personal essays”, University of Chicago Press, 1992, p.154]

## 1. Preliminary Thoughts on Jorge Vianna Monteiro and Public Choice in Brazil

This issue celebrates the academic life of a now-retired scholar, Jorge Vianna Monteiro. Jorge is a pioneer in a specialized field of knowledge: Public Choice. When his books started to circulate among us, the Brazilian economy was experiencing hyperinflation. Somewhat surprisingly, many influential economists still optimistically held onto a naïve concept of economic policy at the time. “Politics,” they used to say, “is what politicians do.” The separation between politics and economics had its theoretical underpinnings in the so-called *public finance* view, the mainstream approach for those studying Public Sector Economics.

In 1986, James Buchanan was awarded the Nobel Prize in Economic Sciences. The Public Choice agenda, which grew out of Arrow’s classic seminal paper on the Impossibility Theorem, was finally recognized as an important tool for modern economics. Some Brazilian economists knew about Public Choice, at least since 1982, thanks to Prof. Monteiro’s “Fundamentos da Política Pública” (*Foundations of Public Policy*).

I was first introduced to Public Choice during my final undergraduate years thanks to a course by Prof. William R. de Sá. After some initial readings, I went to our faculty’s library and took all the books authored by Jorge that I could find. I read it all, and I loved it all<sup>2</sup>. I was working in another subject for my final undergraduate essay at the time, so

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1 I would like to thank Miss Jennifer Su, Intern at Revista do Serviço Público, for her assistance with my non-native English.

2 Those were: Fundamentos da Política Pública, (IPEA/INPES, 1, 1982); Economia do Setor Público, (PNPE/IPEA, 17, 1987); Macroeconomia do Crescimento de Governo, (PNPE/IPEA, 22, 1990); and Estratégia Macroeconômica, (IPEA/INPES, 26, 1994).

my in-depth contact with Public Choice was postponed a bit.

I would return to Public Choice in my master's course at USP thanks to Professors Marcos Fernandes Gonçalves da Silva and Ronald O. Hillbrecht. I had to use Public Choice because I was studying the political economy of the emancipation of towns that occurred more intensely in the mid-1990s, soon after the new Brazilian Constitution.

While drafting this editorial, I found a fax I received from Prof. Monteiro on September 1, 1995, with a photocopy of a text he sent me to help me with my master's thesis.<sup>3</sup> He has always been a gentleman and enthusiastic to help anyone with an interest in studying Public Choice.

Despite the obvious connection between politics and economic policy in Brazil, we have never created anything like a Brazilian Public Choice Society.<sup>4</sup> Perhaps it is because we have not had enough scholars fully specialized in Public Choice. However, after all these years, it would not be incorrect to say that we do have many scholars who have explored several hypotheses derived from Jorge's articles in this field.<sup>5</sup> Some have even published in *Public Choice*, the most famous journal of the field.<sup>6</sup>

In the 90s, we could also learn about the Brazilian economy's problems through the lens of Public Choice in a free<sup>7</sup> newsletter Jorge Vianna Monteiro emailed subscribers. It was named 'Estratégia Macroeconômica,' the same name as a book he published in 1994. The newsletter continued until his retirement from the economics department of PUC-RJ.<sup>8</sup> Much of the newsletter's content was used as input for his last five books.<sup>9</sup>

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3 I visited him around that time, and he generously gave me his own personal copy of Niskanen's classic book on bureaucracy.

4 As far as I know, there are three Public Choice associations in the world. The first and most famous is the Public Choice Society. The others are the European Public Choice Society and the Japanese Public Choice Society (公共選択)(kōkyō sentaku).

5 Many articles that use Public Choice insight do not mention "Public Choice" explicitly. Instead, they use keywords like Positive Political Economy or Political Economy.

6 It is not unusual to find the keywords "growth of government," "rent-seeking," "political business cycles," "fiscal illusion," "flypaper effect," and others in databases of scientific works authored by Brazilian researchers.

7 Well, to be precise, there are no free newsletters. But the only subjective cost was sending a message to Jorge's email requesting the subscription...

8 The Pontifícia Universidade Católica, RJ (Pontifical Catholic University, Rio de Janeiro) has been one of the most productive economic centers in Brazil.

9 *Economia & Política: Instituições de Estabilização Econômica no Brasil*, (FGV EDITORA, 1997); *As Regras do Jogo*:

Jorge Vianna Monteiro is now a retired scholar. In a certain way, scholars never retire. In fact, he is still active on social networks<sup>10</sup> and still contributes significantly to our understanding of how difficult it is to build public policies in practice.

## 2. About the Articles of this Special Issue

This special issue is honored to have an invited introduction written by Prof. Francisco Gaetani, whose career trajectory has given him an intellectually refined view of the microfoundations of Brazilian bureaucracy.

This issue contains five more interesting articles.

In the leading article, Michael Munger and Kevin Grier explore the subject of regime type and economic growth. Which type of regime does the most for its population? Democracies or autocracies? Using an unbalanced panel of 155 countries with data from the period 1950-2006, they show that, in the long run, democracies seem to have a superior performance.

The second article, from Mauricio S. Bugarin and Ivan Ferreira, explores the political motivation of intergovernmental transfers. Bugarin has been studying the phenomena since the beginning of this century. In this paper, the authors present a positive political-economic model that explains several stylized facts of *partisan transfers*, i.e., transfers from higher levels of government to subnational ones.

Voters are sometimes seen as victims of the political process. Take, for example, a society plagued by rent-seeking activities. The spread of corruption would be a dangerous issue as the auditors themselves can also be corrupted. The main question is, who will audit the auditors? For João R. Sanson, the author of the third article, voters will be the last resort in a politically competitive environment with the free flow of information (which, by the way, is something we have been seeing in the social media era).

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O Plano Real, 1997-2000, (FGV EDITORA, 2000, 2003-3ª EDIÇÃO); Lições de Economia Constitucional Brasileira, (EDITORA FGV, 2004); Como Funciona o Governo: Escolhas Públicas na Democracia Representativa, (EDITORA FGV, 2007; 2016-5ª REIMPRESSÃO); and Governo e Crise: Escolhas Públicas no Brasil e no Mundo, 2007-2011, (EDITORA FGV, 2011).

10 His LinkedIn profile: <https://www.linkedin.com/in/jorge-economista-public-choice/>.

The pandemic required a quick response from governments around the world but also made it easier for corruption to emerge. Corruption in the health sector is the central theme in Roberta Muramatsu, Paulo R. Scarano, and Caroline C. Bertran's article. They use a mixed theoretical approach with insights from three main economic traditions to analyze the role of government—New Institutional Economics, Public Choice Theory, and the Austrian School of Economics—and analyze the case of the Rio de Janeiro state.

Mariângela Ghizellini and Vladimir Maciel investigate another important issue in Public Choice: the size of the government. They test the hypothesis that *coalition presidentialism* would partially explain Brazilian federal spending between 1980 and 2019. They did not find strong evidence in favor of the *coalition presidentialism* hypothesis, but they highlighted several issues regarding the importance of the institutional component in our understanding of the size of the Brazilian federal government.

We hope that the articles of this special issue will show the reader the importance of the analytical framework of Public Choice analysis.

**Claudio D. Shikida**

Editor-in-Chief



# A trajectory of dissemination of ideas of public choice

Francisco Gaetani<sup>1</sup>

The biographies of intellectuals who, throughout their lives, are dedicated to making known a set of ideas that they deem important for society are getting increasingly rare. An analysis of Professor Jorge Vianna Monteiro's curriculum shows an academic who has consistently dedicated himself to the study, research, and dissemination of the contents of a school of thought –public choice – that has profoundly influenced the studies of economics, political science, and public management in recent decades.

A small and remarkable publication, “Dimensões do Setor Público”, dated from 1984, authored by Professor Jorge Vianna Monteiro, was edited by the Fundação Centro de Formação do Servidor Público (FUNCEP), a predecessor of the National School of Administration Public Administration (ENAP). His first book – Fundamentals of Public Policy – had been published two years earlier by the Institute for Applied Economic Research (IPEA).

Criticisms dominated the economic debate at that time. The so-called “czar” - minister Delfim Netto – was the central protagonist of the economic scene. The country's attention was focused on disputes associated with re-democratization and external debt negotiations. The political struggle conflagrated the academic world. Few schools had cadres who had had the opportunity to study abroad. Brazil had been closed for many years and paid a tribute for this lack of the integration with the rest of the world in several areas, including academic training for master's and doctoral programs.

The ideas associated with public choice did not penetrate the public sector - perhaps because of its defensive instinct - despite its increasing popularity in academic centers, especially in the Anglo-Saxon world. Interestingly, in Political Science, this set of

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<sup>1</sup> Francisco Gaetani is Coordinator of the Public Administration Professional Master's Program at the Brazilian School of Public and Business Administration at Getúlio Vargas Foundation.

approaches was well received first in the late IUPERJ, which hosted the first generation of doctors trained abroad in the best universities in the United States and later by the political scientists.

In the world of Economic Sciences, the challenges, first of macroeconomic stabilization and, later, of fiscal balance, were dominant for a long time, to the point of inhibiting other areas of study that would only gain their own space from the 1990s onwards. The arrival of economists in areas such as education, health, and poverty took a long time. Still, the field of public sector economics continued to be relegated to the background. Public finance was dominated by “practitioners” with little interaction with the frontier of discussions inspired by Public Choice theoretical developments.

Professor Jorge Vianna Monteiro’s publications show his itinerary that included the search for influence in the complex national debate via the application of an analytical and sometimes disconcerting look in the conceptual modelling of national challenges. It has made a difference in the analysis the efforts to introduce rational behavior of protagonists within the premises of researchers.

This can also be quite uncomfortable. After all, it illuminates conflicts, something always challenging in the context of political dispute within the government or even in the expanded public arena, including the Legislative and the Executive - in addition to the special guests who are now part of the Brazilian national ‘institutional soap opera’: the Federal Court of Accounts and the Public Prosecutor.

Some hot topics in Public Choice tradition are now not so uncommon among us. Rent-seeking, budget maximization, voting-with-the-feet, political transaction costs, political business cycles, agency theory, among others.

It is worth recording the language issue in this conversation. The strength of these ideas is greater in English, whether through their incorporation into the common language or the capacity of Anglo-Saxon societies to face conflicts more openly. The existence of few classic school authors translated into Portuguese adds to the difficulties associated with language.

Another element of diffraction of the ideas associated with public choice in Brazil is the political-ideological issue. We are a country full of historical misunderstandings in the assimilation of ideas originating in other contexts. The attempt to identify the Public Choice approach with normative views of the world like the classical liberal or conservative thoughts deprived the political center and social democracy of powerful tools for analysis and appropriation of reality.

Finally, there is the legal establishment. Few expressions carry the weight of the “public interest” in administrative Law. The advancement of public choice theorists on the world of Law, especially Constitutional Law, is a radical threat to every normative tower built around basic, but not untouchables, principles. By illuminating the bowels of Law from its perspective, public choice produces significant contributions to our better understanding of the role of Law - and of the Rule of Law - and its impact on society’s welfare.

# Democracy, regime duration, and growth

Kevin Grier<sup>1</sup>  
Michael Munger<sup>2</sup>

<sup>1</sup>Department of Political Science, Texas Tech University, USA

<sup>2</sup>Duke University, Political Science, USA

Findings of regularities in statistical relationships between regime type and economic growth are debatable, because specifications are variable. We argue that the effect of regime type on growth is contingent on the duration of the regime. Further, the effect of duration depends on regime type: older autocracies grow at a different rate than older democracies. The reason is that the causes for decelerating growth are fundamentally different in democracies and autocracies. Our estimations are run on a large (unbalanced) annual panel of 155 countries from 1950 – 2006. In this sample, autocracies grew around 0.75 percentage points more slowly than non-autocracies, holding constant the regime-specific effect of regime duration. Autocratic growth rises for the first 30 years, after which growth rates fall rapidly. Non-autocracies always grow faster than equally old autocracies, but the differences are especially pronounced when young and old regimes are compared. Some implications of this result for the political system of Brazil are discussed.

**Keywords:** economic development, autocracy

## Democracia, duração do regime, e crescimento

Os achados de regularidades nas relações estatísticas entre o tipo de regime e o crescimento econômico são discutíveis, porque as especificações são variáveis. Argumentamos que o efeito do tipo de regime sobre o crescimento depende da duração do regime. Além disso, o efeito da duração depende do tipo de regime: as autocracias mais antigas crescem a uma taxa diferente das democracias mais antigas. A razão é que as causas da desaceleração do crescimento são fundamentalmente diferentes nas democracias e autocracias. Nossas estimativas são feitas com um painel anual (desbalanceado) de 155 países de 1950 a 2006. Nesta amostra, as autocracias cresceram cerca de 0,75 pontos percentuais mais lentamente do que as não-autocracias, mantendo constante o efeito específico do regime da duração do regime. O crescimento nas autocracias aumenta nos primeiros 30 anos, após os quais as taxas de crescimento caem rapidamente. As não-autocracias sempre crescem mais rápido do que as autocracias igualmente antigas, mas as diferenças são especialmente pronunciadas quando os regimes jovens e velhos são comparados. Algumas implicações desse resultado para o sistema político do Brasil são discutidas.

**Palavras-chave:** desenvolvimento econômico, autocracia

## Democracia, duración del régimen, y crecimiento

Los hallazgos de regularidades en las relaciones estadísticas entre el tipo de régimen y el crecimiento económico son discutibles, porque las especificaciones son variables. Argumentamos que el efecto del tipo de régimen sobre el crecimiento depende de la duración del régimen. Además, el efecto de la duración depende del tipo de régimen: las autocracias más antiguas crecen a un ritmo diferente al de las democracias más antiguas. La razón es que las causas de la desaceleración del crecimiento son fundamentalmente diferentes en las democracias y las autocracias. Nuestras estimaciones se ejecutan en un panel anual grande (no equilibrado) de 155 países entre 1950 y 2006. En esta muestra, las autocracias crecieron alrededor de 0,75 puntos porcentuales más lentamente que las no autocracias, manteniendo constante el efecto específico del régimen de la duración del régimen. El crecimiento autocrático aumenta durante los primeros 30 años, después de lo cual las tasas de crecimiento caen rápidamente. Las no autocracias siempre crecen más rápido que las autocracias igualmente antiguas, pero las diferencias son especialmente pronunciadas cuando regímenes jóvenes y viejos son comparados. Se discuten algunas implicaciones de este resultado para el sistema político de Brasil.

**Palabras clave:** desarrollo económico, autocracia

## Introduction

During the past two decades economic policy in Brazil has been the final product of a game of unstable rules when even constitutional rules—supposedly the most durable set of institutions in a representative democracy—have been changing with high frequency and variable range...The fact is that Brazilian political leaders do not seem to understand that the credibility of public choices demands respect for the constitution. The temptation to change constitutional rules so frequently is especially salient in election years, and also as a component of a solution to some political scandal. (Monteiro, 2009).

One of the key insights Jorge Monteiro took from Public Choice was the importance of rules, and the consistency of rules. As he demonstrated in the paper quoted from above, the set of commitments to rule of law that allow nations to flourish depend on “respect for the constitution.” But often developing nations, particularly those with immature or hastily constructed constitutions, face a dilemma: democratic processes can be frustratingly slow, and reforms in response to problems of corruption or economic collapse can be disjointed. It is tempting, especially in a crisis, to resort to extraordinary “emergency” measures to hasten the response.

But a state of constant emergency and changes of the constitution driven by central leadership make credible commitments—to property rights, to sustained attention to lower taxes and reduced regulatory burden, or even just to reduced meddling in labor markets for political gain—harder to sustain. As North and Weingast (1989) showed, the ability to make credible commitments and to prevent constant change is paradoxically one of the hallmarks of the ability to adapt to changing circumstance.

This raises one of the key questions in development economics: Do democracies grow at different rates than autocracies? The empirical evidence is mixed. Perhaps because it is an article of faith for Western elites and media that democracy is better, many scholars have labored to show that democracies grow faster. In fact, the United Nations International Covenant on Civil and Political Rights<sup>1</sup> claims that democracy

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<sup>1</sup> There are three key articles regarding democracy, Articles 21, 22, and 25. Articles 21 and 22 guarantee “freedom of peaceful assembly.” Article 25 asserts “Every citizen shall have the right and the opportunity...without unreasonable restrictions: 1. To take part in the conduct of public affairs, directly or through freely chosen representatives; 2. To vote

is a fundamental human right. But is it plausible for a developing nation in desperate economic straits to write down “transition to democracy” first on its “to-do” list, not because democracy is a right but because democracy causes greater growth?

Anecdotal evidence can be (and is!) marshaled in support of either position. Fast-growing Singapore is a dictatorship, but then so is medieval North Korea. Democracy advocates might point to Estonia or South Korea, but gloss over Costa Rica, France, or Venezuela.<sup>2</sup> Statistical analysis is inconclusive and confusing enough that some important scholars (e.g., Brunetti, 1997; Przeworski, *et al*, 2000; Ross, 2006) have concluded that growth is largely unaffected by regime type. More recent surveys (Doucouliagos and Ulubaşoğlu, 2008; Gwartney and Lawson, 2003; Rodrik, 2000) have concluded that there is no clear relationship between regime type and growth, and that the most that can be said about democracy is that it is a “meta-institution” standing in for a suite of policies that actually cause growth.

Siegle, et al. (2004) argue that democracies are more responsive, and are much more able to deliver the benefits of aid to their citizens, where autocracies simply steal the aid for elites. Rodrik (2004) attributes the positive difference he sees as being the result of good governance and the ability of democracies to commit. For Rodrik in particular, little matters except institutions. Ross (2006), on the other hand, doubts both of these conclusions, since a focus on actual outcomes (in this case, health outcomes) allows not measurable distinction between democracies and autocracies.

In this paper we argue that the lack of convergence in empirical estimates is more a product of different specifications and theoretical approaches than of genuine contradictions in the data. The goal of this paper is to select a general, but parsimonious, specification that allows for several kinds of variation other scholars<sup>3</sup> have argued might be important. This will allow us to capture the possibility that the answer to the

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and to be elected at genuine periodic elections which shall be by universal and equal suffrage and shall be held by secret ballot, guaranteeing the free expression of the will of the electors; 3. To have access, on general terms of equality, to public service in his country.” The United Nations International Covenant on Civil and Political Rights, 1976. <http://www.hrweb.org/legal/cpr.html>

2 While France was a post war miracle economy, per capita income relative to the US peaked there at 80% at the beginning of the 1980s and fell to 66% by 2000 according to the Penn World Tables. Venezuela fell from 44% of US income per capita in 1957 to 20.3% in 2000 and was classified as a democracy for every year from 1958-2000. Another example of an under-performing democracy is Costa Rica whose relative income peaked at 28% of the US in 1960 and fell to 16.5% by 2000.

3 See, for example, Olson (1992)

question, “what form of government is better for growth?” is contingent. There are two possibilities that any statistical treatment must take into account.

- The relation between any government type and growth depends on the duration, or age, of the regime. Organized interests create permanent diversions of resources, and limit the capacity of the economy and the political system to respond to shocks.
- The relation between regime duration and growth is itself mediated by regime type. That is, institutional sclerosis operates very differently in democracies compared to autocracies. The formation and influence of interest groups have very different dynamic properties.

But this means that accounting for duration, contingent on regime type, is crucial to any realistic prospect of obtaining accurate measures of the effect of regime type on growth. Further, two different growth trajectories as functions of duration have to be calculated: one for democracies, and the other for autocracies.

Building on this theoretical foundation, our estimates depend on two other claims about empirical specification. First, using an index measure of democracy as if it were a continuous linear regressor to explain growth obscures the (possibly complicated) true relationships between regime type and economic performance. Consequently, in this paper we transform the democracy index into a dichotomous dependent variable. To those who might object that we are throwing away useful variance to be explained, we would respond that the variance is an artifact of the measure, not of the phenomenon being measured, so that using the index creates far more problems than it solves.

Second, pervasive sample selection problems have plagued previous work. The variability in results is not surprising, because no reliable inference about growth can be drawn in the face of such selection problems. The desire of previous authors to use variables whose importance was implied by complex theories is understandable, of course. But the cost in terms of bias and reliability on such a non-randomly selected sample was much too high. The expanded sample used here means that we cannot use complete sets of values of conditioning variables. But this loss is more than compensated for by including a much greater range of variation in the variables of key interest. Reliable estimates of the key theoretical relationships between government type and growth are better than biased estimates incorporating complex mediating effects. The parsimony of



our model may or not be an advantage, of course, depending on one's view of statistical modeling.<sup>4</sup> But the fact that we are able to include more cases, with more statistically independent variation in growth and regime type, is unambiguously a benefit.

To summarize: We analyze the growth patterns of 155 countries, using an unbalanced annual panel over the period 1951 – 2006. The main question is whether growth is contingent on dictatorship, and if so how. Dictatorship and democracy are defined using a single dummy variable, which takes the value “1” for autocracies. In our sample, then, Brazil is classified as a “democracy” for the periods 1951-1964, and since the “New Republic” period of 1985; it was an autocracy during the period of the military dictatorship, 1964-1985.

Using this design, we find that dictatorships pay a significant penalty in terms of growth: on average non-democracies grow approximately 0.75 percentage points per year more slowly, holding regime duration constant. We also show that regime length has a significant impact on growth that is both non-linear and regime type specific. These results buttress (with some caveats) the policy prescription that new nations seeking growth should adopt democratic institutions as soon as possible.

The paper is organized as follows. Section I reviews the theoretical and empirical literature. Section II describes our modeling strategy and data, while section III presents our basic results and some robustness tests. Section IV discusses how our results relate to the literature and section V concludes.

## I. The existing literature

The empirical literature on regime type and economic performance is enormous and equivocal. Brunetti (1997) concludes, “Considering the evidence of this survey, it can be safely stated that there is no clear relationship between democracy, at least as measured in these studies, and economic growth.” Other reviews (see, e.g., Aron 2000) highlight dozens of papers, but some of the most important for our purposes can be summarized briefly.

Levine & Renelt (1992), Barro (1996), Przeworski *et al.* (2000), Tavares & Wacziarg (2001) all conclude that democracy is either unrelated to growth, or has a mild

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<sup>4</sup> That is, the parsimony of our model is a necessity, but it might also be a virtue. One claim on the side of “virtue” is Achen, 2005.

to moderate negative effect. Gerring, Bond, Barndt, & Moreno (hereafter GBBM, 2005) and Persson & Tabellini (hereafter PT, 2009) both argue that the “stock” democratic institutions matter more than small changes, and that either democracies or autocracies at risk of transition grow more slowly.

The survey, or “meta-analysis,” by Doucouliagos and Ulubaşoğlu (2008) suggests that there are important categories of literature that help organize existing theories and evidence. The three main categories they suggest are (1) conflict (democracy hampers growth); (2) compatibility (democracy either directly causes growth, or doesn't hinder it); and (3) skepticism (the democracy-autocracy classification is nearly irrelevant to growth. We will consider each of these briefly.

**Conflict:** Democracies allow, and perhaps even promote, conflict (Huntington, 1968; Kurzmann, et al., 2002). Political institutions are both weak, in the sense of being unable to resolve conflicts, and fragile, in the sense of being unable to make commitments even about their own survival. Short term bias, because of elections, means that profitable social investments will be foregone in favor of popular demands. Demands for redistribution will prove irresistible, and competition for greater levels of redistribution or other favorable treatment will engender unrestricted rent-seeking competitions. As a result interest groups will organize to “invest” in non-productive but potentially highly profitable activities to influence government and attract subsidies and protection from competition. In this view, autocracy is necessary, but certainly not sufficient, to achieve growth. Autocratic governments can restrict the scope of conflict, cut off rent-seeking, and pursue medium to long-run social investment goals.

The problems with this approach, as have been pointed out by many authors, include the fact that the relation between a strong state and authoritarian state is at best weak (de Haan and Siermann, 1995a). More generally, the problems with a pure conflict approach as a theory of the relation between democracy and growth are many, and most of the theoretical claims are questionable (for a review, see Sirowy and Inkeles, 1990). That is not to deny the problems that democracies face, particularly when they are young. Instead, the difficulty is that autocracies can be expected to face many of the same problems, or worse, so that the theoretical claims about institutional differences are not dispositive.

**Compatibility:** Those who have argued that democracy is compatible with, or even aids,

growth have noted that rule of law can play the role of the autocrat, except that rule of law may actually be sufficient to ensure growth. The variety of compatibility arguments is wide (for a sampling, see Nelson, 1987, North 1990, Olson 1993, Bhagwati, 1995, and Nelson and Singh 1998), but rule of law generally lies at the center of the argument. By rule of law scholars have meant a variety of things, but the core elements are protections of both political and economic rights, an independent judiciary, and a professional and honest system of police enforcement. In fact, the weakness of democracy compared to autocracy, in terms of centralized control, has been argued to be a benefit in at least three ways.

First, it is more difficult for democratic leaders to confiscate assets, precisely because in a democracy there are means for property owners to defend themselves. At least two scholars, Olson (1993) and Bhagwati (1995) note that this effect is likely to depend on duration, though Olson thought the problem worse for new dictatorships and Bhagwati for older dictatorships. Second, democracies can borrow at cheaper rates—even from lenders in their home countries—because confiscation and renegeing on commitments will result in loss of power for the ruling elite. Thus democracies are able to attract loans and repay them more easily. Finally, democratic states may have significant powers of regulation and control of corruption without necessarily being authoritarian.

**Skepticism:** The difficulty, as several authors (most famously Rodrik, 2000, and Gwartney and Lawson, 2003) have pointed out, is that the key institutional comparison may not be autocratic v. democratic at all. To be fair, the same point had also been made, though generally more equivocally, a decade earlier (Alesina and Perotti, 1994; Bhagwati, 1995; Barro, 1996; Kaufmann, et al., 1999; Kaufmann and Kraay, 2003; Knack and Keefer, 1995). Instead, the key may be the extent to which there is a reliably independent judiciary and a police force that rejects corruption. If policies that allow citizens, industry, and organized interests to solve collective action problems through reliable and cheaply enforced agreements are in place, than either democracy or autocracy can produce steady growth. And without these kinds of policies, neither system can produce growth. Thus, the problem is not a choice of institutional form, a problem that could be solved simply by adopting a new constitution, but an entirely separate set of equilibria and political culture, with no obvious path for moving from one to another. Successful institutions, in what Doucouliagos and Ulubaşoğlu call the “skeptical view,” must exhibit

the following traits:

- Controlled corruption, with professional norms that actually make corruption shameful.
- Allow citizens to obtain licenses, permits, and to specify and enforce contracts, all low transactions costs.
- Make available an infrastructure that allows the recognition of, and adjustment to, changing market and technological conditions.

The argument of the “skeptics” is that the choice of institutions with three of these features is the key to growth. Consequently, the autocracy / democracy dichotomy is very nearly an empty comparison. Autocracies or democracies with these features will likely have rapid and sustained growth; autocracies or democracies that lack one or more of these features, or even just cannot credibly commit to maintaining these features over time, will have slow growth or stagnation.

Some of these theories would divorce the problem of growth from the selection of political institutions entirely, claiming that economic freedoms alone are sufficient to explain growth. In large measure this claim requires only that investors are assured that they can capture the fruits of their efforts through contracts, that their accumulated wealth will not be confiscated, and that the disputes that inevitably arise in complex market transactions will be resolved by legal arguments rather than bribes and rent-seeking contests. In the “economic freedom only” view, democracy might be associated with such institutions, but there is no necessary reason to expect that it will be.

These observations have merit empirically. The examples of Singapore, Hong Kong, and Taiwan illustrate that political freedoms are not necessary for growth, and the examples of Argentina and Italy illustrate that democracy is surely not sufficient for growth. But our object is to investigate the central tendency of institutional choices, over time and across as many nations as we can gather data for. If the suite of policies that is alleged to cause growth (rule of law, government accountability, bureaucratic efficiency, stability, absence of corruption, and regulatory policies driven by expertise rather than rent-seeking) are more likely in democratic systems than in autocratic systems, then the original distinction still has explanatory merit.

Rodrik (2000), in particular, argued forcefully that democracy is the form of governance that gives this suite of “growth policies” a stable equilibrium character, so that

democracy is the “meta-institution” that creates and sustains the entire suite of policies consistent with growth, rather than arbitrarily choosing some parts of the suite, as an autocracy might. Put simply, if this claim is correct, the statistical results of a properly specified set of regressions will identify democracy as the key differentiating feature, because though other systems might select “correct” policies their ability to commit to such policies over extended periods is limited.

Democratic policies are more predictable, and stable, because regime change is effected through elections that leave the essential constitutional and legal framework of the nation unchanged. Democracies are less likely to go to war, particularly against other democracies, and democracies are better able to respond to severe external shocks without collapsing into chaos or desperate policy measures to sustain the regime.

Finally, and no less important, a number of scholars have argued that there is a variety of indirect channels of growth and investment promotion that democracy stands in for, in a regression analysis. These channels include increased investment in human capital, guarantees of levels of income distribution that will forestall revolution or riots, and economic freedom. Democracy is not just “majority rule with organized party systems,” in this view, but rather a meta-institution that encourages individual achievement and investment.

Consequently, it is our claim that both the regime type, and the duration of the regime within a type, are important causal variables in determining the growth path of different systems. Of course, if we are to sustain this claim we must offer a persuasive explanation for the empirical (near) consensus that democracy either has no measurable effect on, or else actually retards, growth rates unless democracy is measured as a cumulative process.

There are three separate difficulties with previous work. Each of these could affect, and distort, the size, direction, and significance of findings on the relation between regime type, regime duration, and growth path. Taken together, an analysis that can offer improvements in all three categories should provide new insights into the central empirical question: does democracy cause growth, or retard growth? Here are the three problems.

1. A more comprehensive sample is required to capture a range of variation sufficient to make valid inference. In particular, if many of the “worst” autocracies have been excluded from previous samples, and those nations have had relatively low growth, the

“democracy retards growth” thesis may simply be an artifact of sample selection.

2. The use of the Freedom House index (or the Polity IV measure, or any normalization or other variant of such indices) as a linear regressor requires that the measure is scaled in cardinally constant increments, even if the specification itself is non-linear. However, there is no reason to believe that the difference between (for example) a -8 and a -6 on the scale is the same as the difference between a 1 and a 3. Our claim is simpler, and easier to test. Autocracies and democracies are different in a fundamental way.

3. In addition to considering regime type, it is also necessary to evaluate the duration or persistence of the regime. A dictator in his sixth year of power is different from a dictator in his first year. We do not consider the explicit processes that cause or explain these differences, but we demonstrate their empirical significance. Any analysis that ignores these effects will produce biased and inconsistent results. While the democratic capital papers cited above do something like this for democracies, they either ignore autocratic persistence or force it to be the inverse of democratic persistence.

## II. Modeling strategy and data

The cornerstone of our approach is allowing for regime specific duration effects on growth as described above. However, we also believe that it is important to address the other issues (measurement of autocracy/democracy, sample size, structural vs. reduced form modeling) we noted in the introduction.

In that regard, rather than use a qualitative index of regime type as a linear regressor as much of this literature does, we split the sample into autocracies and non-autocracies and report a sensitivity analysis on the splitting criterion.<sup>5</sup> It would be surprising if the intervals between points on a democracy scale had similar meanings, regardless of where on the scale the starting point was. Our claim is that inconstancy of interval meanings is a likely culprit as an explanation for the wide variability in findings that try to use the indices in this way.

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<sup>5</sup> While Przeworski *et al.* also use a 0 / 1 classification, using a multiple category index as a linear regressor is otherwise the standard practice in the empirical literature. An interesting examination of some of the issues can be found in Gleditsch and Ward (1997), who question whether the components of the underlying autocracy and democracy scores actually measure what they purport to in the first place.

We also have worked to achieve the largest sample size possible. We are using a dataset built on work originally done by Angus Maddison that contains a wider array of non-democratic country-years than does the usual source (the Penn World Tables) used in the literature. Of course this increase in coverage comes at the price of not having many conditioning variables in the regressions, but we consider this potential bug to actually be a feature in our analysis.

In effect, there are two basic modeling options: (a) specify and test a set of structural equations that capture the underlying channels by which effects are transmitted across sectors. (b) Specify a parsimonious reduced form model that controls for the key relationships between growth and institutions. Our sample size puts us into camp (b) by default, but we argue here that (b) is also the best approach on the merits, at least for this problem. There are three reasons. First, structural modeling greatly reduces the sample size and eliminates many cases that may be quite relevant (repressive and secretive dictatorships, for example). The most comprehensive structural investigation is that of Tavares & Wacziarg (2001) which can only study 65 countries once all the data requirements are met. Second, there is no agreed-upon, fully-specified theory of all the channels by which regime type can influence growth. If we specify the structure incorrectly, we will almost certainly miss the effect even if it is there.<sup>6</sup> Third, just as we have seen an argument that regime duration may affect growth differently for democracies and autocracies, it is likely that many other channels whereby regime type can affect growth vary by country group or other conditioning variables. In other words, even if we knew in theory all the structural channels, finding the correct functional form would remain a formidable challenge. Our strategy is to treat the specific structural channels through which regimes might affect growth as a black box, and instead look directly at the regime – growth relationship in a reduced form model.<sup>7</sup>

The data come from the Growth & Development Center at the University of

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6 Clearly, our claim echoes Friedman (1953), who favored simple reduced form models over structural models in cases where the correct structure is not known or agreed upon: “Complete ‘realism’ is clearly unattainable, and the question whether a theory is realistic ‘enough’ can be settled only by seeing whether it yields predictions that are good enough for the purpose in hand or that are better than predictions from alternative theories.”

7 This is not as strange as it may seem. Growth theory tells us that in the short run, growth can come from changes in the rate of accumulation of inputs, and in the long run from technological progress and a country’s ability to use such progress. Any policy variables in growth regressions really must be seen as factors that influence input accumulation, technology progress or the ability to utilize new technology.

Groningen.<sup>8</sup> The income data are adjusted for inflation and deviations from PPP much in the same manner as the Penn World Tables data. The regime data come from the Polity IV database that is widely used in political science. We use the 0 – 10 autocracy ranking from Polity IV to form our regime type variable, coding as dictatorships any country years with an autocracy ranking of 5 or above which captures about 45% of the observations in the sample.<sup>9</sup> We use the Polity IV “durable” variable as our measure of regime length. This variable gives the age in years of the current regime.

The Polity database does not code an autocracy number during regime transition periods but rather codes the variable as -66, -77, or -88 depending on the type of transition. In this study, we simply drop these transition years from our analysis, leaving us with 6538 country-years in our regressions (around 210 country years are dropped as transitional). While there is economic data for many countries before their date of independence, there is no Polity data and we thus exclude these nations from the analysis. We also exclude countries that do not have more than 10 years of coverage. All other nations are included, giving us a larger and more diverse sample than has been used in most previous work. The Appendix lists the specific countries included in our sample.<sup>10</sup>

We include fixed annual effects to allow for common shocks over time. We do not include country specific fixed effects, for the simple reason that including them would not allow the experiences of countries whose regime type is unchanged over the sample to influence the variable of interest. In other words, employing country specific fixed effects would force the dictatorship coefficient to be determined only by within group variation in the sample (countries whose status shifts at least once during the sample period) and there are a lot of countries in our sample whose regime type is constant throughout the period.<sup>11</sup> Since we believe that differences in average performance between the USA and North Korea (as well as between France and China) are relevant for determining the effect of regime type on growth, we do not use country fixed effects in our preferred

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8 We will provide our exact data upon request.

9 We consider alternative definitions in our robustness section below.

10 Note that our sample includes both divided Germanies before the fall of the wall and United Germany afterward. We treat the former USSR, Yugoslavia, and Czechoslovakia in the same way. As discussed in footnote 20, dropping all the countries from Eastern Europe from the sample actually strengthens our results.

11 There are other issues in using fixed effects, particularly their effect on the estimates of the standard errors of the variables of interest, that can be severe, as Pritchett (2000) illustrates.



specifications. However, we will show that two of our three main results are robust to the inclusion of country fixed effects.

### III. Results

#### A. Basic Findings

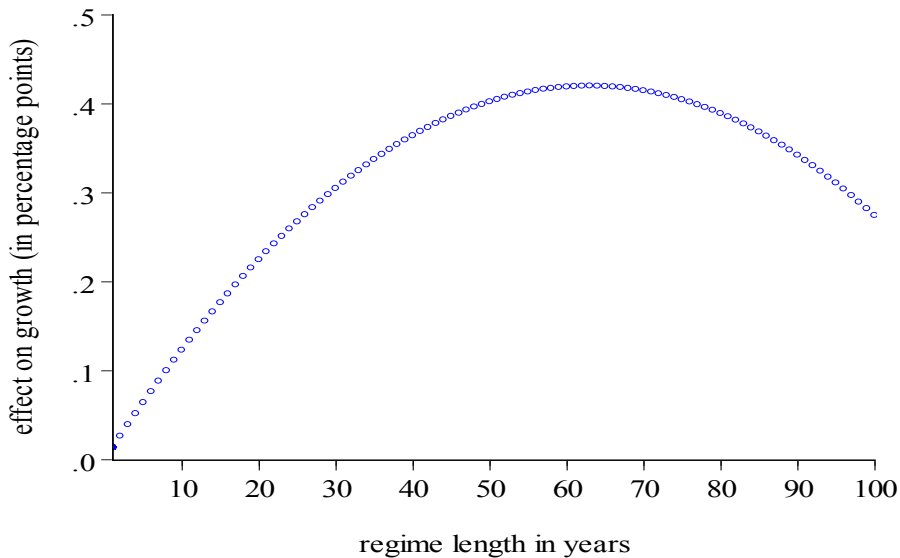
We begin in equation 1 of Table 1 with the simplest possible test. We regress per capita growth on a constant, a set of time dummies, and our dictatorship dummy, finding that dictatorships grow significantly slower (by almost 1/2 of a percentage point) than non-dictatorships (allowing for common temporal shocks). Equation 2 adds lagged growth to the model, which improves the fit but does not change the result.

Equation 3 adds the regime length variable (called durable), and its square. All variables are significant at the 0.01 level and regime durability first raises, but then lowers growth. Dictatorship lowers growth by almost four tenths of a percentage point. We present a picture of the estimated relationship between durability and growth in Figure 1.<sup>12</sup> Initially, regime survival provides an increasing growth dividend that rises quickly over the first 40 years. Then after 70 years or so, regime survival begins to slow down growth.

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<sup>12</sup> GBBM report that the polity IV durability variable is insignificant in their tests, but they do not consider any possible non-linear effects of regime durability.

**Figure 1 – The Rise and Decline of Nations?**



Source: authors.

So far, we have shown that with a more comprehensive data set than has been used previously, dictatorships grow significantly slower than non-dictatorships. Further, we find that regime duration has a significant, but non-linear effect on growth. However, we argued above that the effect of regime length on growth may well be regime-type dependent. We investigate this possibility in equation 4 of Table 1.

There are two aspects to the claim, each of which has received some attention in the literature. First, some authors (famously, Siegle, *et al.*, 2004) have claimed that growth rates are higher for “young” democracies than for otherwise similarly situated autocracies. To the extent that the intercepts in our estimates can be interpreted as the growth rates for low duration regimes, this claim appears to be borne out for our results. In every estimate, regardless of specification, the initial growth rate for a zero-duration democracy is higher than for a zero-duration autocracy.

Further, the other predictions of the theory section are by and large borne out as well. All variables in Table 1 are significant at the 0.01 level. Most importantly for the purposes of this paper, we see that the effect of regime length on growth is indeed dependent on the type of regime. Allowing for this interdependence almost doubles the coefficient on the dictatorship dummy from .38 to .76 indicating that holding constant the effects of durability, dictatorships grow about three quarters of a percentage point

slower than non-dictatorships in per-capita terms. Figure 2 shows the two different estimated regime length – growth relationships that we uncover. These functions are significantly different from each other at the 0.01 level. Here we can see that, from a growth perspective, non-dictatorship dominates dictatorship. Dictatorship starts with almost a one percentage point disadvantage, almost catches up within 30 years but then falls further and further behind beyond that point. These results represent the first clear achievement of a long sought after goal, namely a convincing empirical case for the growth benefits of non-dictatorship.

**Table 1 - Regime Type, Regime Length, and Economic Growth in 155 Countries, 1950 - 2006**

Variable	Eq1	Eq2	Eq3	Eq4	Eq5
Intercept	2.087 (27.3)	1.60 (19.9)	1.45 (11.9)	1.46 (12.2)	1.31 (9.43)
Growth <sub>-1</sub>	---	0.267 (14.3)	0.265 (14.5)	0.262 (13.9)	0.259 (13.8)
Dictator	-0.452 (2.98)	-0.359 (2.52)	-0.387 (2.48)	-0.756 (3.14)	-0.838 (2.92)
Durable	---	---	0.013 (2.63)	0.011 (2.49)	0.035 (3.73)
Durable <sup>2</sup>	---	---	-0.00011 (3.27)	-0.00007 (2.80)	-0.00054 (3.74)
Durable <sup>3</sup>	---	---	---	---	0.000002 (3.50)
Durable*	---	---	---	0.0461 (2.84)	0.072 (1.99)
Dictator	---	---	---	-0.00074 (3.61)	-0.002 (1.76)
(Durable*	---	---	---	-0.00074 (3.61)	0.000011 (1.47)
Dictator) <sup>2</sup>	---	---	---	-0.00074 (3.61)	0.000011 (1.47)
(Durable*	---	---	---	-0.00074 (3.61)	0.000011 (1.47)
Dictator) <sup>3</sup>	---	---	---	-0.00074 (3.61)	0.000011 (1.47)
$\bar{R}^2$	0.066	0.131	0.134	0.136	0.138

**Source:** authors.

Dictator is a dummy variable indicating that a country's Polity IV autocracy score is  $\geq 5$ .

Durable is the age of the current regime in years from Polity IV.

Time dummies are also estimated but not reported.

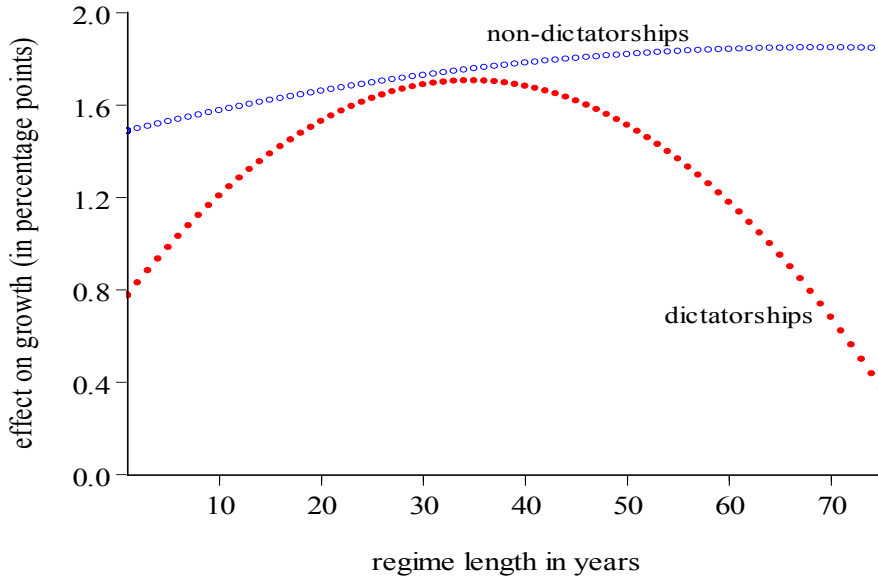
Numbers in parentheses are the absolute values of t-statistics computed using PCSEs.

N=6538 in all regressions.

As Figure 2 reveals, Olson's claims are really only borne out for dictatorships. In dictatorships, stability brings a quickly rising growth premium over the first 20 years. Then the effect flattens out, and after 35 years further stability begins to reduce growth. In the non-dictatorship case, the effect of regime durability on growth rises quite slowly, but for almost an indefinite period of time, with the peak occurring at around 100 years of life. We see little evidence of institutional sclerosis in these data. It is worthwhile to note that there are many observations (over 900 country / years) in the sample

with dictatorships older than 30 years, so the downward portion of that curve is both estimated with some statistical power and is substantively relevant.

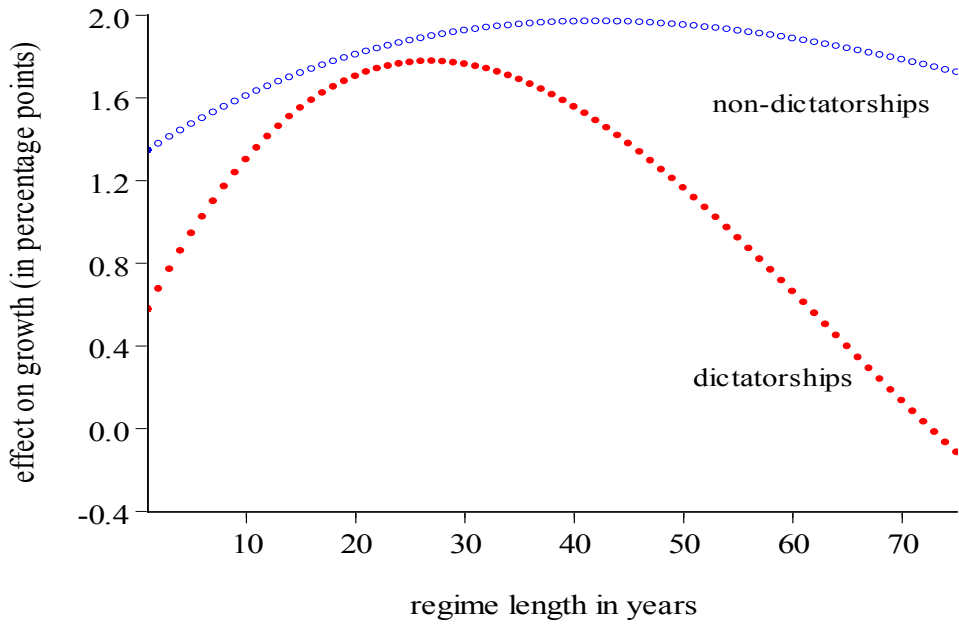
**Figure 2 – The Combined Growth Effects of Regime Type and Regime Durability**



Source: authors.

Of course our choice of a second order polynomial to model the potential nonlinearity in the effect of duration on growth is traditional, but arbitrary. In equation 5 of Table 2, we relax this restriction by employing a third order polynomial. This functional form is associated with an even larger negative coefficient on the dictator dummy, and the cubic terms are jointly significant at the 0.01 level. Figure 3 presents the graph of our key findings using this third order polynomial specification. The results are fairly similar to those shown in Figure 2. However, the growth duration curve for dictatorships peaks sooner than in the quadratic specification and the gap between the two functions is generally larger in Figure 3 than in Figure 2. Increasing the order of the polynomial further does not produce any additional significant coefficients (at least increasing to a 4<sup>th</sup> or 5<sup>th</sup> order model), nor does it change the general shape of the functions or the message of this section.

Figure 3 – The combined Growth Effects of Regime Type and Regime Durability using a 3<sup>rd</sup> Degree Polynomial



Source: authors.

**Table 2. Regime Type, Regime Length, and Economic Growth in 155 Countries, 1900 - 2006**

Variable	Eq1	Eq2	Eq3	Eq4	Eq5
Intercept	2.044 (26.8)	1.67 (21.1)	1.59 (13.5)	1.64 (13.5)	1.56 (11.1)
Growth <sub>-1</sub>	---	0.213 (14.1)	0.212 (14.0)	0.209 (13.9)	0.208 (13.8)
Dictator	-0.406 (2.81)	-0.362 (2.61)	-0.379 (2.67)	-0.787 (3.40)	-0.937 (3.43)
Durable	---	---	0.008 (1.48)	0.004 (0.71)	0.015 (1.37)
Durable <sup>2</sup>	---	---	-0.00007 (1.74)	-0.00003 (0.81)	-0.0002 (1.33)
Durable <sup>3</sup>	---	---	---	---	0.0000009 (1.16)
Durable* Dictator	---	---	---	0.0491 (3.07)	0.087 (2.53)
(Durable* Dictator) <sup>2</sup>	---	---	---	-0.0007 (3.77)	-0.002 (2.09)
(Durable* Dictator) <sup>3</sup>	---	---	---	---	0.00001 (1.59)
$\bar{R}^2$	0.085	0.129	0.129	0.131	0.132

**Source:** authors.

Dictator is a dummy variable indicating that a country's Polity IV autocracy score is  $\geq 5$ .

Durable is the age of the current regime in years from Polity IV.

Time dummies are also estimated but not reported.

Numbers in parentheses are the absolute values of t-statistics computed using PCSEs.

## B. Starting in 1900

Given the strength of the above results, we push the beginning of our sample backward in time to investigate whether that would change our results. PT (2009) provide a precedent for so doing. Table 2 thus repeats the sequence of regressions in Table 1 on the expanded 1900 – 2006 sample of 8059 observations. As can be seen, two of our three main results are robust to this expansion. First, the Dictator dummy is always negative and significant, with a coefficient that approaches -1.0 in equation 5. Second, regime length in dictatorships has a significant nonlinear relationship with growth. However, we no longer find any significant effects of regime length on growth in non-dictatorships.

## C. Country Fixed Effects

In this sub-section we investigate what effect adding country fixed effects has on our results. Again, this addition changes what information is used to determine the coefficients on our variables of interest. In panel A of Table 3, we add country fixed effects to the model and sample given in equation 5 of Table 1. As can be seen, two of our three main results are robust to the inclusion of these fixed effects. The Dictator dummy is still negative and significant (though smaller in absolute value) and regime length in dictatorships is still significantly and non-linearly related to growth. However, we no longer observe any significant effects of regime lengths on growth in non-dictatorships.

Panel B of Table 3 repeats this experiment for the expanded 1900-2006 sample and finds essentially the same results. In both cases, the set of country fixed effects are statistically significant as a group, but they do not dramatically increase the explanatory power of the regressions. In the remaining analysis in the paper, we will return to excluding these country fixed effects from the estimated models.



**Table 3. Adding Country Fixed Effects**

A: 1951 – 2006, N=6538

$$\text{Growth}_{it} = 1.58 - 0.0126 \cdot \text{Durable}_{it} + 0.00009 \cdot (\text{Durable}_{it})^2 - 0.0000002 \cdot (\text{Durable}_{it})^3$$

(9.71)    (0.90)                      (0.44)                      (0.20)

$$+ 0.1551 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it}) - 0.00410 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it})^2$$

(3.76)                                      (3.21)

$$+ 0.00003 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it})^3 - 0.708 \cdot \text{DICTATOR}_{it} + 0.200 \cdot \text{Growth}_{it-1}$$

(2.86)                                      (2.27)                      (10.2)

$$\bar{R}^2 = 0.167$$

B: 1900 – 2006, N=8059

$$\text{Growth}_{it} = 1.73 - 0.0193 \cdot \text{Durable}_{it} + 0.00026 \cdot (\text{Durable}_{it})^2 - 0.00001 \cdot (\text{Durable}_{it})^3$$

(11.2)    (1.51)                      (1.24)                      (1.01)

$$+ 0.1631 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it}) - 0.00450 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it})^2$$

(4.39)                                      (4.13)

$$+ 0.00003 \cdot (\text{Durable}_{it} \cdot \text{DICTATOR}_{it})^3 - 0.790 \cdot \text{DICTATOR}_{it} + 0.162 \cdot \text{Growth}_{it-1}$$

(3.74)                                      (2.77)                      (10.5)

$$\bar{R}^2 = 0.155$$

**Source:** authors.Dictator is a dummy variable indicating that a country's Polity IV autocracy score is  $\geq 5$ .

Durable is the age of the current regime in years from Polity IV.

Country and Time fixed effects are also estimated but not reported.

Numbers in parentheses are the absolute values of t-statistics computed using PCSEs.

## D. Changing the Definition of Dictatorship

So far, we have defined a country year as belonging to a dictatorship if that country's autocracy score in that year was greater than or equal to 5. In this section we investigate whether our results are robust to tightening or loosening that definition.

In panel A of Table 4, we loosen the criterion for being a dictatorship to having an autocracy score of 4 or above and find that all three of our results are robust to this change in definition. Dictatorships grow significantly slower and regime length has a significant non-linear relationship with growth that is distinctly different between the two regime types. In panel B, we tighten the dictatorship criterion to having an autocracy score of 6 or above and observe exactly the same pattern of results that obtained in equation 4 of

Table 1 (that used the 5 or above cutoff) and in Panel A of this table. In sum, our results are quite robust to changing the definition of what constitutes a dictatorship, at least in the neighborhood of our preferred definition.

**Table 4 – Using Alternative Measures of Regime Type**

A: Dictator = 1 if Autocracy  $\geq$  4

$$\begin{aligned} \text{Growth}_{it} = & 1.44 + 0.0114*\text{Durable}_{it} - 0.00008*(\text{Durable}_{it})^2 \\ & (11.5) \quad (2.43) \quad (2.71) \\ & + 0.0421*(\text{Durable}*\text{DICTATOR}) - 0.00070*(\text{Durable}*\text{DICTATOR})^2 \\ & (2.71) \quad (3.57) \\ & - 0.599*\text{DICTATOR}_{it} + 0.262*\text{Growth}_{it-1} \\ & (2.61) \quad (13.9) \end{aligned}$$

R2 = 0.137

B. Dictator = 1 if Autocracy  $\geq$  6

$$\begin{aligned} \text{Growth}_{it} = & 1.473 + 0.0133*\text{Durable}_{it} - 0.00010*(\text{Durable}_{it})^2 \\ & (12.8) \quad (2.89) \quad (3.18) \\ & + 0.0381*(\text{Durable}*\text{DICTATOR}) - 0.00071*(\text{Durable}*\text{DICTATOR})^2 \\ & (2.34) \quad (3.20) \\ & - 0.753*\text{DICTATOR}_{it} + 0.262*\text{Growth}_{it-1} \\ & (2.99) \quad (13.9) \end{aligned}$$

R2 = 0.137

**Source:** authors.

Dictator is a dummy variable defined as indicated in each sub-heading.

Durable is the age of the current regime in years from Polity IV.

Time dummies are also estimated but not reported.

Numbers in parentheses are the absolute values of t-statistics computed using PCSEs.

N=6538 in all regressions.

## E. A Country-by-Country Jackknife

Here we further consider how dependent the results are on the exact sample employed by performing a country-by-country jackknife on the data.<sup>13</sup> That is, we re-

<sup>13</sup> That is, rather than excluding a single observation, we exclude all observations for each nation, one at a time.

estimate the model in equation 5 of Table 1 154 times; each time with a different country excluded from the regression. We then consider the properties of the 154 separate coefficients we estimate for each variable in the model. This information is contained in Table 5 and is notable mainly for the tremendous degree of coefficient stability shown. In no case does excluding a country cause a coefficient sign change and for all 9 variables, the distribution of their coefficients is very tightly packed around the means. For example, the average estimated value of the dictator dummy is -.84 with a minimum of -.96, a maximum of -.71 and a standard deviation of 0.03. These results show that our findings are not very sensitive to the exact sample employed.<sup>14</sup>

**Table 5 – Jack-knife coefficient distributions**

Variable	Mean	Std. Dev.	Minimum	Maximum
Intercept	1.309077	0.017400	1.262579	1.353323
Growth <sub>-1</sub>	0.259826	0.003390	0.248692	0.284348
Dictator	-0.837363	0.030810	-0.963375	-0.708311
Durable	0.035000	0.001036	0.032496	0.040752
Durable <sup>2</sup>	-0.000542	0.000018	-0.000691	-0.000508
Durable <sup>3</sup>	0.000002	0.000000	0.000002	0.000003
(Dictator* Durable)	0.071575	0.003748	0.044826	0.081419
(Dictator* Durable) <sup>2</sup>	-0.001971	0.000119	-0.002371	-0.001022
(Dictator* Durable) <sup>3</sup>	0.000011	0.000001	0.000004	0.000015

**Source:** authors.

Each coefficient was estimated 154 times using data for N-1 of the countries in the sample and the resulting summary statistics are reported above. Period fixed effects were also estimated in each individual regression.

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Rather than testing for influential observations, then, we are testing for influential nations in the sample. <sup>14</sup> As another robustness test we drop the Eastern European countries from our sample, due to expressed concerns of data quality coming from the USSR and its satellites during the Communist era. In this treatment, the coefficient on Dictator is -1.03 (and significant at the 0.01 level) and both sets of polynomials on duration are jointly significant at the 0.05 level or better. Thus, beyond no single nation driving our results, this group of nations is not driving them either.

## F. Shouldn't There be Three Groups of Countries?

In what we have presented so far, we have been comparing dictatorships to non-dictatorships. This assumes that there are no relevant differences between strong democracies and “near” dictatorships. In this subsection, we investigate this issue.

Here we split our sample into democracies, dictatorships and intermediate regimes. Rather than using the autocracy score to define dictatorships and the democracy score to define democracies (which in theory could produce double counting), we use a country's Polity2 score (the sum of their democracy and autocracy scores) to split the sample. Democracies are those with a Polity2 score of 5 or higher, dictatorships are those with Polity2 scores of -5 or lower and intermediate regimes have scores in between -5 and 5.

The first thing we noticed doing this split is that intermediate regimes are fairly rare. Out of our sample of 6538 observations, there are only about 900 observations in the intermediate category. And, of these 900, almost all of them occur in regimes with less than 20 years of longevity. The number of observations for intermediate regimes with durations of longer than 20 years is 84, and these observations come from only 4 countries: Honduras, Malaysia, Singapore, and South Africa.

Given this paucity of data, we decided to simply drop intermediate regimes from the data and compare democracies with autocracies, rather than trying to estimate a non-linear relationship between regime age and growth that would be determined largely by only 4 countries. Thus, Table 6 presents our results comparing democracies and dictatorships on a sample of 5634 observations (i.e. with the 904 country years labeled as intermediate excluded from the sample). Again, our three main results continue to obtain, but now can be given a different interpretation. The coefficient on the Dictator dummy is negative and significant and indicates that, holding constant regime length effects, lagged growth, and global shocks, dictatorships grow almost 1 full percentage point slower in per capita terms than do democracies. The findings of significant but distinct non-linear relations between regime length and growth are also obtained in this subsample, which directly compares democracies and dictatorships.

**Table 6: Comparing Democracies and Autocracies 1950-2006 (intermediate regimes excluded)**

$$\begin{aligned}
 \text{Growth}_{it} = & 1.46 + 0.0256 * \text{Durable}_{it} - 0.00040 * (\text{Durable}_{it})^2 + .0000014 * (\text{Durable}_{it})^3 \\
 & (8.84) \quad (2.51) \quad (2.61) \quad (2.43) \\
 & + 0.0826 * (\text{Durable}_{it} * \text{DICTATOR}_{it}) - 0.00220 * (\text{Durable}_{it} * \text{DICTATOR}_{it})^2 \\
 & (2.24) \quad (1.93) \\
 & + 0.00001 * (\text{Durable}_{it} * \text{DICTATOR}_{it})^3 - 0.930 * \text{DICTATOR}_{it} + 0.237 * \text{Growth}_{it-1} \\
 & (1.62) \quad (3.00) \quad (11.1)
 \end{aligned}$$

**Source:** authors.

The sample includes all country years where the  $-5 \geq$  Polity2 score or Polity2 score  $\geq 5$ .

Dictator = 1 if Polity2 score is  $\leq -5$ .

Durable is the age of the current regime in years from Polity IV.

Time dummies are also estimated but not reported.

Numbers in parentheses are the absolute values of t-statistics computed using PCSEs.

$\bar{R}^2 = 0.126$ ,  $N=5634$ .

#### IV. Discussion

In this paper, we have shown strong evidence that, holding constant the effect of regime duration, dictatorships face a large growth penalty. We have also shown that regime duration has a significant non-linear effect on growth that is distinct between dictatorships and non-dictatorships. Our findings on effects of regime type are clearly relevant for the traditional democracy and growth literature: we show a reduced form result that implies regime type matters.

Our results also have implications for the stock of democracy papers by GBBM and PT. Those papers calculate a stock of accumulated experience with democracy and use it to explain growth. Consider the case of GBBM. They add up a country's annual polity2 score year by year and apply a 1% depreciation rate. This approach implicitly defines experience with autocracy as an inverse experience with democracy, which our less constrained approach shows is clearly not the case. In fact, we find that with a regime type dummy in place, the effect of accumulated experience with dictatorship has a more robust (and positive) impact on growth than does accumulated experience with democracy.

## V. Conclusion

The significant relation between political regimes and economic performance has proven hard to uncover. No one doubts that there are important effects, but almost no one agrees on how to gauge the differences, or even to model the pathways through which such different effects might be transmitted.

In this paper, we have investigated the relationship among regime type, regime duration and growth rate. The innovation of this paper is three-fold:

(a) We used a larger sample, with more variability in the measures of interest, than in most previous studies. This has the cost of limiting the number of control variables available, but gives us a simple reduced form way to ask how much regime type affects growth, though we are necessarily silent on the exact ways in which this effect occurs.

(b) We abandoned the use of any kind of democracy/autocracy index as a single dependent variable. It is quite plausible theoretically to build a model on the claim that autocracies and democracies are simply qualitatively different, rather than points near the respective extremes of a single theoretical construct. A further advantage of this approach is that it does assume that an ordinal index can be used as if it had the properties of a ratio scale.

(c) Our focus on regime type is nuanced and conditioned on regime persistence, or duration. That is, even though all autocracies are different from all democracies, it is not true that all autocracies are alike. The key difference in the ability of an autocratic regime to make commitments may well depend on the expectation citizens have that the regime will survive.

Using data from 155 countries, over the period 1951 – 2006, we estimate a reduced form model that allows the effect of duration to be both non-additive and non-linear, and find that this functional form produces estimates consistent with two important claims. First, in sharp contrast to existing work, we find that democracies clearly and persistently enjoy a growth premium.

Second, we find that new dictatorships pay a steep penalty in growth, but close much of the gap over time. However, these gains are subsequently eroded as the regime

ages.

The simple model estimated here is intended only as a preliminary estimate; a challenge to the prevailing wisdom on the insignificance, or actual damage, of democratic institutions to economic growth and a spur to consider regime duration as an additional important institutional variable. With the reduced form result established, future work can focus gathering additional data to specify more clearly the exact channels by which institutions affect growth, and how the pattern of growth over time promotes institutional change.

Finally, our results have particular resonance for the current political struggles of Brazil. The temptation for a show of strength, and a resort to authoritarian means to solve problems rapidly, is shown by our results to be a trap. The ability to make a credible, constitutional commitment to a set of tax and regulatory policies that can be relied, and the guarantee of property rights against nationalization, is a key aspect of development. Brazil faces a wide variety of problems of economics, inflation, and the environment. But we echo the concern of Monteiro (2007), who recognized that for all its problems only constitutional democracy, with constraints on majorities but with control of centralized authoritarian power, can solve the problem:

The complexity of government involvement in the economy and society requires an understanding of the institutional environment in which public choices are formed. These choices are not limited to the autonomous decision of politicians and their agents. There is an interaction with the citizen, who, in turn, can act individually, as a voter, and in formal groups, articulating preferential interests. (Monteiro, 2007).

Democracy is inconvenient, and frustrating. But the solutions that emerge constitutionally are the best hope for the continued development and prosperity of Brazil.

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# Partisan intergovernmental transfers: empirical evidence, political and economic effects, and the electoral rationale

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This article discusses the stylized fact of politically motivated intergovernmental transfers, according to which a higher level of public administration (federal or state government) transfers greater resources to lower levels (states or municipalities) when the same party holds the Executive in both levels. First, it shows that it is a pervasive phenomenon in the world in general and in Brazil in particular. Then, it discusses its effects on subnational electoral equilibria and on the performance of the public administration. Finally, it builds a political economy model that explains the electoral rationale behind this stylized fact.

**Key words:** partisan transfers, fiscal federalism, electoral competition

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## **Motivação partidária nas transferências intergovernamentais: evidência empírica, efeitos políticos e econômicos, e lógica eleitoral**

Este artigo discute o fenômeno das transferências intergovernamentais politicamente motivadas, segundo o qual uma esfera superior da administração pública (governo federal ou estadual) transfere maiores recursos às esferas inferiores (estados ou municípios) quando o mesmo partido ocupa os executivos de ambas as esferas. Mostra, primeiramente, que se trata de um fenômeno recorrente no mundo em geral e no Brasil em particular. Em seguida discute seus efeitos tanto no equilíbrio eleitoral subnacional, como no desempenho da administração pública. Finalmente, constrói um modelo de economia política que explica a lógica eleitoral por trás desse fato estilizado.

**Palavras-chave:** transferências partidárias, federalismo fiscal, competição eleitoral

## **Motivación partidaria en las transferencias intergubernamentales: Evidencia empírica, efectos políticos y económicos, y lógica electoral**

En este artículo se analiza el fenómeno de las transferencias intergubernamentales con motivación política, según el cual un nivel superior de la administración pública (gobierno federal o provincial) transfiere mayores recursos a los niveles inferiores (provincias o municipios) cuando un mismo partido ocupa el Ejecutivo de ambos niveles. Primero, muestra que es un fenómeno recurrente en el mundo en general y en Brasil en particular. Luego analiza sus efectos tanto en el equilibrio electoral subnacional, como en el desempeño de la administración pública. Finalmente, construye un modelo de economía política que explica la lógica electoral detrás de este hecho estilizado.

**Palabras clave:** transferencias partidarias, federalismo fiscal, competición electoral.

## Introduction

Since the publication of the first article in 1970 (Monteiro, 1970), Jorge Vianna Monteiro has demonstrated two characteristics that would permeate his academic career: constant search for theoretical and methodological updating and a concern with the country's economic development. After an initial emphasis on macroeconomics (Monteiro, 1971a, 1971b), Jorge Vianna focused in analyzing the role of the state in the economy, first concentrating on planning (Monteiro 1973, 1974), next, on public choice from the 1980s onwards (Monteiro 1980, 1981). Since then, Jorge Vianna has consistently contributed to the study of public choice in the country, in about 120 publications in academic journals. His continuous output has greatly contributed to consolidate a research area dedicated to the study of the functioning of the public sector, its failures, and the solutions to these failures. The line of research on politically motivated intergovernmental transfers presented here inherits from Monteiro's contributions the public-choice approach, the academic rigor, and the concern with the working of the Brazilian public sector.

Brazilian citizens are summoned to the polls every other year, either to elect their local mayors and councilors or to elect their state and national representatives, senators, governors, and the president. At each election, the media invariably reports that municipalities of the same party as the president or governor have been receiving additional intergovernmental grants<sup>1</sup>. The phenomenon, known as “partisan transfers,” according to which the federal government (respectively, state) transfers more resources to municipalities of the same party as the president (respectively, governor), has been the focus of many academic studies in Brazil and worldwide. This article aims to discuss partisan transfers from three complementary perspectives.

First, section 2 presents a selective review of the empirical literature showing econometric evidence that this is a pervasive phenomenon in the world and in Brazil.

Next, section 3 describes the political economy model developed by Ferreira and Bugarin (2005 and 2007), which extends Rogoff (1990)'s original model to include the effect of partisan transfers. The extension shows that partisan transfers can undo the positive effect of the political business cycle, identified by Rogoff, of selecting competent politicians. Furthermore, it discusses the consequences for subnational voting behavior,

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1 Bragon (2004), Bragon (2007), Brandt (2004), Portinari (2020).

for the functioning of the economy and public administration, and for the public finance goal of equalizing the provision of local public goods.

Then, section 4 presents the original contribution of the paper: a political economy model that explains why it is optimal for a president or governor to bias the distribution of voluntary transfers in favor of aligned municipalities (the mayor belongs to the same party) in order to maximize his re-election prospects.

Finally, section 5 concludes and discusses the research road ahead.

## 2. The empirical evidence

### 2.1. The international evidence

The partisan transfers phenomenon came to light nearly 50 years ago when Wright (1974) showed statistical evidence that the distribution of resources from the US government's "New Deal" program favored regions where the president's party received more votes.

Ansolabehere and Snyder (2006), in a careful econometric study, find evidence that "the governing parties skew the distribution of funds in favor of areas that provide them with the strongest electoral support." More recently, Garofalo (2019) corroborated the previous results, but also found evidence of the phenomenon known as "Strategic partisan transfers"<sup>2</sup> whereby "the federal government increases funds to politically aligned local districts only when they are inside non-aligned states".

Popov (2004) with a cross-section model and Jarocińska (2010) with a panel model conclude that, from 1995 to 2001 in Russia, transfers from the central government to regions where President Yeltsin received the highest percentage of votes increased.

Kraemer (1997) analyzes national government transfers to states in Mexico in 1986 and 1992, concluding that "states loyal to the PRI (ruling party) received, *ceteris paribus*, more per capita funds than opposition strongholds."

Khemani (2007) builds a database of discretionary transfers from the national government to the states over the period 1972 to 1995 in India, and finds evidence, using

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2 The term was coined in Bugarin and Marciniuk (2017) for the case of Brazil, as will be discussed later.

several alternative models, that when the state government belongs to the president's party, the state receives larger transfers. It is worth noting that the article also concludes that funds distributed by independent agencies that implement constitutional transfers do not follow that pattern.

Solé-Ollé and Sorribas-Navarro (2008) use a database of voluntary transfers to municipalities in Spain from three different spheres of government: the national government, the regional governments, and the upper-local governments. Models of differences-in-differences and triple differences using data from 1993 to 2003 suggest that “partisan alignment has a sizeable positive effect on the amount of grants received by municipalities.”

For Portugal, Veiga and Pinho (2007) study a period spanning from 1974 to 2002 that involves a subperiod classified as “new democracy” from 1974 to 1988 and a second subperiod of “mature democracy” from 1989 to 2002. The authors find evidence that the “central governments distributed grants strategically among municipalities only in the new democracy period: municipalities ran by mayors affiliated with the party of the central government received more grants.”

According to Tamura (2010)<sup>3</sup>, “previous research has insisted that the amount of LAT for each local government is calculated by very meticulous formula objectively.” Refuting that view, the paper shows that the “central government favors local governments with similar partisan characteristics to increase the amount of transfer, whereas central government dislikes local governments with different partisanship to decrease the amount of transfer”.<sup>4</sup>

## 2.2. The empirical evidence for Brazil

The first research to present econometric evidence of voluntary transfers to Brazil is Ferreira and Bugarin (2005). That paper uses a database of voluntary transfers

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3 LAC for Local Allocation Tax.

4 See also Grossman (1994), Levitt and Snyder (1995) for the USA; Worthington and Dollery (1998) for Australia, Glaurdić and Vuković. (2017) for Croatia, Gonschorek, Schulze and Sjahrir (2018) for Indonesia; Porto and Sanguinetti (2001) for Argentina; and Rozevitch and Weiss (1993) for Israel.

from the Central government and the State governments to the municipalities from 1998 to 2003. The panel model with fixed effects indicates “a positive correlation between political alignment between mayors and governors with voluntary transfers from states to municipalities.”

Next, Ferreira and Bugarin (2007) present an econometric study with voluntary transfers from the Central government and the States to the municipalities from 1998 to 2004. The study finds evidence of “a positive correlation between the political alignment of mayors with the coalitions that elected the governors and voluntary transfers received by municipalities; in addition, it also shows a positive correlation between the political alignment of mayors with the President of the Republic and voluntary transfers.” Furthermore, the two studies highlight the “mid-term fiscal cycle,” which asserts that voluntary transfers in Brazil follow a biannual cycle, increasing with each election year, be it national or local elections.

These studies were extended to the period 1997 to 2008 in Bugarin and Ubrig (2013) with several additional control variables. The paper finds evidence of partisan transfers in both the state-municipal relationship and the president-municipal relationship. However, the study suggests “a preponderance of party motivation at the highest level (i.e., from the president to the mayors) over the intermediate level (from the governor to the mayor)” (own translation). The article finds several additional results, such as an initial reduction in the volume of voluntary transfers with the change of party in the presidency in 2003, which was progressively recovered with steady growth in transfers over the subsequent years.

The issue was further addressed in Sakurai and Theodoro (2014, 2020) using a new triple-difference methodology applied to voluntary transfers over the period 1998-2008. The authors conclude that political alignment has little influence on the “Other current transfers” line; however, the methodology confirms the positive and significant effect of policy alignment on capital transfers.

The previous studies have greatly contributed to characterizing the stylized fact of partisan transfers in Brazil. However, they are all subject to the same criticism regarding the quality of the data they used. Indeed, the low level of disaggregation in the data provided by the National Treasury Secretariat and the lack of clarity at the time about what should be classified as voluntary transfers affected the confidence in the conclusions. To cite an example, one of the relevant headings was “Other capital transfers from the states and the Union,” which neither allowed a disaggregation of transfers from

the states and transfers from the Central government nor explained what exactly these “other transfers” were.

This problem was addressed in Brollo and Nannicini (2012), which reduced the scope of the study to transfers to infrastructure projects but gained precision as they worked with data extracted from grant agreements between the Central government and municipalities in the period 1999 to 2010. The authors used a regression discontinuity design (RDD) with municipalities that had close elections, in which one of the two (or at most three) main candidates belonged to the party government, comparing transfers in the last two years of each mayor’s term. The treatment was the political alignment with the same party or coalition of the president’s party. The econometric study found evidence of a positive and significant effect of political alignment if the mayor’s party belonged to the coalition supporting the president and not directly to the president’s party. Furthermore, the econometric study suggests that there was a significant reduction, to levels close to zero, in transfers to municipalities where the opposition mayors beat the candidate aligned with the federal government by a small margin, suggesting an intention to weaken that mayor, perhaps to recover that city hall in a future election.

On May 16, 2012, Brazil passed the “Information Access Law”, which completely changed the paradigm for information handling in the country. From that date onward, information generally became public, and secrecy became limited to only well-justified cases. Then, the Brazilian Office of the Comptroller General decided to make all federal government grants to municipalities since January 1996 publicly available. This resulted in a database with 467 thousand contracts.

However, these contracts were not classified according to the type of grants. Aware of the limitations that the low quality of data entailed for understanding and monitoring voluntary transfers in the country, the federal government named a task force in 2014 composed of staff from the National Treasury Secretariat (STN), the Federal Budget Secretariat (SOF), the Secretariat of Logistics and Information Technology (SLTI), and Office of the Comptroller General to precisely classify the different categories of transfers from the Central government. The task force worked from June to November 2014, producing, in 2015, the Technical Note 14/2015 that presents the classification in Table 1.



**Table 1. Classification of the Brazilian Federal government fiscal transfers according to their legal characteristics**

Category	Type	Description
Mandatory	Constitutional	Required by the Federal Constitutions, regulated by law, made automatically to Members of the Federation (States and Municipalities).
	Legal	Required by a specific law and specific regulation, made to Members of the Federation and non-profit private organizations.
Discretionary	To civil society organizations	Direct resources to non-profit civil society organizations in the form of subsidies, support, or contribution for achieving public interest goals. Require a contract.
	Voluntary	Direct resources to Members of the Federation in the form of cooperation grants, support, or financial assistance that are not required by the Constitution neither specific law, and are not directed to the National Public Health System (SUS). Require a contract and, in general, matching local funds.
	By delegation	Direct resources to Members of the Federation or Public Consortia aiming at delegating the implementation of public projects or actions under the exclusive responsibility of the recipients. Require a contract.
	Specific	Direct resources in specific cases where the beneficiary is not required to comply with fiscal requisites. They are usually related to government programs. Require a contract and the budgetary execution in discretionary, even though some may be defined as mandatory or automatic transfers by law.

**Source:** Brazil. National Treasury Secretariat (2015) *apud* Bugarin and Marciniuk (2017).

Upon completing the classification of transfer types, the General Coordination for Analysis and Information of Intergovernmental Financial Transfers (COINT/STN) built a high-quality database on voluntary transfers from the Central government to municipalities, from 1997 to 2012. That database was used in Bugarin and Marciniuk (2017), the first study based on complete and accurate data on partisan transfers in the country.

Bugarin and Marciniuk (2017) used panel data for the period above, reaching the results highlighted below.

First, it confirms evidence of biannual cycles for transfers from the Central government to municipalities, both in federal election years and in municipal election years, with total amounts higher in federal election years, contrary to the findings in Brollo and Nannicini (2012) that focused on transfers to infrastructure projects.

Second, also contrary to that paper, there is strong evidence that when the mayor belongs to the same party as the president, the municipality receives higher amounts (per capita) of voluntary transfers with a caveat: this only happens when the governor of the corresponding state is not from the same party as the president. This stylized fact, according to which the Central government biases voluntary transfers in favor of municipalities of the same party as the president only when the state government does not belong to that party, was called the “Strategic partisan transfers hypothesis” and was also shown to be valid for the US in Garofalo (2019), as discussed earlier.

Other results in Bugarin and Marciniuk (2017) include greater transfers to municipalities more to the right when the PSDB held the presidency and greater transfers to municipalities more to the left when the PT held the national executive, in addition to several tests of robustness, including evidence that partisan bias does not exist in mandatory transfers (the Municipal Participation Fund), as Khemani (2007) found for India and contrary to Tamura (2010)’s evidence for Japan.

In addition to studies focused on the executive’s political motivation in voluntary transfers, recent studies also analyze this phenomenon in the Legislative sphere. Marciniuk, Bugarin, and Ferreira (2020) use the Bendevid-Val (1991) location coefficient to determine the “informal electoral districts”<sup>5</sup>, i.e., the regions of a state in which each federal representative holds the most significant number of votes, in other words, his electoral base. Based on this indicator, the paper finds evidence that there is also party motivation in the National Congress’s parliamentary amendments.

### 3. The effects of partisan bias on intergovernmental transfers

The stylized fact of partisan transfers worldwide raises questions on what effect this mechanism has on the national and local electoral balance, as well as on the quality of a country’s public administration.

These issues were addressed in Ferreira and Bugarin (2005) and Ferreira and Bugarin (2007). To better understand these papers, it is convenient to discuss the issue of economic cycles associated with political processes. Such theoretical literature begins in the 1970s with the seminal contribution of Nordhaus (1975). This article presents

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<sup>5</sup> See Ames (2003) or Diniz (2009).

a model for conducting monetary policy with the following characteristics: (i) the national government, seeking reelection, loosens monetary policy in an election year; (ii) the monetary easing causes an (artificial) growth of the economy in that year; (iii) voters observe this growth and, gratified, reward the ruling party with re-election; (iv) in the year following the elections, the artificial growth brings about inflationary pressure, which requires monetary tightening and recession. Therefore, the incessant search for re-election contributes to an artificial economic cycle of growth during electoral periods and recession after elections.

Although the model in Nordhaus (1975) is consistent from a mathematical point of view, it received criticism after the rational expectations' revolution<sup>6</sup>, precisely for the equilibrium of the model where voters are constantly and predictably deceived by the ruling party; the ruling party uses monetary policy manipulation to stay in power although this does not result in real growth or social welfare improvement.

This criticism remained unanswered for almost 15 years, until Rogoff (1990)<sup>7</sup> presented an alternative model of economic cycles engendered by political motivations that were focused no longer on monetary policy, but on fiscal policy. That paper presents a modern model of positive political economy with the following characteristics: (i) the national executive incumbent may be a more or less competent/efficient manager<sup>8</sup>; (ii) the more competent agent can produce more public goods with the same amount of resources than the less competent one; (iii) competence is a stochastic phenomenon with a memory of a period, i.e., competence today corresponds to the sum of the realization of a random variable yesterday with the realization of the same random variable today; (iv) the politician observes the two components of his competence, the past and the contemporary, but voters only observe the past component; (v) voters are rational, and their only electoral motivation is to elect the most competent politician who will produce more public goods with the same budget.

Credible communication between the representative and the voters is processed through the production of public goods, which can be of two types: fast-supply goods (which we will call consumption goods) whose consumption occurs in the same period as their expenditure, and investment goods, whose expenditure is made in one period,

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6 See Muth (1961), Lucas (1972), Lucas (1976) or Ferreira (2013).

7 See also the companion paper Rogoff and Sibert (1988).

8 We interchange the use of the words "efficient" and "competent" for the incumbent's ability to produce more public goods with the same budget.

but whose consumption occurs only in the subsequent period.

Production is financed by local taxes. The friction in this model occurs due to the asymmetric information between voters and the incumbent. In fact, when observing a high production of consumption goods in a period in which there was a reduced tax burden, voters do not know if this occurred because the incumbent is a competent politician or because he is incompetent but has greatly reduced the production of investment goods, whose effect will only be felt in the post-electoral period.

Finally, an important feature of this model is the hypothesis that the politician is also a citizen (citizen-candidate model, Besley and Coate (1997), Osborne and Livinski (1996)), so that he dislikes the low production of public goods when he is inefficient. This feature of the model allows for a separating equilibrium of the game between the incumbent and voters, with the following properties: (i) the competent incumbent biases the policy in election years, reducing taxes, increasing the provision of consumption goods (observable), and reducing the production of public investment goods (not currently observable); (ii) the incompetent representative understands that if he adopts the same policy as the competent one and is reelected, then given his low productivity, there will be a significant reduction in social welfare in the following period; therefore, he prefers to follow a balanced fiscal policy even though he understands that voters will not reelect him; (iii) voters understand that only efficient representatives will dare to create this deviation in fiscal policy, so when they observe the reduction in taxes and the increase in the provision of public consumption goods, they understand that the incumbent is competent and reelect him; on the other hand, when observing a balanced fiscal policy, they understand that the incumbent is incompetent and do not reelect him.

Therefore, Rogoff's model (1990) explains political-budgetary cycles as a consequence of the equilibrium of the electoral game between citizens and rational incumbents, in which voters give up control of fiscal policy (admitting the suboptimal deviation generated by the efficient incumbent, a problem of moral hazard) to select the most efficient politician to lead the executive in the next electoral term (thereby solving the problem of adverse selection). In other words, there is a rational trade-off between moral hazard and adverse selection that engenders the political-budgetary cycles.

Having solved the problem of myopia in voter behavior associated with Nordhaus (1975), Rogoff (1990) suggests in his conclusion that "one can also look at data for state and local elections, instead of concentrating solely on the small number of observations available for national elections," since the variables now in focus are taxes

and government expenditures. Ferreira and Bugarin (2005) and Ferreira and Bugarin (2007) followed this advice, adapting Rogoff's (1990) basic model to the subnational level. As a result, a new variable that was not present in the national model naturally emerges: the fact that local budgets are increased by intergovernmental transfers from higher levels of government. Therefore, these transfers will also affect the efficiency of the political incumbent as well as the local government's ability to produce public goods.

In turn, intergovernmental transfers are essentially of two types: mandatory transfers (for example, the municipal participation fund (FPM) in the case of municipalities, and the state participation fund (FPE) in the case of the states) and voluntary transfers. For the latter, as seen above, there is a strong partisan bias.

Ferreira and Bugarin (2005, 2007) incorporates both mandatory transfers and partisan transfers into the original model, requiring voters to make a more complex analysis. Indeed, when deciding who to vote for, a new trade-off emerges. On the one hand, a competent mayor can produce more public goods with the same budget; on the other hand, a mayor from the same party as the president will receive more voluntary transfers, softening the local budget constraint.

The expanded model shows that if the volume of resources obtained through partisan transfers is high, then the partisan effect will dominate the efficiency effect and voters will vote for a politician from the same party, regardless of his efficiency. Therefore, all benefits of political-budgetary cycles found in Rogoff (1990) may be offset if partisan transfers are in significant amounts. This is the main contribution of the extension<sup>9</sup>.

The electoral consequences of partisan transfers now become clear: in those municipalities where transfers are high, instead of selecting the most efficient candidate, voters choose the "the king's friend." Furthermore, this preference for political alignment generates a certain inertia in the electoral behavior of citizens. In fact, if voters in a municipality elect a mayor from the same party as the president in the municipal elections, then two years later, when they vote for president, they will have a new incentive to vote for the same party to guarantee the continuity of partisan transfers.

On the other hand, if the incumbent president loses the election race, it is expected that, two years later, municipal voters will replace the mayor with another one aligned with the new executive incumbent. It is a kind of delayed "coattail effect" (Ferejohn and Carvert, 1984) that is created not due to the popularity of a candidate, but

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9 Recent work by Garofalo, Lema and Streb (2020) generalizes this contribution to simultaneous elections at the national and subnational levels and present empirical evidence for Argentina.

to the strategic behavior of municipal voters who seek to guarantee the return of partisan transfers to their municipality.

The effects on the quality of public administration are also clear: by keeping inefficient politicians in the administration of certain municipalities, partisan transfers induce a Pareto-dominated result. In fact, suppose that the same distribution of resources was maintained regardless of political alignment, then, by selecting the most competent politicians, the model in Rogoff (1990) increases the provision of public goods in general, increasing the corresponding social welfare.

The consequences to local economies and, as a result, the country's economy are also evident: each incompetent mayor in power generates a smaller amount of public goods than an efficient, alternative candidate. Therefore, by encouraging inefficient politicians to remain in power, the stylized fact of partisan transfers reduces the government's output as a whole, thus limiting the nation's economic growth.

Finally, it should be remembered that Public Economic Theory established the main normative objectives of intergovernmental transfers as: (i) reduce fiscal imbalances between municipalities, enabling all inhabitants of a nation to access an adequate minimum level of public goods and services; (ii) solve externality problems related to the production of public goods, increasing the efficiency of the provision of public goods and services; (iii) improve the overall performance of a country's tax system; (iv) support national macroeconomic stabilization efforts<sup>10</sup>. These objectives are associated with the meritorious character of the transfers, i.e., they must be defined according to the needs of each municipality. By skewing transfers towards aligned municipalities, another motivation is added, the partisan one. This, of course, tends to clash with the fundamental objectives of intergovernmental transfers, preventing transfers from achieving their main purpose.

#### **4. The partisan transfers rationale**

The previous sections showed empirical evidence that partisan transfers are a stylized fact worldwide and discussed their negative effects on the local electoral equilibrium as well as on the quality of public management and economic growth in a

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10 See Musgrave (1959) or Bugarin, Bugarin and Pires (2010).

country. Considering the negative effects of this phenomenon, why is it so widespread? This section presents an original contribution to the study of partisan transfers, by building a positive political economy model that explains the electoral logic behind this phenomenon, extending the models of electoral competition in Persson and Tabellini (2000, chapter 3), Portugal and Bugarin (2007), and Schneider, Athias, and Bugarin (2019).

#### 4.1. Primitives of the model

##### *Citizens*

The society is composed of a continuum of size 1 voters,  $\Omega = [0,1]$ . Each citizen  $i \in \Omega$  has a type  $y^i \geq 0$ , his income, and derives utility from private consumption  $c^i$  and the consumption of a local public good, which is measured in per-capita expenditure  $g$ . We assume that the citizen's utility takes the quasilinear form  $w^i = c^i + H(g)$  where  $H$  is a twice continuously differentiable, strictly increasing, strictly concave function. Hereafter we use the notation  $H_g$ ,  $H_g^{-1}$ , and  $H_{gg}$  for the first derivative, the inverse function of the first derivative, and the second derivative of  $H$ , respectively. Therefore,  $H_g, H_g^{-1} > 0$  and  $H_{gg} < 0$ .

The country is divided into exactly two electoral districts,  $J = I, II$ , which we call municipalities, for simplicity. Note that this model abstracts from considerations involving an intermediate administrative level (the state) in order to focus on partisan incentives between the central government and the smaller subnational sphere.

In order to simplify the analysis even further, assume, without loss of generality, that all citizens of the same municipality  $J = I, II$  have the same income<sup>11</sup>  $y^J$ .

Let  $\alpha^J \in (0,1)$  be the percentage of the total population living in municipality  $J$ . Then,  $\sum_J \alpha^J = \alpha^I + \alpha^{II} = 1$  and  $y := \alpha^I y^I + \alpha^{II} y^{II}$  is the average income in the country.

##### *Parties*

Two parties  $P = A, B$  compete for the top position in the national executive, the presidency, simultaneously announcing a political platform. Once elected, the ruling party implements the announced platform. Each party chooses its platform to maximize

<sup>11</sup> Alternatively,  $y^J$  can be seen as the average income in municipality  $J = I, II$ .

its chances of winning the elections. A political platform for party  $P$  consists of a three-dimensional vector  $\kappa_P = (g_P^I, g_P^{II}, \tau_P)$  where  $g_P^J$  is the amount of local public goods to be provided in municipality  $J$  if party  $P$  wins the elections and  $\tau_P$  is the uniform income tax rate that will be charged to all citizens to finance the provision of local public goods.

Therefore, political platform  $\kappa_P$  must satisfy the government budget constraint<sup>12</sup>:

$$\alpha^I \tau_P y^I + \alpha^{II} \tau_P y^{II} = \tau_P y = \alpha^I g_P^I + \alpha^{II} g_P^{II}$$

### ***Ideological components and stochastic factors affecting political preferences***

Each voter  $i$  in municipality  $J$  has an ideological bias  $\sigma^{iJ}$  that reflects the additional gain/loss in utility if party  $B$  wins. This bias can be positive if the voter prefers party  $B$  over party  $A$ , or negative, indicating a preference of  $A$  over  $B$ . Each voter knows his personal ideological bias, but parties only know that  $\sigma^{iJ}$  is uniformly distributed over an interval  $[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}]$ , where  $\phi^J > 0$  models the municipality's ideological uniformity: the larger  $\phi^J$ , the smaller the difference among citizens' ideological positions.

Furthermore, during the electoral campaign, a shock of preferences (“looks shock”) that affects the entire population is realized. The shock can be interpreted as a general benefit or a global loss that is beyond the control of the politicians. For example, a pandemic tends to reduce the ruling party's popularity; on the other hand, a country that relies heavily on a commodity, such as oil, tends to see its government's popularity increase when the commodity international prices increase. This shock is modeled as a random variable  $\delta$  that is added to voter utility when party  $B$  wins and is assumed to be uniformly distributed over the interval  $[-\frac{1}{2\psi}, \frac{1}{2\psi}]$ , where  $\psi > 0$  measures the sensitivity of society this type of shock: the greater  $\psi$ , the smaller the electoral effect of the shock.

<sup>12</sup> In the basic model there is no deadweight loss of taxation nor resource deviation. However, the model could easily be extended to incorporate such realistic frictions.



## Gratitude or feeling of indebtedness

The main friction of the model is that voters feel indebted to the president's party when it provides for the local public goods. This feeling of gratitude is reflected in an increase in the utility of the citizen of a municipality proportional to the amount of per capita investment,  $g_P^J$ , that the party makes in providing local public goods to that municipality. Let  $h^J \in (0,1)$  be the corresponding proportionality factor. Then, different municipalities may have different proportionality factors. For example, a wealthier municipality may find that provision of local public goods is but the central government's obligation, given that this municipality contributes more to financing local public goods with its taxes than poorer ones. In this case, a small value of  $h^J$  is expected.

A fundamental aspect that is expected to affect the value of  $h^J$  is the understanding that the local public good is indeed provided through the party's effort in the national government. Suppose municipality  $J$ ' mayor belongs to the same party as the president. Then, voters must clearly attribute to that the responsibility for the public good. So  $h^J$  must be high. On the other hand, suppose the mayor of the municipality belongs to an opposition party. Then the mayor works to make voters believe that his party is responsible for providing the public good, while the president's party will seek to make it its own. The dispute will tend to confuse voters, resulting in lower levels of recognition. Therefore, in this simplified model there will be four possible value levels for  $h^J$ :  $h_{AA}^J, h_{AB}^J, h_{BA}^J, h_{BB}^J$  where the first underlined letter corresponds to the party that occupies the national executive and the second to the mayor's party. Therefore, the hypothesis made in this model translates into  $h_{AA}^J = h_{BB}^J > h_{AB}^J = h_{BA}^J$ .

## 4.2. Solution of the electoral competition game

We solve the political economy model by backward induction in four steps.

### **Step 1: The economic agent's problem**

After all the political decisions  $\kappa = (g^I, g^{II}, \tau)$  have been made, it remains for the citizen to decide how he will spend his income net of taxes. He will then decide to spend this resource entirely on private consumption, which will result in the utility below.

$$W(g, \tau; y^J) = (1 - \tau)y^J + H(g^J)$$

### Step 2: Economics and politics

The government's budget constraint links the provision of public goods to the tax levied.

$$\alpha^I g^I + \alpha^{II} g^{II} = \tau y \Rightarrow \tau = \frac{\alpha^I g^I + \alpha^{II} g^{II}}{y} \Rightarrow (1 - \tau)y^i = (y - \alpha^I g^I - \alpha^{II} g^{II}) \frac{y^i}{y}$$

Therefore, the utility of citizens can be written only in terms of their income and the provision of public goods.

$$W(g; y^J) = (y - \alpha^I g^I - \alpha^{II} g^{II}) \frac{y^J}{y} + H(g^J) =: W^J(g)$$

### Step 3: The political agent's preferences

Agent  $i$  from municipality  $J$ 's preferred policy  $g = (g^I, g^{II})$  is the solution to the problem:

$$\max_g W^J(g) = (y - \alpha^I g^I - \alpha^{II} g^{II}) \frac{y^J}{y} + H(g^J)$$

Naturally, the provision of a public good to the other municipality,  $g^{-J}$ , is only a cost (in terms of taxes) for that voter of municipality  $J$ . Therefore, he prefers  $g^{-J} = 0$  and the solution of his utility maximization problem yields  $g^J = H_g^{-1} \left( \frac{\alpha^J y^J}{y} \right)$ . Therefore, his preferred policy is:

$$g = \left( g^J = H_g^{-1} \left( \frac{\alpha^J y^J}{y} \right), g^{-J} = 0 \right)$$

Since  $H_g^{-1}$  is strictly decreasing, the higher the percentage of municipality  $J$ 's income in the national income, the lower the provision of local public goods preferred by its residents; that is, rich municipalities tend to prefer less state intervention while poor municipalities prefer greater national government intervention.

### Step 4. Preference aggregation through elections

We now determine how individual preferences aggregate to determine the

winning policy. For this purpose, the political components of individual preferences are added to the utility  $W^J(g)$ .

Suppose party  $A$  announces the political platform  $g_A = (g_A^I, g_B^{II})$  and party  $B$  announces platform  $g_B = (g_B^I, g_B^{II})$ . Then, voter  $i$  of municipality  $J$  prefers party  $A$  over party  $B$  if and only if:

$$W^J(g_A) + h_{AJ}^J g_A^J > W^J(g_B) + \sigma^{iJ} + \delta + h_{BJ}^J g_B^J$$

where  $h_{AJ}^J = h_{AA}^J$  if the mayor of municipality  $J$  is from party  $A$  and  $h_{AJ}^J = h_{AB}^J$  if he is from party  $B$ . Similarly,  $h_{BJ}^J = h_{BA}^J$  if the mayor of municipality  $J$  belongs to party  $A$  and  $h_{BJ}^J = h_{BB}^J$  if he belongs to party  $B$ .

Given  $\delta$ , a voter  $i$  from municipality  $J$  is indifferent between the two parties if his ideological bias  $\sigma^{iJ}$  is such that:

$$W^J(g_A) + h_{AJ}^J g_A^J = W^J(g_B) + \sigma^{iJ} + \delta + h_{BJ}^J g_B^J$$

$$\sigma^{iJ} = W^J(g_A) - W^J(g_B) - \delta + (h_{AJ}^J g_A^J - h_{BJ}^J g_B^J) =: \sigma^J$$

Therefore, voters from municipality  $J$  with an ideological bias lower than  $\sigma^J$  vote for party  $A$ , whereas voters with a bias higher than  $\sigma^J$  vote for party  $B$ . A voter with a bias  $\sigma^J$  is called a swing voter.

But then, the percentage of votes to party  $A$  is:

$$\pi^A = \sum_J \alpha^J \left[ \sigma^J + \frac{1}{2\phi^J} \right] \phi^J = \frac{1}{2} + \sum_J \alpha^J \phi^J \sigma^J$$

$$\pi^A = \frac{1}{2} + \sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B) - \delta + (h_{AJ}^J g_A^J - h_{BJ}^J g_B^J)]$$

Define  $W(g_P) = \sum_J \alpha^J \phi^J W^J(g_P)$ ,  $P = A, B$ , which corresponds to the average social welfare associated with policy  $g_P$ , weighted by the factor of homogeneity of classes  $\phi^J$ . Then:

$$\pi^A = \frac{1}{2} + W(g_A) - W(g_B) - \sum_J \alpha^J \phi^J [\delta - (h_{AJ}^J g_A^J - h_{BJ}^J g_B^J)]$$

Furthermore, define  $\phi = \sum_J \alpha^J \phi^J$  and  $G(g_A, g_B) = \sum_J \alpha^J \phi^J (h_{AJ}^J g_A^J - h_{BJ}^J g_B^J)$   
Then,

$$\pi^A = \frac{1}{2} + W(g_A) - W(g_B) - \phi \delta + G(g_A, g_B)$$

Hence, party A's victory probability is:

$$p_A(g_A, g_B) = \text{Prob} \left[ \pi^A \geq \frac{1}{2} \right] = \text{Prob} \left[ \delta \leq \frac{1}{\phi} [W(g_A) - W(g_B)] + \frac{1}{\phi} G(g_A, g_B) \right]$$

$$p_A(g_A, g_B) = \frac{1}{2} + \frac{\psi}{\phi} [W(g_A) - W(g_B)] + \frac{\psi}{\phi} G(g_A, g_B)$$

Then, to maximize his probability of victory party A solves the problem:

$$\max_{g_A} p_A(g_A, g_B) = \frac{1}{2} + \frac{\psi}{\phi} [W(g_A) - W(g_B)] + \frac{\psi}{\phi} G(g_A, g_B)$$

The concave objective-function yields the first order condition:

$$\frac{\partial W(g_A)}{\partial g_A^J} + \frac{\partial G(g_A, g_B)}{\partial g_A^J} = 0, J = I, II$$

Hence the solution:

$$g_A^I = H_g^{-1} \left( \frac{1}{\phi^I} \frac{\alpha^I \phi^I y^I + \alpha^{II} \phi^{II} y^{II}}{y} - h_{AI}^I \right)$$

And, similarly,

$$g_B^I = H_g^{-1} \left( \frac{1}{\phi^I} \frac{\alpha^I \phi^I y^I + \alpha^{II} \phi^{II} y^{II}}{y} - h_{BI}^I \right)$$

$$g_B^{II} = H_g^{-1} \left( \frac{1}{\phi^{II}} \frac{\alpha^I \phi^I y^I + \alpha^{II} \phi^{II} y^{II}}{y} - h_{BII}^{II} \right)$$

### 4.3. Conclusion: An electoral rationale for partisan transfers

#### *Optimality of partisan transfers theorem*

Suppose two distinct parties A and B are running for the national executive, and the country is made up of two municipalities, one administered by a mayor of party A and the other administered by a mayor of party B. Then, the equilibrium of the electoral game in which each party wishes to maximize its victory probability is such that:

(i) Party A announces higher amounts of transfers than party B to the municipality managed by a mayor of party A.

(ii) Party B will announce higher amounts of transfers than party A to the municipality managed by a mayor of party B.

**Proof:**

Define  $y^{PT} = \frac{\alpha^I \phi^I y^I + \alpha^{II} \phi^{II} y^{II}}{\phi} = \frac{\alpha^I \phi^I}{\phi} y^I + \frac{\alpha^{II} \phi^{II}}{\phi} y^{II}$ . Then,  $y^{PT}$  is a weighted average of the incomes in the country where the weights take into account the relative size (population) of municipalities as well as their ideological homogeneity.

Thus, the solution of the electoral competition game between the two parties becomes:

$$g_A^I = H_g^{-1} \left( \frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{AI}^I \right)$$

$$g_B^I = H_g^{-1} \left( \frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{BI}^I \right)$$

$$g_A^{II} = H_g^{-1} \left( \frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{AII}^{II} \right)$$

$$g_B^{II} = H_g^{-1} \left( \frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{BII}^{II} \right)$$

Suppose, without loss of generality, that municipality I's mayor belongs to party A, while municipality II is managed by a mayor from party B. Then:

$$h_{AI}^I = h_{AA}^I > h_{BA}^I = h_{BI}^I$$

$$h_{AII}^{II} = h_{AB}^{II} < h_{BB}^{II} = h_{BII}^{II}$$

Therefore,

$$\frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{AI}^I < \frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{BI}^I$$

$$\frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{AII}^{II} > \frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{BII}^{II}$$

Since  $H_g^{-1}$  is strictly decreasing,

$$g_A^I = H_g^{-1} \left( \frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{AI}^I \right) > H_g^{-1} \left( \frac{\phi}{\phi^I} \frac{y^{TP}}{y} - h_{BI}^I \right) = g_B^I$$

$$g_A^{II} = H_g^{-1} \left( \frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{AII}^{II} \right) < H_g^{-1} \left( \frac{\phi}{\phi^{II}} \frac{y^{TP}}{y} - h_{BII}^{II} \right) = g_B^{II}$$

Hence, the municipality whose mayor belongs to party A receives more voluntary transfers in party A's political platform than in party B's political platform. Symmetrically, the municipality whose mayor is from party B receives more voluntary transfers in party B's platform than in party A's platform.

Therefore, the theorem provides a theoretical rationale for understanding the widespread use of this political instrument in Brazil and worldwide.

## 5. Concluding remarks: An agenda for future research

This paper presented a selective literature review on the phenomenon known as “partisan transfers” according to which municipalities where the mayor is from the same party as the president tend to receive higher amounts of voluntary transfers from the national government. After reviewing international research that presents empirical evidence of this phenomenon, the paper turned to Brazil, showing that there is abundant statistical evidence for the country as well. Then, it described theoretical studies that showed the effects of partisan transfers on the subnational electoral equilibrium, the quality of public management, economic growth, and the capacity of public policies to provide a minimum level of homogeneous social welfare to all municipalities in a

country. Finally, it presented the original contribution of the research, which consists of a political economy model that shows that there is an electoral rationale to this stylized fact.

By clarifying, the wide use of the mechanism of partisan transfers, motivated by electoral competition, and the negative effects on economic growth and on the equalization capacity of intergovernmental transfers, this work contributes to the discussion of how our federalism can be improved if we manage to establish institutional rules that, on the one hand, increase the efficiency of the allocation of scarce public resources and, on the other hand, make the electoral dispute more equitable, as discussed in Bugarin and Gadelha (2020).

This field of research, which officially started in Brazil almost twenty years ago with the publication of Ferreira and Bugarin (2005), still offers a wide range of venues for its extension, some of which are discussed below.

First, there is an opportunity to test the hypotheses arising from the theoretical models. Some of the testable hypotheses include: (i) Is there a higher reelection rate for mayors aligned with the president when they receive larger voluntary transfers? (ii) Is there a greater proportion of votes for the reelection of the president in aligned municipalities that received greater volumes of voluntary transfers? (iii) Is there a scale/size effect of municipalities that affects the decision to transfer larger volumes of voluntary transfers per capita?

Second, an attempt should be made to better understand what lies behind the “strategic partisan transfers hypothesis,” according to which the president skews voluntary transfers to aligned municipalities only in states where the governor belongs to an opposition party. Therefore, it would be necessary to extend the model presented here to include three levels of government: the municipal, the state, and the national. Such an extended model would help bring an understanding of the relationship between transfers from the Central government to the states and municipalities. Is the Central government delegating, to the states, the task of distributing voluntary transfers to the municipalities? In this case, is the Central government biasing its voluntary transfers to the states instead of the municipalities?

A model involving the three different levels of government would also help bring an understanding of the competition for political influence between states and the Central government. In fact, the state to which a municipality belongs also makes voluntary transfers to its municipalities, and, as we have seen, there is also econometric

evidence of partisan transfers in the relationship between state and municipality. Hence, the question arises: How do voters decide on their ballots when the governor is from a party opposed to the president's? Should they elect a mayor aligned with the president, as in the models studied, to ensure national transfers, or should they align themselves with the governor's party, to guarantee transfers from the state? This is still an open question, but there is a natural suggestion that incentives should depend on the size and fiscal strength of the state government since state governments with low fiscal capacity will not be able to compete with the federal government.

Also in the subnational context, there is a wide range of research to determine how strong the phenomenon of part transfers is within each state, as in Almeida (2019).

Partisan motivations may be investigated in spheres other than the direct executive branch, such as official banks, as in Paiva and Bugarin (2018).

A deepening of the current line of research must also consider the role of the Legislature, as in Marciniuk and Bugarin (2020), but also the role of the ministries, with the individual preferences of ministers, in partisan transfers.

Finally, considering the recent but not unique history of Brazil, it is important to understand how this phenomenon reacts to situations in which the president belongs to a small party or leaves a party during his term. In these cases, it is expected that the alignment with parties that support the president in Congress will play a more fundamental role in determining partisan transfers, as suggested in Portinari (2020).

These extensions are left here as suggestions for further research.

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# Who will guard the guards from corruption?

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Corruption is common in political and economic processes. Auditing is one of the options to fight it. Another option is the Judiciary Branch, supported by the Constitution and laws approved by the Legislative Branch. However, these auditors depend on a higher-level auditor as they can also be corrupt. Ethics in public administration evolves over time and is part of society's culture, which may include tolerances to high corruption in a given period. Since the 1950s, the theory of competitive markets has been adapted to explain the competition between political agents running for public office. In this view, high competition is equivalent to a democratic political process. An essential element is the free access to information about the acts of politicians in their offices. In the long run, political competition reduces politicians' personal gains, including legal and illegal income, because of informed voter choices. Models of monopolies or firms with few competitors in markets are equivalent to authoritarian regimes under the control of the Executive Branch, which combines restrictions on critical information and barriers to entry for competitors. Also, in the long run, the political monopoly seeks to at least restrict information about its acts of corruption, preserving personal gains, but attracting competitors. Due to weak contestation, achieving citizens' preferences for political ethics takes a lengthier and more turbulent period of adjustment under a monopoly. In any case, the voter will be the auditors' auditor and will be more effective in a competitive political situation.

**Key words:** corruption, political competition, free information

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## Quem fiscaliza os fiscais na luta contra a corrupção?

A corrupção é usual nos processos político e econômico. Auditoria é uma das opções para combatê-la. Outra opção é o Poder Judiciário, escorado na Constituição e nas leis aprovadas pelo Poder Legislativo. Contudo, esses fiscais dependem de um fiscal de nível maior, pois eles também podem ser corruptos. A ética na administração pública evolui com o tempo e representa a cultura da sociedade, que num dado período pode embutir tolerância a muita corrupção. Desde os anos 1950, a teoria dos mercados concorrenciais tem sido adaptada para entender a concorrência entre agentes políticos candidatos a administradores públicos. Nessa visão, a alta concorrência equivale ao processo político democrático. Um elemento essencial é o livre acesso à informação sobre os atos dos políticos no exercício de seus cargos. No longo prazo, a concorrência política diminui os ganhos pessoais dos políticos, incluindo rendas legais e ilegais, por conta das escolhas de eleitores bem informados. Os modelos de monopólio ou de poucos concorrentes em mercados equivalem aos regimes autoritários, sob controle do Poder Executivo, que combinam restrições à informação crítica e à entrada de concorrentes. Também no longo prazo, o monopólio político busca pelo menos restringir informações sobre seus atos de corrupção, preservando ganhos pessoais, mas atraindo concorrentes. O atendimento das preferências dos cidadãos quanto à ética política tem, nesse caso, um período de ajuste mais longo e tumultuado pela dificuldade de contestação por concorrentes. Em qualquer caso, o fiscal dos fiscais será o eleitor, porém mais efetivo no ambiente político concorrencial.

**Palavras-chave:** corrupção, concorrência política, livre informação

## ¿Quién fiscaliza a los fiscales en la lucha contra la corrupción?

La corrupción es común en los procesos políticos y económicos. La auditoría es una de las opciones para combatirlo. Otra opción es el Poder Judicial, apoyado en la Constitución y las leyes aprobadas por el Poder Legislativo. Sin embargo, estos inspectores dependen de un auditor de nivel superior, ya que también pueden ser corruptos. La ética en la administración pública evoluciona con el tiempo y representa la cultura de la sociedad que en un período determinado puede generar tolerancia a mucha corrupción. Desde la década de 1950, la teoría de los mercados competitivos se ha adaptado para comprender la competencia entre agentes políticos candidatos a administradores públicos. Desde este punto de vista, la alta competencia equivale al proceso político democrático. Un elemento fundamental es el libre acceso a la información sobre la actuación de los políticos en el ejercicio de sus cargos. A largo plazo, la competencia política disminuye las ganancias personales de los políticos, incluidos los ingresos legales e ilegales, debido a las elecciones de los votantes bien informados. Modelos de monopolio o pocos competidores en los mercados equivalen a regímenes autoritarios, bajo el control del Poder Ejecutivo, que combinan restricciones a la información crítica y al ingreso de competidores. También a largo plazo, el monopolio político busca al menos restringir la información sobre sus actos de corrupción, preservando las ganancias personales, pero atrayendo competidores. Satisfacer las preferencias de la ciudadanía en materia de ética política tiene, en este caso, un período de ajuste más largo, que es tumultuoso por la dificultad de impugnarlo por parte de los competidores. En cualquier caso, el fiscal de los fiscales será el votante, pero más eficaz en el entorno político competitivo.

**Palabras clave:** corrupción, competencia política, información libre.

## Introduction

The main objective of this article is to examine some forms of corruption auditing from a long-term point of view, defined in decades, in which the economic development of a society is visible. Political competition is viewed as one of the social auditing instruments based on the results of economic theory. The circulation of information, as in goods markets, supports competition, while the pursuit of political monopoly is tantamount to seeking a monopoly in the goods markets.

This article seeks a concise synthesis of the literature derived from the theory of political competition beginning in the first half of the twentieth century, adjusted as a way of treating corruption. Besides, it cites only the publications that represent substantial changes in the evolution of the theory, with some recent reviews and developments of the subject, so that it distinguishes itself from a survey of the literature.

Jorge Vianna Monteiro is the author honored in this issue of this journal. With regard to modeling the theory of political competition, Monteiro (1987 and 2007) can be highlighted through his several books. However, the main focus of his work is the theory of constitutional rules and their implementation, especially for Brazil. This theory focuses on the functioning rules of the political process, whose application, of course, has an impact on how political competition operates. He has also published a large number of articles on corruption and rent-seeking in journals, newsletters, and newspapers.

Corruption takes many forms, but the most common is the purposeful misuse of public resources. This is a frequent problem in all societies, democratic or authoritarian. There are examples of these practices since the onset of historical records in more complex societies (JAIN, 2001). Politicians are accused of enriching themselves with diverted public resources, judges and public auditors participate in gangs specialized in public embezzlement or other illegal activities, police are linked to activities they initially fought against, and entrepreneurs and other private interests corrupt the public administration.

In societies that organize the production of goods and services by way of a market economy, the public sector has a relatively smaller share of total production. The public sector, for its own maintenance and its complementary activities to the private sector, depends on the collection of taxes on the same private sector. Furthermore, there are public services committed to combating corruption, which also occurs in interactions between private sector agents. The two types of corruption have similar

effects on society's economic performance as both affect public and private decisions about productive investments, thereby delaying economic development.

If the creators, the guardians, and the law enforcers are corrupt, the question arises: What can be done to keep this under control, or at the very least make a country converge to the situation of countries known to be honest in public dealings?

A regularly suggested solution is simply to improve auditing systems, which raises the issue of the auditor's auditor.<sup>1</sup> For example, the police officer inspects the citizen, the internal affairs department inspects the police officer, and the members of the internal affairs department are supervised by someone else. Will the process stop at someone higher up?

The concept of corruption and its consequences on economic development are seen next. The following section addresses the logical difficulty that appears in defining what an auditors' auditor is. After that, as means for controlling corruption, ethics in politics, public administration itself, political competition, freedom of information, and political monopoly are discussed.

## Corruption

The term corruption is hard to describe, but most people have a reasonable idea of what it is. A useful definition here is to say that corruption occurs when individuals acting alone or in a group get private benefits at the expense of public funds or other individuals by means prohibited by law. However, it can be understood as forms of private benefit unacceptable by the beliefs shared by a given society, often not capitulated in legislation. It's a kind of predatory activity.<sup>2</sup>

As a result of such acts, there is a redistribution of income, most often to minorities already well-endowed with the wealth of society. In addition, an inadequate environment for the social division of labor is installed. There are delays in investment decisions and a decline in their profitability due to the required bribes in cash or material

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1 "Quis custodiet ipsos custodes?" is a statement ascribed to the Ancient Roman poet Juvenal. The title of this article is one of many that have been inspired by it, though the focus here is on auditors, a sort of white-collar guard.

2 Buitter (2000), p. 604, n. 2, lists some activities, as well as corruption, considered criminal: "theft, the involuntary and unrequited transfer of property rights, through the use of inside information and through intimidation, extortion, threats and actual violence against property or persons."

benefits. It leads to inadequate allocation of resources between different economic sectors and economic inefficiency due to a localized increase in costs that do not reflect opportunity costs. Both delay economic development.<sup>3</sup>

Corrupt officials often create difficulties in selling facilities. This is independent of whether it is a market economy or a centralized economy, as in the era of Soviet socialism. Because of this, it has even been found that, once these difficulties generate bribes, corruption is a way of streamlining processes and, thus, obtaining more agility in investment decisions, contributing to economic development in such a corrupt institutional environment. Executives who deal with corrupt public officials themselves not only spend more time in their government-relations activities, but also make inefficient decisions due to the regulation of these same corrupt officials (LEFF, 1964). Furthermore, once low-level bribes begin, they tend to rise in value, reaching higher-ranking officials. In some countries, this can reach the highest echelon of each power. In the long run, however, the result tends to be negative for the economic development of society as it affects the pace of investments in capital goods (JAIN, 2001). The effect on economic development is that the country lags behind less corrupt countries.

Corruption is a phenomenon that involves private organizations' internal operations and their relationships with others. There are examples of officials who divert company resources for personal gain, executives who spend too much for their own comfort, or owners who divert resources and then leave the company bankrupt, harming other people involved both employees and suppliers. However, the difference between the public sector and the private sector is that, in environments of high competition, private organizations have their survival compromised in the long run. They tend to have higher costs and slower responses to technological changes, slower launches of new products, and increasing competition from other companies that offer cheaper and more effective products.

The public sector, by nature, tends to monopolize power in the services it provides to society. In the absence of alternative social mechanisms to auditing, which gives a lifeline to these problems, the question of who the auditor of the public sector's top echelons will be remains unaddressed.

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<sup>3</sup> Chief among Susan Rose-Ackerman's many works on the relationship between corruption and economic development is Rose-Ackerman (2016), whose first edition dates back to 1999. The work discusses both theory and empirical studies of this relationship, as well as lists more perennial solutions to minimize corruption and its consequences, which involve changing a country's ethical culture. Aidt (2016) discusses the integration of research on corruption and rent-seeking.



## Elephants and Turtles

The auditor's auditor predicament evokes the anecdote about a person who had a cosmological vision that contradicted modern Astronomy. In this view, planet Earth is a large disk supported by four large elephants. In some drawings, the Earth appears as an overturned tureen. When asked what supports the elephants, the person claims that it is a giant turtle, which is supported by another turtle, and so on, in an endless pile. After an indeterminate number of turtles, the regression ends with an "I don't know" in some versions of the anecdote. The Earth drifting across space without any physical support is unfathomable to this person.<sup>4</sup>

The idea of the Earth floating in space highlights a key epistemological principle: infinite regression. It occurs when a previous result is repeated in a demonstration, such as the immeasurable number of elephants implied by the statement "endless pile." In logic, some self-evident outcomes are assumed to formally demonstrate any result, avoiding infinite regression.

Unlike the concept of turtles going all the way down, a vast number of feasible institutional levels of auditors is used in the case of the auditor's auditor, now from the bottom up in a pile of instances, adding new instances as societies become more complex and the division of labor in public administration evolves.

Another option that was popular in previous centuries and still exists today is the function of the 'supreme auditor,' which has evolved into the notion of gods and even a god of gods – the divine, highest-level auditor. Interpreters of traditions and religious writings affiliated with deities translate the will of this auditor. The divine words are translated into memorized or written representation by their interpreters, making them untouchable for an unlimited period that is dependent on the religion's long-term success. As a result, the morality embodied in these words has the potential to endure for a long time. Due to long-term social changes, only its interpretation can change to a limited extent.<sup>5</sup>

Through laws, especially higher laws in the Constitution, democratic countries secularize the function of a divine supervisor. The evolution of judicial activities in the

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<sup>4</sup> The anecdote is retold by Hawking (1988), ch. 1.

<sup>5</sup> Dennett (2006), p.187, addresses the sacralization of words, which occurs in a variety of cultural contexts, but particularly in religions through sacred books. Examples of hallowed words in politics are Democracy, Freedom, and Equality.

form of a separate Judiciary Branch and Legislative Branch, both independent of the Executive Branch, has resulted in the increased division of labor in the administrative structure of the public sector in recent centuries.

The Judiciary Branch is in charge of ensuring that laws are followed based on the Constitution. However, there is sufficient historical evidence that even the Constitution is susceptible to changes that benefit groups with greater leverage over collective decisions in society. The Legislative is more agile in advancing these changes in authoritarian situations. Even in democracies, nevertheless, the Legislative Branch can quickly amend parts of the Constitution to the benefit of the branches' members themselves. As a result, the Judiciary Branch, with its constitutionally protected Supreme Court, is not fit for the auditor's auditor duty over a longer time period.

## **Ethics in Political Culture**

The ethical culture of a society is a critical component in the fight against corruption. Ethics established in institutions and shared by all aid in reducing corruption, but it is vital to investigate how society internalizes such ideals in its culture. In general, institutions have evolved over time with incentive mechanisms in place to encourage the adoption of such principles, including short-term gains and setbacks.

The dissemination of more assertive ethical honesty within the institutional infrastructure is part of the social control of corruption, which does not have to be tied to religions. This is especially true when it comes to politics. Furthermore, the professionalization of public administration entails anti-corruption behavior.

One of the difficulties with ethics being the highest-level social auditor is that it changes over time. The notion of what is ethically right and wrong changes swiftly in the short term, such as in a political situation. What is considered wrong at one time may be considered acceptable at another, and society's values can shift swiftly. The judge who convicts a corrupt individual today may be the socially vilified individual tomorrow. Changing values is an element of the evolution of ethics in the long run. Primitive attitudes about using animals as a source of human food, for example, are being questioned, both out of compassion and out of concern about their environmental impact.

## Public Administration

Public administration is one of society's instruments for implementing its decisions. It supports general public activities, including the fight against corruption.

Practical solutions that include fighting corruption in the public sector and other problems of political nature have been adopted throughout the evolution of societies. One such solution is the division of public sector administration into branches, with a division of labor between Executive, Legislative, and Judiciary branches, as in many cases. These branches are relatively independent. But the Executive is formally accountable to the Legislature, leaving the auditing courts, almost a branch in practice, the responsibility of checking if current legislation is being fulfilled within the budget implementation. The Judiciary applies the law, and this works as an inspection, including of itself. The top of the Judiciary is chosen by the Executive, but the members of the Executive and Legislative branches are chosen, and thus auditable, by the voters.

Due to historical origins, formerly independent political units formed federations with various levels. In federal systems, the division of powers and the election of members of the Executive and Legislative branches is the rule. In some countries, however, even local Judiciary members are elected. Thus, public administration becomes very complex, with different levels of auditing.

When a country's average income increases, so does the capacity for higher per capita spending to improve the efficacy of public administration, not only in terms of the number of employees but, above all, in terms of educational qualification supported by automation. This also includes the possibility of more expenditures spent on auditing and better monitoring of these same auditors, as they can also be corrupted. Furthermore, just a well-above-average wage policy for equivalent functions in the private sector is insufficient to guarantee the honesty of employees and auditors as it will always be profitable for some people to accept bribes due to the high amounts involved in many of their decisions.

This negative correlation between a country's average income and level of corruption does not necessarily mean that only a higher average income decreases corruption. There is the possibility that less corruption will help increase the average income in the long run. One variable reinforces the other, and both are influenced by others. Under the control of the government branches, however, the public administration cannot fulfill the role of auditors' auditor on its own although it includes the internal

auditors of public activity. If society invests in the quality of public administration, it will certainly help reduce corruption. However, this depends on political decisions, especially by the Legislative Branch.

## Political Competition

In an environment of high political competition and unrestricted access to information, the political process is such that the preferences of the majority of voters are met, including their sensitivity to corruption. In turn, the presence of many political parties and government decentralization at local levels can meet the preferences of minorities and local demands. A social structure with a reasonable degree of political competition is what is meant by democracy, yet many political factions misuse the term to define what constitutes true democracy.

Interpreting democracy as a competitive process is an extension of the arguments introduced by Adam Smith in 1776, regarding the role of competition between companies in meeting the demand for goods through the private sector (SMITH, 1963).

In the market process, not only do entrepreneurs meet consumer preferences, but competition among entrepreneurs also reduces the financial result of investments to a level that compensates for the production and financial risks of the activity, compared to the best return alternatives available in the application of these resources. This motivates entrepreneurs to seek new business opportunities that are still explored very little to improve the return on their investments. They can do this by lowering production costs. Other ways to achieve extraordinary returns exist by modifying existing products or creating new products to meet the needs of buyers that are still underexplored by competing companies. Thus, the market process, often described as market dynamism, involves frequent changes in the use of resources and the list of available goods and services. The end result tends to be an increase in the country's average income.

In the political process, competition among its professionals occurs by grouping politicians into parties, in a way similar to grouping people for productive purposes in companies. Politicians sell representation services to their voters to decide on the provision of services by the public sector. The equivalent of companies, therefore, is

political parties.<sup>6</sup>

In the highly competitive political market, the entry and formation of new political parties is free. Who decides on the survival of each party is the voter, in the ballot box. Politicians and their parties indirectly sell their services. They offer service packages provided by the public sector while simultaneously defining the tax structure, most often implicitly, that distributes the costs of these services among citizens. When voting, voters choose politicians, who are defined primarily by their combination of spending and taxes. In the long run, this political process also takes care of voter preferences in a trial-and-error process.<sup>7</sup>

The high competition among politicians diminishes the income resulting from political activity. What is this income? Aside from salary, an important non-financial component is the exercise of power itself, which includes deference and material comforts in everyday life that would be out of reach for a significant portion of these people. Added to this, part of the income comes from corruption, the result of which also finances political campaigns. This form of financing is considered, in countries with a culture that is tolerant of corruption, a normal part of political activity. Possible complaints based on exaggerations of condemned practice and collective voter reactions will only have a temporary effect without a significant and permanent change in this culture, even if it is through repeating this reaction that corruption will decrease in the long run.

Once elected, politicians act as institutional entrepreneurs and seek innovations or legal changes that change the way society is regulated and functions. Many of these changes are harmful, as are failed market innovations, but others do well in generating long-term benefits for citizens. One assumption of this theory is that parties that sponsor long-term beneficial institutional changes tend to have an advantage at the ballot box. In economic and social crises, these institutional entrepreneurs manage to

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6 On the theory of political competition, seen from the perspective of economic theory, a pioneer study is Schumpeter (1950), especially ch. 22, which emphasizes the long-run effects of electoral competition between political parties, although in the short-term results are more subject to the hazards of the quest for leadership, both personally and by the parties. The first edition was published in 1942 and reflected the political climate of the period, with the influence of leaders associated with authoritarian governments and democratic participants involved in the twentieth-century world wars.

7 Downs (1957), a significant change in the literature, develops a model of party competition based on voter, politician, and public sector employee preferences. A criticism of this neoclassical approach, from the point of view of Austrian economics, is Wohlgenuth (1995). Miller (1997) provides a survey of the Downsian economic literature's influence on political science.

approve proposals for changes so that, through trial and error, society can eventually get its economic development right. They also tend to copy successful models from other countries, thus creating a kind of international institutional competition. Economic and even military wars also test the adequacy of institutions in each country.

Through voting, voters can change politicians and their parties at each election although this occurs only partially. To the extent of the number of voters who highly consider honesty in their preferences, within the tax and spending packages proposed by their candidates for public office, the percentage of honest politicians in parliaments may increase. In the short term, this percentage may even decrease, but, given the benefits for economic development in the long run perceived by voters, it tends to increase. The increase in each election does not have to be significant, but the greater it is, the faster society will evolve towards a more honest political and administrative culture.<sup>8</sup>

Political competition can turn the act of voting into an auditor's auditor. Political rivals are motivated by competition to expose deviations in representational and even judicial actions. The Legislature and the Judiciary eventually apply the loss of positions to their own peers, and the Judiciary sets the penalty in cases where there is criminal proof. If this is important in their electoral preferences, voters can say no to corrupt politicians in future elections.

The strength of electoral supervision of politicians seems quite weak since people only periodically say yes or no to each candidate. Although a single vote has negligible influence, the sum of all votes has tremendous strength. The cumulative effect of cynical views in a society, such as accepting corruption as a part of political activity, can be minimized over decades as long as voters' electoral preferences adapt to place a greater priority on less corruption in political affairs. This may happen to the extent that corruption conflicts with other values included in these preferences, such as the search for better health and education services.

## Information and Ideology

In addition to unrestricted candidacy for political offices, high political

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<sup>8</sup> There is econometric evidence in Pereira e Melo (2015), for example, that denouncing corruption reduces the probability of mayors being re-elected. A fortunate period of greater public spending that benefits the electorate, on the other hand, can counteract the negative impact of corruption on re-election.

competition necessitates the widespread dissemination of information about the actions of politicians controlling the public administration over a specific period. Interested parties are free to reveal acts of corruption, but the controllers of the state monopoly on violence are not allowed to use it to avoid competition.

Even if government power does not impose limits, information is by itself imperfect since it involves costs for the collection and dissemination of data as well as how it is disseminated. The search for information in the market occurs at least about the prices and attributes of goods. Due to the limits imposed by communication technology, competition between vendors and buyers promotes the demand and supply of information services about goods.

Because getting information requires time and money, voters' decisions are more costly as a result of incomplete information. Voters, like customers of private goods, can utilize indirect signs to assess the intents of politicians. These, in turn, form political parties and operate as service providers, representing voters' interests in public choices. They associate imagery with their leaders or parties, similar to how businesses associate brands to their products. In parliamentary choices, parties associate themselves with recognizable patterns of acting. During election campaigns, these behaviors are promoted as political platforms. In representative democracies, politicians reduce the cost of information for voters in this way. Competing politicians can exploit this knowledge as well as their positions taken in parliaments.

The media, in consolidated democracies, has a unique status. Even so, the distribution of information is a business activity like any other and therefore satisfies Adam Smith's arguments about market competition. Market concentration, which limits access to competing information enterprises, can, however, become a concentration of political power if a large press company restricts the circulation of information for the convenience of party support. Technological improvements in the media, on the other hand, create new routes for informational competition, lessening the influence of previously powerful media groups. The internet, like radio and film during the twentieth century, is an example of informational innovation, competing with media that was then concentrated in a few large companies.<sup>9</sup>

The work of lobbyists, who are an integral element of the competitive political

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<sup>9</sup> Svensson (2005) estimates a negative correlation between the degree of corruption and per capita income in a sample of countries. Besides that, given per capita income, the study shows that there is a negative correlation between degrees of corruption and press freedom, which is considered equivalent to political competition.

process and in situations of little or no political competition, is one form of disseminating information among politicians.<sup>10</sup> A lobbyist's goal is to represent the interests of specific groups, particularly in the defense of government regulation of activities and the allocation of resources that benefits those groups directly. Social groups with more resources to devote to political activity can elect their own representatives. Long-term economic development can be aided by public decisions based on this influence, as in cases where they encourage technological innovation and increased productive investment. They may, on the other hand, seek regulations that simply redistribute income through tax deductions or subsidies, with little or no impact on investment levels. Rent-seeking is the term for this type of action, which may lead to inefficiency in the economy. In the short term, with inadequate regulation or even prohibition, lobbying could become another channel for distributing bribes to politicians and public sector officials. Moreover, lobbyists compete to find benefits for their sponsors and compete for the ones that pay the most.

Political platforms and recognizable patterns of action in parliamentary decisions are associated with ideologies, which can be seen as a communication technique to convince society of the benefits of leadership by the group that propagates it, in many cases with biased information.<sup>11</sup> Beyond party political propaganda, an ideology tries to assimilate itself into the culture of the majority of people who make up society. Ideological information can combine social science knowledge with values and alleged facts that are convenient for a political group, often with distortions that go beyond available scientific knowledge, despite the fact that science purifies its results over time through its working method. Ideologies, like party platforms, face competition from alternative ideologies and may eventually lose their hold on people's minds in the long run.

Ideologies can to influence society for long periods of time, resulting in unpredictable and often self-destructive consequences for society's development. The ability to disseminate information is critical for those working to spread the ideology of

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10 An alternate view of political competition, perhaps more appropriate to discuss lobbying, is between interest groups, pressure groups, or social class segments. A pioneer discussion of competition between interest groups appears in Bentley (1908). Becker (1983) develops a model of competition between pressure groups. Antonio Gramsci advanced, in the 1930s, a theory of political competition among social class segments, in which the winning group leads the long-term political process by embedding its ideology in citizens' culture. A summary of Gramsci's theory appears in ch. 4 of Jessop (1982).

11 Downs (1957) examines information on the competitive political process as measured by the voter's cost of participation. North (2005) compiles a list of works that link individual psychology to competing cultures and ideologies in societies.



a particular group in search of political leadership. Many of these individuals promote their ideologies while engaging in a variety of professional activities.

Thus, the free flow of information about the actions of politicians and government officials strengthens political competition. Free information goes hand in hand with competitive political activity, both of which, in such a context, support the voter's role as the auditor's true auditor.

## Information and Ideology

The concentration of political power is a limitation on the democratic process's ability to function, although, in extreme circumstances such as a war, a democratic society can delegate extra powers to its leaders. A well-known example is that of the British People and Winston Churchill. This politician was granted emergency powers by a delegation from Parliament in 1940, during the war against Nazi Germany. Despite making major military and economic mistakes in prior years, he proved to be the right leader for the British people. But once the war ended, voters in his district did not reelect him. The parliamentary system with district voting allowed for this result without alarm. Under an authoritarian administration, this would only happen in the event of a coup, natural death, or unlikely resignation.

Microeconomic theory states that when there is little or no competition, returns on investments in any activity are higher than returns under high competition. In commodity markets, a monopoly is a one-seller situation. In the total absence of competition, this seller can choose the most convenient price, respecting the maximum prices per unit that buyers are willing to pay for each possible quantity offered; the seller does not have the power to charge a price above the limit buyers are willing to pay. The monopolist's advantage is the possibility of picking both the price and the quantity at the same time, whereas in a high-competition environment, the seller has no such option and is essentially limited to the quantity to sell, resulting in a smaller profit than that of the monopolist. Over time, the above-market profit attracts new investors who can compete with the monopolist by producing lower-cost, higher-quality substitute items. If it is a legal monopoly, these competitors may invest in supporting legislative changes, in some cases through political corruption.

When there are few sellers and no new entrants, marketplaces experience limited

competition.<sup>12</sup> In a duopoly, there are two sellers and many buyers. Sellers can cooperate with each other and set a common price as if they were one seller, which amounts to a monopoly. Cooperation between sellers would be viable as long as mutual expectations regarding compliance with the agreement were consistent. One difficulty with this cooperation between sellers is that at least one of them will make a greater profit if it fails to comply with the agreement, charging a lower price and getting a larger share of the market, as long as the other member of the duopoly fulfills the previously agreed upon agreement. It would be an unstable situation. This could return competition to the market despite subsequent claims of predatory competition, which is a matter of point of view as it would be a positive outcome for buyers.

A few politicians seek monopoly in their roles as representatives of voters in public sector decisions, just as sellers do in goods markets. Even if they manage to influence electoral laws to restrict competition and hide personal advantages, these politicians must nevertheless be responsive to the interests of citizens. For most voters, there is a tolerance limit for the lack of freedom of political choice and disproportionate personal gain by the ruling group. Although the media is smothered or put at the service of politicians in government, a lot of information still passes through other means. Personal gains in terms of power, social status, and income of various kinds will attract competitors intending to hold office. In this environment, where the political monopolist sets the law, there is little room for competition across political platforms. Thus, competition occurs through violence, betrayals, coups, and frequent murders.

A small group of people taking turns exercising authoritarian rule is a similar alternative to market oligopoly, cooperating in the appointment of the main leader at any given time. Cooperation among politicians in this scenario could lead to internal divisions and conflicts, similar to how an economic oligopoly might have periods of stability and economic battles.<sup>13</sup>

While also power grabs are frequently done in the name of fighting corruption,

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12 The literature on models of political competition between political parties begins with Hotelling (1929), which develops a case of economic duopoly along a street and applies it as a model of bipartisan competition. The main conclusion is that the two parties would initiate extreme ideological positions and, by competition, converge to similar positions, depending on the distribution of electoral preferences by voters as to packages of spending and taxation. With no barriers to entry, a new entrant chooses a position that is differentiated from the others, perhaps to an extreme ideological viewpoint, and then repeats the process of approximation of the others' political ideas over the elections.

13 Using game theory, Chaffee (1984) tests a model of alternation between democracy and authoritarian government. The evidence is from Latin American political history.

authoritarian administrations are not immune to corruption. In fact, controlling the media makes it easier for this form of government to conceal its actions. Further, there is a potential that, under authoritarian governments, corruption in the interaction between the public and private sectors is easier because fewer politicians are involved in obtaining favorable rules. Lobbyists can have a less expensive job and less competition in seeking advantages for their sponsors.

In one form or another, competitive adjustment in the political process occurs over time. This adjustment is significantly slower than in a democratic society, and it is subject to high levels of instability. Because it often involves the use of violence, entry costs into this political market are higher. On some occasions, defeats in international conflicts result in a political monopoly ensuing from political competition. It is an effort by society to reduce the incidence of errors of judgment in the public sector administration that are concentrated on a few people.

## Conclusion

What is the best way to fight corruption? There are several methods practiced in known societies. One option is to implement auditors' work more vigorously. This is primarily to be used by government agencies. It is a solution that works in societies with a specific ethical culture. It also pertains to private-sector activity and, more importantly, to the connection between the public and private sectors.

Audit services and other public administration activities serve as guards against corruption. They are more effective the more, on average, society spends per person on these services although this strategy relies on the country's *per capita* income. It is to be expected that a wealthier country will have a higher average spending level and more efficient service. However, there remains the issue of who will audit the auditors. How many layers of supervision will be required? How can the infinite regression argument be avoided?

In the long run, an ethical culture would be a candidate for an auditor of last resort. Ethics, though, is endogenous and changes over time as societies evolve. Tolerance for rising political corruption may become ingrained in society's culture.

Political competition, like competitive markets for goods, has the consequence of reduced profits - personal or to interest groups - from political influence due to the

possible contestation by competing parties or groups. Corruption is reduced as a result of falling political profits. The more information about the actions of individuals who manage a society's public administration is freely circulated, the more effective this competition will be.

A deviation from the competitive political process occurs when some political groups strive to perpetuate themselves in society's leadership. Political monopoly, or perhaps more accurately, oligopoly, is obtained by erecting barriers to entry for new rivals and limiting the flow of political information. Despite this, successful political monopolists still depend on voter support to discourage opposing groups from actively challenging their position. To such an extent that monopolist politicians in charge lose popularity, they tend to use force to keep their positions, with an equal response, sooner or later, from contestants.

Finally, the voter has the ultimate say, regardless of how much or how little political competition exists. The time needed to adjust policies to voter preferences varies depending on the situation, with monopolies taking more time. Thus, according to the theory of political competition, the voter serves as the auditors' auditor, avoiding the argument of infinite regression. Voters' preference for less corrupt leaders is contingent on the ideals of honesty becoming gradually embedded in society's culture over time.

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# Making sense of health corruption in times of COVID-19

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This paper provides readers with an analytical framework to better understand the rationality of corruption and its perpetuation in the health sector during the coronavirus pandemics. To pursue the foregoing task, it embarks on integrating insights from New Institutional Economics, Public Choice Theory, and the Austrian School of Economics to come up with an explanation of corrupt deals that uncover their causally relevant mechanisms. Its goal is to shed light on corruption risks that emerge from changes in legislation that weakened public procurement rules and therefore turned the Brazilian health system more vulnerable to corrupt acts. The article conjectures that increased uncertainty, asymmetric information, and decreased transparency channels have played major roles in triggering corrupt practices, such as bribery, kickback, embezzlement, influence peddling, and cronyism. More precisely, it argues that rent-seeking and predatory political entrepreneurship are two driving forces behind Brazilian corrupt exchanges and their risks in times of the COVID-19 pandemic. It offers some evidence that corruption scandals in Rio de Janeiro state make a very good case for showing the explanatory value of the proposed theoretical approach. It closes by wrapping up the overall argument, presenting some policy implications and questions for further research.

**Keywords:** corruption, health, institutions, rent-seeking, political entrepreneurship

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## Entendendo a corrupção na saúde em tempos de COVID-19

Este artigo oferece um arcabouço analítico para compreender a racionalidade da corrupção e sua perpetuação no setor de saúde em tempos de pandemia. Para tanto, propõe a integração das perspectivas teóricas da Nova Economia Institucional, Teoria da Escolha Pública e Escola Austríaca de Economia, de modo a proporcionar uma explicação sobre os mecanismos causalmente relevantes relacionados ao fenômeno da corrupção no setor de saúde. Seu objetivo é lançar luz sobre os riscos de corrupção que emergem das mudanças na legislação que regulamentaram o Regime Diferenciado de Contratação Pública durante o estado de calamidade resultante da pandemia. Tal legislação enfraqueceu as regras para licitação e compras públicas, tornando o sistema de saúde brasileiro mais vulnerável à corrupção. A conjectura deste artigo é que o aumento da incerteza, a assimetria de informações e a redução da transparência desempenharam papéis importantes no desencadeamento de práticas corruptas, como suborno, propina, desvio de recursos, tráfico de influência e clientelismo. Mais precisamente, argumenta-se que o *rent-seeking* e o empreendedorismo político predatório são as duas forças motrizes por trás dos escândalos de corrupção observados em tempos de pandemia de COVID-19. Ele oferece evidências de que os escândalos de corrupção no estado do Rio de Janeiro representam um ótimo caso para ilustrar o valor explanatório da abordagem teórica proposta. Por fim, o artigo sintetiza o argumento geral, apresenta algumas implicações políticas e questões para pesquisa futura.

**Palavras-chave:** corrupção, saúde, instituições, *rent-seeking*, empreendedorismo político

## Entendiendo la corrupción en el sector de salud en tiempos de COVID-19

Este artículo proporciona un marco analítico para comprender mejor la racionalidad de la corrupción y su perpetuación en el sector de la salud durante las pandemias de coronavirus. Para continuar con la tarea anterior, se embarca en la integración de conocimientos de la Nueva Economía Institucional, la Teoría de la Elección Pública y la Escuela Austríaca de Economía a fin de llegar a una explicación de los acuerdos corruptos que revelen sus mecanismos causalmente relevantes. Su objetivo es arrojar luz sobre los peligros de la corrupción que surgen de los cambios en la legislación que reguló el régimen de contratación pública diferenciada durante el estado de calamidad pública resultante de la pandemia, que debilitó las reglas de contratación pública y, por lo tanto, hizo más vulnerable al sistema de salud a actos de corrupción. La conjetura de este artículo es que el aumento de la incertidumbre, la información asimétrica y la disminución de los canales de transparencia han desempeñado un papel importante en el desencadenamiento de prácticas corruptas, como el soborno, la malversación de fondos, el tráfico de influencias y el clientelismo. Más precisamente, argumenta que el *rent-seeking* y el emprendimiento político depredador son dos fuerzas impulsoras detrás de los intercambios corruptos y sus riesgos en tiempos de la pandemia de COVID-19. El artículo ofrece evidencias de que los escándalos de corrupción en el estado de Río de Janeiro son un óptimo ejemplo para demostrar el valor explicativo del marco analítico propuesto. Finalmente, el artículo sintetiza el argumento general, presenta algunas implicaciones políticas y cuestiones para futuras investigaciones.

**Palabras clave:** corrupción, salud, instituciones, *rent-seeking*, emprendimiento político.

## Introduction

In many countries around the world, corruption in the health sector is a pervasive phenomenon. According to Transparency International, the global spending on health services amounts to more than US\$7.5 trillion, and about 7% of this is lost to corruption (BRUCKNER, 2019). By promoting allocative distortions resulting from resource transfers to foster fraudulent practices and mismanagement of public resources, corruption kills. More fundamentally, it threatens the efficiency and fairness of health services. As a result, corruption can be even more lethal than a virus that spreads out and leaves many victims (HUSSMANN, 2011).

The outbreak of COVID-19 was classified as a pandemic by the World Health Organization in March 2020. Since then, all countries have been urged to deal with various complex problems that follow the so-called coronavirus crisis. In response to the urgent needs to purchase medical supplies, drugs, and hospital facilities for an increasing number of infected patients, Brazil, among other countries, has opted for emergency procedures that weakened rules of procurement and constrained its channels of transparency and accountability. More specifically, the Brazilian government approved Law number 13,979/2020 (BRASIL, 2020a), which weakened public procurement rules and therefore made the Brazilian health system more vulnerable to corrupt acts.

The Brazilian Federal Police and Prosecution Office have investigated corrupt deals in the health sector during the coronavirus pandemic. There is evidence of influence peddling, overbilling, embezzlement, among other types of corruption in various states (TALENTO, SACONI, 2020). After a long impeachment trial, Rio de Janeiro governor Wilson Witzel was removed from office on April 30<sup>th</sup> of 2021 for corrupt management of the pandemic (FOLHA DE SÃO PAULO, 2021).

To be more specific, this paper aims to address the following research question: what are the contributions that an analytical framework informed by New Institutional Economics (NIE), Public Choice Theory (PCT), and the Austrian School of Economics (ASE) can make to an explanatory account of corruption in the Brazilian health sector in times of COVID-19?

It is important to stress that this inquiry focuses on corrupt exchanges that are here taken as (unintended) consequences of government interventions and/or regulations that reward rent-seeking activities and cronyism. The overall argument is built on



the following assumptions: (a) corruption involves the voluntary exchange of favors between individuals in the public and private sector; (b) interest groups aim to seek and keep economic rents through political connections; (c) public officials and politicians are entrepreneurs, who explore profit opportunities from an institutional environment with limited transparency and accountability; (d) individuals in the private as well as the public sector are driven by their self-interest; (e) the act of giving a bribe to public servants, political campaign donations among other efforts to buy economic privileges can be regarded as a manifestation of rent-seeking activity.

In a nutshell, the main aim of this essay is to provide an account of the economic rationality of systemic corruption observed in the Brazilian health sector during the COVID-19 pandemic. The remainder of the paper is structured in three sections. The first section discusses the traditional economic explanation of corruption that draws on Becker's 1968 approach to crime and the "principal-agent" model. Section 2 presents and analyzes the building blocks of three complementary theoretical perspectives (NIE, PCT, and ASE) that together allow for a mechanistic explanation of corrupt practices at the interface between public and private sectors. The third section builds up an explanatory framework that can be useful to analyze corruption in Brazil's health sector during the COVID-19 pandemic. It goes on to show some evidence from "Special Commission for COVID-19 of the Legislative Assembly of the State of Rio de Janeiro" that highlights the explanatory value of the rent-seeking and (predatory) political entrepreneurship, taken here as causally powerful mechanisms underlying corruption in the health sector. The fourth section wraps the overall argument up, presents some policy implications and questions for further research, and concludes.

## **The economic explanation of corruption and the principal-agent model**

Accounting for corruption is not a simple task at all. Defining and measuring corrupt practices are often followed by controversies (HEYWOOD, 2018). This is partly so because corruption has a hidden nature and comes in various forms. Despite the ambiguity that characterizes the concept of corruption, this paper draws on Transparency International's definition. According to it, corruption refers fundamentally to the misuse of a public position to obtain illicit private gain.

The above portrait of corruption fits well with Gary Becker's economic explanation of crime (BECKER, 1968). The latter is premised on the conjecture that "a person commits an offense if the expected utility to him exceeds the utility he could get by using his time and other resources at other activities" (BECKER, 1968, p.176). Becker defines the utility that a person (j) can expect from committing a crime as follows:

$$EU_j = p_j U_j(Y_j - f_j) + 1 - p_j U_j Y_j$$

where U is the utility function, Y is the income from an offense (monetary plus psychic), p is the probability of conviction per offense, and f is the punishment per offense (ibid, p.177).

The foregoing perspective is in tune with the view of corruption as a crime of calculation (KLITGAARD, 1988). Corruption becomes predictable even among risk-averse individuals if its gains are large, while the probability of being caught and the severity of punishment are small (GLAESER, 1999).

Additionally, economists interested in explaining corrupt transactions appeal to the principal-agent model (DELLA PORTA, VANNUCCI, 2016, GROENENDIJK, 1997, VANNUCCI, 2012, 2015). The Principal (who can be, for example, a state governor and even the electorate) delegates her decision power to the so-called Agent (for instance, a bureaucrat or elected politician), who has the function of representing the Principal's interests. The risks of corruption arise from two factors: conflicting interests among those who establish contractual relations, and asymmetric information. Both provide incentives for the Agent's use of her concentrated power to achieve personal or her clients' goals to the detriment of the overall society. Quite similarly, Klitgaard (1988) claims that corruption equals monopoly plus discretion minus accountability. To him, corruption emerges spontaneously because an institutional environment with constrained transparency and accountability provides incentives for public officials with monopoly power to make strategic use of discretion to pursue their own or their cronies' goals.

Savedoff and Hussman (2006) go on to stress that there are at least three factors that make the health sector very sensitive to corrupt practices: uncertainty, asymmetric information, and a large number of agents with conflicting interests. To some extent, uncertainty refers to the severe knowledge problem that pervades this specific sector. Individuals cannot estimate the probability of getting sick, the severity and consequence

of a disease; when it might happen; and whether there will be an effective treatment. People also have a difficult time understanding the benefits they can obtain from specific health services because they do not know what the best treatment options are like. Furthermore, most of the time only physicians know about diagnosis and treatment protocols; pharmaceutical companies and health professionals are responsible for drug prescription rules. Patients, in turn, can hide information about their health conditions from doctors and insurance companies. Some suppliers of medical services can also make strategic use of the information they have about the risks of some treatments and supplies to patients and physicians.

The informational problem is exacerbated by the dispersed and large number of actors in the health sector, such as state regulators, consumers, suppliers of medical equipment and drugs, patients, health services providers, and payers (HUSSMANN, 2011). In other words, uncertainty and complexity that characterize the health sector provide incentives for patterns of opportunistic behavior that reward corruption. Examples of contractual deviations and opportunities for abuses of power abound – purchase of overpriced medical equipment, counterfeit or low-quality medicine, and deviation of public funds to build hospitals and health infrastructure, among others.

## 2. Searching for a mechanistic explanation of corruption during the pandemics

Becker's economic approach to crime, as well as the principal-agent model, are necessary, though insufficient to explain corrupt practices among private and public sector players. Such a bold claim is premised on the idea that a truly explanatory account accomplished more than describing some empirical regularities. As Julian Reiss (2013) put the issue,

A good explanation in economics will therefore ask for the detailed causal process or mechanism that is responsible for the phenomenon of interest (...) a mere regularity that connects an input and an output—no matter how stable and lawlike that regularity is—does not explain why there is a connection between input and output. To investigate a mechanism means to open the black box between input and output and to illuminate why regularities hold and outcomes happen (REISS, 2013, p. 25).

With the above in mind, the next subsections turn to discuss the building blocks of the proposed analytical theoretical framework to broaden the understanding of corruption and its risks within (and outside) the health sector.

## 2.1. Corruption as a symptom of institutional flaws

New Institutional Economics (NIE) is one of the basic theoretical references that guide contemporary research on corruption (LAMBSDORFF, 2007, ROSE-ACKERMAN, PALIFKA, 2016). In this sense, North (2005) emphasizes:

The institutional matrix defines the opportunity set, be that one that makes the highest pay-offs in an economy income redistribution or one that provides the highest payoffs to productive activity (...) The organizations that come into existence will reflect the pay-off structure. If the highest rate of return in an economy is to piracy we can expect that the organizations will invest in skills and knowledge that will make them better pirates (NORTH, 2005, p. 61).

NIE invites us to examine features of the institutional environment – the set of political and economic institutions - that foster (or undermine) entrepreneurship, efficient allocation of resources, and therefore positive economic performance. Extractive political and economic institutions are largely responsible for the economic failure of nations (ACEMOGLU, ROBINSON, 2012). This is so because they create incentives for rent-seeking, crony relations, and constraints on political and economic freedom. These ideas are also in tune with North's ideas that a time-consistent wealth of nations' path depends on whether the exchange and enforcement of property rights are made through the market rather than government (NORTH, 1990).

According to the new institutional standpoint, corruption is a symptom of various distortions underlying extractive institutions, which in turn reward misuse of power to achieve illegal goals (ANDERSSON, HEYWOOD, 2009).

## 2.2. Public Choice Theory and the ties that bind rent-seeking and corruption

Taken as a complementary approach to NIE, Public Choice Theory (PCT) draws on Adam Smith's (1776) skepticism about whether people involved with public administration are only driven by altruistic motives instead of their own interests.

The economic approach to politics gained its momentum with Tullock and Buchanan in the 1960s (HOLCOMBE, 2015). They identified and resolved puzzling issues of collective action by an analytical perspective that places the self-interest motive on center stage. According to Tullock (1976):

Voters and customers are essentially the same people. Mr. Smith buys and votes; he is the same man in the supermarket and in the voting booth. There is no strong reason to believe his behavior is radically different in the two environments. We assume that in both he will choose the product or candidate he thinks is the best bargain for him. Although it seems very modest, this indeed is a very radical – even if obvious – assumption. For decades, the bulk of political science has been based on the assumption that government aims at higher goals than individuals aim at in the market. The voter is sometimes assumed to be aiming at achieving 'the public interest', the man in the shop his 'private interest'. Is this true? Is he Jekyll and Hyde? (TULLOCK, 1976, p. 37)

By assuming that politicians pursue their own interests and voters are rationally ignorant, PCT implies the view that government interventions might not promote social welfare and correct market failures.

More specifically, PCT draws on the economic approach to behavior to understand government and political processes (TULLOCK, BRADY, SELDON., 2002). Given the rules of the democratic game, a congressman's best response is to approve laws and make policies that benefit interest groups in exchange for political support and campaign finance (MONTEIRO, 2007). Due to some specificities of the rules of majority vote in many democratic countries, politicians often make promises that they cannot keep.

The economic analysis of collective action is also built on the assumption that the electoral process deals with uncertainty and asymmetric information. Therefore, the interaction between politicians and pressure groups occurs in an environment where the parties try to take advantage of the fact that the costs of some laws and regulations are dispersed and their benefits and/or beneficiaries are concentrated.

Krueger (1974) stresses that government interventions and constraints on market competition give incentives to obtain extraordinary profits through political connections. Such activities are called rent-seeking and reveal the big efforts interest groups make to convince politicians and bureaucrats to grant them legal economic privileges, such as a tariff protection.

Lambsdorff (2002) claims that the rent-seeking theory offers a way of modeling government corruption. The latter can be regarded as a means of trading some preferential treatment with private sector groups. To him, “just like other forms of rent-seeking, corruption represents a way to escape the invisible hand of the market and influence policies to one’s own advantage” (LAMBSDORFF, 2002, p. 104). If this is so, corruption is a manifestation of rent-seeking.

Shleifer and Vishny (1993) argue that the features of the government institutions and traits of the political process are important determinants of corruption. To them, the very fact that public officials can prohibit entry of competitors and give licenses or permits to specific individuals or interest groups gives room for “the government sale by government officials of government property to attain personal gains” (SHLEIFER, VISHNY, 1993, p. 599).

Despite the various lessons that can be drawn from PCT, it is important to stress that the above economic approach to politics teaches us that rent-seeking activities evolve over time because of the guarantee by government officials and politicians that they will protect politically connected firms or interest groups from competition and creative destruction forces. In exchange for this guaranteed economic privilege, they share part of their extraordinary profits through bribes, kickbacks, and political campaign funds (ZYWICKI, 2016, p. 83).

Nevertheless, PCT has a limited scope to offer a mechanistic explanation of corruption. It endorses the neoclassical equilibrium analysis and takes the market as a static structure. As a result, it fails to describe mechanisms underlying the coordination of strategies by rent-seekers, politicians, bureaucrats, and private sector agents. To bridge this gap, this paper goes on to argue for an “explanation of government corruption by mechanism” that integrates NIE and PCT lessons about corruption and rent-seeking with Austrian School of Economics (ASE) insights.

### 2.3 The Austrian School of Economics: predatory political entrepreneurship as the “better half” of rent-seeking

Ikeda (2003) discusses the differences between PCT and ASE. The latter does not endorse the neoclassical economic concept of market failure. According to Austrian economists, the idea of market failure is misleading, since it assumes an overly unrealistic notion of market competition that takes the Paretian criterion as a benchmark. Therefore, ASE challenges the static nature of the market underlying PCT’s models of government behavior and political processes. DiLorenzo (1988, p. 59) argues: “Neoclassical price theory has its limitations, many of which have been investigated by Austrian economists. These limitations have implications for the study of public choice.”

According to the Austrians, individual rationality might not bring about equilibrium, neither in the market nor in the domain of politics. Hayek (1937) emphasized that it all depends on how information is acquired and whether the price signals can be used to test entrepreneurial opportunities.

If one takes the Austrian economic perspective on coordination seriously, it becomes clearer why the market metaphor fails to provide a satisfactory representation of the political domain (HOLCOMBE, 2002). Just like entrepreneurs in the market, politicians attempt to test profit opportunities. Nevertheless, political interactions and exchanges are not voluntary and impersonal. Often political entrepreneurial strategies depend on coalitions and the use of power to attain personal goals or their clients’.

Despite the tensions between PCT and ASE, we claim that their integration allows for a richer understanding of “political market coordination” through the lens of economics. To the Austrians, institutions are efficient if they somehow help people encounter their own mutually beneficial exchanges.

Since collective action involves concentrated benefits and diffuse costs, there are incentives for politicians to cooperate with pressure groups. Unlike PCT, which takes politicians’ behaviors as mere responses to the demands of interest groups, the argument is that ASE uncovers a causally relevant mechanism through which politicians test their profit opportunities resulting from the creation of a demand for their wealth transfer services.

Kirzner (1973) claims that the role of the market entrepreneur is to identify misallocations and to provide alternative courses of action that activate wealth

creation mechanisms. DiLorenzo (DILorenzo, 1988, p. 66) suggests that political entrepreneurship is, in turn, predatory since it involves the exploitation of profit opportunities for wealth destruction through rent-seeking behavior.

Quite similarly, Holcombe (2002) emphasizes that political institutions often offer profit opportunities through predation. This is because individuals with public power can take advantage of their position and transfer resources from some individuals or groups to benefit their cronies. Testing such profit opportunities associated with the coercive and clientelist exchange of property rights might depend on whether the features of the institutional matrix enable public servants to trade economic privileges with another individual (or pressure group) at the expense of everyone else.

In this case, predatory political entrepreneurship will pay off if government officials can abuse their power to transfer economic rents from the rationally ignorant voting masses to well-informed businesses. Such a phenomenon can be regarded as the ASE explanatory counterpart of rent-seeking. Both mechanisms work together to coordinate expectations and strategies by private-sector agents, public servants, and politicians.

It is important to stress that political entrepreneurship often implies wealth destruction that follows resource misallocation and income transfers through political connections. Political entrepreneurship seems to play a major role in the dynamics of coordination between private and public actors under extractive institutional environments that reward corrupt deals. If this is so, an analytical framework that integrates NIE, PCT, and ASE provides an explanatory account that highlights the causal relevance of (predatory) political entrepreneurship and rent-seeking to the emergence and evolution of real-world government corruption.

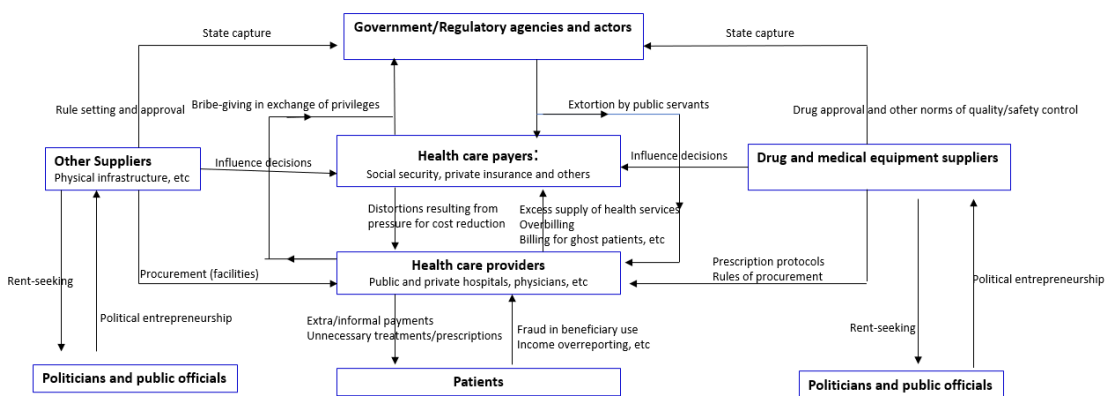
### **3. An account of health sector corruption risks: the Rio de Janeiro case**

This section draws on Vian (2008), Garcia (2019), and Hussman (2020) to propose an analytical framework for corruption in the health sector. The novelty lies in integrating insights of NIE, PCT, and the ASE to come up with an explanatory account that uncovers two causally important mechanisms underlying corrupt practices in times of the coronavirus crisis. They are rent-seeking and predatory political entrepreneurship.



As discussed earlier in this paper, the health sector has features that make it susceptible to corruption. Uncertainty, asymmetric information, and the complex network of public and private agents that constitute the intricate and segmented health sectors help explain the existence of opportunities for illicit exchanges between public and private agents. The figure below highlights the main actors of the health sector and the roles that rent-seeking and political entrepreneurship might play in the emergence and evolution of corruption.

**Figure 1 - Corrupt interaction in the health sector as a theoretical framework**



Source: Adapted from Savedoff & Hussmann (2006, p. 7).

The health sector is very sensitive to contract loopholes that inspire opportunistic behavior by the principal (e.g., patients) and agents (other actors within the health care network, who can make strategic use of asymmetric information to attain their own goals). Given the complexity and uncertainty of the interaction environment, public servants and politicians driven by their self-interests go on to “sell” economic privileges. On the other hand, private sector agents and organizations realize the high payoffs of rent-seeking activities. Both mechanisms help explain the collaborative dimension of corrupt deals. In addition, features of existing institutional settings reward choice strategies by patients, medical service providers, suppliers, regulators, and health financiers, who can also make the reciprocal exchange of favors an empirical regularity.

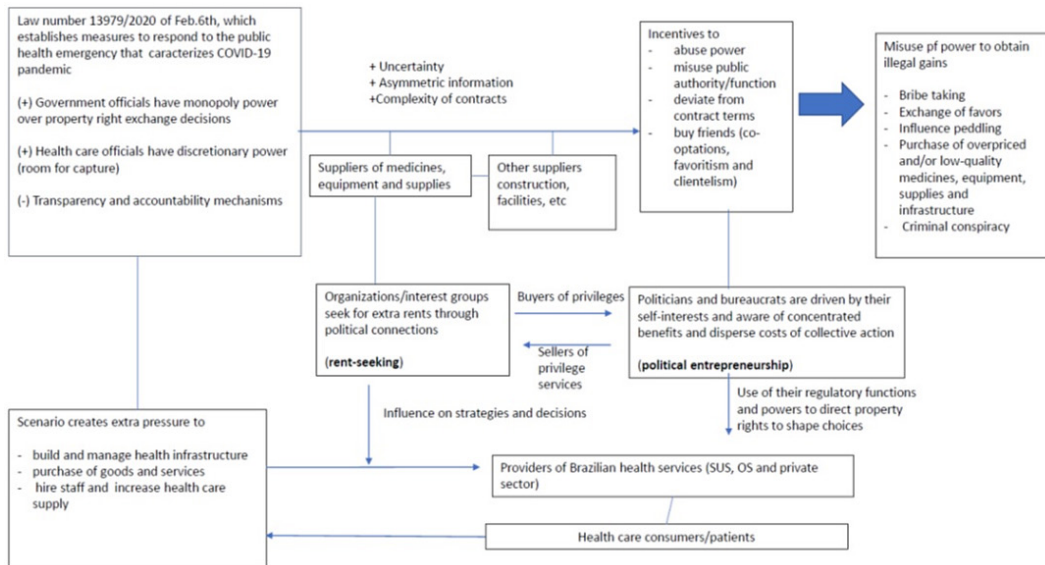
Vian (2008) highlights three major incentives sources for corruption: 1) financial pressure by public agents to divert resources for personal enrichment or requests from cronies and/or clients; 2) rationalization of corrupt behavior to justify crimes such as

conspiracy, cartel, kickback, and embezzlement; 3) opportunities for misuse of public function. Due to our commitment to a new institutionalist approach to corruption informed by PCT and ASE, we put forth an account of the pandemic-related graft schemes in the Rio de Janeiro state that focuses on incentives that reward rent-seeking activities and political entrepreneurial initiatives underlying systemic corruption.

The challenges of the COVID-19 pandemic have contributed to the exponential growth in health spending in Brazil and the world. Additional resources are necessary for the acquisition of medical and hospital equipment, medicines, and the construction of service points for infected patients. In response to that, the Brazilian government issued Law 13,979/2020 (BRASIL, 2020a), which allowed the bidding for acquiring goods and services required for managing the crisis in the public health sector in times of the coronavirus pandemic to be waived. Moreover, additional legislation expanded the list of items of the so-called “Differentiated Contracting Regime” and went on to support advance payments of public contracts and bids related to COVID-19 (BRASIL, 2020b).

The foregoing institutional design carried negative unintended consequences. Law 13,979/2020 (BRASIL, 2020a) gave extra room for corrupt practices in the Brazilian health sector, as it constrained transparency and accountability. Moreover, it increased the opportunities for the abuse (misuse) of discretionary powers by public and private-sector actors that constitute the Brazilian health sector that the figure below attempts to represent:

**Figure 2 - Analytical framework to understand Brazilian health corruption during the pandemic.**



Source: Authors' own elaboration

Putting it somewhat differently, Law 13,979/2020 (BRASIL, 2020a) can be regarded as a by-product of the perceived state of public emergency. The pandemic context creates extra pressure to direct funds to health care services required to treat a growing number of infected patients. The scenario of uncertainty about treatment protocols, transmission channels, lethality, and conflicting interests have created additional opportunities for public and private sector agents to abuse the trust placed in them and pursue their own goals.

Figure 2 provides a portrait of corruption risks in Brazilian health and its economic rationality that depends on the behavioral assumption that individuals within the domains of private and public sectors are driven by their self-interest. Therefore, decisions over courses of action that deviate from public integrity become predictable in institutional environments with ambiguity, uncertainty, contract loopholes, and asymmetric information. To complicate matters, since the 1990s, some government officials have had discretionary powers to grant exclusive privileges to specific companies that attain the status of "Social Health Organizations" (SHO). The latter are entitled to manage public hospitals and outpatient clinics in a way that is free from severe rules of

public procurement and the bureaucratic hiring of services and personnel (GUSMÃO FURTADO, MELO, 2011).

Despite the potential efficiency gains in Brazilian public health management that SHOs might bring, it is important to bear in mind Professor Jorge V. Monteiro's wise advice about the importance of transparency and accountability in all kinds of public-private partnerships, since they involve operational complexity, large sums of money, asymmetric information and therefore strong incentives for public actions that undermine society's best interests (MONTEIRO 2004, p. 662)

According to the suggested theoretical framework, such prerogatives signal to health care providers, drug/medical equipment suppliers, and even health care payers that rent-seeking activity and cronyism do payoff.

Politicians and public officials, who, in turn, also learn that Covid-19 somehow amplifies contract loopholes, make strategic use of their public positions to opt for overpriced contracts with companies with which they can exchange favors (through bribery, kickbacks, political nominations, and illegal political campaign funds, for instance) regardless of the effects their crony relations have on people's efficient and fair access to health services.

Our hunch is that such sophisticated dynamics of coordination between rent-seekers and predatory political entrepreneurs largely explain why corruption in health during the pandemic spreads out fast just like a highly lethal transmissible virus. This article goes on to briefly discuss some pieces of evidence of health corruption in the Rio de Janeiro state that shed some light on the explanatory value of a framework informed by NIE, PCT, and the ASE. To undertake such a task, it focuses on analyzing some patterns of corrupt deals investigated by the Special COVID-19 Committee at the Legislative Assembly of the State of Rio de Janeiro (ALERJ) that turned public in the final report "Ato 'E' / GP/Nº 40/2020" last October (ALERJ, 2020).

The aforementioned report reveals strong signs of crony relations between interest groups and politicians under the administration of Governor Witzel during the pandemic. It suggests that rent-seeking activities and political entrepreneurship walk hand in hand. According to the General Comptroller's Office of Rio de Janeiro, 99.47% of the emergency contracts of the State Health Department contain irregularities that add up to R\$ 1.7 billion (ALERJ, 2020, p. 11). The table below summarizes some of the health goods and services the Rio de Janeiro state purchased through 196 contracts inspired by Law 13,979/2020. All of them offer evidence that fraud and irregularity in health contracts have increased in times of Covid-19.

**Table 1 – Health goods and services purchased on an emergency basis, based on Law 13,979/2020**

Items	Main Contracts with evidence of fraud and irregularity	Contract value (in millions of reais)	(%)
Field Hospitals	IABAS	835	48,20%
Ventilators	6 companies (3 of which - ARC Fontoura; A2A Ltda; and MHS Ltda - received 99,7% of total contract value	184,2	10,6%
SAMU	Emergency contracts with company OZZ Saúde, responsible for the management and operation of SAMU.	166,6	9,6%
COVID-19 Tests	10 contracts, with 8 companies, three of which - Fast Rio, Total Med, and Medlevensohn – received 85.5% of the total contract value	132,2	7,6%
Intensive Care Units beds	3 contracts with two companies (Log Health and Fundação Educacional André Arcoverde)	111	6,4%
Medicines	42 contracts with 19 companies (the 5 of the largest - Speed, Avante, Carioca, Lexmed, and Sogamax -received more than 95% of total contract value	73,2	4,2%
Personal protective equipment and supplies	92 contracts with 72 companies (the main supplier, Carioca Medicamentos e Material Médico Ltda kept 51% of the contract value)	109,5	6,3%
Infrastructure Works	5 contracts, with 5 companies (Metalúrgica Big Farm concentrated 82% of the contract value	76,5	4,4%
Basic-needs grocery package	3 contracts with two companies (Fundação Leão XIII and Cesta de Alimentos Brasil Ltda)	25,4	1,5%
General Services	10 contracts, with 9 companies (the 3 largest of them - Central de Atendimento e Serviços Ltda, UTI Serviços Médicos Ltda and UTI Rio Serviços Médicos Ltda - received 90% of total contract value	17	1,0%
<b>Total</b>		<b>1.768,4</b>	<b>100,0%</b>

Source: ALERJ (2020, p. 66).

In tune with PCT's predictions of government failures, the ALERJ report offers evidence that fraud and irregularity have increased during the pandemic and highlights that crony relations between rent-seekers and public servants have abounded. There is some evidence that private-sector companies, as well as SHOs, pay bribes to attain some profitable contracts associated with field hospital construction and the purchase of several items, such as COVID-19 test kits, personal protective equipment, medicines, works, and so forth (ALERJ, 2020). One famous corruption scandal was revealed by Federal Police's Placebo and Tris in Idem operation in May 2020. It uncovered a corruption scheme in which Governor Witzel's staff received bribes to select a SHO named IABAS (Institute for Basic and Advanced Health Care), responsible for building and management of field hospitals during the Covid-19 pandemic. The company won 10 contracts (amounting to R\$ 835 million) and even received an advance payment of R\$ 256 million. Yet IABAS only delivered 2 of the 7 contracted field hospitals, both with partial operations and several irregularities (ALERJ, 2020, p. 72).

In their pursuit of power, self-interested politicians exchange favors with private sector agents, who are ready to finance politicians' political campaigns. The ALERJ report shows that two major donors of governor Witzel's political campaign kept crony relations with Unir Saúde. The latter had been responsible for the management of UPAS (first aid health units) in the 2018-2019 period. Unir Saúde lost its credential as a Social Health Organization (SHO) due to contract irregularity and low-quality service. The State Court of Auditors found 52 irregularities in the management of UPAS by Unir Saúde. However, when the special public procurement regime was enacted, governor Witzel misused his discretionary power to preserve Unir Saúde's SHO status. The following passages of the ALERJ Report provide textual evidence of suspicious clientelistic relations:

So, two days before the second term of the elections, on 10/26/2018, BRUNO KOPKE donated R\$ 75,000 to the campaign of WILSON WITZEL for the Rio de Janeiro Government, becoming his 4th (largest) donor. [...] It is at least suspect that WILSON WITZEL has benefited UNIR with the revocation of his disqualification, with the Director of the Institute as one of the main donors to his electoral campaign. (ALERJ, 2020, p. 451).

[...]

ANTONIO VANDERLER DE LIMA (OAB / RJ 35.211) is a close friend of Governor WILSON WITZEL and, like BRUNO JOSÉ DA COSTA KOPKE RIBEIRO, is one of the biggest campaign donors (6th) of the then-candidate to the State Government, with the amount of R\$ 40,000 made on 10/18/2018, 10 (ten) days before the second round of the elections. [...] The *Correio da Manhã* newspaper reported that ANTONIO VANDERLER DE LIMA “played an important role in the governor’s decision to rehabilitate UNIR, which is in fact one of the most delicate points of the investigation into WITZEL.” (ALERJ, 2020, p. 453).

The ASE adds to a broader understanding of the exchange of economic privileges through political connections. It presents the analytical category of political entrepreneurship. Politicians and bureaucrats remain alert to exploiting profit opportunities by misusing public functions. There is evidence that Rio state’s public servants (including two former secretaries) played the roles of predatory entrepreneurs: they agreed on a contract with IABAS that lacked transparency and objective criteria to justify the choice over another private company without frequent contract irregularity. The pandemic has offered additional incentives for political entrepreneurs (close to Governor Witzel) to obtain illicit gains by granting a privilege to IABAS. Those benefits included advance payment for health construction and administration services without specifying quality and quantity criteria. The evidence found was sufficient for the arrest of two secretaries of state (Secretary of Economic Development and Secretary of Health), for embezzlement, corruption, fraudulent adjustment of contracts, among other crimes, as reported by ALERJ’s Special Commission COVID-19:

Since the hiring of IABAS, numerous members of the WITZEL government have been arrested, including the Secretary of Health Edmar Santos, responsible for hiring Gabriell Neves, appointed as the main articulator of the corruption scheme under investigation. (ALERJ, 2020, p. 73).

Likewise, the State Prosecution Office carried out the Merchants of Chaos Operation to investigate corruption schemes related to the purchase of ventilators. The government of Rio bought overpriced ventilators from companies that had no expertise in health services. The ALERJ report found evidence of political entrepreneurship:

In the presence of evidence that there was fraud in emergency hiring, former undersecretaries of health Gabriell Neves and Gustavo Borges da Silva, among other suspects, were arrested on May 7, 2020. They were

accused of having obtained illicit gains in the emergency purchase of lung ventilators for Rio de Janeiro Covid-19 patients. (ALERJ, 2020, p. 90).

The hiring of companies to manage Rio's Mobile Health Emergency Service (SAMU) also suggested systemic corruption that also evolved because of political entrepreneurial initiatives. SAMU's contracts did not truly depend on the "differentiated regime." Before the pandemic, public procurement was on its way. Yet the reduced transparency that accompanied the coronavirus enabled the former Executive Undersecretary Gabriell Neves to use his discretionary powers to benefit company OZZ Saúde. The ALERJ report offers evidence that political entrepreneurship and corruption also walk together:

Public notice for hiring a social health organization [to manage SAMU] was ready. Yet as soon as former Executive (Under)secretary Gabriell Neves took office, he neglected the previous process and took advantage of the pandemic context that allowed for the waiving of bidding for the purchase of health services to favor OZZ Saúde (ALERJ, 2020, p. 101).

[...]

In sum, the analysis of the case of OZZ SAÚDE EIRELI reveals serious irregularities in contracting, provision of health services; there is evidence of systematic mistakes made by Rio state Health Department and OZZ Saúde; there is evidence of contract overpricing, which motivated the decision of Rio de Janeiro Court of Auditors to block payments to OZZ [...], in addition... government officials acted in bad faith, neglecting the legal requirements throughout the hiring process. (ALERJ, 2020, p. 102).

In a few words, ALERJ's corruption report provides some compelling pieces of textual evidence that highlight the explanatory value of the proposed approach to health corruption. It is important to acknowledge that health corruption scandals in Rio still deserve further investigation. Nobody should be regarded as guilty until there is a final sentence from judicial proceedings. Yet the presented evidence gives strong support to the (causal) powers political entrepreneurship and rent-seeking might play in triggering health corruption in countries like Brazil in times of COVID-19.



#### 4. Implications and concluding remarks

This paper presents and discusses a theoretical framework that explains the driving forces behind corrupt practices in Brazil during the coronavirus crisis. In response to the increasing need of purchasing health goods and services, the Brazilian government issued Law 13979/2020, which, in turn, provided incentives for corruption by weakening the rules of procurement, transparency, and public accountability channels.

Despite the available pieces of strong evidence that contract irregularity and fraud have increased in the Rio de Janeiro state, any solid inferences drawn about the network of systemic corruption will require joint efforts by the Federal Police, Prosecution Offices, and Audit Courts to collect necessary information to guide trials, admissibility of evidence, and sentencing. If this is so, the very empirical validity of the proposed framework and new research questions about corrupt Brazilian health deals in times of Covid-19 might depend on how the judiciary will manage trials and process corruption cases. As Francesco de Sanctis puts the issue,

The role of the judiciary in addressing corruption is fundamental. However, the prosecution of grand and political corruption presents unique challenges due to the legal and factual complexity of these crimes and the risk of undue political pressure in the process (DE SANCTIS 2020, p.1)

Furthermore, there is a need to do further research on the institutional design of SHOs that are often regarded as a structural force behind deviations from public integrity and systemic corruption in the Brazilian health sector. One cannot underestimate the fact that public-private partnerships involve collaboration between civil servants and private-sector companies to improve the efficiency and fairness of health services. The idea is that cooperation can be used to finance, build, and even operate public hospitals and outpatient clinics with greater autonomy, transparency, accountability, and civil society participation (PASCHKE *et al.* 2018). Nevertheless, the regulatory basis of the collaboration between the public health system and private-sector organizations remains controversial. According to the former minister of the Brazilian Supreme Court, Celso de Mello, granting the status of a SHO to a social organization resembles the economic privileges emperors used to give to their cronies. To him, such a prerogative does not seem compatible with a modern perspective on the modern state (MELLO 2010, p.242).

The problem is that SHOs might foster political entrepreneurship and rent-seeking. Organizations with SHO status have the chance to advance cronyism since they need not follow the rigid rules of public procurement and long bidding processes. Critics of the Brazilian public health management system based on SHOs complain that it systematically deviates from the principles of isonomy and impersonality underlying modern public management. Yet, it is important to remember that SHOs are not state-owned firms. Given the contract loopholes that might emerge in the health sector because of complex public-private partnerships, the literature might benefit from new studies that embark on a careful account of how contracts have been designed and implemented over time by SHOs and whether larger autonomy and decentralization in the Brazilian health system rewards political nominations and crony relations. Inspired by the proposed analytical framework, this paper implies the policy idea that concentrating decision powers on public health officials by the Executive power will amplify the incentives for political entrepreneurship, rent-seeking, and therefore systemic corruption.

Unfortunately, corrupt practices come in various forms, and there is no silver bullet to destroy them. For that reason, the main lesson to be drawn is that regulatory and institutional reforms in the Brazilian health system are necessary to weaken corruption, since they promise to neutralize the causal powers of predatory political entrepreneurship and rent-seeking and therefore bring a bright light into the dark corners of poor governance and corruption (LAGARDE, 2018).

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# Size of government and political coalition in Brazil (1980-2019)

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This paper seeks to understand the political and institutional determinants of the size of the federal government in Brazil between 1980 and 2019. The hypotheses here evaluated are: (i) the greater the fragmentation in the National Congress, the greater the size of the government coalition; (ii) the larger the government coalition, the greater the number of ministries and secretariats responsible for spending; (iii) the greater the number of ministries and secretariats, the greater the federal government's expenditure expense and, therefore, the greater its size; (iv) the 1988 Constitution also increased expenses and the size of the federal government. Although the results are limited by the length of the time series, there are elements that underscore the importance of analyzing the public budget and the size of the government through the lens of Public Choice. The country's fiscal problems are not restricted to management issues or the need to curb fraud and corruption. They have a relevant political-institutional component. Not considering these aspects makes discussions about administrative and tax reforms sterile.

**Keywords:** coalition presidentialism, political fragmentation, size of government, Brazil

## Tamanho de governo e coalizão política no Brasil (1980 – 2019)

O presente artigo busca compreender os determinantes políticos e institucionais do tamanho do governo federal no Brasil entre 1980 e 2019. As hipóteses aqui avaliadas são: (i) quanto maior a fragmentação no Congresso Nacional, maior o tamanho da coalizão governamental ; (ii) quanto maior a coalizão governamental, maior o número de ministérios e secretarias responsáveis pelos gastos; (iii) quanto maior o número de ministérios e secretarias, maior a despesa do governo federal e, portanto, maior seu porte; (iv) a Constituição de 1988 também aumentou as despesas e o tamanho do governo federal. Embora os resultados sejam limitados pela duração da série temporal, existem elementos que destacam a importância de analisar o orçamento público e o tamanho do governo sob a ótica da Escolha Pública. Os problemas fiscais do país não se restringem a questões de gestão ou à necessidade de coibir fraudes e corrupção. Eles têm um componente político-institucional relevante. Desconsiderar esses aspectos tornam estéréis as discussões sobre as reformas administrativa e tributária.

**Palavras-chave:** presidencialismo de coalizão, fragmentação política, tamanho do governo, Brasil

## Tamaño del gobierno y coalición política en Brasil (1980 – 2019)

Este artículo busca comprender los determinantes políticos e institucionales del tamaño del gobierno federal en Brasil entre 1980 y 2019. Las hipótesis evaluadas aquí son: (i) cuanto mayor la fragmentación en el Congreso Nacional, mayor el tamaño de la coalición gubernamental ; (ii) cuanto mayor sea la coalición gubernamental, mayor será el número de ministerios y secretarías responsables del gasto; (iii) cuanto mayor sea el número de ministerios y secretarías, mayor será el gasto del gobierno federal y, por tanto, mayor será su tamaño; (iv) la Constitución de 1988 también aumentó el gasto y el tamaño del gobierno federal. Si bien los resultados están limitados por la duración de la serie temporal, hay elementos que resaltan la importancia de analizar el presupuesto público y el tamaño del gobierno desde la perspectiva de la Opción Pública. Los problemas fiscales del país no se limitan a cuestiones de gestión o la necesidad de frenar el fraude y la corrupción. Ellos tienen un componente político-institucional relevante. Desestimar estos aspectos hace que las discusiones sobre reformas administrativas y tributarias sean estériles.

**Palabras clave:** presidencialismo de coalición, fragmentación política, tamaño del gobierno, Brasil

## Introduction

The trajectory of researcher Jorge Vianna Monteiro is marked by a pioneering spirit in analyzing the issues of public finance and public policies in Brazil through Public Choice. For the author of “Economia do Setor Público”, “Macroeconomia do Crescimento do Governo”, and “O Ambiente Institucional-constitucional da Política de Gasto Público e das Escolhas Orçamentárias em Geral”, among other publications, it is not possible to understand the fiscal problems of Brazil without considering the institutional matrix and the rules of the country’s political game.

In the practical day-to-day, the large size of the federal government is reflected in less space for the private sector, higher tax burdens, and increased public debt, resulting in social costs that contribute to Brazil’s economic stagnation. In this sense, inspired by the discussions and subject-matter of Monteiro (1987), Monteiro (1990), and Monteiro (2013), this paper seeks to understand the political and institutional determinants of the size of the Brazilian federal government between 1980 and 2019. The hypotheses evaluated here are: (i) the greater the fragmentation in the National Congress, the greater the size of the coalition of government; (ii) the larger the coalition of government, the greater the number of ministries and secretariats responsible for spending; (iii) the greater the number of ministries and secretariats, the greater the federal government’s expenditures and, therefore, the greater its size; (iv) the 1988 Constitution increased expenses and the size of the federal government.

This paper is divided into five sections, in addition to the introduction and final remarks. The first section discusses the size of the government under the lens of Public Choice. The second section presents the relationship between government size and coalition presidentialism in Brazil. The third section reviews the literature on government size and coalition size. The fourth section describes how data for the size of the federal government, fragmentation, and coalitions of Brazil were obtained, processed, and calculated. The fifth section analyzes the data and results of the determinants of the size of the federal government and coalition in Brazil.

Although the results are limited by the length of the time series, there are elements that underscore the importance of analyzing the public budget and the size of the government through the lens of Public Choice. The country’s fiscal problems are not restricted to management issues or the need to curb fraud and corruption; they



have a relevant political-institutional component. Not considering these aspects makes discussions about administrative and tax reforms sterile.

## 1. Size of government from the point of public choice theory

Understanding variations in the size of government implies knowing the behavior of political agents, the demands of society, the incentives of each agent, and the institutional environment in which they are inserted.

For that, it is necessary to have a theory that encompasses such components among its premises. Public Choice is certainly quite adequate, since it analyzes the behavior of political agents and individuals through the lens of economic sciences, providing insights and assisting with the development of hypotheses to study these relationships.

Jorge Vianna Monteiro, a precursor of research in Public Choice in Brazil, synthesizes in three classes the institutional mechanisms that, according to him, maintain “the frontier of the public economy systematically pressured to expand” (Monteiro, 2010), they are:

M1) The rationality of politicians - Driven by the need to serve their electoral strongholds through “net benefits,” politicians allocate funds from the public budget to local or specific interests and create protective regulations accordingly, in addition to various incentives.

M2) The rationality of bureaucrats - Bureaucrats do not have an elective mandate like politicians, so they act in a way that “maximizes power, influence, prestige, permanence in the post, as well as their chances of ascending the governmental hierarchy.” As a result, they have increasing access to and power over a “growing share of public resources, or over diversified and complex sets of rules.”

M3) The rationality of special interest groups - This is rent-seeking, through which private interest groups benefit from public policies, in their various forms, in exchange for support and campaign financing, among other benefits.

We can go beyond budgetary dimensions with the implications suggested by the author, taking into account party fragmentation and the coalition size —the relationship

between the two and their impacts on federal spending to fund the public sector. Our main hypothesis is that the greater the fragmentation in Congress and the greater the number of parties in the coalition, the greater that public spending is.

An example of an increase in the cost to the State to meet greater demand from interest groups was highlighted by Lisboa and Latif (2013), who observed the creation of public agencies designed to intervene in specific markets to protect interest groups from external competition in exchange for incentives. Rent-seeking is a political-institutional problem with perhaps one of the largest effects on government spending since it not only requires the passage of laws and decrees but also the creation of bureaucratic mechanisms to enforce the guidelines.

Additionally, an increase in public spending, and thereby the size of government, is related to electoral cycles. According to Dal-Ri and Correia (2019, p. 308 and 309), voters form expectations about the behavior of political parties and evaluate parties' performances—particularly concerning inflation and unemployment—against their own expectations. Since the main objective of political agents is to win votes from the electorate, politicians manipulate economic results during their terms to maximize economic performance precisely at election time.

In these ways, we note just how diverse the mechanisms through which political actions increase the size of government are. Monteiro's synthesis (2010) confirms that we cannot be fulfilled with only looking at the budgetary dimension when analyzing the public sector. According to him, we would be underestimating "the effective weight of the government in the economy," as well as losing "the focus of the effective institutional mechanisms that are activated, once the opportunity to intervene in a given market of goods and services is presented."

Besides the political-institutional aspect, it is important to consider that the Brazilian budget process has a very large component of inertia since it is not a "zero-base", as explained by Cintra (2018). As informed by Giacomoni (2011) and Bassi (2019), the 1988 Brazilian Constitution established "bounded revenues" and "mandatory expenses", which require that a minimum percentage of the budget be spent in certain areas, such as health and education. This represents a factor of rigidity and additional inertia to public expenditures. Moreover, bounded revenues also reduce the extent to which the public budget can be used as an instrument of accommodating party interests that make up the support base of the President of the Republic, apart from the bargaining power of the civil service.

Despite these caveats, the question of political coalition and governance must be analyzed to understand the limitations that cause the postponement of fiscal adjustment projects through administrative and budgetary reform and any reform proposal that reduces tax burdens.

## 2. Coalition presidentialism and government size

The term “coalition presidentialism” was coined by Abranches (1988), to adequately characterize the Brazilian governance model according to the relationship between the legislative and executive powers. This model has characteristics of multi-party parliamentarism, namely the notion of inter-party pacts, or coalitions. Although, like in presidentialism, the two powers are directly elected by popular vote, but separately. There is not any mechanism that matches seats in parliament proportionally to president’s votes. Thus, maybe the government coalition cannot have most seats in Congress. In this sense the elected president can be politically weak. .

While in parliamentarism the inter-party coalitions are composed prior to the electoral dispute, with the aim of guaranteeing a majority in the parliament, thus being able to appoint the prime minister; in a multiparty presidential system, the president is unlikely to have a majority in the congress to fulfill his agenda, so it is up to the president-elect to assemble his coalition government to guarantee governance. Therefore, the coalition in the presidential system refers to the president’s alliances with certain political parties or forces through the distribution of government posts, in exchange for support within the legislative house.

Most Latin American countries, according to Amorim Neto (2006), have multiparty systems, and one of the characteristics they have in common regarding the constitution of ministerial offices is the fact that to assume a ministry, deputies, and senators do not need to abdicate their parliamentary seat, which makes the post more attractive, thus favoring the obtainment of legislative support through these appointments (Amorim Neto, 2006, p.34 and 35), thus making the coalition formation process more flexible for accommodating interests that may arise amid the presidential term.

According to Freitas (2016), coalitions in principle work “as in a contract, parties that accept to participate in the Executive commit themselves to the government.” In this

way, when they assume the ministerial portfolios, they also assume joint responsibility for managing the government. The author also points out that coalitions are not made between individuals. The entire party leadership group that assumes one or more ministries must commit to being part of the government, and this situation only changes if there is any kind of change in this agreement, for example, if a certain party loses all the ministries it held. Such a commitment is made to reduce transaction costs and ensure governance, but it may require a certain flexibility from the executive for the government project, and it may generate additional expenses.

Marcel and Arvate (2010) complete the reasoning by explaining that, “if there is logrolling in the coalition government, neither party vetoes the other party, so as not to be vetoed,” so that the preferences of each are maintained, without major impediments. Therefore, according to the authors, “the number of parties in the coalition becomes of tremendous importance in defining the size of the government.”

### 3. Literature review on government and coalition size

Kantopoulos and Perotti (1999) find that the greater the number of decision-makers in a government, the less each ends up internalizing the costs that a given policy imposes on others; and based on a study of 22 OECD countries between 1971-1996, Volkerink and Hann (2000) found evidence that a more fragmented government has higher deficits, based on the number of parties in a coalition or the number of expending ministers. Like Volkerink and Hann (2000), Maciel and Arvate (2010) use only the spending ministers in this calculation. To reach these conclusions, the authors analyzed: a) the impact of fragmentation of the size of the government; b) the government’s position before Parliament; c) the impact of ideology.

According to Volkerink and Hann (2000), if the coalition controls more seats in parliament than what is necessary to obtain a simple majority, the power of any partner in the coalition—be it a party or a single deputy—will be weaker. Already, a party will be stronger if it is needed for gathering support in parliament. To reach this conclusion, the authors calculated the excessive number of seats, or the number of seats above those needed for a simple majority, scaled to the number of seats that make up this simple majority. Thus, the more parties that are part of the coalition, the more difficult it is for

the opposition to unite against government decisions.

The authors also used ideological differences in their analysis, based on Tsebelis' (1995) argument that each member of a coalition can be a potential veto actor, and therefore greater ideological differences would make compromise during the agreement more costly.

However, what interests us most in the work of Volkerink and Hann (2000) in the analysis of the Brazilian scenario is their finding regarding the size of fragmentation: the impact of the number of ministers is stronger and more robust than the impact of the actual number of parties in the government.

Bawn and Rosenbluth (2006) examine the political consequences of the number of parties in government using a sample of 17 European countries between 1970 and 1998, seeing if the larger the public sector, the larger the number of parties of the coalition. They conclude that the increase in the number of governing parties increases the fraction of GDP represented by government spending by almost half a percentage point, which means more than one billion dollars in a typical year. They also contend that they found little support for the claim that the number of legislative parties would affect the size of the public sector, except for the increase in the number of parties in the coalition.

According to the same authors, there is a tendency for multiparty governments to externalize costs, which would affect policies in ways other than the size of the public sector, for example, externalizing diffuse costs in the form of price increases and higher unemployment (Bawn and Rosenbluth, 2006).

In addition, electoral responsibility, according to the authors, may differ between long and short coalitions since a party maximizes its marginal contribution according to the well-being of its support groups while externalizing unsupported costs. Such an argument would indicate that greater coalition inefficiency would imply greater spending when more parties are in government; "this does not mean that most government spending is inefficient, but that inefficient trade will be reflected in spending" (Bawn and Rosenbluth, 2006).

Volkerink and Hann (2001) as well as Bawn and Rosenbluth (2006) also find evidence that the impact of the number of ministers is stronger than the impact of the number of parties in the government since "every spending minister is a basic unit, insofar as it participates in the formulation of the general budget."

To verify whether the control of ministries by coalition parties represents

a privileged space in the allocation of parliamentary resources by members of the participating parties, Batista (2015) analyzes the extent to which power within the Executive is shared between the President and the parties that form the coalition through the allocation of parliamentary amendments. Being a member of the minister's party to which a particular resource would be linked, increases the chances of allocating parliamentary amendments that distribute resources. Their results also indicate that parliamentarians from the same party end up benefiting from the allocation of amendments, and the coordination mechanisms allow the president's party to be equally benefited.

In the allocation of resources, we must also consider that the revenue from tax collection that finances distributive policies involves externalities, and the political agents' misperception about true budget constraints directly affects the increase in spending (Volkerink & Haan, 2001).

#### **4. Data on Brazil's federal government size and coalition**

It is in the budget that conflicts of interest between different groups, including politicians and bureaucrats, are present in the form of disputes and agreements. To this end, we initially explained how we obtained data on federal government expenditures and described its evolution over the period 1980-2019. Expenses related to the cost of the government's operations (such as "personnel and labor charges") and other expenses (such as the acquisition of consumption material). It is important to note that expanding the time span to include the period prior to democratization (1980-1984) is necessary for contrasting the democratic period (1985-2019) in some analyses. We emphasize that the political conditions of coalition and consensus building are completely different since the previous regime was authoritarian.

However, the fiscal data series is annual (40 observations), which is an insufficient amount for an explanatory model composed of more than one independent variable to have sufficient degrees of freedom to avoid both biases and incorrect confidence intervals. The best we can achieve are linear regressions with up to three explanatory variables at most—limiting the results obtained.

## 4.1 Fiscal data

The fiscal data of the direct federal public administration is obtained in the publication “Expenses of the Union - Historical Series”<sup>1</sup> of the website “Tesouro Nacional Transparente.” The historical series consists of accounting statements. Union expenses computed by “expense group” were chosen. It contains the settled expenses of the fiscal budget and social security presented according to the structure of Table 1.

**Table 1 - Grouping of expenses of the fiscal and social security budgets**

CURRENT EXPENSES
Personnel and Social Charges
Interest and Debt Charges
Other Current Expenses
Transfers the States, Federal District, and Municipalities
Benefits Social Security
Other Current expenses
CAPITAL EXPENSES
Investment
Investments Financial
Amortization of Debt
Amortization of debt - Refinancing
Refinancing Debt Securities
Refinancing Debt Contractual
TOTAL (EXCEPT INTRA)
INTRA-BUDGET EXPENSES

**Source:** Tesouro Nacional Transparente

The primary source is the Federal Government’s Integrated Financial Administration System (a.k.a. ‘SIAFI’) - the most important instrument used to record, monitor, and control the Federal Government’s budget, financial and patrimonial execution.

The present paper, following Maciel and Arvate (2010), seeks a measure for the

1 <https://www.tesourotransparente.gov.br/publicacoes/despesas-da-uniao-series-historicas/2019/11>. Access: November 19th, 2020.

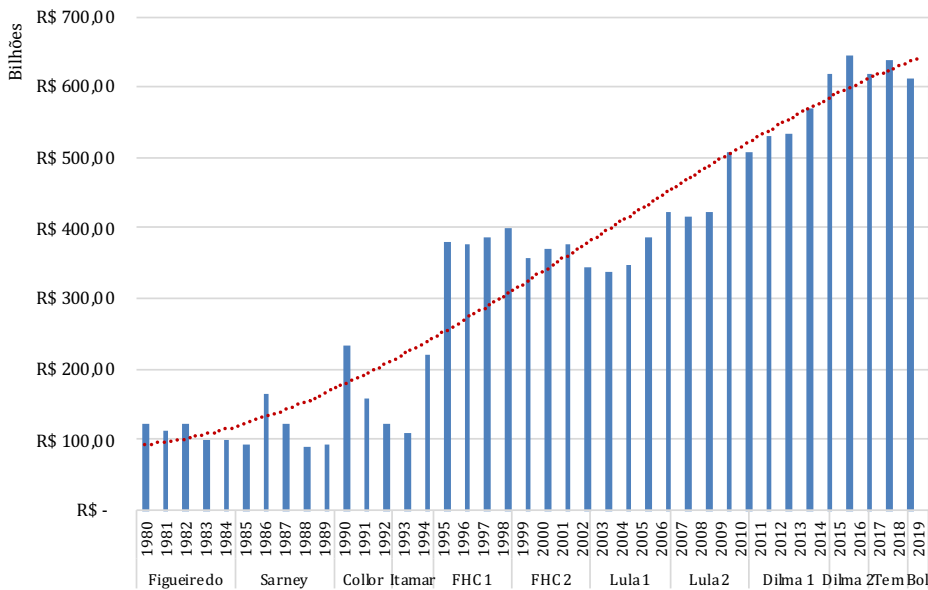
size of the government, considering only, however, the direct administration (without adding to the state productive sector - federal “state companies”) and, within it, the cost expenses. These expenses are calculated based on “Current Expenses,” considering the sum of the values of “personnel and charges” and “other current expenses,” excluding, therefore, “interest and debt charge,” “transfers to states, Federal District and municipalities” and “social security benefits.” In other words, it seeks to bring the maximum category of expenditures associated with the operation and functioning of the direct federal administration.

It is relevant for the analysis to mention that in the years 1990, 1991, and 1992, the reports of budget expenditures by group did not separate “Social Security Benefits” from “Other Current Expenses.” It is necessary to allocate the cost expenses for these years through the linear interpolation of the “Other Current Expenses - using as a percentage of the “Other Current Expenses” in relation to the total of the “Other Expenses” for the years 1989 and 1993.

The first step was converting all values from 1980 to 1993 to nominal R\$, as they are expressed in the respective currencies, such as ‘cruzeiro,’ ‘cruzado,’ ‘cruzado novo,’ and ‘cruzeiro real.’ With the series expressed in nominal reais, the proportion of cost in terms of gross domestic product was calculated using data from nominal GDP 1980-2019 in R\$ (released by IPEADATA). Then we adopted the inflation index IGP-DI from Fundação Getulio Vargas and carried out the monetary correction for the cost expenses from 1980 to 2019.



**Graph 1 – Real cost expenses (1980-2019) - red: trend line**

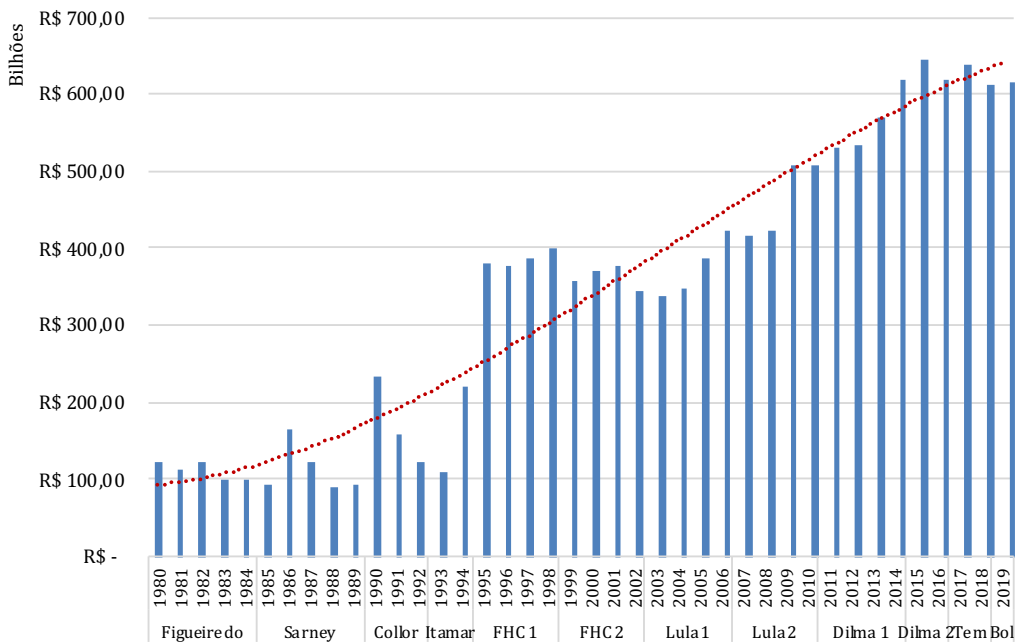


Source: Tesouro Nacional Transparente

It is possible to notice that in Graph 1 the cost values become very high in the second year of José Sarney’s Government, in the first year of Collor’s Government, and at the end of Itamar Franco’s term. The expenses change levels in Fernando Henrique Cardoso’s terms. And again, in the second term of Lula’s government, a new level is reached (above R\$ 500 billion in constant values for 2020).

As a proportion of GDP, as shown in Graph 2, there is an increase from the last three years of the Sarney government, shortly after the enactment of the 1988 Constitution - the level would never again be below 7% of GDP and fluctuates around 8% from then on. Subsequently, Fernando Collor’s government shows a peak in expenditures in its first year and reduces costs in the following years; however, this is reversed in Itamar Franco’s term. Even in the first year of Fernando Henrique Cardoso’s term, the cost reaches 8.8% of the GDP - a value that will only almost be reached in the first year of Dilma Rousseff’s second term, with costs reaching 8.6% of the GDP.

**Graph 2 - Cost measured in proportion to GDP (1980-2019) - red: trend line**



**Source:** Tesouro Nacional Transparente

Therefore, the change in cost levels, which operated at around R\$ 100 billion (in constant 2020 R\$) or 4% of GDP until 1988 and, subsequently, started to fluctuate above 7% of GDP—reaching 9% in some years—breaks the R\$ 600 billion (in constant 2020 R\$) from 2014 onwards.

#### 4.2 Political data

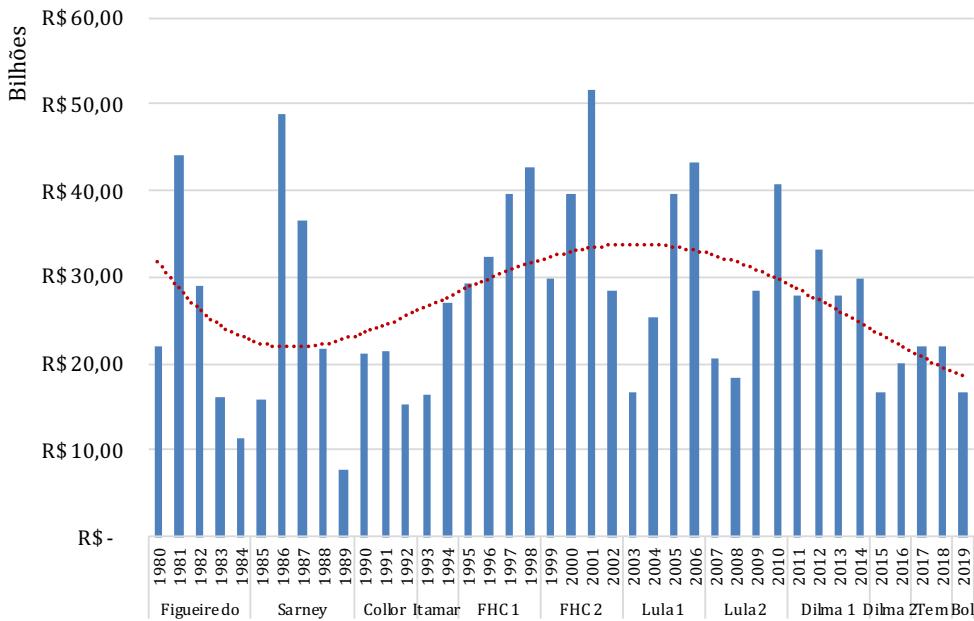
The information and data were obtained from two sources, the first being an organized list of ministries and ministers in office from 1980 to 2019. This base, covering the years 1985 to 2006, was used by Maciel and Arvate (2010), originally developed and provided by political scientist Octávio Amorim Neto, and adopted in the article by Amorim and Borsani (2004).

The basis of the period was revised and completed to 2019, in addition to being retroactive to 1980, and included secretariats with ministerial status, which can also be

considered a space for political bargaining and expenditure planning. Therefore, the data series is broader than that used by Maciel and Arvate (2010) and that of Maciel, Gamboa, and Ghizzellini (2020)—which covered the period 1980-2016.

Graph 3 shows the evolution of the number of “spending ministries,” following Volkerink and Haan (2001)<sup>2</sup>. We noticed that, predominantly, since re-democratization, there have always been more than 15 spending ministries (except in the first three years of Fernando Collor’s term), reaching 33 in the last year of Dilma Rousseff’s first term.

**Graph 3 - Number of spending ministries (1980-2019)**



**Source:** authors based on Maciel and Arvate (2010) and Amorim and Borsani (2004)

In short, following Coopedge’s (1997) party-ideological classification, except by the governments classified as “right-wing,” Figueiredo, Collor, and Bolsonaro,

<sup>2</sup> In practice, these are all the ministries and special secretariats that do not belong to the fiscal-budgetary management. In our case, we excluded the General Secretariat of the Presidency of the Republic (personal trust position of the President) and control autarchies such as the Federal General Comptroller (a.k.a. CGU) and the Federal Court of Accounts (which has ministerial status). A more refined criterion that can be adopted in future studies is to analyze, in the case of special secretariats, the budgetary independence of each one of them (effective untying of the budget of the ministry of origin).

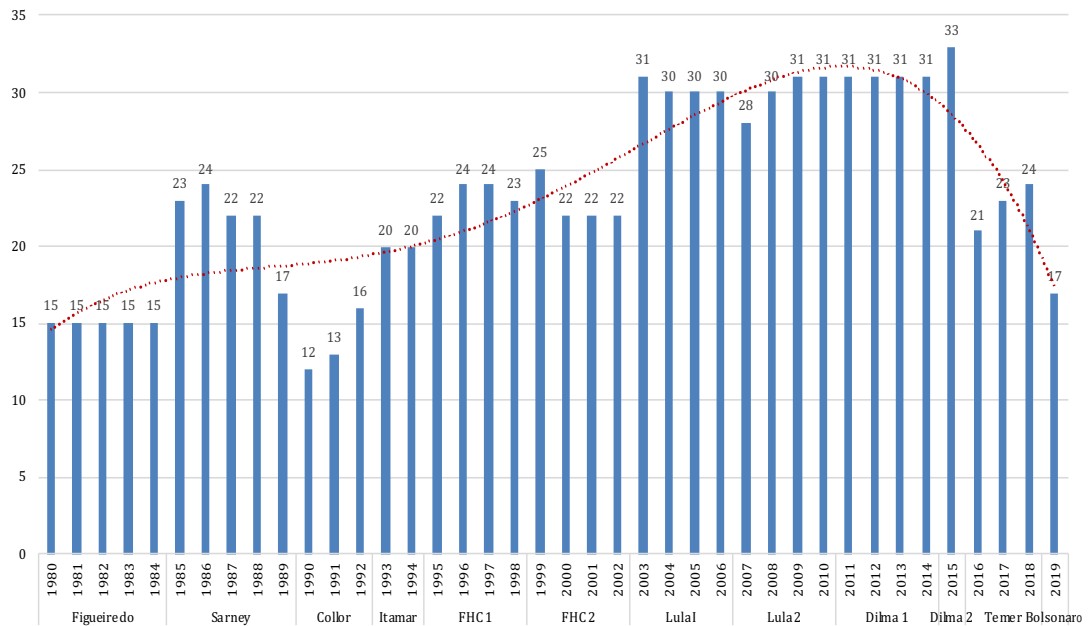
presidential terms in the current Brazilian democratic period are marked by a large number of ministries.

Additionally, with the same source of information, it was possible to measure the number of parties with seats in the ministries. In this sense, the inclusion of special secretariats with ministerial status allowed the review of data from Maciel and Arvate (2010) and Maciel, Gamboa, and Ghizellini (2020) and captured parties with seats that were not previously included.

It is important to note that ministers and secretaries with ministerial status, appointed by political parties, are not necessarily formally affiliated, so it was necessary to access newspapers and online sources from the time of the inauguration to verify the content of the nominations and any inaccuracies that may have occurred, with a marginal effect on the results found.

In a first reading of Graph 4, we noticed the trend of an increasing number of parties participating in the ministerial composition and, therefore, in the coalition government. During the period of re-democratization, the peak occurred during Michel Temer's second year of office, in 2017, with 11 parties occupying ministries.

**Graph 4 - Number of coalition parties with seats in the ministries and special secretariats with the ministerial status (1980-2019)**

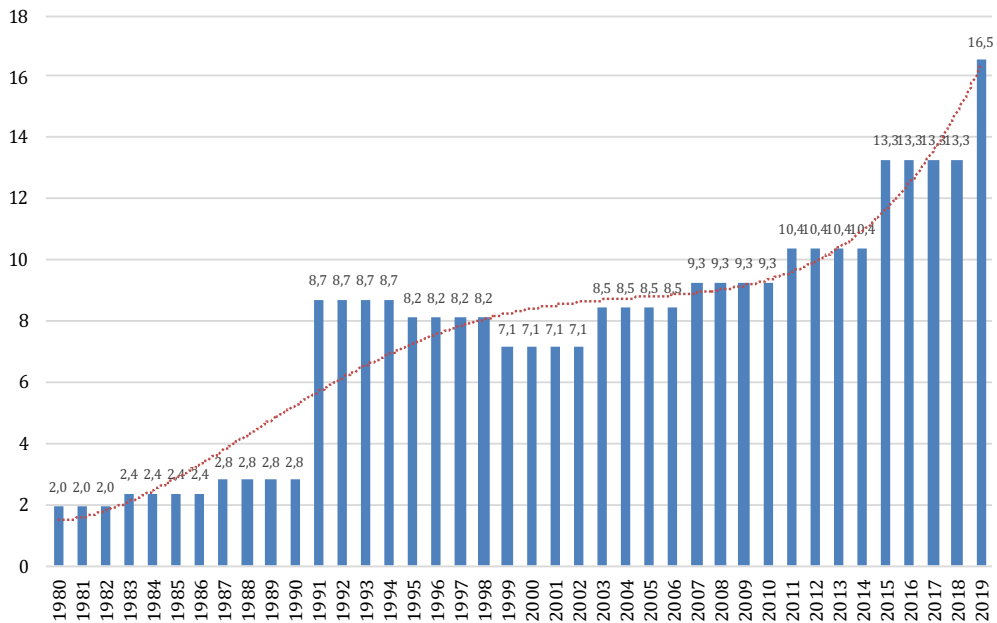


Source: authors based on Maciel and Arvate (2010) and Amorim and Borsani (2004).

The second source of information was initially obtained from political scientist Jairo Nicolau’s website<sup>3</sup>—“Electoral Data of Brazil”—which was updated until the 2014 election and complemented with analysis of the composition of the Chamber of Deputies (e.g. ‘Lower Chamber’) in the 1979-1982 and 2019-2022 legislatures . The spreadsheet containing the number and percentage of seats occupied by parties with elected representatives was used. From these data, we calculated the classic measure of fragmentation, the Effective Number of Parties (ENP) proposed in Laakso and Taagepera (1979). The measure is nothing more than the inverse of the Herfindahl-Hirschman share ( $S_i$ ) of the parties in the seats of the Low Chamber - see Equation 1 below and Graph 5.

$$ENP = \frac{1}{\sum_{i=1}^n S_i^2} \quad (\text{Eq. 1})$$

**Graph 5 - Effective Number of Parties in the Low Chamber (e.g. ‘party fragmentation’) from 1980 to 2019 – red: trend line**



Source: authors based on Nicolau (2018)

It should be noted that in the 1982 elections, still under the presidency of a

3 <https://jaironicolau.github.io/deb/>. Access: June 12th, 2020.

military—General João Figueiredo—two parties took seats (Arena and MDB) and, since 1983, five parties (PDS, PMDB, PTB, PT, and PFL). In the 2018 elections, 28 parties took seats for 2019. In other words, the fragmentation of Congress increased with the resumption of democracy and with the multiparty system. This implies a greater negotiation effort with an increasing number of leaders and the need to accommodate a progressive number of parties in the government coalition. This could, in some way, put pressure on government funding due to the greater number of ministries and secretariats with ministerial status.

## 5. Analysis of the federal government size and coalition data

Table 1 below presents the descriptive statistics of the variables studied. We then explain the calculations and describe the evolution of each.

**Table 1 - Descriptive statistics using observations from 1980 to 2019**

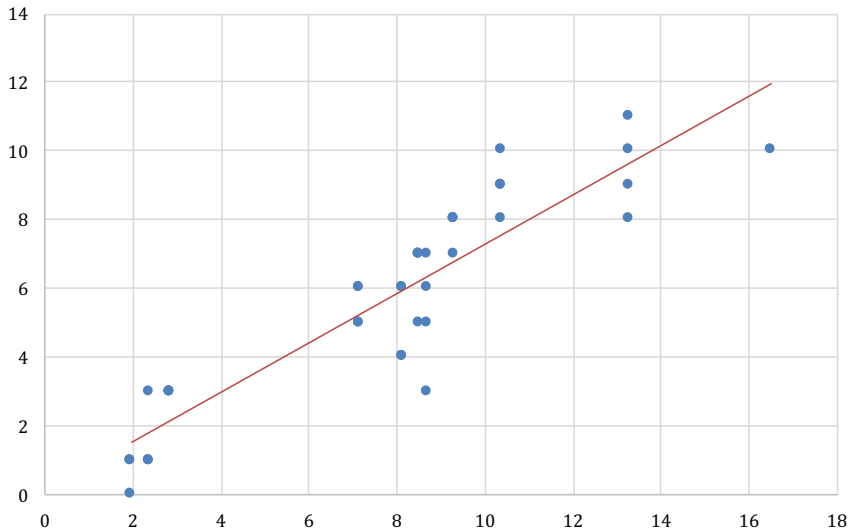
Variable	Mean	Median	SD	Min	Max
real cost expenses	3.42e + 011	3.74e + 011	1.88e + 011	8.87e + 010	6.45e +
Cost expenses %GDP	0.0733	0.0776	0.0170	0.0389	0.116
Expending	23.3	23.0	6.13	12.0	33.0
Coalition parties	5.75	6.00	2.84	1.00	11.0
Party fragmentation	7.63	8.49	3.77	1.98	16.5

**Source:** authors

Table 1 shows that the distribution of values has a relatively close average, but a lot of variation (very different minimum and maximum values and relatively high standard deviations from the mean).

One way of handling this fiscal and political information together is through measures of association, such as Pearson's correlation. The first relationship we explored is between the fragmentation of the Chamber of Deputies and the number of parties in the government coalition, as illustrated by Graph 6.

**Graph 6 - Diagram of dispersion between parties in the presidential coalition and fragmentation in the Chamber of Deputies**

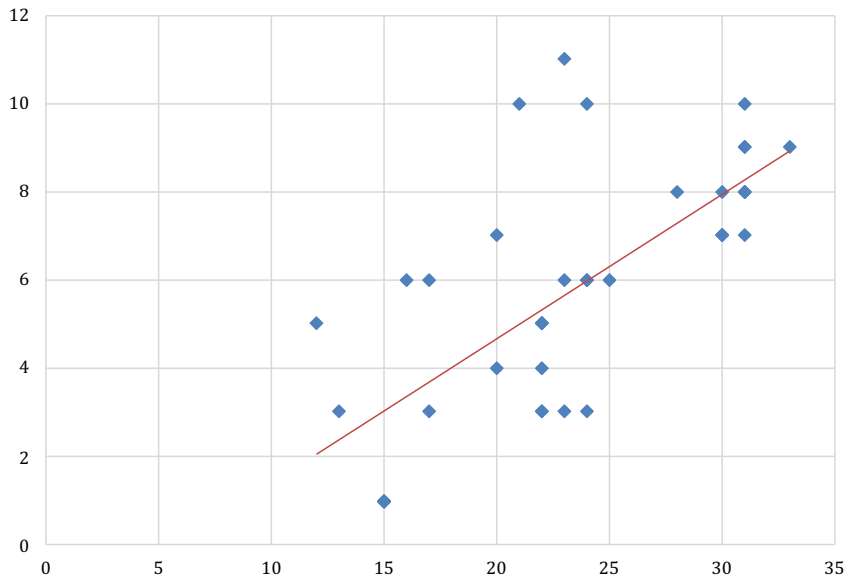


**Source:** authors

It seems obvious to conclude that the greater the fragmentation in the Lower Chamber, the greater the number of parties in the coalition government—linear correlation of 0.85. However, in practice, it is not so simple. The legislature that started in 2019 is the most fragmented since the re-democratization; however, the government coalition in President Jair Bolsonaro's first year had only six parties.

From the viewpoint of accommodating allies in the executive, the correlation between the number of parties and the number of ministries and special departments responsible for spending is also high: 0.71. Graph 7 illustrates this result.

**Graph 7 - Diagram of dispersion between the number of spending ministries and special secretariats and the number of parties in the government coalition**

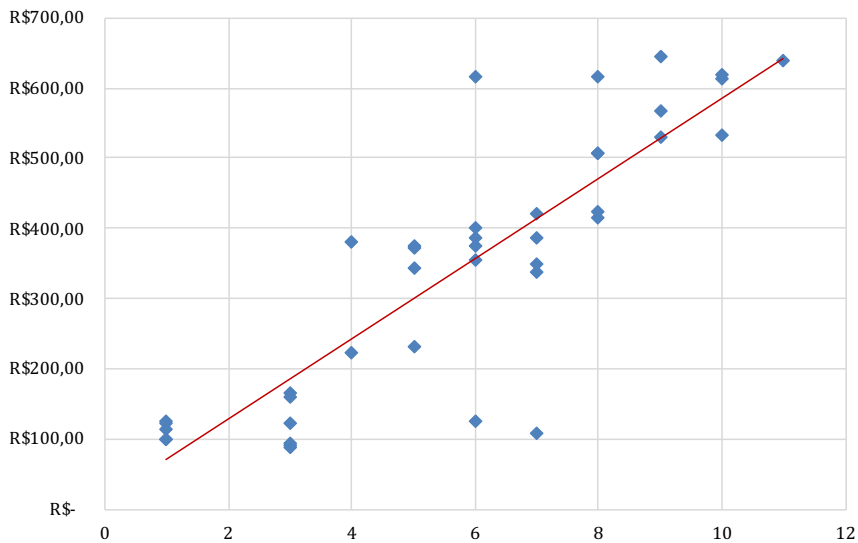


**Source:** authors

The greater fragmentation of the Lower Chamber and the greater number of ministries have implications for public finances. The cost of the federal government is positively correlated with the number of spending ministries and secretariats. Pearson's correlation is 0.65, and Graph 8 shows the respective scatter-plot diagram.



**Graph 8 - Scatter-plot of the number of ministries and the cost of administration (in real terms)**



**Source:** authors

As previously stated, there are other determinants of the federal government's costs, such as the binding of revenues and mandatory expenses, the inertial nature of the budget, and the strength of the civil service bureaucracy's lobbies and interest groups. Therefore, the association with data at a high level is not as strong when we compared cost as a percentage of GDP and the amount of expenditure-ordering ministries (linear correlation of only 0.16).

However, as Maciel, Gamboa, and Ghizellini (2020) state, correlation is not causation and has its limitations. The resulting measures of association indicate that the theoretical elements discussed in the previous chapters have validity and bring insights to the Brazilian case but are not conclusive. In the following subsections, we seek to evaluate hypotheses about the behavior of determinants of the variables "parties in the coalition," "number of spending ministries," and "cost expenses for the direct administration." As stated above, our analysis is limited by the number of observations because the data frequency is annual.

## 5.1 Determinants of the number of parties in the coalition

The first assessment is between the number of parties in the government coalition and party fragmentation in the Chamber of Deputies. We performed a simple linear regression model by Generalized Least Squares – since the White test points out the presence of heteroscedasticity (non-constant variance of the residuals).

Table 2 shows that the fragmentation coefficient is positive and statistically significant at 1%. This model, despite its limitations, indicates that the variation in the fragmentation of the Lower Chamber explains 89% of the variation in the number of parties in the government coalition.

**Table 2 - Parties in the Coalition Government and Fragmentation in the House of Representatives by Generalized Least Squares, using observations 1980-2019 (T = 40)**

Dependent variable: parties in the governing coalition				
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>
constant	0.347617	0.538992	0.6449	0.5228
Fragmentation	0.719831	0.0686944	10.48	<0,0001 ***
SSR	120.0452	Regression EP		1.777381
R-squared	0.742903	Adjusted R-square		0.736137
F (1, 38)	109.8039	P-value (F)		9.16e-13
Log-likelihood	-78.73731	Akaike criteria		161.4746
Schwarz criteria	164.8524	Hannan-Quinn Criteria		162.6959
rho	0.249687	Durbin Watson		1.285617

Source: authors.

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Due to the limited number of observations, no other explanatory variables can be included if we do not have sufficient degrees of freedom. There is no question that the normality tests of the residues from this first regression show that we must reject the null hypothesis that they are normally distributed.

## 5.2 Determinants of the number of expenditure-ordering ministries

The second analysis is about the relationship among the number of ministries and special secretariats, spending payers, and the number of parties in the governing coalition. Table 2 shows the results of the estimates. The White and Durbin-Watson tests, respectively, indicated that the OLS model presented heteroscedasticity and the autocorrelation of first-order residues. Thus, we estimated a model with robust errors and corrected for serial autocorrelation, as shown in Table 3.

**Table 3: Number of Spending Ministries and Parties in the Coalition Government by Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: number of ministries and special expenditure ordering secretariats					
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>	
constant	4.58997	2.10473	2.181	0.0358	**
Parties	0.489321	0.241647	2.025	0.0503	*
Spending Ministries_1	0.684018	0.124188	5.508	<0,0001	***
Statistics based on weighted data:					
SSR	269.0239	Regression EP	2.733658		
R-squared	0.724475	Adjusted R-square	0.709168		
F (2, 36)	47.32971	P-value (F)	8.37e-11		
Log-likelihood	-92.99775	Akaike criteria	191.9955		
Schwarz criteria	196.9862	Hannan-Quinn Criteria	193.7861		
Rho	0.151987	Durbin h	1.503549		

Source: authors

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

The results of the above estimates show that the coefficient of parties in the coalition is positive and statistically significant at 10%. This implies that one of the main strategies of accommodating government coalition allies is by offering ministries or secretariats transformation into ministerial status. The limitations imposed by the degrees of freedom also apply to this model.

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### 5.3 Determinants of the cost of the direct federal administration

One of the aspects highlighted in relation to the behavior of cost expenses is the change in level after 1988. It was tested whether this change of mean between the two periods eventually occurs by means of a binary variable (dummy) that assumes the value 0 between 1980 and 1988 and the value 1 from 1989 onwards, as shown in Table 3. Since the dependent variable—costs in proportion to GDP—brought heteroscedasticity

(measured by the White test) and serial autocorrelation of residuals (“inertial effect” of current expenditure) pointed out by the Durbin-Watson test; estimates were made by using the Generalized Least Squares (GLS) method and incorporating the one-year lagged dependent variable (see Table 4).

**Table 4: Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: cost expenses as a proportion of GDP					
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>	
constant	0.0321088	0.00612205	5.245	<0,0001	***
cons88	0.0228328	0.00519867	4.392	<0,0001	***
cost_expenses_1	0.312088	0.132730	2.351	0.0243	**
Statistics based on weighted data:					
SSR	124.4894	Regression EP		1.859580	
R-squared	0.865166	Adjusted R-square		0.857675	
F (2, 36)	115.4973	P-value (F)		2.17e-16	
Log-likelihood	-77.97145	Akaike criteria		161.9429	
Schwarz criteria	166.9336	Hannan-Quinn Criteria		163.7335	
rho	0.351067	Durbin h		3.919227	

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Source: authors

The results indicate, in addition to the inertial effect of cost expenditure, that the average for the post-1988 period is higher, indicating a “break” that was suspected when the data were presented previously. This result is compatible with Maciel, Gamboa, and Ghizellini (2020), who evaluated the expenditure of direct administration and the cost of the state-owned enterprises between 1985 and 2016. The Bai-Perron test performed by the authors also showed structural breakage in 1989. This is probably related to the binding of compulsory revenue and expenditures imposed by the 1988 Constitution, following the argument we made earlier.

Tables 5, 6, and 7 depict the results of the ideological evaluation of public spending behavior, as discussed in Tavares (2004) regarding the European case. The ideological classification of parties elaborated on by Coopedge (1997) was based on tables 5 and 6. Table 7 made a small change, classifying the PSDB as “Center,” together with the MDB (the only “Center” party in the original classification). For this purpose, the binary variables “Right” (which assumes value 1 for parties in this ideological spectrum) and “Center” (which assumes value 1 for parties in the middle of the ideological spectrum)

or “Left” (which assumes value 1 for left parties) and “Center” were evaluated.

**Table 5: Cost expenses in proportion to GDP and Presidents of the Republic of the Center and Right Wings by Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: costing as a proportion of GDP				
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>
Const	0.00851020	0.00761229	1.118	0.2712
right	0.000725726	0.00565515	0.1283	0.8986
center	0.00256340	0.00293888	0.8722	0.3890
Cost_perc_1	0.892004	0.0969595	9.200	<0,0001 ***
Statistics based on weighted data:				
SSR	291.4278	Regression EP	2.885569	
R-squared	0.787524	Adjusted R-square	0.769312	
F (3, 35)	43.24151	P-value (F)	7.28e-12	
Log-likelihood	-94.55760	Akaike criteria	197.1152	
Schwarz criteria	203.7695	Hannan-Quinn Criteria	199.5027	
rho	-0.006197	Durbin h	-0.048630	

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Source: authors

**Table 6: Cost in proportion to GDP and Presidents of the Republic of the Center and Left Wings by Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: cost as a proportion of GDP				
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>
Const	0.0106795	0.00628067	1.700	0.0979 *
center	0.000171058	0.00288943	0.05920	0.9531
left	-0.00243806	0.00411507	-0.5925	0.5573
Cost_perc_1	0.894846	0.106792	8.379	<0,0001 ***
Statistics based on weighted data:				
SSR	242.1843	Regression EP	2.630504	
R-squared	0.782497	Adjusted R-square	0.763854	
F (3, 35)	41.97251	P-value (F)	1.09e-11	
Log-likelihood	-90.94828	Akaike criteria	189.8966	
Schwarz criteria	196.5508	Hannan-Quinn Criteria	192.2841	
rho	0.017857	durbin h	0.149659	

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Source: authors

**Table 7: Cost in proportion to GDP and Presidents of the Republic of the Center and Left Wings with PSDB classified as “center” by Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: cost as a proportion of GDP					
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>	
Const	0.0155681	0.00661402	2.354	0.0243	**
center2	-0.000589899	0.00315500	-0.1870	0.8528	
equerda2	-0.00164405	0.00314874	-0.5221	0.6049	
Cost_perc_1	0.825136	0.0899583	9.172	<0,0001	***
Statistics based on weighted data:					
SSR	279.8443	Regression EP		2.827641	
R-squared	0.725091	Adjusted R-square		0.701527	
F (3, 35)	30.77160	P-value (F)		6.36e-10	
Log-likelihood	-93.76670	Akaike criteria		195.5334	
Schwarz criteria	202.1876	Hannan-Quinn Criteria		197.9209	
rho	0.081244	Durbin h		0.613299	

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Source: authors

In all cases, the results show that the signs of ideological variables follow counterintuitively, that is, “right” governments tend to increase cost expenses and “left” governments tend to reduce costs (fiscal adjustments). However, for this universe of data, the results were not statistically significant. This implies that we cannot conclude that governments classified as “left” contained the costs of direct federal administrative costs.

Estimates are made to assess the determinants of the cost expenses in relation to ministries and special secretariats. In all of them, the models present a non-stationary process. Therefore, new estimates are made with the logarithmic difference model of real cost expenses and the number of ministries and special secretariats ordering expenditures.

**Table 8: First Difference Logarithm of Cost Expenses as a proportion of GDP and Spending Ministries by Generalized Least Squares, using observations 1981-2019 (T = 39)**

Dependent variable: <i>ld_real_cost_expenses</i>				
	<i>coefficient</i>	<i>Standard Error</i>	<i>T-Ratio</i>	<i>p-value</i>
Const	-0.00332615	0.165849	-0.02006	0.9841
Spending_ministries	0.00172965	0.00570111	0.3034	0.7633
Statistics based on weighted data:				
SSR	404.4398	Regression EP		3.306177
R-squared	0.002482	Adjusted R-square		-0.024478
F (1, 37)	0.092044	P-value (F)		0.763294
Log-likelihood	-100.9480	Akaike criteria		205.8959
Schwarz criteria	209.2230	Hannan-Quinn Criteria		207.0897
rho	-0.042022	Durbin Watson		2.079910

Robust standard errors. P-value: \* significant at 10%, \*\* significant at 5% and \*\*\* significant at 1%.

Source: authors

The results obtained are not conclusive. Although the largest number of ministries and expenditure-ordering departments positively influence the variation in federal cost, we cannot reject the hypothesis that the estimated coefficient is statistically different from zero.

## Final remarks

Based on the literature review and the studies that precede this analysis, it is important to point out that even if we do not find results that confirm the initial hypothesis through statistical methods - on the relationship between coalition size and fragmentation and the increase in the size of government - it is possible from this investigation and preliminary results to understand that even in the face of a system of checks and balances, political agents use the tools available to meet their intentions, which may result not only in an increase in public spending but also in an increase in the scope of government action.

Data analysis points out the fragmentation of the Lower Chamber and the number of parties in the government coalition. Furthermore, data analysis shows that one of the main strategies of accommodating government allies is offering ministerial or



special secretariat positions.

The regressions indicate that from re-democratization onward and especially after the promulgation of the 1988 Constitution, cost expenses increase in level. They do not grow indefinitely but vary throughout and across the terms of the different presidents. No statistical significance was found between the ideological profile of the presidential mandate and cost expenses behavior as a proportion of GDP. Additionally, it cannot be concluded that the cost expenditures in the final period of the military dictatorship are statistically lower than in the period of re-democratization.

We observed that throughout the elections, except in a few years—such as the beginning of Fernando Collor's term, the years of Michel Temer, and the first year of Bolsonaro—the number of ministries and special secretariats ordering expenditures grew. This growth follows the number of coalition parties and, broadly speaking, the fragmentation of the Lower Chamber.

There is a positive association among the increase in ministries and special secretariats, the expenditure payers, and the cost of the direct federal administration as a proportion of GDP. However, we do not have elements, given the limitations of this analysis and the time span of our database, to assertively state that the increase in cost expenses was “caused” by the need to form a coalition with an increasing number of parties, in the search for achieving conditions of governability. There are other elements that determine the behavior of costs, especially the inertia caused by how the public budget is drawn up and the rigidity imposed by compulsory expenditures. However, relevant and interesting results were presented for discussion on the size of the Brazilian government, in addition to the inputs generated for future research.

Despite the limitations of the data, we once again identified the importance of analyzing the public budget from the perspective of Public Choice. It allows us to more deeply identify under what political conditions public spending varies, as advocated by Jorge Vianna Monteiro's pioneering work for Brazil. Only in this way is it possible to discuss and propose the so-desired reforms for the resumption of the country's growth.

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