

**The Political Logics of Patronage:  
Uses and Abuses of Government Jobs in Brazil**

by

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Submitted to the Department of Political Science  
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Political Science

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

May 2020

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## Abstract

The political appointment of bureaucrats (or patronage, for short) is a major resource for politicians all around the world. While scholars have long studied patronage, we lack a detailed understanding of how politicians target public employment and how that affects governance and public service delivery. This dissertation contributes to fill this gap. I identify five distinct rationales that drive politicians' use of government jobs: managing bureaucrats (to deliver public services or to extract rents), mobilizing voters, rewarding supporters, tying the opponent's hands, and anchoring coalitions. Each of these political logics of patronage has a different rationale, distinct employment patterns, and divergent effects on governance and service delivery. Empirically, I document the logics of patronage with data on Brazilian municipal governments, a particularly useful context to study patronage given its wide variation in political and economic development and the coexistence of patronage with civil service and other bureaucrat selection modes. To illustrate the diverse uses of patronage and their consequences I combine administrative microdata (including restricted-access, identified data on the universe of municipal employees, and data on the performance of education and healthcare bureaucracies), two original surveys in one state (a face-to-face representative survey of 926 bureaucrats, and an online survey of 755 local politicians), and 121 in-depth interviews with bureaucrats, politicians, and anti-corruption agents done over 18 months of fieldwork in 7 states. Three novel implications emerge from this dissertation. First, patronage can alleviate agency problems and thus enhance the accountability and effectiveness of bureaucrats, not only to extract rents but also to deliver public services. Second, when politicians use patronage to extract rents, they mobilize a diverse set of strategies that go beyond the hiring of supporters, including the hiring of civil service bureaucrats and the firing (not just hiring) of temporaries. Third, policies commonly used to reduce patronage –such as civil service regimes, legal constraints on hiring, and elections for key bureaucratic positions– can have undesirable consequences because of politicians' strategic responses to constraints on their hiring discretion. These findings are relevant to scholars and policymakers seeking to understand and to improve governance and state capacity.

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## Acknowledgments

Over the past few years I have benefited from invaluable support without which this dissertation would not have been possible. While academic research is often seen as an individual (even lonely) path, the thinking, data collection, analysis, and writing that went into the pages that follow are, in multiple ways, the product of many minds.

I am profoundly thankful, first and foremost, to the three members of my dissertation committee: Ben Ross Schneider, Lily Tsai, and F. Daniel Hidalgo. Through different perspectives, each of them provided enormous insight that shaped the questions I asked and how I went about finding answers for them. Their careful feedback on uncountable drafts and presentations made my dissertation much more clear, coherent, and interesting than it would have been possible without their advice. Their mentorship, their encouragement, and their sense of humor were crucial for navigating all phases of the PhD program. Ben Ross Schneider was a phenomenal chair. He trusted me and gave me autonomy (even when I made atypical choices for my dissertation research), while at the same time tirelessly encouraging me to refine my theories, to develop their implications, and to articulate the contrasts between my ideas and the ideas of those who came before me. I also benefited greatly from his many contacts in Brazil's academic and policy circles, and his in-depth knowledge of the country, both of which he generously shared with me. Lily Tsai always pushed me to embrace and develop my original arguments, to sharpen my writing (and, through it, my ideas), and to consider the Brazilian reality in a global context. Our conversations about governance sparked many ideas not only for this dissertation but also for what I now see as my next big project. Daniel Hidalgo consistently provided insights that led to critical improvements in my theory as well as my empirics. His own work, his guidance on causal inference, and our many conversations about Brazilian local politics inspired me to design better tests for my ideas. Each in their own way, Ben, Lily and Danny have become true role models for me, not only for the brilliant research they produce but also for their intellectual engagement and generosity.

I also owe many debts of gratitude to friends and colleagues in the MIT PhD program, who supported and inspired me in innumerable ways throughout the years, and provided feedback on many early drafts and ideas. I am thinking especially of Ignacio Puente, Nicholas Intscher, Tesalia Rizzo, Loreto Cox, Marsin Alshamary, Kacie Miura, Nicolas Dumas, Rachel Odell, Olivia Bergman, Dan de Kadt, Parrish Bergquist, Andreas Wiedemann, Renato Lima, Leah Rosenzweig, Ben Morse,

Danilo Limoeiro, Nina McMurry, Tugba Bozgaga, Minh Trinh, Emilia Simison, Blair Read, Paige Bollen, Stuart Russell, Nicole Wilson, Lukas Wolters, Sean Liu, and Ying Gao. I am also thankful to friends and colleagues in the Harvard PhD program, especially Belén Fernández Milmanda, Julia Coyoli, Leslie Finger, Carlos Lastra Anadón, Micahel Morse, Alice Xu, Fernando Bizarro, and Julie Weaver.

Some of the most important debts of gratitude I have acquired in the process of writing this dissertation are in Brazil. Brazil became, over time, much more than a case in which to test my theories about patronage – its politics, its history, its culture, and, above all, its people have taught me lessons that go well beyond the scope of this dissertation. I am deeply grateful to the many Brazilians who shared their experiences and their knowledge about the country with me. Through my multiple fieldwork road trips across “the interior”, many bureaucrats, politicians, and accountability actors (like prosecutors) generously shared their time and insights with a *gringo* who just showed up at their offices. Those conversations gave me not only a rich understanding of the formal and informal institutions of local governance in Brazil, but also a deep appreciation for the many challenges that state actors face – in the Brazilian hinterlands and elsewhere around the world.

When I was not on the road, I benefited from conversations with multiple scholars and policy experts during my research stays in Rio de Janeiro, Brasília, and São Paulo. In Rio de Janeiro these exchanges were greatly facilitated by my stays at the Instituto de Política Econômica Aplicada (IPEA) and the Fundação Getúlio Vargas (FGV). I am particularly grateful to Pedro Miranda at IPEA and to Cesar Zucco at FGV for making those stays possible, and for their insights on Brazilian politics and social policy. In Rio, and thanks to Cesar, I met Alicia Cooperman, with whom I later shared some of my fieldwork travels across Ceará and who provided many useful tips on how to implement a field survey in the Brazilian northeast. In Brasília I am thankful to Fernanda de Negri and Flávia Schmidt, for hosting me at the IPEA headquarters, and to federal government officials at the Ministries of Education (at the Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira), Labor (at the Coordenação Geral de Estatísticas do Trabalho) and Finance (at the Secretaria do Tesouro Nacional) for helping me access and understand administrative datasets. In São Paulo I am deeply grateful to Lorena Barberia who hosted me at the Faculdade de Filosofia, Letras e Ciências Humanas (FFLCH) in the Universidade de São Paulo (USP), and to George Avelino who hosted me at the Centro de Política e Economia do Setor Público (CEPESP) in the Fundação Getúlio Vargas (FGV). Conversations with Lorena Barberia, Marta Arretche, Eduardo Marques, Jonathan Philips, Rogério Arantes, and Úrsula Peres at USP; and with George Avelino, Ciro Biderman, Rudi Rocha, Fernando Abrucio, Lara Mesquita, Guilherme Russo, Maurício Izumi, Jairo Pimentel, and Leonardo Bueno at FGV were particularly enriching.

In the Northeastern state of Rio Grande do Norte I found excellent partners for testing some of my hypotheses through surveys of bureaucrats and politicians. At the state audit court (Tribunal de Contas do Estado do Rio Grande do Norte), I am especially thankful to Gilberto Jales, Anne Carvalho, Victor Fernandes, Ilueny Santos and Marcelo Araújo, who showed bold leadership by opening a state institution to academic research and supporting an atypical field experiment and

online survey of local politicians. At the federal university (Universidade Federal do Rio Grande do Norte), Sandra Gomes generously opened the doors of her research group to me, shared valuable insights about the politics of the state, and made it easy for me to recruit and train a group of 23 young researchers as the enumerators for my survey of bureaucrats. The curiosity, commitment, and sense of humor of all of them made that effort fun and memorable. Jenair Alves, Marcos Aurélio Freire da Silva Júnior, Francymonni Yasmim Marques de Melo, Karoline de Oliveira, Raiany Juliete da Sila, Aline Juliete de Abreu Feliciano, Pedro Henrique Correia do Nascimento Oliveira, Ana Vitória Araújo Fernandes, Jaedson Gomes dos Santos, Ana Beatriz Germano Barroca, Renata Lima de Moraes, Myleyde Dayane Pereira da Silva, Marina Rotenberg, Filipe Ramos Pinheiro, Daniele Vitória Lima da Silva, Elvira Gomes Santos, Matheus Oliveira de Santana, Magda Emanuele Lima da Silva, Ayanne Marília Sousa da Silva, Júlio César Nascimento, Lidiane Freire de Jesús, André Silva, and Pâmela Kaissa Fernandes Lopes – *obrigado, vocês arrasaram*.

My writing benefited from abundant feedback by participants at multiple seminars and conferences. The MIT Latin America Working Group, the MIT-Harvard Latin America Discussion Group, the MIT GOV/LAB meetings, the Harvard Politics of Education Seminar, the MIT Poverty Violence and Development working group, the Harvard Radcliffe Accelerator Workshop in the Politics of Education, the MIT Workshop on the Politics of Education, the Harvard Graduate School of Education International Education Lab, and the Harvard Ash Center Democracy Seminar were particularly rewarding venues in Cambridge. I also got useful feedback from meetings at annual conferences of the American Political Science Association (APSA), the Midwest Political Science Association (MPSA), the Latin American Studies Association (LASA), the Society for Political Methodology (PolMeth), the Northeast Workshop in Empirical Political Science (NEWEPS), and the Latin American Political Economy Network (REPAL). In Brazil, participants at the CEPESP seminar in the Fundação Getúlio Vargas of São Paulo and at the Economics school of the Universidade Federal do Rio Grande do Norte provided valuable comments as well. I am particularly grateful to professors who took the time to read my work and give me thoughtful comments, especially to Frances Hagopian, Merilee Grindle, Emmerich Davies, Pia Raffler, Chap Lawson, Richard Nielssen, Suzanne Berger, Jan Pierskalla, Guadalupe Tuñón, Christian Schuster, Sarah Brierley, Virginia Oliveros, Agustina Paglayan, Cesar Zucco, Natália Bueno, Lorena Barberia, Jonathan Philips, and George Avelino.

I am grateful for the financial support I received from the Lemann Foundation, MIT GOVLAB, the MIT International Science and Technology Initiatives (MISTI), the MIT Center for International Studies, and the MIT Department of Political Science. Susan Twarog, Paula Kreutzer, Alisa Zomer, and Rosabelli Coelho-Keyssar greatly helped me utilize these grants and stay on top of the reporting requirements. I thank them all for making all the extended fieldwork and data collection possible.

Less tangible but very much fundamental to this dissertation has been the support and love I have received these past few years from my (non-PhD) friends, my family, and my partner. I am thinking especially of my friends Laura Gómez, Quique Mejías, Adrián Pacín, María Sánchez, Manuel Canelas, Guillermo Alejandre, Sarah Clarke, Sergio Galaz, Jimena Valdez, Danilo Pacheco, Eduardo Cervantes, Luiz Monteiro, Marina Ruzzi, Isabelle Strobel, Rafael Campedelli, George Audi,

Ignacio Rojas, Mike Oliveira, Victor Bastos, Manuel Miranda, Héctor Blanco, Inés Morere, and Xavi Fernández. They kept me sane and connected to what matters most through these years of programming, traveling, and writing. My parents José Ramón Toral and Teresa Martínez, and my sister Almudena Toral, always gave me their unflagging support throughout the PhD journey (even though the itinerary was sometimes hard to understand), from the difficult doubts on whether to enroll up to the challenges of finalizing the dissertation in the middle of a global pandemic. From my parents, whose work as medical doctors I admire even more after doing research about healthcare professionals in Brazil, I get the curiosity and desire to learn that pushed me to do this PhD. I owe them any and all successes that have come until now and may come in the future. From my sister, whose creative work at the intersection of journalism and filmmaking is a constant source of inspiration, I get the feeling that home can be on both sides of the ocean – without it, and without her, I would be lost after more than a decade away from Madrid. Last, but not least, I think of my partner, Julián Aramburu, who I met relatively late in the PhD program but who quickly became a superb *compañero*. Sharing with him the ups and downs of academia, the escapes from research (across the continents), and the imagination into ourselves and into the future has made all the difference.

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# Chapter 1

## Introduction

Politicians all around the world make use of their ability to hire and fire government employees, with a variety of political objectives. Anecdotes from both the historical record and recent events illustrate the scope and reach of this phenomenon. In the 19th-century United States, government jobs were used to reward party loyalists as a way of ensuring electoral and financial support for the incumbent party, thus leading to massive personnel rotation after political turnover. For example, after the election of Republican Benjamin Harrison as President of the United States in 1888, over 50,000 Democratic postmasters were replaced (Carpenter, 2001, 41). During recent Argentinean elections, it was frequently reported that government employees were being informally requested to engage in electioneering on behalf of the national and subnational executives.<sup>1</sup> In Bangladesh, 30% of government jobs were until recently legally reserved for descendants of combatants in the independence war, a condition that many forged or bribed their way into.<sup>2</sup> In 19th-century Spain, rotation in and out of government jobs was so central to national politics and to popular reflections about the state of the country that the collective obsession with public employment had a name: *empleomanía* (Guiraldos, 1990).<sup>3</sup>

The pervasiveness of the political use of public employment is further demonstrated by recent cross-national expert surveys. The Quality of Government Institute asked over a thousand country

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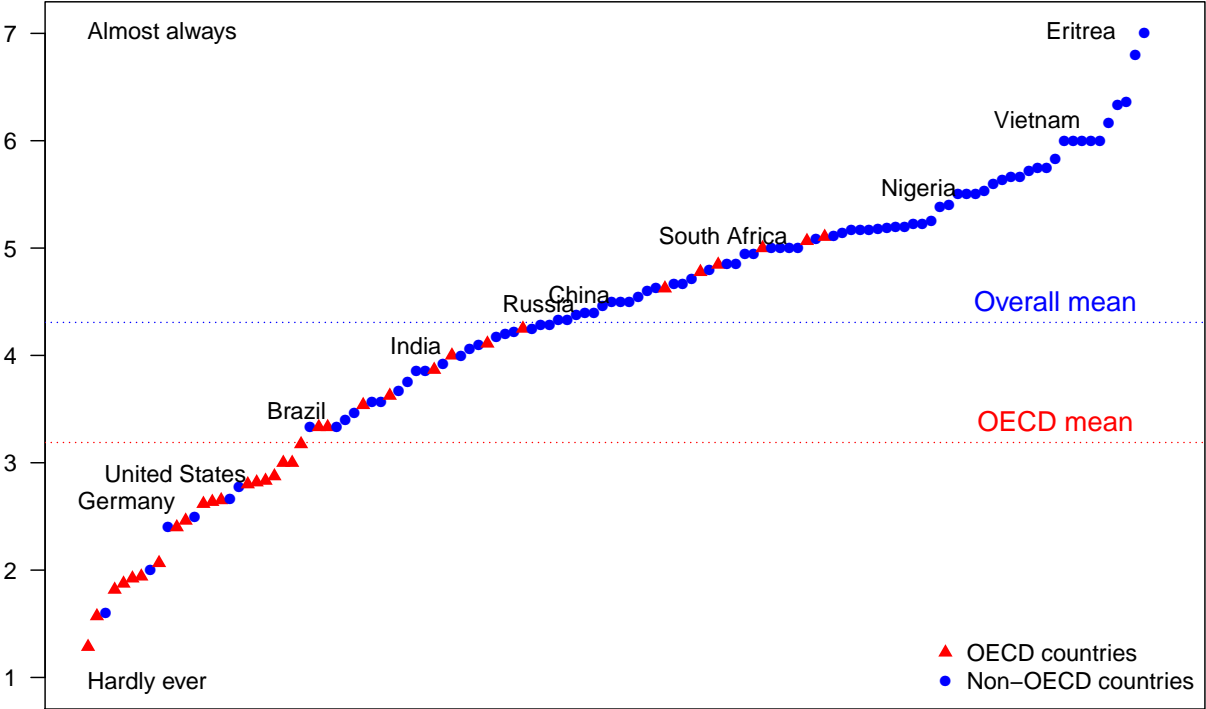
<sup>1</sup>“Denuncian el uso de empleados públicos en la campaña”, La Nación, October 16, 2017, <https://www.lanacion.com.ar/politica/denuncian-el-uso-de-empleados-publicos-en-la-campana-nid2072617> (last accessed in April 2020).

<sup>2</sup>“Protests in Bangladesh put an end to a corrupt quota system”, The Economist, April 21, 2018, <https://www.economist.com/asia/2018/04/21/protests-in-bangladesh-put-an-end-to-a-corrupt-quota-system> (last accessed in April 2020).

<sup>3</sup>The most acclaimed Spanish novelist of the 19th century, Benito Pérez Galdós, referred frequently to *empleomanía* in his depictions of the society of the time, especially in his 1888 novel *Miau*.

experts how frequently political connections are decisive in the recruitment of public employees, in a scale ranging from 1 or “hardly ever” to 7 or “almost always” (Dahlström et al., 2015). Their responses, pictured in Figure 1-1, suggest that politics influence hiring throughout the world. The 120 countries covered by the survey have an average score of 4.31 – above the middle of the scale. Even in the high-income democracies that make up the Organization for Economic Cooperation and Development (OECD) the survey detects a significant influence of politics in hiring, with an average score of 3.2 (compared to 4.7 for non-OECD countries). Similar results emerge from the survey of over 900 country experts done by Kopecký et al. (2016) between 2006 and 2014. The authors find that the 22 countries they cover (18 of which are in Europe) have an average score of 0.43 in their “index of party patronage”, standardized from 0 to 1. In their measure, a score of 0.4 implies that “parties appoint in most institutions [of the state] at top and middle levels” (Kopecký et al., 2016, 420).

Figure 1-1: Average country-expert responses to the question *How often do the political connections of the applicants decide who get the job?*



Elaborated with data from the Quality of Government Expert Survey Dataset II (Dahlström et al., 2015).

For decades, scholars in political science, sociology, economics, and public administration have

studied the political uses of government jobs. Two research perspectives have been particularly influential. A Weberian tradition has focused on formal institutions for bureaucratic selection, emphasizing the importance of civil service systems that insulate bureaucrats from political pressures. By contrast, the clientelism tradition has focused on informal practices of exchange, especially in the developing world. Despite a large number of excellent studies on the use of government jobs as a political tool, three important aspects of this phenomenon remain poorly understood:

- (a) What strategies do politicians use to target public employment?
- (b) What impacts do those patronage strategies have on public service delivery and on development outcomes?
- (c) What are the promises and limitations of different policy solutions that are commonly used to fight patronage?

This dissertation provides a theoretical framework for thinking about the political uses of government jobs, in these three dimensions, and provides some empirical answers leveraging quantitative and qualitative data about municipal governments in Brazil collected over the past four years. In so doing, this dissertation complements the insights from the Weberian and clientelism literatures, by specifying different uses of patronage, examining different implications for public service delivery (both positive and negative), and engaging with some of the drawbacks of anti-patronage policies. The resulting picture is a more complex take on patronage that can illuminate scholarly and policy debates about bureaucratic governance in Brazil and elsewhere.

By improving our understanding of the political uses of public employment, this dissertation contributes to furthering our knowledge of bureaucratic governance, state capacity, and development. The government's payroll makes up a quarter of total government spending and around 9 percent of GDP in the average country ([International Monetary Fund, 2016](#)). Political decisions about hiring and firing therefore impact a significant fraction of a country's economy. Since the bureaucrats affected by those decisions are in charge of delivering basic services throughout the country's territory (from security to healthcare), the political uses of public employment can be expected to have a direct impact on development outcomes. Given politicians' reluctance to renounce their formal or informal discretion over public employment, it is reasonable to believe that those political uses are central to political careers as well. In that sense, studying the political uses of public employment taps not only on key debates about bureaucratic governance, but also on

fundamental questions about the state, politics, and power. In the words of [Schneider](#), “a sizable amount of power in all polities is distributed by appointment. This arena of politics may not be rich in powerful generalizations or elegant theory (which may explain in part the neglect it has suffered), but if we are interested in power, we are obliged to study it” (1991, 252).

## 1.1 The argument

The central argument to this dissertation is that politicians use patronage according to several political logics, which have fundamentally different rationales, employment patterns, and implications for public service delivery. The distinction of these political logics of patronage rests on a conceptualization of patronage as an institution for bureaucratic selection, an articulation of the fundamental ways in which government jobs are unlike any other benefit at the disposal of politicians, and a reconsideration of established normative models of bureaucratic governance.

I start by conceptualizing patronage as the hiring and firing of bureaucrats based, at least partly, on political criteria. By understanding patronage as an institution for bureaucratic selection, this perspective departs from traditional, more sociological definitions of patronage that equate it to clientelism, namely the distribution of benefits (or jobs) to individuals contingent on political support. The conceptualization of patronage that this dissertation advances remains agnostic about its purpose (what politicians want), its scale (how many appointments they control) and its normative value (whether it is good). In doing so, it draws attention to the specific hiring and firing decisions politicians make, and invites us to think about the different political strategies (clientelistic or not) behind those decisions. This perspective also makes it easier to bridge the gap between the study of patronage in developing settings (where it is traditionally associated to machine politics) and the study of “political appointments” in contemporary developed contexts (where it is typically seen as a way to increase control over policy and implementation).

Next, this dissertation draws attention to the unique features of government jobs as a political resource, which are central to why patronage is such a versatile and powerful tool. Clientelism scholars often consider public jobs together with other types of government benefits like cash, food, or preferential access to services. Yet, jobs have some unique characteristics that make hiring and firing decisions distinctly powerful for a variety of political strategies (including clientelism). In particular, jobs are individually targetable, highly valued by citizens in many contexts (since they constitute a continuous source of liquidity), relatively scarce and expensive to politicians, visible

to third parties other than the government and the beneficiary, and (in cases where contracts are temporary) revocable. All these features make government jobs especially useful to solve the credibility problem that clientelistic exchanges pose for patrons as well as clients. These characteristics also make public jobs particularly useful to boost responsiveness and accountability beyond clientelistic exchanges. Finally, government jobs are unlike any other benefit in that they come with the expectation of working for the public good, at least in theory. The activities bureaucrats perform on the job are therefore a critical component of any strategic use of patronage (clientelistic or otherwise), not only because they determine its development implications, but also because they are likely central to politicians' strategic considerations.

Third, this dissertation reconsiders established normative theories of bureaucratic governance, which tend to present patronage as a pathology of government and the civil service system as its cure. Scholars and policymakers regularly associate patronage to the misallocation of jobs, decreases in bureaucratic effort, absenteeism, reduced accountability, and other undesirable phenomena. This notion of patronage as corruption comes at least partly from the historic victories of proponents of civil service systems as a superior mode for governing bureaucracies. While patronage systems are certainly vulnerable to rent seeking, civil service systems are not without problems: they can become unresponsive, rigid, unaccountable, and captured. This dissertation departs from Manichean models of bureaucratic governance that portray bureaucrats as either professional and driven heroes who work best insulated from political pressures (in the Weberian perspective) or indolent agents who will not deliver unless politicians provide adequate, top-down oversight and incentives (in the principal-agent perspective). This dissertation grows from a view of both bureaucrats and politicians as deviating from these Manichean idealizations. In most cases, they have a variety of concerns, which may often combine extracting rents and improving the lives of people in their community. By recognizing the different motivations that drive politicians and bureaucrats (in both developed and developing countries), we can consider the relative advantages and disadvantages of different models of bureaucratic governance and set the foundations for more nuanced normative understandings of state agents.

Building on the conceptualization of patronage as the political appointment of bureaucrats, recognizing the particular nature of government jobs as a political resource, and embracing a more nuanced view of bureaucrats and politicians than established theories of governance allow, I differentiate the strategic uses that politicians make of patronage. Politicians use patronage according to five distinct political logics: managing bureaucrats, mobilizing voters, rewarding supporters, tying the opponent's hands, and anchoring coalitions. These are the fundamental rationales that I found



to operate in the Brazilian context. While other uses of patronage may be identified in different contexts, many if not all of them could be seen as variations of these five fundamental logics of patronage.

Each of these five political logics of patronage has a distinct rationale, implies different observable hiring and firing patterns, has distinct implications for public service delivery and development, and poses different challenges for policy makers. Despite their differences, all five logics relate to the core of government because, in one way or another, they help with at least one of three basic political tasks all incumbents are concerned with: staying in office, enacting policy, and implementing policy. At the same time, there are important trade-offs between these different logics of patronage, since the gains obtained from a certain use of patronage often impose costs in other valuable dimensions. For example, rewarding supporters with government jobs may strengthen a politicians' base, support party organizations, and foster bureaucratic loyalty, but it may also hinder the selection of more capable people or the accumulation of bureaucratic expertise. Allowing coalition partners to formally or informally appoint public employees may strengthen legislative coalitions and increase stability, but at the same time it may worsen agency problems within the bureaucracy and strengthen political opponents. These trade-offs and other limitations notwithstanding, patronage and its five logics can facilitate a variety of political tasks.

First, patronage can help politicians manage bureaucrats and increase their accountability and effectiveness, either for extracting rents or for delivering public services. In this logic, patronage helps politicians solve the agency problems that are pervasive in public administration. This logic therefore may predominate when making appointments for positions of more responsibility (from high-level leadership positions to managerial positions in service delivery), for which it is particularly important to reduce agency problems. Patronage in this logic is useful because political and social connections between bureaucrats and politicians provide access to resources, facilitate the application of sanctions and rewards, align priorities and incentives, increase mutual trust, and facilitate monitoring. All these are governance resources that improve bureaucratic accountability and effectiveness. In the hands of rent-seeking politicians, thus, patronage can help them extract rents, for example by having bureaucrats effectively bend the rules according to political criteria (e.g., by rigging a procurement process in favor of a donor, or by selectively targeting public services to political supporters). These governance resources that patronage facilitates, however, can also be mobilized to improve public service delivery (or to implement other welfare-enhancing policies), since delivering public services also depends on the coordination and accountability of bureaucrats. Whether the increase in bureaucratic responsiveness and effectiveness that patronage facilitates is

used to improve public services, to expand rent extraction, or to do both, depends on the extent to which the incumbent values public service delivery. In contexts where politicians' attitudes, fear of electoral accountability, or constraints imposed by horizontal accountability institutions make them care enough about public service delivery, political appointments can foster development.

Second, patronage can help politicians mobilize voters ahead of elections. This logic is most clearly clientelistic, because it consists mostly of an exchange between incumbents and some voters who, in return, are expected to mobilize electorally in their support. Using patronage for voter mobilization can foster an incumbent's re-election prospects through vote and/or turnout buying, but also through less direct channels like projecting an image of credibility and largesse among voters, or deterring opponents who lack access to government jobs. This patronage logic is likely to be detrimental for public service delivery and development. Even if the pre-electoral hires are mobilized to deliver public services during the campaign, effects are likely to be net negative since this form of patronage imposes efficiency costs and it may depress motivation and effort among regular bureaucrats, who see the state apparatus expand with the main purpose of gaining votes, only to contract again after the elections.

Third, patronage may be used to reward supporters after the election. While this use of patronage may also be clientelistic, its timing, goals, and targeting are distinct from those in voter mobilization patronage. Rewarding supporters serves multiple goals for incumbents. First, it helps building their political reputation and credibility, which helps them grow their base and keep it responsive. Second, it allows incumbents to select loyal individuals into the bureaucracy, and in that sense enables the use of patronage for managing bureaucrats. Last but not least, rewarding supporters with government jobs can help build and sustain party structures and building government expertise within party networks. This patronage logic is therefore likely to hurt public service delivery and development in the short term, but could have more ambivalent or even positive effects in the mid term if it helps build strong, programmatic parties.

Fourth, patronage may be used to tie the opponent's hands when voted out of office. By hiring bureaucrats in the civil service (that is, with tenure) right before the election winner is sworn in, lame-duck governments can reduce the opponent's hiring discretion and therefore their expected political gains from office. This is a clear example of a non-clientelistic use of patronage. Hiring in this case is politically motivated, but is not based on an exchange of political support. What is central to this logic of patronage is not the support of the appointee, but rather the fact that the appointee is selected through the civil service system, such that they cannot be fired

by the opponent. The logic here is similar to that of so-called “midnight judges” or “midnight regulations”, namely decisions taken by lame-duck governments right before leaving office that reduce the discretion of the incoming administration. A key implication of this use of patronage is that the civil service is not immune to political manipulation. The consequences of this use of patronage are rather ambivalent, and depend on what those positions would have been used by the winner of the election. To the extent that parties are clientelistic and tend to use appointments for rent seeking, and to the extent that tenured employees are able and motivated to deliver public services, this political use of public employment could enhance citizen welfare.

Finally, patronage can also be used to anchor coalitions – be them legislative coalitions or political coalitions more broadly. By allowing partners to appoint some of their own supporters to positions in the executive, patronage can cement coalitions and enhance government stability. It is common for governments around the world to depend on legislative majorities to pass legislation, approve budgets, and even to remain in office (by avoiding impeachment). In those settings, patronage may become a critical bargaining tool. “Coalitional patronage” can therefore allow incumbents to anchor their legislative majorities and to govern with increased stability. On the other hand, this logic of patronage comes with important costs for the incumbent. In particular, this use of patronage allows political opponents to leverage positions in the bureaucracy to collect potentially sensitive information about the executive and/or about citizens, to accumulate bureaucratic know-how, and to strengthen their party bases. Incumbents are therefore likely to engage in this use of patronage only when truly necessary, in situations where they are weak vis-à-vis legislators with veto power.

These five political logics of patronage constitute a range of political strategies that politicians may engage in at different moments in the political cycle, according to their motivations, needs, and constraints. The use of patronage for managing bureaucrats relates to politicians’ need to “get things done”, and therefore is likely to be relevant during the whole mandate. In contrast, the use of patronage for mobilizing voters, rewarding supporters, and tying the opponent’s hands relate to politicians’ needs to manage the uncertainty and risks of electoral competition and to respond to electoral results. They are therefore likely to dominate around elections. Finally, the use of patronage for anchoring coalitions is likely to dominate both after the elections and during the mandate, according to the incumbent’s weakness vis-à-vis their coalition partners.

Other than by the political calendar, politicians’ uses of patronage are shaped by the economic, political, and regulatory environment in which they operate. Economic development shapes

politicians' patronage strategies through three mechanisms: the income of voters, the size of the economy, and the level and distribution of human development. Voters' income matters because the poorer they are, the higher the value of government jobs, even if salaries are low, and the easier it is for governments to leverage patronage to mobilize voters and reward supporters. The size of the economy matters because in smaller economies (such as relatively isolated local communities) it is easier for politicians to build and maintain personal linkages, and job opportunities in the private sector tend to be scarce, both of which facilitate the political uses of public employment. Human capital is a last but critical dimension through which economic development shapes patronage strategies. The lower the levels of human capital and the more homogeneous its distribution, the lower the costs of using patronage relative to objective examinations and other selection methods based solely on merit. Whereas with higher (or more variant) levels of human capital there may be an important trade-off between loyalty and competence, in contexts where human capital is scarce such a trade-off may be less clear.

The political environment shapes patronage strategies through three main mechanisms: democracy, levels of political competition, and political institutions that weaken the authority of executive leaders. Democracy, where political offices are allocated through open and fair elections, increases the relevance of certain patronage strategies, in particular the use of patronage for mobilizing voters and for tying the opponent's hands. On the other hand, rewarding supporters, anchoring coalitions, and managing bureaucrats are as important under authoritarianism as they are under democracy. Certain uses of patronage can therefore be central to the survival strategies of authoritarian leaders. In democracies, the higher the level of political competition the most pressing electoral mobilization and partisan organization may be, and thus the more likely patronage is used to mobilize voters and reward supporters. Finally, political institutions that weaken politicians in the executive in relation to legislators and/or to their own political party will make it much more likely that patronage is used for anchoring coalitions.

A third but critical contextual feature that shapes how politicians mobilize patronage is the set of regulations about the hiring of bureaucrats. First, regulations that determine the legal and fiscal capacity of a government to hire its own bureaucrats, regardless of the selection method, dictate the scope of patronage. The larger the size of the bureaucracy, as determined by factors like economic development, political choices about the role of government in the economy, and decentralization, the more leeway politicians have for building patronage strategies. Second, the political uses of public employment are constrained by regulations that determine *how* those bureaucrats are to be selected, like civil service systems and legal constraints on hiring.

A secondary theme to this dissertation is how common anti-patronage policies sometimes fail to fulfill their promise to improve governance and public service delivery. The received wisdom is that by constraining politicians' hiring discretion, civil service systems, legal constraints on hiring, and elections for key bureaucratic positions eliminate patronage and enhance citizen welfare. While recognizing their powerful rationales, this dissertation draws attention to the ways in which the implementation of these policies can fail in practice, and how politicians' strategic responses can undermine their effectiveness even without implementation problems. The main implication is that scholars and policymakers should carefully specify the assumptions that different anti-patronage policies make, and consider whether they are reasonable in the context in which they work. Ultimately, the limitations of these policies highlight the resilience and versatility of patronage.

## **1.2 The empirical setting: Municipal governments in Brazil**

Brazilian municipalities constitute an opportune setting in which to study the political uses of patronage and their impacts on public service delivery because they have high variance in levels of economic and political development, in the organization of public bureaucracies, and in human development outcomes. This subnational variation, combined with nationally homogeneous formal institutions regulating political competition, the hiring and firing of bureaucrats, and the delivery of public services, make Brazilian municipalities a particularly useful case to identify a wide range of patronage strategies. The collection of detailed administrative data on politicians, bureaucrats and their performance by the federal government further facilitates comparisons. If on the one hand common institutional rules and national administrative datasets facilitate within-country comparative analyses ([Giraudy et al., 2019](#)), on the other hand variance in economic and political development allow such comparisons to identify a wide range of patronage strategies. Settings with lower or higher levels of economic and political development may exhibit narrower variation in patronage strategies, but their realities are likely to be illuminated by the findings from the Brazilian case presented in this dissertation.

Brazil is a large, federal democracy, home to over 200 million inhabitants who live in 5,570 municipalities, which are in turn distributed in 26 states (plus one federal district). Municipalities range in population from around 800 people to over 12 million. Most municipalities are small – less than 350 municipalities have more than 100,000 inhabitants, and the median municipality has less than 12,000 people. Municipalities are typically poor: at the median, 18% of the population is

below the poverty line, and the household monthly per capita income is about 465 Brazilian reais or slightly over USD 110. In the typical Brazilian municipality, human development challenges abound. For example, the median municipality has an infant mortality rate of 17 deaths per 1,000 live births (compared to 4 in the average European Union country) and over 59% of its 19-to-21-year-olds without a high school diploma.<sup>4</sup>

### 1.2.1 Municipal bureaucracies

Municipal governments are responsible for providing primary education, healthcare, and social assistance services, three areas in which they spend over 57% of their revenue (OCED, 2016).<sup>5</sup> Municipal governments, however, depend heavily on inter-governmental transfers and raise only a small fraction of the revenue they spend (Arretche, 2004). Because of municipalities' prominent role in service provision and because the private sector often provides few job opportunities, local governments are typically a very important employer. The local government workforce is often large, as a share of both the total local population and the local workforce in the formal labor market. In average, municipal governments hire 4.7% of the local population and 38.2% of those who have jobs in the formal sector. The whole distribution of municipalities across these two variables is shown in Figure 1-2. In total, municipal governments employ over 5 million bureaucrats, who receive relatively low salaries. The median salary of a municipal employee in 2016 was 1,763 Brazilian reais, which is equivalent to about two minimum salaries or roughly 445 US dollars with the January 2016 exchange rate. From the point of view of the employer however, these are small labor markets with pretty limited human capital.<sup>6</sup>

Municipal governments use a variety of methods for distributing the many positions that are required to maintain the federally mandated (and financed) public services in education, healthcare, and social assistance. As per the Brazilian constitution, bureaucrats fulfilling permanent staffing needs (such as teachers, nurses, or administrators) are to be hired under a civil service regime, where there is a competitive examination and the best performing candidates are appointed with tenure

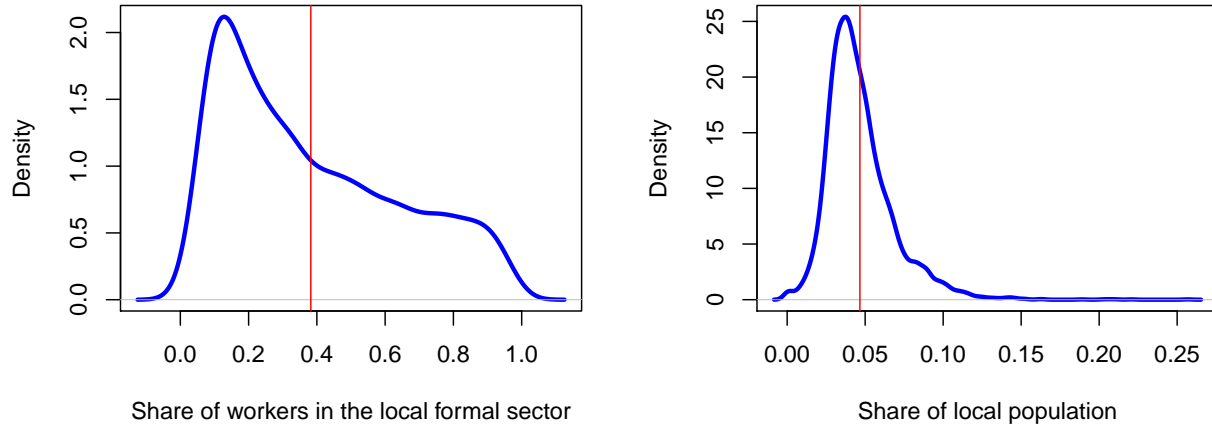
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<sup>4</sup>Data for Brazilian municipalities correspond to 2010 and are calculated from UNDP's Municipal Human Development Atlas (Pinto et al., 2013). Data for infant mortality rate in the EU in 2010 comes from the World Bank's World Development Indicators.

<sup>5</sup>At a minimum, municipalities are constitutionally mandated to spend 40% of their revenue in education and healthcare.

<sup>6</sup>For example, management skills of public schools and hospitals are significantly lower than those in the private sector, and much lower than those in the United States, as shown in Appendix E.1 using data from Bloom et al. (2014, 2015).

Figure 1-2: Size of the municipal government workforce as a proportion of the local workforce and of the local population



Calculated using administrative data of the universe of formal labor market contracts in 2016, and official population statistics for 2016. Vertical, red lines indicate the mean

after a short probationary period. Civil service is indeed the modal employment category, with about two thirds of municipal employees. Temporary contracts make up the remaining third. While the civil service severely constraints politicians' discretion in hiring, it does not limit it completely. For example, under the civil service system politicians are free to transfer bureaucrats to less desirable locations (such as rural areas in the municipality, which are sometimes hard to access and tend to have more challenging socioeconomic conditions than the urban centers). Moreover, while politicians are legally required to hire candidates who passed the competitive exam in the order of their performance, they are not legally required to hire all those who pass, and they are free to decide how many to hire and when to do so.

Temporary hiring allows municipal governments much more discretion in the hiring and firing of employees. This bureaucrat selection method is constitutionally allowed in certain circumstances, such as permanent jobs that fulfill managerial or advisory roles (bureaucrats who lead schools or clinics, for example). These are typically political appointees.<sup>7</sup> Temporary hiring can also be legally used for fulfilling transitory jobs that are required by unexpected circumstances (a healthcare crisis

<sup>7</sup>Bureaucrats who lead service delivery units can also sometimes be elected, especially in the education sector. Chapter 3, focused on these managerial positions, further explains the diversity of appointment modes at this level of municipal bureaucracies.

creating the need to hire additional nurses, for example). Last, but not least, temporary contracts are frequently used in circumstances where the constitution and jurisprudence would mandate civil service hiring, but politicians wish to avoid the constraints of the civil service.<sup>8</sup> Temporary hiring is supposed to follow a merit-based selection process (although much less rigorous than civil service hiring), but in practice temporary jobs are often distributed with few constraints. It is common for civil service and temporary contracts to coexist within the same municipality, and even the same unit (e.g., a given school or clinic).

## 1.2.2 Municipal public services

Politicians' patronage strategies are shaped not only by the general rules on the hiring and firing of bureaucrats, but also by the institutional constraints specific to each of three major social policy areas that I leverage in my empirical analyses: education, healthcare, and social assistance. This section briefly reviews the basic institutional features of public service delivery in these three policy areas. In all three of them, service delivery is highly dependent on labor, which makes these areas (and the municipal secretariats that control them) central to patronage strategies. Perhaps because of the potential for rent seeking that large payrolls allow, in these areas municipalities are required to report detailed data on policy inputs, outputs, and outcomes to the federal government, which makes them publicly available.

Basic education is structured in two cycles: primary school (grades 1 through 5) and middle school (grades 6 through 9). At both levels there are public schools managed by municipalities, states, and the federal government, as well as by private entities. Public schooling is much more common than private schooling, and within the public sector, municipal governments are mostly responsible for primary schools, while states are mostly responsible for middle schools and high schools. As per the 2018 school census, 81% of primary school students are enrolled in public schools, 83% of whom are in municipal schools (of which there are more than 110,000). Each school generally has a director (or headmaster), teachers, and administrative staff. School performance is measured through a biyearly school quality index (synthesizing data on student performance in standardized tests and student passing rates) that has high visibility in the media (Boas et al.,

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<sup>8</sup>From the point of view of the employer, temporary contracts have the advantages of increased discretion and also lower costs. Civil service hiring requires a financial commitment in the long term, not only on wages but also retirement funds. Temporary employees typically have no retirement benefits, and may not be paid in months when they do not work (for example during the summer months in the education sector).



2020).

Healthcare services are provided universally to all residents, free of charge, under the umbrella of the Unified Health System (SUS, *Sistema Único de Saúde*). Municipal governments maintain a network of “basic health units” (UBS, *unidades básicas da saúde*) staffed with doctors, nurses, and other healthcare professionals, and led by a coordinator (often the lead nurse of the unit). To assist with the provision of basic healthcare services, especially preventive care and particularly in rural areas, municipalities also hire community health agents (ACS, *agentes comunitários de saúde*), who generally have no tertiary education but are trained and work in their own community promoting health, preventing diseases, and providing basic maternal and child health services (Ministério da Saúde, 2012b). More complex healthcare services, like specialist consultations and hospitalizations, are generally provided by state governments, especially for residents of small municipalities. Private healthcare provision is common, particularly in larger municipalities, but for most citizens the government system is the only provider.<sup>9</sup>

Social assistance services are provided to people in situations of social vulnerability and risk, as part of the Unified Social Assistance System (SUAS, *Sistema Único da Assistência Social*), which was created in 2005 following the experience of the healthcare system. Over the past fifteen years, this policy area, which used to be characterized by fragmented and discretionary approaches, has been professionalized and reorganized around programs (Jaccoud et al., 2010; Cavalcante and Ribeiro, 2012). All municipalities have at least one “social assistance reference center” (CRAS, *centro de referência da assistência social*) where basic services are provided, and larger municipalities also have at least one “specialized social assistance reference center” (CREAS, *centro de referência especializado da assistência social*). Social assistance centers are staffed by social workers, psychologists, lawyers, and other specialists who work monitoring and supporting vulnerable families through a series of programs that include cash transfers, employment support services, and food support programs (Ministério do Desenvolvimento Social e Agrário, 2013).

To sum up, municipalities are responsible for providing basic services in education, healthcare, and social assistance, which make up around 60% of their expenses. Each of these policy areas has their own specificities, partly due to the nature of the area<sup>10</sup> and partly to the choices of

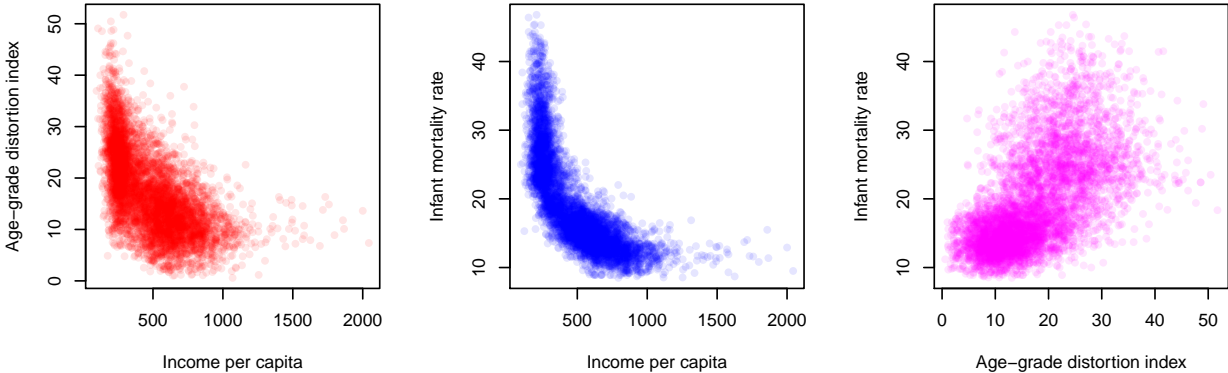
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<sup>9</sup>In 2013, 61.13% of Brazilians used the services of a public basic health unit and 20.3% of a public hospital, compared to 18.53% who used the services of a private healthcare provider (Castro et al., 2019, 5).

<sup>10</sup>For example, different policy areas have different levels of visibility and valence for different subsets of the electorate. Professional norms vary across policy areas. The organization of labor and therefore the networks of workers are also distinct from one policy area to another.

the corresponding federal agency overseeing it (the Ministries of Education, Healthcare and Social Development or Citizenship, respectively). The formal institutions and the informal practices and norms of each policy area shape politicians' patronage strategies within them. Together, they shape the human development outcomes of the local population. As illustrated in Figure 1-3 below, there is very wide variation in human development outcomes. Even at similarly low levels of income, municipalities vary widely in their ability to keep children alive and in school, and municipalities that perform well in one policy area do not necessarily perform well in another one.<sup>11</sup>

Figure 1-3: Municipality-level variation in human development



Income per capita is household monthly per capita income, and is measured in Brazilian reais. The age-grade distortion index is the share of students in basic education who are two or more grades behind. The infant mortality rate is the number of children who die before the age of 1 for every 1,000 live births. Data are from UNDP's Municipal Human Development Atlas (Pinto et al., 2013).

### 1.2.3 Municipal politics

Municipal bureaucracies respond, first and foremost, to local politicians, who take key decisions on how to implement federal requirements and how to use transferred and own resources. As a middle income country with wide subnational variation in economic development, Brazil has high variance in patterns of political competition at the local level. Electoral and non-electoral clientelism persists especially in small and poorer municipalities, despite substantive progress on economic indicators and the implementation of anti-corruption policies (Nichter, 2018). On the

<sup>11</sup>While these bivariate plots are illustrative, similar conclusions can be drawn from municipality- and school-level regressions reported in Appendix E.2: a substantial amount of variation in the quality of public services cannot be explained by structural conditions.

other hand, mayoral elections remain highly competitive,<sup>12</sup> and several authors have documented an incumbency *disadvantage* (Magalhães, 2014; Klašnja and Titiunik, 2017). The party system is highly fragmented and, although partisanship remains an important factor for electoral behavior (Samuels and Zucco, 2018), at the local level family groups and other political cliques often have more significance to voters than party brands, especially in smaller municipalities (Boas et al., 2019).

Municipal elections take place every four years on the first Sunday of October, two years before/after state and federal elections. There are simultaneous elections for a mayor (who is elected through a majoritarian system, with a runoff election if no candidate obtains an absolute majority of the valid votes only in municipalities with over 200,000 inhabitants<sup>13</sup>) and for a number of city councilors that varies with population (who are elected through a proportional, open-list system). Mayors can run for re-election only once, whereas city councilors do not have term limits. Mayors need to build and sustain a base in the legislative chamber in order to pass legislation (including the yearly budget law) and to avoid being impeached. This produces local dynamics of what has been named at the federal level as “coalitional presidentialism” (Abranches, 1988; Power, 2010). Mayors appoint a set of non-elected secretaries who are in charge of specific policy areas.

Municipal politicians are overseen by a network of horizontal accountability institutions, including state audit courts, state prosecutors offices, and courts that have been shown to reduce rent extraction (Ferraz and Finan, 2008; Litschig and Zamboni, 2015). Federal and state governments also oversee municipal governments, especially on their use of transfers and on their performance in delivering public services that said transfers help maintain. The federal government uses rules, oversight and performance metrics to encourage a good use of its funds and progress towards national policy goals like improvements in student learning or basic healthcare, through what has been called “performance federalism” (Kogan et al., 2015).

Politicians’ discretionary use of public employment is particularly constrained around elections, through the Fiscal Responsibility Law and the Electoral Law, which contain provisions common in other countries such as Colombia or the Philippines. The Fiscal Responsibility Law (LRF, *Lei de Responsabilidade Fiscal*) was approved as a response to pressures for monetary and fiscal discipline, and problems of fiscal asymmetry between the three levels of the federation (Loureiro and Abrucio,

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<sup>12</sup>Over the past four municipal election cycles, mayors have won their re-election by a margin of about 3 percentage points in average.

<sup>13</sup>Only 92 municipalities (less than 2%) reached that threshold in the 2016 municipal elections. When runoff elections do take place, they are held on the last Sunday of October.

2004). This law mandates personnel expenses not to increase during the 180 days before the end of a government's mandate, i.e. roughly three months before and after the elections. The goal was to limit the potential fiscal costs of governments' electioneering through the hiring of bureaucrats. The Electoral Law, on the other hand, forbids hiring, firing or transferring bureaucrats 3 months before and after the election, with the exception of discretionary positions fulfilling advisory or managerial roles, and forbids salary adjustments that exceed inflation during the whole election year. The intention of the law is to prevent behaviors that would hurt the equality of opportunity of candidates running for office. Jointly, the Fiscal Responsibility Law and the Electoral Law generate a period of roughly 3 months before and after the elections in which it is significantly harder for municipalities to hire and fire, with few exceptions. Additionally, the Ineligibilities Law mandates that no public employee can run for office, such that employees who wish to run for office need to take paid leave (if they are tenured) or simply abandon their jobs (if they are not tenured) 3 or 6 months before the election, depending on their post. The candidacy of people who are still government employees during the said period can be challenged before electoral courts.<sup>14</sup>

Politicians in municipal executives (mayors and the secretaries they appoint) are in charge for hiring and overseeing large numbers of bureaucrats, who work in the delivery of public services to the local population, with education, healthcare, and social assistance being particularly important. It is common knowledge in Brazil that government jobs at the local level are likely to be used as a political resource. On the other hand, politicians' ability to do so is constrained by anti-patronage policies (such as the civil service rules or the limits on hiring and firing around elections) and strong horizontal accountability actors (including judges, prosecutors, and auditors at the federal and state levels) that oversee their compliance. It is not uncommon for municipal politicians to have their personal bank accounts frozen, to be imposed fines, and even to be sent to prison for breaking the rules about the hiring and firing of bureaucrats and about public spending more broadly.

All in all, the politico-economic environment of most municipalities in Brazil is full of paradoxes. Municipal governments are embedded in a federal governance structure that expects them to deliver universal public services in both urban and rural areas, provides financing for them to hire bureaucrats to do so, and measures their performance. On the other hand, the socioeconomic conditions on the ground are often characterized by poverty and low levels of human capital, even among bureaucrats. Compounded with the low levels of local taxation, which hamper the development of municipal government accountability (Baskaran and Bigsten, 2013; Tsai et al., 2018); the persistence of clientelistic politics; and a fragmented party system, this means that bottom-up

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<sup>14</sup>A more detailed description of the legal limits on hiring and firing is included in Appendix E.3.

pressures for public service delivery are weak.<sup>15</sup> Strong horizontal accountability institutions from higher levels of government constrain the actions of local political actors, but efforts at improving compliance cannot substitute for societal demands and do not always lead to improved government responsiveness. If O'Donnell (1993) spoke of blue, green, and brown areas of post-transition countries to refer to the different degrees of effective state presence in territorial and functional terms, the typical Brazilian municipality of the interior today suggests perhaps the need to add a new color to our political maps. A color (maybe purple?) that would represent areas where the state makes its presence visible, both territorially and functionally, but where its modernizing promises contrast with, and are negated by, the endurance of poverty, vulnerability, and low levels of human capital.<sup>16</sup>

### 1.3 The empirical strategy: Interviews, surveys, and quasi-experiments

Empirically, this dissertation analyzes the dynamics of patronage in Brazilian municipalities from a variety of perspectives, leveraging primary and secondary data collected between 2015 and 2019. Through a number of stays in Brazil that totaled 18 months, I conducted 121 in-depth interviews with bureaucrats, politicians, and horizontal accountability actors, which were crucial for understanding the formal and informal institutions of public bureaucracies and for developing hypotheses. To quantify some of the relationships identified in those interviews, and to test some of the hypotheses that stemmed from them, I designed and fielded a face-to-face survey of bureaucrats and an online survey of politicians in one state. Last but not least, I designed quasi-experimental studies leveraging detailed administrative data on politicians, bureaucrats, and their performance, to test hypotheses about the uses of patronage and how they are shaped by local governance. The sections below detail each of these empirical approaches.

#### 1.3.1 Interviews

In-depth interviews with local actors were essential in order to understand the formal and informal institutions of local governance in Brazil, to develop and probe hypotheses, and to guide the design of quantitative tests as well as the interpretation of their results. Over 18 months of fieldwork (done

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<sup>15</sup>In fact, recent research suggests that voters in most Brazilian municipalities may react *negatively* to improvements in the quality of schools because they value more other policy areas (Bursztyn, 2016; Boas et al., 2020).

<sup>16</sup>The obstacles that low human capital poses for countries trying to escape the middle-income trap (Doner and Schneider, 2016) are possibly nowhere more visible than in these areas far from economic and political centers.

between January of 2016 and June of 2019) I conducted 121 in-depth, semi-structured interviews with municipal bureaucrats and politicians, and with state-level horizontal accountability actors (like auditors and prosecutors).<sup>17</sup> I conducted these interviews in Portuguese, face-to-face, at the office of the interviewee, and with no audio recording device. I chose not to record interviews because some of the topics discussed were highly sensitive, including corrupt and illegal uses of public employment. While recording interviews would have allowed for more complete transcripts, it would have seriously hindered the reliability of the data and subjects' willingness to participate. Some subjects agreed to participate on the condition of anonymity or confidentiality. When quoting interviewees, I specify only their post, the state, and the month of the interview in order to safeguard their identity.

In total, I interviewed 51 municipal politicians, 54 municipal bureaucrats, and 16 horizontal accountability actors.<sup>18</sup> Three quarters of the interviews were done with bureaucrats and politicians in the social sectors, including 56 education officials, 25 healthcare officials, and 9 social assistance officials. Interviews were done in 45 municipalities in 7 states across 3 different regions of Brazil.<sup>19</sup> The states where fieldwork was conducted, mapped on Figure 1-4 below, concentrate over half of Brazil's population. Interview locations were chosen to ensure variation in the political and socioeconomic contexts of fieldwork. These municipalities, which are listed in Appendix A.1, vary widely on both socioeconomic and political characteristics, as shown in Appendix A.2.

Within each municipality, fieldwork focused on the center, where government offices are. Only a few bureaucrats were interviewed in rural areas. Fieldwork initially focused on bureaucrats and politicians in the education sector and then expanded to cover healthcare and, eventually, social assistance. Horizontal accountability actors and municipal secretaries of finance and of human resources were also added to the target population as saturation in the education and healthcare sectors was reached and new research questions emerged.

I approached potential interviewees at their offices and requested an interview after introducing myself and the project. No compensation of any sort was offered to participants. Most subjects

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<sup>17</sup>In-depth interviews were approved by MIT's Committee on the Use of Humans as Experimental Subjects under protocols 170593389 and 1806407144.

<sup>18</sup>41 of the 51 politicians were secretaries. 46 of the 54 bureaucrats were school directors, clinic managers, and social assistance center coordinators. Of the 16 horizontal accountability actors, 8 were state prosecutors or prosecutorial staff; 5 were state judges or judicial staff; and 3 were state audit court councilors or auditors.

<sup>19</sup>Interviews were done in the states of Ceará (43 interviews), Rio Grande do Norte (21), and Paraíba (15) in the northeast; Rio de Janeiro (19), Minas Gerais (10) and São Paulo (1) in the southeast; and Goiás (12) in the center-west.

Figure 1-4: States where interviews were conducted



that I managed to speak to directly agreed to participate.<sup>20</sup> Interviews were semi-structured, and usually started as an open conversation about the interviewee's background, the challenges they faced in their position, and their perception of public services in the municipality. As the conversation advanced, I followed up with questions about the local dynamics of public employment (including bureaucrat-politician relationships), local political conflicts (including elections), variation in bureaucratic performance, and the influence of horizontal accountability institutions like the state audit court or the state prosecutor's office. I took handwritten notes during and after the interviews. The median duration of the interviews was one hour.

To sum up, interviews provided critical information about how actors in municipal governments and horizontal accountability institutions perceive the dynamics of patronage and of local governance more broadly. This effort, however, had some important limitations. First, collecting these qualitative data was quite costly in terms of both time and money. Second, since the main goal of interviews was theory development, their inferential leverage is quite limited. For example,

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<sup>20</sup>Some refused, mostly arguing they did not have time. Two subjects refused to participate because of the research topic.

I did not ask the same questions to all interviewees and therefore even basic quantifications (like number of subjects who agreed with a given statement) are not feasible. Nonetheless, the insights these interviews provided were fundamental for developing hypotheses as well as for designing some of the quantitative tests and interpreting their results. In-depth interviews were also an essential component of the research on a less instrumental but crucial sense. By traveling through several states and talking to local actors in a variety of settings, fieldwork allowed me to deeply appreciate the complex challenges bureaucrats and politicians face, and to avoid over-simplifications.

### 1.3.2 Surveys

To quantify some of the relationships I identified through in-depth interviews and to test some additional hypotheses, I conducted two separate surveys of bureaucrats and politicians in the Brazilian state of Rio Grande do Norte.<sup>21</sup> As can be seen in Figure 1-5, this is a state at the heart of Brazil's Northeastern region, which has historically been characterized by inferior development outcomes, corruption, and clientelism. I chose this particular state due to the state audit court's willingness to partner for a field experiment (Toral, 2019), its relatively small size<sup>22</sup> (which constrained the costs of a representative, in-person survey of bureaucrats), and its wide variation in socioeconomic and political variables of interest. Municipalities in Rio Grande do Norte, mostly underdeveloped and distant from large metropolitan areas, generally lag behind in human development outcomes, as shown in Figure 1-6.

Based on my in-depth interviews with bureaucrats and politicians, I designed and implemented a large, face-to-face, representative survey of municipal school directors, health clinic managers, and social assistance center coordinators between November and December of 2018 in Rio Grande do Norte. This survey adds to a growing but small set of face-to-face, representative surveys of bureaucrats in the developing world;<sup>23</sup> and is, to my knowledge, the first large-scale and representative survey of "street-level managers" (Gassner and Gofen, 2018) collecting data about their

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<sup>21</sup>Surveys were approved by MIT's Committee on the Use of Humans as Experimental Subjects under protocol 1810539206. Previous online and in-person pilots of the survey of bureaucrats were approved under protocols 170593389, 1803276033 and 1806407132.

<sup>22</sup>The state has 167 municipalities, of which only 3 have more than 200,000 inhabitants – the rest are quite small, with a median population below 10,000.

<sup>23</sup>The unrepresentativeness of bureaucrat surveys –stemming mostly from the obstacles for obtaining a valid sampling frame of bureaucrats and for getting good response rates– is a common problem in the literature. A recent review of over 70 surveys of bureaucrats from the last two decades found only eight that were representative and made micro-data available (Rogger, 2017).



Figure 1-5: Location of the face-to-face survey of bureaucrats and the online survey of politicians



Rio Grande do Norte, in blue; the Northeast region of Brazil, in grey

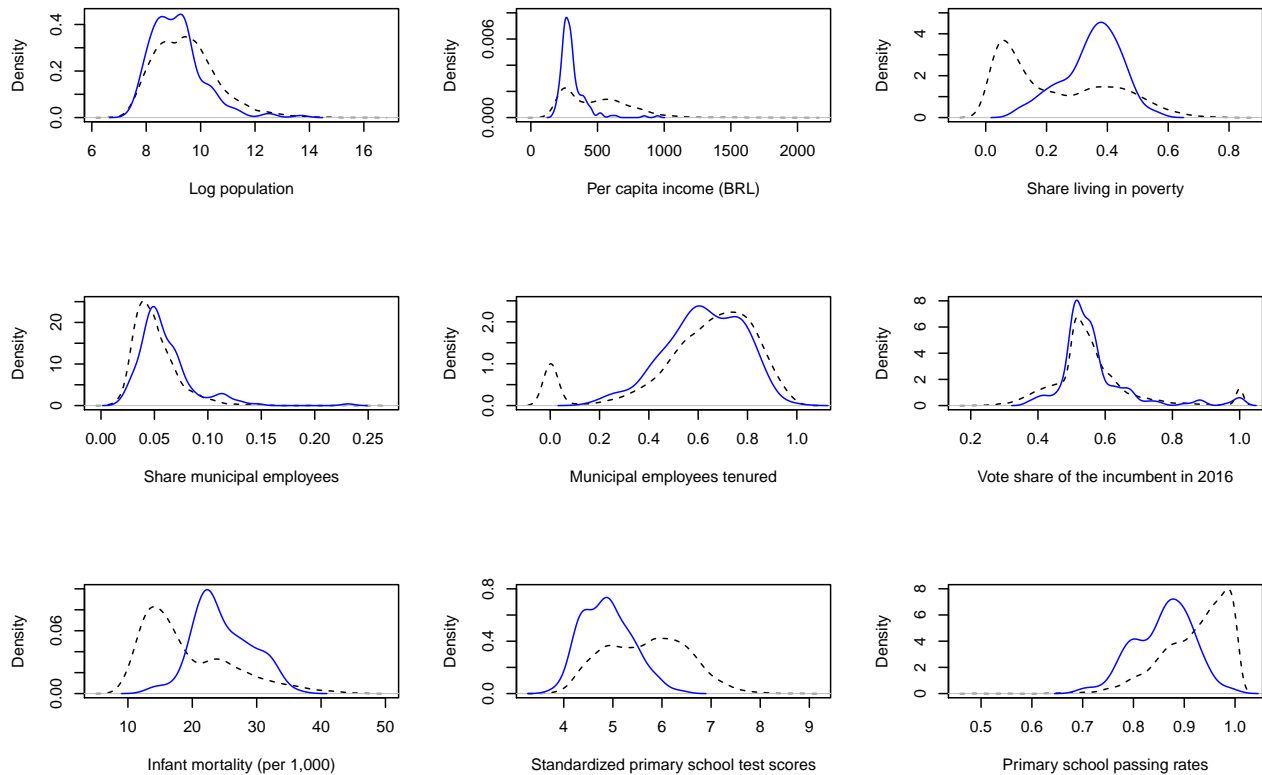
political connections. The survey collected data about managers' professional, political, and demographic profile, their connections to and beliefs about politicians and other state actors, and their attitudes about public service.<sup>24</sup> The survey focused on the urban areas of 150 small and medium municipalities in Rio Grande do Norte – the largest 17 municipalities of the state were excluded due to budget and security constraints.<sup>25</sup> The survey was implemented thanks to the committed work of 23 research assistants, whose names are listed in Appendix B and who I selected through the Federal University of Rio Grande do Norte. We traveled more than 25,000 kilometers over four weeks to locate every municipal school, health clinic, and social assistance center in the urban area of those 150 municipalities. Subjects were surveyed in their own offices, without any other people present whenever possible, by one enumerator with the help of a tablet. We surveyed the managers of 926 out of 1,027 units (over 90%), with a median number of 5 surveys done per municipality.<sup>26</sup>

<sup>24</sup>Links to the questionnaires can be found in Appendix B.1.

<sup>25</sup>See Appendix B.2 for details on respondent recruitment and non-response.

<sup>26</sup>Descriptive statistics are reported in Appendix B.3.

Figure 1-6: Socioeconomic characteristics of municipalities in the state of Rio Grande do Norte, compared to all municipalities in Brazil



Data for municipalities Rio Grande do Norte in continuous, blue lines, and data for all municipalities in Brazil in dashed, black lines. Data are from the Brazilian Institute of Geography and Statistics (IBGE, *Instituto Brasileiro de Geografia e Estatística*) and the Ministry of Education

To complement the survey of bureaucrats, I designed and implemented an online survey of politicians in Rio Grande do Norte, in partnership with the state’s audit court. The primary purpose of the survey was to measure intermediate outcomes of a field experiment (Toral, 2019), including their meetings and connections with other actors, and their beliefs about local governance. The survey however also collected basic information about respondents’ political and demographic profile, and included a conjoint experiment to measure their perceptions of how political connections impact bureaucratic responsiveness, effort, and performance.<sup>27</sup> The survey was sent through the state audit court’s online system to all mayors and city councilors of the 167 municipalities in the

<sup>27</sup>A link to the survey instrument can be found in Appendix C.1.

state, plus all municipal secretaries of five key areas (education, healthcare, social assistance, finance, and administration). 755 politicians completed the survey, for a response rate of 27% and a median number of 5 responses per municipality.<sup>28</sup> This response rate is relatively high for a survey of elites: recent surveys of state legislators in the US typically have one-digit response rates.<sup>29</sup> Still, the survey is not necessarily representative of municipal politicians in the state.

### 1.3.3 Quasi-experimental studies leveraging administrative data

If qualitative and quantitative data on the perspectives of bureaucrats and politicians are a critical component of this dissertation, their views are not sufficient for understanding the uses of patronage and their consequences. Since the income, career trajectory, and social standing of bureaucrats and politicians may depend upon the very patronage strategies that I sought to understand, those actors may express (in both interviews and surveys) a biased image of patronage and its influence on local development. A politician, for example, may under-represent the potential of patronage for rent extraction, or exaggerate the extent to which patronage helps public service delivery. Diversifying the pool of subjects and collecting data from bureaucrats and politicians who do not control patronage resources nor benefit from them (such as civil service bureaucrats or secretaries of a technical profile) addresses this concern only partially. Ultimately, testing my theoretical propositions about the uses and effects of patronage calls for administrative data about politicians, bureaucrats, and public service delivery.

Administrative data on public employment, public service delivery, and elections provide a great complement to qualitative and survey data collected in the field. These data are collected, maintained, and made available by a variety of high-capacity, specialized federal agencies whose goals are arguably orthogonal to municipal governance issues. Federal datasets cover most if not all of the corresponding universe of interest (e.g. municipal bureaucrats, health care units, or schools), across many years. They provide information on a large number of features, often growing over time. The breadth and depth of these federal data collection efforts, and their independence from municipal politics, makes them particularly useful for research on local governance.

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<sup>28</sup>Response rates were higher among secretaries (56%) and mayors (33%) than among city councilors (13%). Details on respondent recruitment and non-response are reported in Appendix C.2. Descriptive statistics are reported in Appendix C.3.

<sup>29</sup>For example, Anderson et al. (2016), Cluverius (2017), Nicholson-Crotty and Carley (2018), and Anderson et al. (2019) report response rates of 5%, 7%, 8%, and 3%, respectively.

In particular, I leverage administrative datasets produced by four federal agencies. First, I use data on local election candidates and outcomes, from the Supreme Electoral Court. These data are readily available online from the Court's data repository.<sup>30</sup> Second, I leverage data on the contracts of municipal employees, collected and maintained by the Ministry of Labor (or, since 2019, the Secretariat of Labor within the Ministry of the Economy), through the so-called Yearly Relation of Social Informations (RAIS, *Relação Anual de Informações Sociais*).<sup>31</sup> RAIS covers the universe of contracts in the public sector, with employer and individual identifiers. I obtained access to these identified data, from 1985 to 2016, through a research agreement that I brokered between the Ministry of Labor and the Massachusetts Institute of Technology in 2017. Third, I draw on detailed biyearly or yearly municipality-, school-, director-, and teacher-level data collected by the Anísio Teixeira National Institute of Education Studies and Research (INEP, *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira*), a high-capacity, autonomous body of the federal government linked to the Ministry of Education.<sup>32</sup> Finally, I use municipality-level yearly datasets on healthcare output and outcomes collected and maintained by the Department of Informatics of the Unified Health System (DATASUS).<sup>33</sup> Details about these administrative datasets are included in Appendix D.

The advantages of large, identified, administrative data notwithstanding, these datasets are not immune to error (in Brazil as anywhere in the world). It is therefore essential to understand the data generating processes of these government databases, rather than taking the data at face value. To that end, I spent a total of eight weeks in Brasília, the federal capital, learning about these data collection efforts by the federal government. Most of that time was spent talking to officials at INEP, the education data agency, and working with identified, restricted access education datasets in a data rooms in their headquarters. I also spoke to officials at the Ministry of Labor working on the employment datasets, as well as officials at the National Treasury working on municipal finances. To complement the insights from these conversations, I also asked bureaucrats and politicians in a variety of municipalities about their experiences with the federal data collection efforts, to better understand the “last mile” of federal data collection efforts. Last, but not least, I had very informative exchanges with academics working with finance, education, and healthcare datasets at leading universities in São Paulo (Universidade de São Paulo, Fundação Getúlio Vargas, and

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<sup>30</sup>The repository can be accessed on <http://www.tse.jus.br/eleicoes/estatisticas/repositorio-de-dados-eleitorais-1/repositorio-de-dados-eleitorais> (last accessed in April 2020).

<sup>31</sup>More information about RAIS can be found on <http://trabalho.gov.br/rais> (last accessed in April 2020).

<sup>32</sup>Most of the datasets I used can be accessed online at <http://inep.gov.br/microdados> (last accessed in April 2020).

<sup>33</sup>Datasets can be accessed at <http://www2.datasus.gov.br/> (last accessed in April 2020).

Inspere), Rio de Janeiro (Fundação Getúlio Vargas) and Brasília (Universidade de Brasília); as well as the leading social research center of the federal government (Instituto de Pesquisa Econômica Aplicada) in both Rio de Janeiro and Brasília. All these informal conversations with actors involved with the federal datasets in different capacities were critical in order to fully appreciate the merits as well as the limitations of the data.

Large and reliable datasets are not sufficient for learning about the political uses of patronage and their impact on development. Testing causal hypotheses about patronage calls, first and foremost, for causal designs. This is because simply comparing the quality of public services in localities with one particular trait of interest (say, a civil service system) to localities without it is likely to return a biased estimate of the effect of that particular trait. Many factors, including unobserved ones, influence both public service delivery *and* theoretically relevant features of local governance. As a result of these ubiquitous endogeneity problems, naive comparisons of localities with and without a given governance structure of interest are unlikely to be reliable – no matter the amount and the quality of the data used.

This dissertation leverages quasi-experimental strategies to address endogeneity concerns and to get at plausibly causal relationships. Experimental strategies use random assignment of units to a treatment condition and to a control or placebo condition. By comparing treated and untreated units, randomized experiments identify causal effects in a way that is superior to other comparisons. Yet, many treatments of theoretical relevance for the study of patronage and governance are extremely hard to randomize, partly because they are macro-level conditions. Experimental studies can illuminate many questions of governance through random assignment of more micro-level conditions (such as levels of information or resources), but limiting ourselves to experimental approaches would seriously limit the kinds of questions we ask ([Gisselquist and Niño-Zarazúa, 2015](#)). I therefore focus in this dissertation on quasi-experimental studies, which in essence try to find situations where naturally-occurring variation can be thought of as as-if random. For example, I exploit the results of close races on bureaucratic performance (Chapter 3) or on hires and fires (Chapter 5), or the exogenous timing of elections (Chapter 4). Whereas these designs focus on relatively narrow subsets of the variation one can find in the data, they provide credible assessments of the causal impact of theoretically relevant aspects of governance, as shaped by government and societal actors independently of researchers. The findings, therefore, provide credible estimates of (local) average treatment effects that account for general equilibria.

All in all, the interview, survey, and quasi-experimental approaches provide a variety of empirical

perspectives on the realities of patronage in Brazilian municipalities. While these three approaches have distinct rationales and build on very different research traditions, they proved to be quite complementary of each other in practice. For instance, the design of surveys and quasi-experimental studies was partly based on insights from fieldwork. Interviews were very useful in the interpretation of some of the quasi-experimental estimates. Administrative data helped guide the selection of municipalities to be visited during fieldwork, and were critical for adequately planning the survey of bureaucrats. All in all, combining qualitative, survey, and quasi-experimental approaches within a single research project led to improved measurements and a richer understanding of the politics of patronage than would have been possible with one empirical approach alone.

## **1.4 Findings and implications**

Leveraging interviews, surveys, and quasi-experimental designs, this dissertation presents evidence of the multiple uses of patronage and their implications for public service delivery and development. In contrast to the common view of patronage as a clientelistic system in which bureaucracies are staffed with supporters simply to retain political power, the empirical analyses in this dissertation paint a more complex picture, whereby patronage plays a diversity of roles: managing bureaucrats (either to extract rents or to deliver public services), mobilizing voters, rewarding supporters, tying the opponent's hands, and anchoring coalitions. These distinct political logics of patronage have divergent implications for government accountability and effectiveness.

The findings have three novel implications for the study of patronage. First, patronage can increase bureaucratic effectiveness and accountability, not only to extract rents but also to deliver public services. In developing contexts where politicians care about the delivery of public services but lack other means to recruit, monitor, and motivate employees, patronage can enhance bureaucrats' accountability and effectiveness in service provision. I illustrate this use of patronage for bureaucratic governance with data on street-level managers in the education, healthcare, and social assistance sectors of Brazilian municipalities. First, I explore the mechanisms by which social and political connections between bureaucrats and politicians facilitate bureaucratic effectiveness and accountability. To do so, I leverage data from the face-to-face survey of bureaucrats and the online survey of politicians I did in the state of Rio Grande do Norte. Observational analyses of the survey of bureaucrats suggest that managers who are politically appointed have more meetings with, more trust in, and more proximity to the mayor and the secretary of their area. Conjoint

experiments embedded in the surveys show that both street-level managers and politicians see politically appointed bureaucrats as more responsive and accountable to politicians, and more likely to raise resources from them. These observational and experimental survey findings are consistent with insights from the in-depth interviews with bureaucrats and politicians.

Two quasi-experimental designs provide causal evidence that, in this context, political appointments enhance bureaucratic effectiveness and accountability. Using a difference-in-discontinuities (a design that combines a difference-in-differences with a regression discontinuity), I show that a negative shock to school directors' political connections (originated by an electoral defeat of the mayor who appointed them) leads to a decline in the quality of the school they lead, as measured through students' academic performance. Next, I use a regression discontinuity design to show that failing to meet a performance target increases the probability of turnover among politically appointed school directors (but not among un-appointed ones). This demonstrates that politicians care about bureaucratic performance, and that political appointments can foster bureaucratic accountability. It also implies that transparency systems that provide detailed information about the performance of local bureaucracies can promote within-government accountability.

The second novel implication of the dissertation is that when politicians use patronage to extract rents they mobilize a wider set of strategies than simply hiring supporters. While patronage is typically thought as the clientelistic hiring of supporters, this dissertation suggests that other tactics, including the hiring of civil servants and the firing of temporary workers, are also important. Leveraging over one million municipality-month observations of public employment data, I show that hires and dismissals of municipal employees follow markedly cyclical patterns around elections, shaped by both the incentives and constraints that politicians face. There is a significant inflation of the bureaucracy before the election, compared to the same months in non-electoral years. Yet, this increase in hiring does not show during the months immediately before the election (when major laws constrain politicians' discretion in hiring) but earlier, in the months right before the legal constraints begin. This suggests that rather than eliminating the cycles, the legal rules about employment limits around elections shape them.

The "political bureaucratic cycles" I identify illustrate the use of patronage for mobilizing voters before the election as well as for rewarding supporters after the election. The pre-electoral expansion of the bureaucracy is disproportionately targeted to low-income people, which suggests it is part of a clientelistic strategy. Within the same panel set-up, I find that political insiders (in particular, individuals who run for city council positions) are not more likely to be hired in the pre-electoral

period, but they are hired disproportionately *after* the election. This finding illustrates the use of patronage for rewarding supporters. Finally, these patronage cycles have a correlate in public service delivery. Using administrative data on the delivery of healthcare services, I find that prenatal care check-ups, a key output of the healthcare bureaucracy, are systematically lower around elections. This suggests that the uses of patronage around elections are detrimental for public service delivery and development.

Politicians also use public employment to tie the opponent's hands before leaving office. Exploiting a close-races regression discontinuity and administrative monthly employment and healthcare data, I show that an electoral defeat of the incumbent unleashes a series of bureaucratic turnover dynamics (hires, fires, and resignations) both before and after the election winner takes office. Under lame-duck governments, in the months between the election and winners being sworn in, there is an increase in the firing of bureaucrats. Interviews with politicians and media reports suggest lame-duck governments increase firing to reduce the size of government and thus improve their compliance with formal rules around hiring before leaving office and losing control of the accounts. On the other hand, a defeat at the polls also leads lame-duck governments to increase the hiring of civil service bureaucrats. Interviews and anecdotes also suggest that civil service hires right before leaving office are used to tie the opponent's hands, by limiting their discretion for hiring their own supporters once they get to office. Resignations of bureaucrats also increase in the months immediately after the defeat of the incumbent at the polls. Once the election winner is sworn in, there is a significant increase in the hiring of temporary workers.

These dynamics of bureaucratic turnover resulting from electoral turnover appear to have a detrimental effect on the delivery of healthcare services. Home visits by healthcare professionals, prenatal care check-ups, and medical consultations with children all decline before the election loser leaves office. Infant and child mortality are not impacted by the results of the election, but the declines in healthcare outputs may have a deleterious effect on other health outcomes. These findings about the links between political and bureaucratic turnover suggest that while electoral accountability is fundamental to democracy, the dynamics of turnover can be detrimental to public service delivery, at least in the short term, because they lead to the disruption of teams of providers, and potentially to the induction of less experienced bureaucrats.

The third major implication of this dissertation is that policies commonly used to constrain patronage can have unintended consequences. International organizations, civil society organizations and political entrepreneurs around the world have promoted civil service regimes, legal constraints



on hiring, and elections for key bureaucratic positions as public policy solutions to limit patronage. My findings suggest that these strategies can be ineffective and even lead to undesirable consequences due to gaps in implementation and to the strategic responses by politicians.

Contrary to the received wisdom that civil service regimes shield public bureaucracies from political influence, I find that civil service jobs are not immune to cyclical dynamics around elections. This result draws attention to the discretion politicians retain even under strict civil service systems – while they may not have freedom to decide who to hire, they do have discretion to decide how many people to hire and when. The fact that civil service hiring increases under lame-duck governments, right before they leave office, further suggest that politicians use the quantity and the timing of civil service hires to their advantage. Moreover, civil service hiring may impose costs by limiting bureaucratic responsiveness. Results from the conjoint experiments suggest that both bureaucrats and politicians see civil service bureaucrats as less likely to implement changes requested by their superiors, and less likely to communicate well with them. Politicians also see them as less likely to exert extraordinary effort when necessary. These findings suggest that the gains of civil service systems in bureaucratic autonomy may come hand in hand with declines in bureaucratic responsiveness, at least in contexts of limited human capital where professional norms may be weaker.

Other forms of limiting politicians' discretion in hiring can also have unintended consequences. Elections for key bureaucratic positions, which are held in certain contexts (e.g., for police sheriffs in the United States), are a good example. In my study of school director accountability, I find that elected directors do not see their turnover affected by whether they meet the school performance target, unlike appointed ones. This suggests that in practice director elections, a well-intentioned policy that promises to foster community participation and improve school accountability, fail to deliver. Qualitative and survey findings about the low levels of participation and competition in director elections help explain this counter-intuitive finding. Finally, the strict limits Brazilian law imposes on the hiring and firing of personnel during the three months before and after the election also appear to have limited success in limiting the use of public employment for electioneering. If anything, these constraints appear to displace cycles in time, rather than remove them. Together, these findings question the received wisdom on the effectiveness of anti-patronage policies, and draws attention to the importance of taking politicians' strategic responses into account.

All in all, this dissertation suggests that patronage is a powerful political resource, and more versatile than it is usually acknowledged. It can be leveraged not only for the clientelistic mobiliza-

tion of voters or the rewarding of supporters, which is what the clientelism and Weberian approaches to patronage would predict, but also to manage bureaucracies (both to extract rents and to deliver public services), to tie the opponent's hands when voted out of office, and to anchor legislative coalitions. Common anti-patronage policies like civil service systems, legal constraints on hiring around elections, and community participation through elections for key bureaucratic positions can be rendered ineffective by gaps in implementation and, more importantly, by the strategic response of politicians.

## 1.5 Plan of the dissertation

The dissertation that follows after this Introduction is divided in five additional chapters. Chapter 2 introduces a theoretical framework of the political logics of patronage, and of the effects each of them has on public service delivery and development. The chapter starts by conceptualizing patronage as the discretionary hiring and firing of bureaucrats based, at least partly, on political criteria. This definition remains agnostic about the purpose of patronage, its scale, and its normative value. In so doing, it sets the foundations for an examination of the micro-dynamics of patronage, understood as specific hiring and firing decisions, and the different uses or purposes that can be given to them. The chapter then discusses the ways in which jobs differ from other benefits and resources available to politicians, and how those key features make patronage a particularly powerful and versatile political tool. Next, the chapter considers the normative dimension of patronage, and argues that established models of bureaucratic governance tend to portray bureaucrats and politicians in too Manichean terms. Because patronage is typically seen as a pathology of government, established models fail to consider its potential positive uses.

The core of Chapter 2 is a typology of the political logics of patronage, each with its own rationale, employment patterns, implications for public service delivery, and policy challenges. These logics are managing bureaucrats, mobilizing voters, rewarding supporters, tying the opponent's hands, and anchoring coalitions. The chapter discusses the characteristics of each of these patronage logics (their rationale, timing, and implications for public service delivery) and trade-offs between them. Next, it considers how some key features of the economic, political, and regulatory environment shape patronage strategies. The chapter concludes by discussing how major anti-patronage policies (civil service systems, legal constraints on hiring, and elections for key bureaucratic positions) can fail in practice due to problems in implementation and to strategic responses by politicians.

Chapters 3, 4 and 5 present three empirical studies of patronage that illustrate the different logics of patronage and their implications for public service delivery within one single empirical setting – Brazilian municipal governments. A second cross-cutting theme in these chapters is an examination of the effectiveness and limitations of major anti-patronage policies, namely civil service systems, legal constraints on hiring, and elections for key bureaucratic positions. Empirically, each of them presents the results of one quasi-experimental design, which are complemented with insights from in-depth interviews with bureaucrats, politicians, and horizontal accountability agents. Chapter 3 also presents findings from the surveys of bureaucrats and politicians. While Chapter 3 focuses on the education sector (except for the survey findings which relate to education, healthcare, and social assistance), Chapters 4 and 5 focus mostly on the healthcare sector. Table 1.1 presents an overview of these empirical chapters. Each of the chapters, in turn, contains at the end of their theory section a table summarizing the hypotheses and the empirical tests they relate to (Tables 3.1, 4.2 and 5.1 in pages 101, 150 and 181, respectively).

Table 1.1: Overview of the empirical chapters

Chapter	Patronage logics illustrated	Anti-patronage policy questioned	Public service examined	Main empirical strategy
Chapter 3: Patronage for performance	Managing bureaucrats	Civil service systems; elections for key bureaucratic positions	Education, healthcare, social assistance	Difference-in-discontinuities; regression discontinuity; conjoint experiments
Chapter 4: Political bureaucratic cycles	Mobilizing voters; rewarding supporters	Legal and fiscal constraints on hiring; civil service systems	Healthcare	Panel data
Chapter 5: Turnover	Tying the opponent's hands	Civil service systems; electoral accountability	Healthcare	Close-races regression discontinuity

Chapter 3 shows that patronage can be used to increase bureaucratic effectiveness and accountability, and that, in so doing, it can improve public service delivery. The chapter starts by arguing that patronage can increase bureaucratic accountability and effectiveness in public service delivery because it provides political and social connections between bureaucrats and politicians. These connections provide access to material and immaterial resources, enhance monitoring, facilitate the application of sanctions and rewards, align priorities and incentives, and increase mutual trust. The chapter argues that patronage can therefore be seen as a governance technology that can be leveraged to deliver public services, to extract rents, or to do both. In certain conditions, especially in developing contexts where politicians value the delivery of public services but cannot access other tools to motivate bureaucrats to perform, the benefits of political appointments may outweigh the costs. Empirically, Chapter 3 tests this argument leveraging in-depth

interviews, observational and experimental modules in the surveys of bureaucrats and politicians, and two quasi-experimental designs (a difference-in-discontinuities and a regression discontinuity). Together, these analyses support the idea that, for managerial positions, patronage can enhance bureaucratic effectiveness and accountability. This helps us better understand why patronage is a useful tool to extract rents, but draws attention to its potential for public service delivery and welfare-enhancing public administration as well.

Chapter 4 shows that patronage can be used for mobilizing voters in the months leading up to elections and for rewarding supporters once elections are over. It does so through a study of political cycles in the hiring and firing of bureaucrats, as well as in the delivery of healthcare services. Building on a vast literature that has studied political cycles in economic outcomes and economic policy tools (political business and political budget cycles, respectively), the chapter provides a theory of “political bureaucratic cycles”, or cycles in the hiring and firing of bureaucrats and in the activities of public employees. Empirically, the chapter leverages the administrative, contract-level datasets on the universe of municipal employees in Brazil between 2002 and 2016 to measure political bureaucratic cycles. Panel regressions show that hires and dismissals of municipal personnel show markedly cyclical patterns around elections, which are shaped by both incumbents’ electoral incentives and their reaction to the legal constraints on hiring around elections. Cycles are most pronounced for temporary bureaucrats but are also detectable for civil service bureaucrats, which counters the received wisdom that civil service regimes insulate bureaucrats from political dynamics. Hiring and firing around elections are targeted at less educated people, which is consistent with political bureaucratic cycles partly responding to clientelistic strategies. Possibly as a result of the clientelistic use of public employment and of the legal rigidities imposed on hiring around elections, prenatal care check-ups (a key output of the healthcare bureaucracy) are systematically lower in the months around elections. The chapter contributes to bridging the gap between the literature on political budget/business cycles and the literature on clientelism, two fields that have rarely been linked before.

Chapter 5 shows that patronage can be used by lame-duck governments to tie the opponent’s hands right before leaving office, by hiring civil service bureaucrats and thus decreasing the leeway of the incoming administration to hire their own supporters. This chapter draws attention to the connection between political and bureaucratic turnover. Electoral accountability is fundamental to representative democracy. Yet, it can also be costly because it leads to the turnover of unelected (as well as elected) officials, and to disruptions in public service delivery. Chapter 5 advances a theory of political turnover as a process that, starting the moment election results are out, generates distinct

but simultaneous processes of bureaucratic turnover and disruptions to public service delivery. To examine these turnover dynamics I leverage a close-races regression discontinuity design and monthly, administrative data on public employment and on healthcare service delivery. The results show that an electoral defeat of the incumbent unleashes a variety of bureaucratic turnover dynamics (hires, dismissals, and resignations, among both temporary and civil service bureaucrats) starting on the month of the election, and a decline in the delivery of healthcare services under lame-duck governments. The findings imply that electoral accountability can be costly and that civil service hiring, typically seen as politically neutral, can actually be mobilized for political purposes.

Chapter 6 concludes by summarizing the findings of the dissertation and discussing their implications for scholars and policymakers who seek to understand and to improve bureaucratic governance, state capacity, and public service delivery. It also discusses the most important limitations of this dissertation and suggests some avenues for future research on the political uses of patronage, in Brazil and elsewhere around the world.

## Chapter 2

### An institutional theory of patronage

This chapter presents a theory of the different political logics or rationales of patronage, and of the effects each of these logics has on public service delivery and development outcomes. In doing so, it provides the theoretical bases for the empirical components of the dissertation (Chapters 3 to 5). A first third of the chapter (Sections 2.1 to 2.3) conceptualizes patronage as a form of bureaucrat selection, clarifies why government jobs are unlike any other political resource, and discusses the normative dimension of patronage. Those sections lie the ground for the second third of the chapter (Section 2.4), which presents a typology of the different logics of patronage, discussing their different rationale, timing, employment patterns, and implications for public service delivery. The last third of the chapter (Sections 2.5 and 2.6) discusses how the economic, political, and regulatory environments shape the uses of patronage, and the promises and limitations of commonly used anti-patronage policies, namely civil service systems, elections for key bureaucratic positions, and legal constraints on hiring.

Before we can distinguish the political uses of government jobs, we must clear up the confusion that has grown around the concept of patronage. A number of remarkably different understandings of patronage coexist in the literature, and the term is often used in a way that is too vague for it to be analytically useful. Section 2.1 reviews and discusses the three most common understandings of patronage: as a social relationship of exchange between unequal parties, as a synonym for clientelism, and as a form or subset of clientelism where government jobs are distributed to political supporters. By contrast to those sociological conceptualizations, I define patronage as simply the discretionary hiring and firing of bureaucrats based, at least partly, on political criteria. This is a more institutional definition of patronage focused on how bureaucrats are selected. Clarifying the

concept of patronage is not merely a conceptual exercise – it shapes the questions we ask, and therefore the answers we obtain. The definition this dissertation advances enables an examination of the *microdynamics* of patronage, understood as specific hiring and firing decisions, and the different uses or purposes that can be given to them.

A second, critical barrier that we must overcome before theorizing the political logics of patronage is spelling out the ways in which jobs differ from other benefits and resources available to politicians. Previous research has paid insufficient attention to the special nature of jobs, relative to other benefits –clientelistic or programmatic– that could be used by politicians. In fact, it is common among scholars of clientelism to treat jobs as one among a range of benefits including cash payments, food baskets, and access to services (Stokes et al., 2013; Nichter, 2018). Yet government jobs are unlike any other instrument in a politician’s toolbox because they are targetable, they provide a continuous source of income to beneficiaries, may be revocable (unless they are tenured), and require an obligation to work for the government. Section 2.2 discusses why these features make jobs such a powerful and versatile political tool.

The third and final barrier to overcome is normative. Partly because of its association to clientelism, patronage is typically seen as leading to government inaction and under-development, through mechanisms like the misallocation of public jobs (Xu, 2018) and reductions in bureaucratic effort (Callen et al., 2018). Both in academic and policy circles, patronage has thus gained an unmitigated negative reputation whereby it is equated to corruption and rent-seeking on the side of bureaucrats, politicians, or both. On the other hand, the civil service bureaucracies that were established in most high-income democracies to substitute patronage systems are often seen as excessively rigid, unresponsive, and obsessed with rules. Section 2.3 discusses the normative implications of these idealized models of bureaucracies for our views of bureaucrats and politicians in both high- and low-income countries. It argues for a more nuanced understanding of bureaucracies that allows for different normative implications of the different uses of patronage – some bad, some good, and some ambivalent.

## 2.1 Conceptualizing patronage as a form of bureaucratic selection

It is essential to clarify what we mean by patronage before we can elaborate on how politicians use it and what consequences it has on development. This is particularly important given the coexistence of a wide variety of concepts of patronage in the literature – a disagreement that has important

implications not only for the answers we get to, but also for the questions we ask.

I define patronage as the political appointment of bureaucrats. More specifically, I use patronage to refer to *the discretionary hiring and firing of bureaucrats based, at least partly, on political criteria*. In this perspective, then, patronage is an institution: a model for deciding who is included in or excluded from government bureaucracies. In its simplest terms, patronage boils down to political control over part of the government payroll. This definition of patronage purposefully remains agnostic over its purpose (what do politicians want?), its scale (how many appointments do politicians control?), and its normative value (is it good?). It also deviates from other common definitions of patronage by focusing on specific employment decisions –both hiring and firing– as opposed to a whole *system* for bureaucratic recruitment.

The value of this institutional definition of patronage is best appreciated when contrasted to other common conceptualizations, detailed in Table 2.1. In these other perspectives, patronage is seen from a more sociological perspective, either as a form of social exchange, as a synonym of clientelism, or as a subset of clientelism where the targeted benefits are government jobs. The concept of patronage that this dissertation advances builds on, and departs from, these three alternative, more frequently used definitions. Delineating and contrasting these different concepts of patronage is important in order to structure a constructive dialogue with the rest of the literature.

Table 2.1: Main concepts of patronage

Concept of patronage	Sample works that hold this view
Social relationship of exchange between unequal parties	Scott (1972); Eisendstat and Roniger (1984)
Clientelism in general, or its object	Shefter (1977); Kitschelt and Wilkinson (2007)
Clientelism in the allocation of public jobs	Piattoni (2001); Oliveros (2013); Kuo (2018)
Discretionary appointment of bureaucrats	Grindle (2012); Dahlström and Lapuente (2017)

There are other, less common conceptualizations of patronage. Stokes et al. (2013) define patronage as clientelism targeted towards party members.

The earlier and conceptually wider idea of patronage is that of a social relationship of exchange, sustained over time, between two parties of unequal standing – a patron who provides protection and/or benefits, and a client who provides support (political or otherwise) in exchange.<sup>1</sup> This notion of patronage is prevalent among anthropologists, sociologists and political scientists from the middle of the last century who were preoccupied with understanding the social structures of

<sup>1</sup>There are important variations of this definition of patronage. For some authors, the dyadic nature of the patronage relationship, the centrality of face-to-face interactions, or the role of power asymmetries and even coercion are central to the concept of patronage.



small communities in less developed countries, particularly in Latin countries of the Mediterranean and the Americas (Pitt-Rivers, 1954; Banfield, 1958; Foster, 1963). The idea of patronage as a fundamental institution across societies, worth studying in comparative perspective, came during the 1970s and 1980s (Powell, 1970; Scott, 1972; Eisenstadt and Roniger, 1984). But the phenomenon, and its study, are much older. For example, historians have long noted the importance of patronage networks for the social and political order of Ancient Rome (Saller, 1982; Verboven, 2011).<sup>2</sup> In any case, from this perspective patronage is fundamentally opposed to other modes of social exchange such as kinship, markets, or rational bureaucracies (Eisenstadt and Roniger, 1980). The main research questions that this perspective calls for are how this form of exchange differs from others, and why it prevails in certain societal contexts and not others.

A related but narrower definition of patronage equates it to clientelism, understood as the distribution of benefits –goods or services– to individuals contingent on their political support (Kitschelt and Wilkinson, 2007; Stokes et al., 2013; Weitz-Shapiro, 2014). This is a significantly narrower definition of patronage than the previous one, in that it focuses on exchanges in the political arena, where the patron has political objectives. The focus, nonetheless, is still on social relationships of exchange. Clientelism is often thought of as an electoral weapon – patronage is thus seen a strategy to increase the chances of electoral success through vote buying and other tactics, including turnout buying, abstention buying, and voter buying (Gans-Morse et al., 2014; Hidalgo and Nichter, 2016). The goal and the timing of clientelistic exchanges, however, do not need be purely electoral. Clientelistic exchanges often take place in between elections. In fact, these non-electoral exchanges are fundamental for the survival of clientelism (Nichter, 2018). In any case, studies based on this understanding of patronage tend to see government jobs as one among multiple possible benefits that incumbents (and their brokers or intermediaries) may distribute to gain voters' support. From this perspective, patronage is opposed to the programmatic (i.e., universalistic) distribution of resources. The main research questions that emerge from this understanding of patronage as clientelism are how is it socially sustained, and what explains transitions toward programmatic politics.

A third and yet narrower take on patronage sees it as the clientelistic use of one particular benefit, namely government jobs. This definition of patronage grows out of the recognition that the type of benefit being distributed matters,<sup>3</sup> and that jobs are a key benefit that incumbent politicians

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<sup>2</sup>In fact, the terms patronage and clientelism come both directly from Latin.

<sup>3</sup>The importance of distinguishing patronage types depending on the patron's "resource base" was recognized early on by Scott (1972), but has gained importance in recent debates (Berenschot and Aspinall, 2020).

have at their disposal for clientelistic purposes. Jobs are often thought as critical resources for clientelism and broader exchange relations. Historians note, for example, that in Ancient Rome appointments to official positions were an important component of patronage networks within the state and in society at large (Garnsey and Saller, 2014, 178). Jobs are indeed so intimately related to patronage that there is an etymological connection between the two. In both Italian and Spanish the equivalent of the word patron (*padrono* and *patrón*, respectively) is often used to refer to an employer. This may explain why, over time, patronage has come to be increasingly seen as a clientelistic system for staffing bureaucracies (Golden, 2003). From this perspective, therefore, patronage is opposed to non-clientelistic ways of distributing government jobs, and to civil service systems in particular. The focus, nonetheless, remains on relationships and contingency. This take on patronage thus leads to questions about formal and informal rules for bureaucratic recruitment, how clientelistic hiring allows incumbents to anchor their bases of power, and how bureaucratic effectiveness, public service delivery, and state capacity suffer as a result.

In contrast to these three perspectives, this dissertation advances a definition of patronage as the hiring and firing of bureaucrats based, at least partly, on political criteria. While the previous three definitions are embedded one within the other (each of them being more general than the next one), this definition departs from the idea of patronage as a (clientelistic) form of social exchange and focuses on how bureaucrats are selected. In this perspective, the clientelistic allocation of government jobs is part of patronage but does not exhaust it. This definition therefore expands our understanding of patronage by switching the focus from the *relationship* between patron and client (politician and citizen, incumbent and government employee) to the discretionary *decision* of the incumbent about whom to hire or fire. From this perspective, patronage is opposed to other institutional rules for deciding who is hired into the bureaucracy, including civil service systems but also other institutions like the inheritance and sale of government positions, which were common for example in modern Europe and in colonial America (Swart, 2017; Guardado, 2018). To be clear, the clientelistic allocation of government jobs is an important part of what I call patronage, but it is not all. The definition this dissertation advances includes also other, non-clientelistic uses of public employment by politicians.

Viewing patronage as the hiring and firing of bureaucrats based on political criteria has four main advantages.<sup>4</sup> First, it opens the possibility of thinking of different ways in which politicians

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<sup>4</sup>While I argue the definition I advance comes with certain advantages that I formulate in this paragraph, I do not imply it is superior to the other three on all dimensions. Each concept of patronage grants us a valuable perspective on politics and governance.

use public employment. Grindle (2012), who also starts from an understanding of patronage as a form of bureaucratic selection, has shown that historically patronage has been leveraged for a variety of political projects, including “empires, regimes, systems of class dominance, political parties, policy coalitions, high-performing organizations, personal fiefdoms, dynasties, and mafias” (Grindle, 2012, 241). Conceiving patronage as a political tool that can be put to different uses makes a fundamental difference in how we approach it.

Second, this notion of patronage also enables a focus on specific hiring *and* firing decisions taken by politicians. Unlike Grindle (2012), I do not see patronage as a generalized system for bureaucratic recruitment (that is, a macro-level variable) but rather as specific hiring and firing decisions taken by politicians. Few studies of patronage to date have looked systematically into the micro-dynamics of specific hiring and firing decisions, possibly due (in part at least) to the difficulty of obtaining hiring data at the individual level, but doing so allows for a richer understanding of this phenomenon.<sup>5</sup> In this perspective, a country may have more or less patronage depending on the reach of politicians’ discretionary power over the government payroll. The question therefore becomes not whether a country has patronage (they all do, to some extent), but for what positions its government uses patronage, with what logic, and to what effects.

Third, thinking of patronage in terms of specific hiring and firing decisions taken by politicians allows us to relax the widespread assumption that civil service reforms completely insulate bureaucracies from political influence. While civil service systems severely constrain politician discretion, most if not all of them leave some room for political discretion in hiring – not so much on *who* is hired (which is determined by merit on a test, at least when the system is not corrupted), but on *how many* people to hire and *when*. These are important dimensions of human resources management in any organization, including governments (Shafritz et al., 2001). Chapters 4 and 5 show they can be leveraged politically.

Fourth and last, understanding patronage not as clientelism (or a subset thereof) but rather as a way of allocating certain government jobs makes it easier to bridge the large divide between those who study political appointments in developing countries and those who study them in high-income countries. Whereas scholars of the developing world (mostly in comparative politics and development economics) generally associate patronage to machine politics, those who study the very same phenomenon (politicians’ appointments of bureaucrats) in high-income countries (mostly in

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<sup>5</sup>The analysis of appointments and removals by political machines in the US between 1829 and 1917 done by James (2006) is a notable exception.

the fields of American politics and public administration) often associate patronage to incumbents' attempts to increase control over policy and implementation. By focusing on politicians' hiring and firing decisions, wherever they happen, and thinking through the different political logics that underpin them, we can make better use of the accumulated research on political appointments around the world.

To summarize, the way we conceptualize patronage makes a substantial difference for the theoretical and empirical questions we ask about it. Traditionally, scholars have advanced three different and increasingly specific notions of patronage: as a social relationship of exchange between parties of unequal standing; as a synonym of clientelism (that is, the distribution of benefits contingent on individuals' political support); or as equivalent to a type of clientelism that uses government jobs as currency. In contrast to these three perspectives, this dissertation advances a definition of patronage as the discretionary hiring and firing of bureaucrats by politicians based, at least partly, on political criteria. This definition draws attention to specific hiring and firing decisions, and invites us to think about the different political strategies that may be behind them (clientelistic or otherwise), regardless of the formal mechanism through which bureaucrats are appointed, and irrespective of a given country's level of development.

## **2.2 The unique value of government jobs as a political resource**

Government jobs are unlike any other government benefit or political resource. In the clientelism literature, jobs are often treated together with other types of benefits like cash, food, or preferential access to services.<sup>6</sup> Yet, jobs have a number of features that make hiring and firing decisions uniquely valuable for a variety of political strategies. Critically, the fact that jobs are targetable, highly valued by citizens in many contexts, in some cases revocable, and visible to third parties makes them especially useful to solve the double credibility issue of clientelistic exchanges – both patrons and clients need some assurance that the other party will keep their promise in order to cooperate. Even outside clientelistic exchanges, these characteristics make public jobs particularly useful to boost responsiveness and accountability. On the other hand, jobs also come with some critical constraints or limitations, regardless of how they are distributed: they are costly, scarce, and cannot be divided as flexibly as other benefits like cash transfers. All these special characteristics of jobs have direct implications for the uses politicians make of them. Therefore, formulating the

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<sup>6</sup>One notable exception is [Robinson and Verdier \(2013\)](#).

specificity of jobs is essential in order to theorize the political rationales of patronage.

Government jobs are individually targetable, and their distribution is relatively independent from intermediaries. Studies of clientelism often emphasize the importance of targeting for clientelistic bargains: political machines direct benefits at certain voters *conditional* on their past or promised political support (Kitschelt and Wilkinson, 2007). However, targeting benefits can often be difficult. First, the goods or services at the disposal of a party may be difficult to target (for example, access to water). Second, the distribution of those benefits often depends on brokers or intermediaries, who may engage in rent-seeking (Stokes et al., 2013). Jobs minimize both of these targeting difficulties. A job is a fundamentally individual benefit – it has a name attached to it. While brokers may be necessary to identify who should be given a job, the distribution of jobs itself does not depend on intermediaries since bureaucrats are usually hired through centralized administrative structures, even in relatively under-developed settings. The fact that jobs are naturally targeted to individuals and that they are distributed through more or less centralized administrative structures implies that they are particularly useful both for both clientelistic and non-clientelistic political strategies. For the purposes of research, these characteristics also mean that government jobs often generate a paper trail, in which we can potentially observe who got which job, for how long, and how much they were paid.<sup>7</sup>

Unlike other benefits politicians may mobilize, jobs constitute for recipients a continuous and liquid source of income. This makes jobs extremely valuable, especially in less developed contexts where opportunities in the private sector are scarce. In those contexts, even a low-skill government job can make a very significant difference for the employee and their family. This, in turn, increases the political potential of jobs (Calvo and Murillo, 2004). In her famous study of clientelism in Italy, Chubb notes that in Palermo, “where a stable job is a rare commodity, employment in the public sector, however lowly, has become a universal aspiration – the dream of stable and dignified employment, of a regular salary and fringe benefits, in sum, of security. As a result, for a large part of the population, politics revolves around the *posto* (job or position)” (Chubb, 1981, 112).

The fact that jobs provide a continuous source of income makes them a relatively easy way for governments to have a positive impact in the lives of some of their voters, which is particularly challenging in contexts of low state capacity. In that sense, in developing contexts, the promise of a job may be more credible than the promise of more or better public services (Keefer, 2007). On

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<sup>7</sup>While government employment records are not typically accessible to the public, a number of countries (Brazil among them) make part or the totality of their employment records accessible to researchers.

the other hand, relative to other resources at the disposal of incumbents, jobs are expensive, scarce, and cannot be divided beyond a certain point.<sup>8</sup> In turn, the sense of obligation among employees or potential employees may be significantly higher than among recipients of other benefits. The high value of government jobs, especially in less developed contexts, makes them a particularly powerful political resource.

At the same time, non-civil-service jobs –an important subset of government jobs in many contexts– may be revoked, which increases recipients’ accountability to politicians. The possibility of dismissals is a powerful weapon employers use to discipline employees in both the private and the public sector. Politicians may use it to punish government employees on the basis of bureaucratic performance as well as political considerations. Moreover, since jobs are credible, targetable, and revocable, government employees’ well-being is tied to the political success of the incumbent (Robinson and Verdier, 2013). Therefore, more than any other government benefit, a job may make the recipient internalize politicians’ incentives (Oliveros, 2013, 2020). Furthermore, unlike other benefits that politicians may distribute, job allocation decisions are fully observable by third parties. Other citizens can see who is hired, and employees know that their being hired is observed not just by other citizens but also by other political parties, who may then “mark” them as supporters of the incumbent.<sup>9</sup> This, together with the fact that temporary jobs tie employees’ welfare to the incumbent’s electoral success, can help solving the citizen-side of the credibility problem of the exchange relationship between incumbent politicians and patronage employees. All in all, jobs have a unique capacity to foster loyalty among recipients.

A final but critical way in which jobs are different from any other benefit is their potential for public service delivery. Government jobs are often referred to as private goods (Kitschelt and Wilkinson, 2007, 11), since they are rivalrous and excludable. But government jobs also have a potential for benefiting non-recipients, in that the employee is expected, at least in theory, to work for the public good. Regardless of how the employee is recruited, they have a legal obligation to show up daily and work in public administration and public service delivery. Reducing jobs to a private good like an unconditional cash transfer assumes that politicians, as employers, care only about the support and loyalty of the people they employ. Even in the extreme case of a purely rent-seeking politician, with no preferences on policy, it is reasonable to expect that they care about the activities of government employees, since they may well have an impact on the incumbent’s

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<sup>8</sup>For example, minimum wage laws dictate, together with the budget constraint, the maximum number of jobs that can be used. In contexts with no minimum wage laws, labor markets may impose other constraints on wages.

<sup>9</sup>The issue of citizens being “marked” as supporters of the incumbent and the consequences it can have on people’s livelihood when the government changes are discussed by Nichter (2018).

reelection chances. Government employees can work towards public service delivery, rent extraction, or both, but in any case the cost of wages to government is too high for politicians to not expect employees to do some work in exchange for their salary. This feature of jobs implies that, in order to understand patronage and its uses, it is essential to examine the activities that bureaucrats perform, how they relate to different political strategies, and how they impact development outcomes.

To summarize, government jobs are unlike any other resource at the disposal of politicians. Jobs are targetable, distributed without dependence on intermediaries, often highly valued by citizens (especially in the developing world), revocable (at least when they are not in the civil service system), scarcer and more expensive to politicians than other benefits, and observable by third parties. Unlike other benefits, jobs also come with a direct obligation to work for the government, which politicians may put to use in different ways. All these characteristics make jobs an extraordinarily powerful and versatile resource that politicians can mobilize for a variety of purposes.

### **2.3 The normative side of patronage**

The normative dimension, whether it is articulated explicitly or not, is fundamental to any discussion about patronage. Like concepts, normative frameworks shape the questions we ask about a given phenomenon, and the way we go about answering them. In the case of patronage, the normative and the descriptive dimensions are intimately related in at least two senses. First, patronage is typically condemned as an expression of corruption. Given the negative valence of corruption, this prevents us from considering potential positive uses of patronage, and from engaging with patronage as an ambivalent complex phenomenon, the normative implications of which may depend on the context. Second, and partly because of its strong association to corruption, patronage is typically referred to as a problem of less developed countries and of past histories of high-income democracies. This view is reflected in the current separation in the study of political appointments in two camps, for low- and high-income settings, which in turn severely limits our understanding of patronage. Critically engaging with the normative dimension of patronage is therefore an essential ingredient to a theory of patronage that extends beyond received wisdom.

Patronage is typically seen a pathology of government. In both academic and policy circles, patronage is regularly associated with a series of undesirable phenomena such as the misallocation of jobs to less capable candidates, declines in the effort exerted by government employees, decreased accountability of bureaucrats vis-a-vis citizens, bureaucrat absenteeism, inefficiency in

public spending, diminished political competition, and the under-delivery of public services. At a higher level, patronage is seen as a dysfunctional form of staffing bureaucracies that is detrimental for both political and economic development.

This notion of patronage as corruption comes, to some extent, from the hard-fought, historic victories (at least in high income democracies) of actors who sought to replace patronage systems with civil service systems. Grindle has shown how promoters of Weberian reforms of the bureaucracy around the world held decades-long political battles over the mode of entry into administrative positions. Through a careful tracing of these political struggles in a variety of historical and contemporary cases, she finds that reformers consistently mobilize the “rhetoric that a proper civil service system will slay the greatest of public sector dragons – patronage and the pervasive ills that it visits upon virtuous citizens and societies” (2012, 31). Today’s common association of patronage to dysfunctional government and bureaucratic slack come, to some extent at least, from those historic conflicts.

At the same time, civil service bureaucracies and bureaucrats are frequently portrayed (in common discourse, in academia, and even in novels and films) as unresponsive, excessively impersonal, obsessed with rules, and dysfunctional (Zacka, 2017, 1-4). This contrasts with the Weberian idea of civil service bureaucracies as rational, modern, and efficient. For Max Weber, modern bureaucracies are based on strict hierarchy, jurisdictional division of labor, written rules and documentation, and specialization, set career paths with a set vocation, and discipline (Weber, 1922, 956-958). In his view, organizations based on these bureaucratic criteria are *necessarily* superior to other forms of administration. Yet, the very characteristics that Weber praised as making modern bureaucracies technically superior organizations<sup>10</sup> are at the root of widespread views of bureaucracies as unresponsive, rigid, and excessively rule-bound structures that fail to meet the demands of citizens.

In truth, both patronage and civil service systems have their own paradoxes and tensions, but we are ill-equipped to deal with them because our normative understandings of bureaucracies portray bureaucratic actors and systems in terms of good and evil. Our models of bureaucratic governance are, in that sense, Manichean. Table 2.2 synthesizes the main differences between Weberian and principal-agent models of bureaucratic governance. Despite their fundamental differences, both these approaches to governance see state agents in Manichean terms, either as welfare-minded

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<sup>10</sup>The faith of Weber and Weberian approaches on the superiority of depoliticized bureaucracies is best appreciated in his own writings: “precision, speed, unambiguity, knowledge of the files, continuity, discretion, unity, strict subordination, reduction of friction and of material and personal costs – these are raised to the optimum point in the strictly bureaucratic administration, and especially in its monocratic form” (Weber, 1922, 973).



heroes or rent-seeking villains.

On the one hand, Weberian models describe and prescribe modern bureaucracies as completely insulated from political pressures, to a point where politicians have no say on who gets hired and when. In this paradigm, politicians simply dictate policy, and bureaucrats simply execute. This notion is clearly at odds with the realities of governance in civil service systems, where the line between bureaucrats and politicians is blurred (Aberbach et al., 1981), and where motivating tenured bureaucrats is a serious policy challenge (Esteve and Schuster, 2019). These mismatches notwithstanding, this view of governance strongly shapes scholarly, journalistic and day-to-day discourses about bureaucracies. Implicit in this view is the assumption that politicians' interventions are oriented towards short-term political goals that are detrimental to development, if not towards mere rent extraction, as opposed to the long-term, development-enhancing actions of technical and capable bureaucrats.

Table 2.2: Weberian and principal-agent models of bureaucratic governance

	Weberian models	Principal-agent models
<b>Core theoretical elements</b>	Recruitment and promotion are merit-based. Bureaucrats move along hierarchical, predictable and tenured career paths.	Politicians delegate tasks to bureaucrats. Imperfect contracting due to hidden actions and/or hidden information.
<b>Policy implications</b>	Bureaucracies should be staffed on the basis of merit and be ruled by predictable career paths. Bureaucratic autonomy should be maximized.	Select the right types, set up the right incentives, and reduce information asymmetries. Decentralization, market reforms, "new public management".
<b>Critical assumptions</b>	Politicians' interventions are harmful. Bureaucrats' autonomy, professional ethos and fixed career paths are enough to foster performance.	Agents deliver only as much as their contract with principals forces them to. Principal and agent are unitary actors. A contractual relationship exists.
<b>Key references</b>	Weber (1922); Johnson (1982); Evans and Rauch (1999); Cingolani et al. (2015)	Tullock (1967); Niskanen (1971); Banerjee (1997); Gailmard and Patty (2012); Khemani et al. (2016); Finan et al. (2016)

Principal-agent models of the bureaucracies also have a Manichean view of bureaucratic governance. These models examine bureaucracies through the lens of micro-economic theory. In the classic principal-agent problem, politicians and bureaucrats are seen as parties to a contract where politicians (the principal) delegate tasks to bureaucrats (the agent). Principal-agent models seek to spell out design features that solve or at least alleviate three kinds of constraints that lead to welfare losses: those resulting from adverse selection, from hidden actions (moral hazard), and from hidden information (information asymmetries). In this perspective, therefore, politicians are seen as able and willing to foster better outcomes through interventions in the bureaucracy. Here it is

bureaucrats that are seen as the source of dysfunctionalities in the public sector. The language used in a recent article that leverages the principal-agent model illustrates well this view: “bureaucrats are agents who dislike exerting effort towards their jobs, but are motivated to work by politicians who may take punitive action against them” (Gulzar and Pasquale, 2017).

These views of bureaucrats and of politicians do not fit with what I repeatedly encountered in the field. There are, of course, state actors who are mostly interested in extracting rents, or who will not show up to work. But the large majority of the bureaucrats and politicians that I encountered in a wide range of settings have a variety of concerns, including improving the lives of people in their community. One of the goals of this dissertation is to foster an empirically-grounded reappraisal of our normative understandings of bureaucratic governance. By considering the relative advantages and disadvantages of different bureaucratic models, and recognizing the variety of motivations that drive bureaucrats and politicians in both developed and developing countries, this dissertation suggests a space for less Manichean views of governance. More nuanced normative frameworks can help us better make sense of the observable reality, and better imagine solutions to well-known problems of state capacity and public service delivery.

## 2.4 The five political logics of patronage

Politicians use patronage following five distinct political logics: managing bureaucrats, mobilizing voters, rewarding supporters, tying the opponent’s hands, and anchoring coalitions. These five logics constitute a range of patronage strategies that may be used by a same incumbent, depending on their political goals and the moment they are at in the political cycle. Distinguishing these logics is important because each of them operates with a unique rationale, implies different observable hiring and firing patterns, has distinct implications for public service delivery, and poses different challenges for policy makers. In contrast to established approaches to patronage from both the Weberian and the clientelism traditions, the framework I advance here suggests patronage is not simply a rent-seeking strategy that works through the hiring of supporters. In fact, it can –under certain circumstances– be used not only to extract rents but also to foster public service delivery.

The idea that patronage may serve multiple purposes has been articulated by others before. Grindle (2012) traces how patronage has been used for multiple political purposes in different historical moments and in different countries, emphasizing that its resilience as an institution comes

from its flexibility and adaptability to different political projects.<sup>11</sup> Consistent with this perspective, Grindle focuses on macro-level variations in patronage. By contrast, the theory I advance here emphasizes not varieties in *patronage systems* across time, but the diverse political rationales a single politician may use when taking hiring and firing decisions. In that sense, my logic is closer to the classic works of Sorauf (1960) and Wilson (1961), who wrote about the different *functions* that patronage played for the survival of party organizations in the American context. Sorauf (1960) claimed that patronage had historically played a variety of functions for parties in the United States, namely “maintaining an active party organization”, “promoting intra-party cohesion”, “attracting voters and supporters”, “financing the party and its candidates”, “procuring favorable government action”, and “creating party discipline in policy-making.” Wilson (1961) specified four similar functions of patronage, but he added the insight that there are both strategic and economic trade-offs between them. Relatedly, Geddes (1994) differentiates four ways in which the bureaucracy (not just appointments, but also their activities) can be used politically: to provide benefits to constituents, to get the support of other politicians, to build a political organization, and to implement policies. More recently, Bearfield (2009) distinguished four *patronage styles* in which patronage is used for desirable goals, namely organizational patronage, democratic patronage, tactical patronage, and reform patronage. Finally, Panizza et al. specify four motivations of patronage practices, namely securing technical expertise, political control of the bureaucracy, political support for policy initiatives, and electoral support (2018, 65-66).

The theory I advance here extends this basic idea of *varieties of patronage* by articulating testable correspondences between political logics of patronage, incumbent profiles and goals, hiring and firing practices, political moments, and public service delivery impacts.<sup>12</sup> Table 2.3 below summarizes the main features of each of the logics of patronage.

While each logic implies a different political rationale, multiple logics can be at play within the same government, and even within the same employment decision. A single patronage decision (say, the appointment of one particular bureaucrat) will usually be dominated by one of these logics, but may in practice respond to more than one of them. For example, a political supporter may

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<sup>11</sup>A similar notion of patronage as a tool that can be used for different purposes by different politicians is advanced by Rothstein and Varraich (2017).

<sup>12</sup>In contrast, Grindle (2012) examines variation in macro-level uses of patronage across countries and across time; Panizza et al. (2018, 2019) examine which patronage type dominates depending on the level of party system institutionalization and the nature of party-citizen linkage; Geddes (1994) examines the extent to which presidents use competence rather than loyalty as a function of the nature of their relationship to their party and whether their survival is threatened by a military coup. Sorauf (1960), Wilson (1961) and Bearfield (2009) do not test empirically their theories of variations of patronage.

Table 2.3: Overview of the political logics of patronage

Patronage logic	Timing	Political goals	Employee characteristics
<b>Managing bureaucrats</b>	During the mandate	Decreasing agency problems; increasing bureaucratic responsiveness	High-skill. Political supporters with high education, experience
<b>Mobilizing voters</b>	Ahead of elections	Boosting votes and re-election prospects; signaling largesse	Low-skill. Low-income swing voters or core supporters
<b>Rewarding supporters</b>	After elections (winner)	Rewarding campaign supporters; strengthening party organizations; building credibility	Low- or high-skill. Campaign supporters
<b>Tying the opponent's hands</b>	After elections (loser)	Decreasing the opponent's hiring discretion; boosting chances of regaining power	Low- or high-skill. Tenured
<b>Anchoring coalitions</b>	After elections; during the mandate	Increasing legislative or political support; boosting stability	Low- or high-skill. Linked to legislators, opposition leaders

be appointed to a managerial position both as a way of rewarding them (and thus strengthening the party organization) and as a way of improving the accountability and effectiveness of a given department or unit. Similarly, hiring people aligned with allies in the legislature ahead of the election may help to both mobilize voters and to strengthen support bases in the legislature and thus anchor a legislative majority.

This theory of patronage is based on a view of politicians as actors who value, and are concerned with, three fundamental tasks of government: staying in office, enacting policy, and implementing policy. Alternative theories of patronage often imply representations of politicians who are driven by a single purpose. For example, seeing patronage as a synonym of clientelism implies a view of politicians as simply office-seeking actors whose main objective is to win elections and remain in power. In reality, politicians are likely to be motivated by a range of political goals. Chief among these are getting to and staying in office, enacting policy, and implementing policy. These are fundamental tasks of policies that all incumbents need to work on. Contextual characteristics such as levels of electoral competition or the power of veto players may of course make some tasks more pressing than others for a given incumbent in a given moment,<sup>13</sup> but the three tasks are sufficiently interrelated that no politician can afford to govern based on success in only one of them.

<sup>13</sup>The importance of context for political strategies is discussed in Section 2.5 below.

One of the reasons patronage is such a powerful political tool is that it can serve these three fundamental tasks of government. Mobilizing voters and rewarding supporters can help incumbents stay in office by increasing their reelection prospects and strengthens a political base, both in the electorate at large and within the bureaucracy.<sup>14</sup> Tying the opponent's hands through civil service hiring makes it easier to return to office because it reduces the opponent's discretion in hiring, and thus decreases their ability to use any of the four other patronage logics. Anchoring coalitions helps with policy enactment, by making it easier for incumbents to get legislation passed. Finally, using patronage for managing bureaucrats helps with policy implementation, since it makes bureaucracies more responsive and accountable to the incumbent.

Different patronage logics have different implications for public service delivery and for development more broadly. The logics of patronage that tend to predominate around elections (mobilizing voters and rewarding supporters) are the ones where implications for public service delivery and development are more clearly negative. By using bureaucratic appointments to mobilize voters ahead of the election, or to reward supporters after the election, incumbents select into the bureaucracy individuals who are likely to be less intrinsically and extrinsically motivated to deliver public services in a programmatic manner.<sup>15</sup> On the other end of the spectrum, the use of patronage for managing bureaucrats can be beneficial for development. By selecting politically aligned bureaucrats for key, mid- or high-level positions, patronage in this logic can reduce the agency problems common to principal-agent relationships, and therefore improve bureaucratic effectiveness and public service delivery. These gains in bureaucratic accountability can of course also be mobilized to extract rents (for example by having bureaucrats bend the rules in favor of political supporters). The implications of the use of patronage for managing bureaucrats therefore depend on whether politicians care about public service delivery. The use of patronage for tying the opponent's hands (by hiring tenured bureaucrats right before leaving office in order to reduce the opponent's discretion in hiring) is clearly motivated by rent-seeking. On the other hand, this patronage logic could lead to improvements for public service delivery if, had the incoming government been able to make use of those appointments, they would have used them for rent-seeking. Finally, the development implications of the use of patronage for anchoring coalitions are also ambivalent. While these appointments are

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<sup>14</sup>Although, as shown by [Weitz-Shapiro \(2014\)](#), this type of electoral strategies can backfire if an important subset of voters rejects them on moral or economic grounds.

<sup>15</sup>In principle, the use of patronage for voter mobilization ahead of elections could serve public service delivery if the incumbent decided to target the work of new hires into highly visible, programmatic activities that could boost their re-election prospects. This possibility is more widely discussed in [Chapter 4](#). In practice, these hires are most likely to be asked to work campaigning. The disruptions emerging from this and other manipulations of the bureaucracy around elections are thus most likely to be detrimental for public service delivery, as shown in [Chapters 4 and 5](#).

likely to be decided based on the appointees' loyalty to allies in the legislature (and not on their ability to deliver public services), the cost they may impose on service delivery may well be offset by the benefit they provide in terms of legislative support for policy reforms and/or longer time in office for an incumbent who is invested in the programmatic delivery of services. In general, the implications of these patronage logics for development ultimately depend on the constraints and motivations of the politicians who engage in them.

It should be clear by now that patronage strategies imply important trade-offs for politicians. First, politicians are bound by a budget constraint, and therefore bureaucratic positions dedicated to one purpose will reduce the positions and funds available for other political goals. Second, there are political trade-offs between some of these patronage logics, in that activating one of them weakens the ability to use another one. For example, the hiring of bureaucrats aligned with allies in the legislature (who are often potential opponents as well as allies) increases agency problems and makes it more difficult to use patronage for managing bureaucracies. Third and last, there are trade-offs in each of the patronage strategies politicians may engage in because the characteristics that make appointees valuable for a given strategy may, in some contexts, impose costs in other valuable dimensions. For example, the loyalty of supporters may be negatively correlated with their capacity as bureaucrats. The electoral support bought from swing voters through pre-electoral hiring may come at the cost of decreasing the motivation and of career bureaucrats. Politicians must therefore weigh their need for political support, electoral strength, and policy implementation when allocating government jobs.

Notwithstanding these caveats, these five political logics of patronage constitute a range of powerful strategies politicians may engage. The subsections below discuss the main features of each of these patronage logics, covering their rationale, when they are most likely to be used, by what type of incumbents, for what kinds of appointments, and with what consequences. Chapters 3, 4 and 5 develop the theory behind each of these logics, and illustrate how they work in practice leveraging empirical data from Brazilian municipalities.

### 2.4.1 Managing bureaucrats

Patronage is typically associated to the misallocation of jobs to “worse types” or to having bureaucrats who, because of their connections to politicians, exert less effort on the job. Contrary to this view of patronage as a strategy that changes *who gets the job*, this logic of patronage relates

to *how bureaucrats work*. The use of patronage for managing bureaucrats can, from this novel perspective, alleviate the agency problems that are pervasive in public organizations, and thus make bureaucracies more effective and accountable. Those increases in bureaucratic responsiveness can be used not only to extract rents but also to improve public service delivery.

This logic of patronage for managing bureaucrats can predominate when deciding appointments for positions of relatively high responsibility, for which incumbents want to reduce agency problems. These could be high-level leadership positions in a ministry, but could also be positions at a much lower level where bureaucrats work managing teams of front-line providers – what [Gassner and Gofen \(2018\)](#) aptly call “street-level managers.” The key here is that patronage helps the incumbent deal with principal-agent problems for key positions of responsibility in policy design and implementation, thus improving the responsiveness and accountability of the bureaucracy as a result.

Appointing political supporters to these positions of responsibility can foster bureaucratic responsiveness because, by virtue of the appointee’s shared political networks with the politician, they can be more easily monitored and sanctioned (or rewarded), and their incentives and priorities are more aligned to those of political leaders. Chapter 3 develops a theory of how patronage can, through the connections it provides between politicians and these managerial bureaucrats, improve bureaucratic effectiveness and accountability.

The increased bureaucratic responsiveness stemming from this patronage logic can be leveraged to deliver public services, to extract rents, or to do both. Therefore, the implications of this patronage logic for development depend on the extent to which the incumbent values public service delivery. A variety of reasons may make politicians value the delivery of public services, including attitudes ([Habyarimana et al., 2018](#)), the threat of electoral punishment ([Healy and Malhotra, 2013](#)), or the constraints imposed by horizontal accountability institutions like courts or prosecutors ([O’Donnell, 1998](#)). In context where some or all of these conditions are not present, this patronage logic is likely to increase rent extraction. For example, [Brierley \(2019b\)](#) finds, in a study of governance in Ghana, that when politicians are focused on extracting rents monitoring may fuel corruption.

The idea that patronage (or political appointments) can improve bureaucratic responsiveness may come as a surprise to those who study the developing world, but is less foreign to scholars focusing on the developed world. In public administration, for example, “politicization of the bureaucracy” is often seen as a resource politicians use to improve their control over policy and

implementation (Peters and Pierre, 2004; Kopecký et al., 2016; Bach and Veit, 2017). In American politics, political appointments are seen as a tool to improve policy control of federal agencies (Aberbach and Rockman, 2009; Lewis, 2011). I develop this logic within a theoretical framework of patronage that applies to both developed and developing countries, to both high-level nominations and positions of more modest responsibility like street-level managers, and in a direction that has different implications. Whereas in American politics a trade-off is commonly seen between policy control and bureaucratic performance (Moe, 1985; Lewis, 2007; Hollibaugh, 2014), in my framework it is precisely the political connections and alignment that can foster the performance of the bureaucrat.

## 2.4.2 Mobilizing voters

Voter mobilization is the patronage logic that is most clearly clientelistic and has the shortest time horizon. In this logic, jobs are allocated in the months leading to the election as a strategy to mobilize voters who may otherwise not vote for the incumbent or not mobilize in their support. This logic is clientelistic because it consists mostly of an exchange between incumbents and a subset of the electorate who are expected to mobilize electorally for them in exchange for their being employed by the government.

Using patronage to mobilize voters ahead of elections can help boost re-election prospects in multiple ways. The most obvious one is by buying votes and/or buying turnout (Gans-Morse et al., 2014) from those directly targeted with government jobs. Clientelism scholars have long debated the monitoring problems that this kind of exchange entails, and how they may be solved through a number of monitoring devices such as brokers (Stokes et al., 2013). The monitoring problem however can also be addressed indirectly by other means – for example, patronage employees may internalize the incumbent's interest since they are likely to lose the job if the government changes (Oliveros, 2020). Nonetheless, using public jobs to mobilize voters ahead of the election can also help incumbents even if employees' vote is not or cannot be monitored. For instance, voter mobilization patronage can help project an image of credibility, especially if voters expect some largesse during campaign time (Hicken and Nathan, 2020). This sort of pre-electoral mobilization may be used not only to signal commitment to those who benefit from public employment, but also to the wider group of voters who may see the government making mobilization and service delivery efforts ahead of the election (for example by having streets cleaned or buildings painted). Last but not least, engaging in this form of pre-electoral patronage can also help deter efforts from



political opponents, since incumbents have a monopoly over government jobs, a political resource that is uniquely powerful for the reasons explained in Section 2.2.

Voter mobilization patronage may be targeted to core supporters, swing voters, or both, but should in any case target poorer voters. Scholars have long debated whether clientelism strategies target core supporters –those already aligned with the incumbent and therefore most likely to vote for them– or swing supporters, namely those who are indifferent on who to vote and may vote for the opponent (Cox and McCubbins, 1986; Dixit and Londregan, 1996; Stokes, 2005; Nichter, 2008). Yıldırım and Kitschelt (2020) argue that public jobs are targeted to loyal supporters because they are long-term credible commitments, but jobs can also be short-term and revocable. Given their high visibility and the fact that they entail some public-oriented work, it could in fact make sense for incumbents to use a targeting strategy that mixes both swing and core supporters (Diaz-Cayeros et al., 2016). In either case, given the short time horizons of this patronage logic and the diminishing marginal utility of income, we should see voter mobilization patronage targeted at poorer voters (Dixit and Londregan, 1996; Stokes et al., 2013) and therefore concentrated in low-skill jobs.

The implications of this patronage logic for public service delivery and development are complex, but likely to be negative. First, voter mobilization patronage implies a loss of voter autonomy and the reversal of electoral accountability (Stokes, 2005; Stokes et al., 2013). Perhaps more importantly in the short term, this type of patronage may lead to a decrease in motivation and effort of regular bureaucrats, who see the bureaucracy expand with people hired with the main purpose of gaining votes while they struggle delivering public services, with little resources, during the rest of the year. On the other hand, if the newly hired employees are required and enabled to work in public service delivery, this expansion may have more ambivalent consequences. The net impacts are however likely to be negative in most cases, especially in the mid term given the efficiency costs and accountability disruptions that emerge from this patronage logic.

### 2.4.3 Rewarding supporters

Rewarding supporters is another form of clientelistic patronage (here the allocation of jobs is also conditional on political support), but its timing, goals, and targeting differ markedly from those in voter mobilization patronage. First, this logic should predominate after the election, not before. The promise of a job in government, for the duration of the mandate, can be a credible commitment

that incentivizes political supporters to work hard during the campaign. The period right after elections is a “natural” way for bureaucratic reshuffles, and being re-elected usually provides some legitimacy to renew and change appointments.

From the point of view of incumbents, rewarding campaign supporters serves three main functions once the election is won. First, it builds and/or maintains the incumbent’s political reputation and credibility, which is key for growing their base and for keeping it responsive. Second, it selects into the bureaucracy individuals who are politically loyal, and who may therefore engage in certain activities that other bureaucrats would not engage in. For example, with political supporters in the bureaucracy it may be easier to collect politically sensitive information, or to facilitate certain rent-extraction activities, like influencing a procurement process to benefit a political ally or providing particularistic benefits (for instance by bending certain rules in favor a given constituent who would otherwise not be able to access a public service). Appointing political supporters may also serve more positive purposes, like making bureaucracies more responsive and accountable for public service delivery, as explained in Section 2.4.1 below. Last but not least, rewarding supporters through bureaucratic appointments can help build and sustain party structures, cementing loyalty, and cultivating a cadre of party officials with public sector experience.

This use of patronage will be targeted at campaign supporters (e.g. party members, donors, low-rank election candidates, and more informal supporters), who may be placed in both low- and high-skill positions depending on their professional and political profile and experience. This use of patronage is more likely to be used by incumbents who have a concern for party building, such as incumbents with relatively weak organizations but who wish to remain competitive over repeated elections. [Geddes \(1994\)](#) for example notes that Argentinean President Juan Domingo Perón was particularly effective at using patronage to build a party, especially after a constitutional reform made it possible to run for re-election (1994, 161). Party building in post-communist European countries has also been shown to lead to expansive patronage in contexts where electoral competition was not institutionalized ([O’Dwyer, 2006](#)).

The impacts of this patronage logic on public service delivery and development are likely to be negative in the short term, but could be more ambivalent or even positive in the long term if it helps build strong parties that organize political conflicts around programmatic cleavages. Scholars have long noted the use of patronage for party building. [Weber](#) noted the importance of patronage for building and maintaining parties, even for programmatic or “ideological” ones (1922, 1398). Both [Sorauf \(1960\)](#) and [Wilson \(1961\)](#) noted the value of patronage for maintaining active and cohesive

party organizations. [Huntington](#) famously argued that the use of patronage for party building was a desirable form of corruption that “can contribute to political development by strengthening political parties” (1968, 69).<sup>16</sup> More recently, the importance of patronage for rewarding supporters and thus promoting party cohesion and internal loyalty has been studied in comparative perspective by [Kopecky et al. \(2012\)](#). Recent close-races regression discontinuity studies of Brazilian municipalities show that indeed incumbents reward campaign supporters, be it donors and previous candidates ([Colonnelli et al., 2019](#)) or party members ([Barbosa and Ferreira, 2019](#)) with positions in the bureaucracy, across all skill levels and both in temporary and civil service positions. Similar results in a similar design have been found with data from Ecuador ([Brassiolo et al., 2020](#)).<sup>17</sup>

#### 2.4.4 Tying the opponent’s hands

The third political logic of patronage that I identify is tying the opponent’s hands when voted out of office, by hiring bureaucrats in the civil service (that is, with tenure) in order to reduce the incoming administration’s leeway in hiring.<sup>18</sup> Since patronage is a powerful political tool that can be put to use for a variety of goals, reducing the opponent’s ability to use it will reduce the expected length of their stay in office. This is a markedly non-clientelistic use of patronage: while hiring here it is politically motivated, it is not based on the loyalty of the employees or any other sign of their support.

This patronage logic is perhaps the easiest to identify empirically, in that it should predominate in the period between an electoral defeat of the incumbent and actual turnover (which usually lasts

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<sup>16</sup>Huntington saw this type of patronage as a sensible form of corruption that can prevent the more serious corruption that would result from an expansion of political participation with no parties to structure it. In his own words, “for an official to award a public office in return for a contribution of work or money to a party organization is to subordinate one public interest to another, more needy, public interest. [...] Corruption is, as we have seen, a product of modernization and particularly of the expansion of political consciousness and political participation. The reduction of corruption in the long run requires the organization and structuring of that participation. Political parties are the principal institution of modern politics which can perform this function. [...] Corruption varies inversely with political organization, and to the extent that corruption builds parties, it undermines the conditions of its own existence” ([Huntington, 1968](#), 70-71).

<sup>17</sup>Government jobs are of course only one among many ways incumbents can reward their supporters. In another study of close races in Brazil, [Boas et al. \(2014\)](#) show that incumbents reward their donors with government contracts.

<sup>18</sup>In a similar vein, [Geddes](#) theorizes incumbent presidents prefer to pass civil service reforms to put their competitors at a disadvantage by blocking their access to patronage, but usually fail to get those reforms approved because they do not have the support of legislators ([1994](#), 145-146). The insight I add is that “tying the enemy’s hands” with civil service hiring can also be done once a civil service exists by simply expanding its reach, which does not usually require the cooperation of legislators.

for a few months) and uses hiring in the civil service. While other patronage logics may leverage hiring in the civil service, doing so comes with important costs. For example, it may be possible to reward supporters with positions in the civil service (for example, by tailoring a call for civil servants to the skills or profiles of supporters), but doing so risks employees becoming unresponsive or switching loyalties once they are tenured. On the other hand, for tying the opponent's hands it is essential that hires be made in the civil service, since that is the only way the opponent's discretion will be meaningfully reduced. The incumbent therefore hires civil service employees precisely because they reduce the government's discretion, knowing the opponent will be the first one to suffer the consequences.

This use of patronage in the months between an electoral defeat and the handing of political power to the winner has important implications for how we think of political turnover. We tend to think of political turnover as a key ingredient of electoral accountability, either through political selection or sanctioning of performance (Przeworski et al., 1999). Yet, scholars have generally overlooked the costs electoral accountability imposes in terms of the turnover of unelected officials (as well as elected ones), and the disruptions to public service delivery that ensue. Moreover, to the extent that it has been studied, political turnover is typically understood as a discrete moment, namely the moment when a new incumbent is sworn into office (Akhtari et al., 2018). By contrast, in Chapter 5 I advance a theory of turnover as a political process that starts on election day, and during which key political decisions are taken regarding the hiring and firing of bureaucrats. This phenomenon of incumbents taking key decisions right before leaving office has been widely studied, mostly by legal scholars, in the context of the US Presidency, particularly as it relates to so-called "midnight judges" (Turner, 1960) and "midnight regulations" (Brito and De Rugy, 2009; De Rugy and Davies, 2009), which have been studied mostly by legal scholars in the United States. My dissertation extends this logic to what could be called "midnight civil servants."

The implications of this logic of patronage for public service delivery and development are somewhat ambivalent. While this constitutes a rent-seeking use of public employment, its implications depend on what the incoming administration would have used their hiring discretion for. To the extent that the parties or political groups that tend to win elections are clientelistic, and to the extent that tenured employees are able and motivated to deliver public services, this use of patronage could be welfare-enhancing.

## 2.4.5 Anchoring coalitions

Patronage can also be used vis-à-vis political competitors in order to build and sustain legislative coalitions (or political coalitions more broadly). Many governments around the world depend on the support of legislative majorities to approve budgets, pass legislation, and even to remain in office. In those settings, appointments to bureaucratic positions can be used as a bargaining tool and as a way to make the commitment of a political alliance more credible. This patronage logic can therefore be active immediately after elections (when many alliances are being built) but also throughout the mandate, as required by the political context of the moment. This “coalitional patronage” is likely to be most important quantitatively and qualitatively when the incumbent is in a position of weakness in relation to the legislative, especially when their survival depends on legislators’ support. This could happen for example when incumbents have so little support they cannot get their budget approved, or if they risk being impeached.<sup>19</sup> This use of patronage will be targeted at individuals who are aligned not with the incumbent but with their allies in the legislature, who could be placed in low- or high-skilled jobs depending on the political bargain. This patronage logic fulfills many of the conditions for the classic definitions of clientelism (exchange conditional on political support) except that it is not a bargain between parties of unequal standing, but rather among members of the political elite who are in different branches of government.

The use of patronage for anchoring coalitions imposes significant costs for the incumbent because it allows other political actors (who are allies today but can become opponents in the near future) to leverage positions in the bureaucracy to collect useful information, accumulate administrative experience, and strengthen their electoral bases. It is precisely because government jobs are so valuable politically (for the opposition as well, if they can get them through legislative bargaining) that they can cement coalition agreements. Therefore, we should see this use of patronage for coalition management prevail only in settings where the incumbent is relatively weak with regards to the legislature. This is more likely to emerge in contexts of higher political fragmentation, especially if the formal institutional arrangements empower legislators as veto players (Tsebelis et al., 2002).

The implications of this coalitional patronage for development could be positive if the stability that is achieved allows incumbents to enact and implement laws and programs that foster public

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<sup>19</sup>A more extreme case of political survival imperatives determining the use of patronage happens when incumbents are being threatened by military coups, a scenario widely discussed by Geddes (1994) in the Latin American context.

service delivery, or if public service delivery benefits from political stability, for example through a reduction of turnover. [Arriola \(2009\)](#) for example uses data from African countries to argue that leaders leverage patronage to build and sustain political coalitions, which reduces the risk of a coup. In Brazil, patronage has been associated to the building and maintaining of coalitions in Congress to sustain Presidential mandates, through what is often called “coalitional presidentialism” ([Praça et al., 2011](#); [Lopez, 2015](#)). In Chile, where Congress is formally weak (and even legally forbidden from influencing executive appointments), individual congresspeople in the governing coalition appoint people for key bureaucratic positions, through “recommendations” ([Ferraro, 2008](#)). Here it becomes particularly important to differentiate formal and informal institutions. Appointments for office remain formally in the hands of the executive, but in this patronage logic informal arrangements allow legislators to allocate some jobs in exchange for political support.

## 2.5 How context matters

The economic, political, and regulatory environment in which politicians operate influences the patronage strategies that they use. The five political logics outlined above constitute a broad space from which politicians can build their own portfolio of patronage strategies, according to their motivations, needs, and constraints.<sup>20</sup> Therefore, thinking through these contextual features can help predict the patronage strategy or strategies that a given government will tend to use in a given point in time. The research designs used in Chapters 3, 4 and 5 are better equipped to illustrate the existence of each of the five logics and some of their implications than to engage in such predictions. Nonetheless, the analyses in the empirical chapters bring some support to some of the hypotheses contained in this section, leveraging variation in the political and economic environment across Brazilian municipalities.

### 2.5.1 Economic environment

The most frequently cited determinant of the prevalence of clientelism is economic development, and it certainly influences the uses of patronage as I have defined it here. Economic development shapes politicians’ patronage strategies along three intimately related but analytically distinct dimensions:

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<sup>20</sup>[Kitschelt and Wilkinson \(2007\)](#) advance the idea of portfolio diversification when referring to how economic development and political competition affect how parties mix programmatic and clientelistic linkage strategies.

the income of voters, the size of the economy, and the level and distribution of human development. By contrast to modernization theories, which would predict all patronage would decline with economic development, I see development as shaping the portfolio of patronage strategies.

The poorer citizens are, the more they will value government jobs –even if they are low-skill– because of the difference a stable, government salary can make in their livelihood. Therefore, the poorer citizens are, the larger return government jobs will have for the government in clientelistic exchanges. Jobs cannot be divided as flexibly as other government benefits, but if citizens are poor low-pay jobs can be enough to buy electoral and/or organizational loyalty. On the contrary, if in average citizens are relatively wealthy, it will be expensive for incumbents to use public jobs to gain their trust and responsiveness. Therefore, lower levels of income in the population make it more likely that incumbents will leverage patronage to mobilize voters and to reward supporters. The inverse relationship between income and clientelism is well established in the literature, although there is still debate as to whether it is driven by the diminishing marginal return of income and/or by the poor's larger aversion to risk (Dixit and Londregan, 1996; Kitschelt and Wilkinson, 2007; Stokes et al., 2013).<sup>21</sup> When poverty is not generalized and there is a sufficiently large middle class, there may be not only a lower demand for clientelistic patronage but also a part of the electorate that would punish it (Weitz-Shapiro, 2014). On the other hand, if the electorate (or a part thereof) demands the programmatic distribution of policies, it may at least in some sectors become particularly important to use patronage for managing bureaucracies, in order to ensure the bureaucracy's responsiveness to mandates of policy reform and implementation.

The smaller the economy in which citizens and politicians are embedded, the easier it is for politicians to build and maintain the personal linkages that sustain clientelistic exchanges central to the use of patronage for mobilizing voters and rewarding supporters. Small economies are a phenomenon of small and relatively isolated polities, be they island states<sup>22</sup> or local communities distant from urban poles, especially in the developing world. In these places, job opportunities in the private sector tend to be limited, which again increases the value given by citizens to public jobs and therefore what politicians can get in return. In cases where governments have the ability to hire many more people than private employers do, the government enjoys a position of monopsony

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<sup>21</sup>More recently there has been an emphasis on how not only poverty but also vulnerability to income shocks can sustain clientelistic exchanges (Nichter, 2018). Government jobs, however, are not as easily divisible as other government benefits and generally entail a transfer of income for at least several months. Therefore, they are not as useful to deal flexibly with income shocks.

<sup>22</sup>Veenendaal and Corbett (2020) highlight the importance of smallness for sustaining clientelism in Caribbean and Pacific states.

power in the labor market, especially for relatively high-skill labor (like teachers). In these contexts governments can therefore pay lower wages.<sup>23</sup> This further increases the return to jobs. With economic development, even small localities get integrated into large markets and networks, which should encourage the organization of interests around programmatic axes (Kitschelt and Wilkinson, 2007) and the mobilization of certain interest groups (like business) in favor of more impersonal and predictable ways of allocating public jobs and administering government (Kuo, 2018).<sup>24</sup>

The level and distribution of human capital is a final but critical way in which the economic environment shapes patronage strategies. The lower the level and the more homogeneous the distribution of human capital among the subset of the population who are potential government employees, the lower the cost of using patronage relative to other ways of allocating government jobs (e.g., centralized exams). Human capital, as accumulated most typically through formal schooling, has a direct impact on workers' productivity (Duflo, 2001). Therefore, human capital matters not only because it can increase citizens' incomes and economic growth, but also because it can change the calculations of politicians who value both loyalty and performance. Scholars often assume a trade-off between loyalty and performance (Moe, 1985; Geddes, 1994; Hollibaugh, 2014), such that incumbents would need to choose between loyal but incompetent bureaucrats or competent but unresponsive ones. That assumption, however, is less likely to hold in contexts where human capital is generally low, as is the case in developing contexts. In those settings, non-patronage appointees may not outperform patronage ones sufficiently to compensate for the loss in loyalty or political responsiveness, and it therefore may make more sense to engage in patronage for mobilizing voters, rewarding supporters, and managing bureaucrats.<sup>25</sup>

## 2.5.2 Political environment

The political environment critically shapes politicians' patronage strategies, through three main avenues: democracy, levels of political competition, and political institutions that weaken the

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<sup>23</sup>Azar et al. (2019) measure "labor market concentration" (i.e. the extent to which a few firms dominate hiring) by geographic-occupational areas in the US and they find a strong negative correlation with wages.

<sup>24</sup>Scholars like Stokes et al. (2013) and Grindle (2012) note that patronage did not decay with urban growth in the United States during the 19th century and that in fact patronage flourished precisely in urban centers like New York. A critical factor to explain this however seems the high concentrations of immigrant communities in American cities at the time. In fact, ethnic cleavages are often found to be important for clientelistic exchanges around the world (Johnston, 1979; Kitschelt and Wilkinson, 2007; Chandra, 2007).

<sup>25</sup>Similarly, in places with high and relatively homogeneous levels of human capital (such as Scandinavia) the cost of using patronage for managing bureaucrats may be particularly low.



authority of executive leaders. These three factors shape incumbents' incentives to use some patronage strategies over others.

Patronage strategies are fundamentally different in democracies, where key political offices are allocated through open and fair elections, than in non-democracies – where they are not. It is probably not coincidental that the most famous patronage machines, those of American cities in the 19th century, coincide with a period of franchise extension. US President Andrew Jackson and his followers presented patronage as a democratic cause, since the norm before them was for government positions to be given (uncompetitively) to members of the elite ([Grindle, 2012](#), 63). In a sense, then, there is an intimate relationship between democracy and patronage. But whereas some of the political logics of patronage are intimately related to elections and the incumbent's fear or prospect of electoral turnover (mobilizing voters and tying the opponent's hands), others are not. In fact, rewarding (non-electoral) supporters, sustaining coalitions (legislative or otherwise) and managing bureaucrats is as important to authoritarian rulers as it is to democratic ones, if not more ([Gandhi, 2008](#); [Svolik, 2012](#)). Authoritarian rulers generally have longer time horizons and are therefore more likely to engage in patronage for cementing coalitions and managing bureaucrats. On the other hand, democratic rulers whose survival is immediately threatened will have very short time horizons and tend to concentrate their use of patronage on managing a coalition that can guarantee their survival, perhaps combined with the mobilization of supporters in the street. The full range of patronage strategies is therefore most likely to be used in democratic settings where incumbents have medium time horizons, since they will be concerned with the three fundamental tasks of government: staying in office, enacting policy, and implementing policy.

In democratic settings, the higher the level of political competition, the most pressing electoral mobilization and partisan organization may be for incumbents and thus the more likely they will be to use patronage to mobilize voters and to reward supporters. Competition is often seen as enhancing clientelism, especially at low levels of economic development ([Kitschelt and Wilkinson, 2007](#); [Weitz-Shapiro, 2014](#)).<sup>26</sup> In more competitive places the temptation to tie the hands of the opponent before leaving office will be larger, and therefore the use of patronage for tying the opponent's hands will be more likely. In contexts of very high competition or where the stakes of competition are higher, these uses of patronage may trump the governance-oriented uses of patronage for anchoring coalitions and for managing bureaucrats.

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<sup>26</sup>This logic however contrasts with that of [O'Dwyer \(2006\)](#), who in a study of patronage in post-communist European countries argues that political competition constrains patronage when it is both robust and institutionalized – but fuels it when it is not.

Last but not least, political institutions that weaken executive leaders vis-à-vis the legislative and/or their own party will make it much more likely that they use patronage for anchoring coalitions. An open-list proportional representation electoral system, a legislature that has significant influence over the executive's ability to enact and implement policy, and/or a fragmented party are all factors that will call for more coalitional patronage. Brazilian presidents after the transition to democracy, who led small parties and needed to build and sustain coalitions in a fragmented and undisciplined party system are an extreme example (Geddes, 1994, 137). Most incumbents who do not control a majority of a legislature that has effective veto power will be tempted to use patronage as a tool for anchoring coalitions. Concessions can of course also be made in terms of policy or pork, but jobs are particularly powerful to build and sustain coalitions because of their unique political potential, as explained in Section 2.2.

### 2.5.3 Regulatory environment

Regulations about the hiring of bureaucrats constitute a third but critical contextual feature that shapes politicians' use of the five logics of patronage. There are two relevant dimensions to the regulatory environment for the politics of patronage. First, regulations that determine the size of the bureaucracy and, in so doing, expand or contract the scope of potential patronage. Second, regulations that determine the extent to which politicians may formally or informally influence the appointment of those bureaucrats.

A first, fundamental dimension of the regulatory environment is the scope for hiring, namely the legal and fiscal capacity of a given government to hire its own bureaucrats, regardless of the selection method used to do so. There is wide variation on the size of bureaucracies both within and across countries. This variation responds to factors as varied as the level of economic development, political choices about the size of government or the state's involvement in the economy, and institutional constraints like constitutional provisions about decentralization.

A second dimension of the regulatory environment has to do with how those bureaucrats are to be selected. Here the received wisdom would argue that civil service systems end patronage, by establishing purely meritocratic and rule-bound selection procedures. This dissertation shows that civil service systems constrain politicians' patronage strategies, but do so in ways that are less complete and more complex than is usually recognized. Civil service can also enable certain uses of patronage, especially through the logic of tying the opponent's hands, that take advantage of

the discretion over how many people to hire and when. Political discretion over hiring is, in reality, never absolute, and neither is it ever completely eliminated. Politicians adapt and respond to any constraints imposed upon them, especially when they relate to something so central to their *raison d'être*. Constraints on political discretion over the hiring and firing of bureaucrats are as ubiquitous as they are misunderstood. Since they are critical to the choice of patronage strategies, the next Section discusses how each of the main anti-patronage policies is supposed to work in their idealized form, varies in implementation and enforcement, and is undermined by politicians themselves.

## **2.6 Common policy solutions for patronage: Promises and pitfalls**

International organizations, civil society organizations, and political entrepreneurs have long sought to constrain patronage through a variety of policy tools, as a way to limit corruption and rent-seeking and to foster development. The most common anti-patronage policy tools are selecting bureaucrats through civil service systems, selecting key bureaucrats through elections, and establishing legal constraints on hiring (especially around elections). All these policy solutions have in common, at base, a notion of political discretion in hiring being detrimental for development. Therefore, in one way or another, these three strategies seek to limit the negative consequences of patronage by reducing political discretion in the appointment of bureaucrats and, so the logic goes, having bureaucracies that deliver better public services to citizens.

While these three policy solutions (civil service systems, bureaucratic elections, and legal constraints on hiring) all have powerful rationales, their success depends on critical assumptions that are rarely examined. The three strategies make certain assumptions about how public organizations work. To the extent that those assumptions do not hold in reality, the practical implications of policies may go counter the expected effects. These policy prescriptions also assume that they will be fully implemented. In practice, however, implementation may face multiple obstacles with serious consequences for the policy's effectiveness. Perhaps most importantly, all three policy solutions assume that politicians respond to the new constraints by limiting their use of patronage. In reality, though, politicians' responses may widely vary, and their compensating strategies may create new problems, sometimes potentially more serious ones than those created initially by patronage.

The extent to which these assumptions hold is an empirical question that must be answered in each specific setting where one of these anti-patronage policies is to be used. It is nonetheless useful to unpack the logic and the assumptions of each of them, and how they can fail in practice.

This section briefly discusses the rationale and potential problems of civil service systems, elections for key bureaucratic positions, and legal constraints on hiring around elections. While there are multiple goals these policies may pursue, the focus here is on their effectiveness in constraining patronage and boosting bureaucratic effectiveness. Table 2.4 synthesizes their rationale, their potential implementation problems, and their potential problems under perfect implementation, including undesirable general equilibrium effects stemming from politicians' strategic responses.

Table 2.4: Overview of common anti-patronage policies

Anti-patronage policy	How the policy promises to reduce patronage	How the policy's implementation can fail	How the policy can fail even without implementation problems
<b>Civil service systems</b>	Reducing politicians' discretion in hiring. Selecting better bureaucrats through performance-based exams. High barriers for firing. Strong norms for bureaucratic performance.	Fraud in the selection process. Low coverage of the civil service system	Difficulties for motivating bureaucrats or having them pursue certain policy goals. Difficulties for selecting highly trained, self-driven bureaucrats because of supply constraints. Political manipulation remains possible through decisions on how many people to hire and when. Political pressures can be applied through transfers. Political efforts can be redirected through other parts of the bureaucracy.
<b>Elections for key bureaucratic positions</b>	Reducing politicians' discretion in hiring for key positions. Selecting bureaucrats who are responsive to local communities.	Low electoral competition and participation	Politicization of appointments through means other than patronage. Perverse accountability dynamics (e.g. if elections are captured).
<b>Legal constraints on hiring</b>	Reducing politicians' discretion in hiring in critical moments, especially around elections when patronage temptations may be higher	Compliance failures.	Rigidities in hiring may undermine bureaucratic responsiveness. Unsmoothing of hiring. Patronage may be displaced in time, rather than eliminated. Politicians may choose to signal through other, more costly means.

Civil service systems are, by far, the most commonly cited solution to patronage. Civil service systems promise to eliminate the political uses of public employment through the establishment of objective, performance-based selection rules followed by life appointments of the best-performing candidates. Bureaucratic performance is ensured, so the logic goes, by the commitment of high-ability types who are driven by strong bureaucratic norms and who work free of political pressures

motivated by a lifelong career in specialized public service. In the words of one leading contribution to the view of civil service as a development-enhancing institution, “meritocratic recruitment and predictable career ladders should help structure the incentives of individuals in a way that enhances the ability of the organizations they manage to effectively pursue long-term goals” (Evans and Rauch, 1999, 752).

While the rationale in favor of civil service systems is powerful and there is empirical evidence to support it (Ornaghi, 2019), there are two important ways in which the implementation of civil service systems can fall short of fixing the problems of patronage. First, meritocratic selection processes are not immune to fraud. In fact, selection processes may be manipulated through a variety of ways, both before the test (for example by leaking answer sheets for a multiple choice tests to a subset of the candidates, or by appointing biased examiner who will favor preferred candidates) and after the test (for example by inserting certain candidates in the list of those approved, or making an exam or part of it invalid if it does not favor preferred candidates). Anecdotes from around the developing world demonstrate that fraud during the selection stage is a real possibility in many settings. Second, civil service systems can also fail to constrain patronage when they are used only for a small portion of the bureaucracy, or for a subset of the bureaucracy that, if large, is qualitatively less relevant (e.g., clerk positions). Research on the causes and consequences of civil service systems often focus on the passage of civil service reforms (Geddes, 1994; Ornaghi, 2019), but once they are passed their breadth is sometimes limited in practice. In most cases, even ambitious civil service reforms allow for significant numbers of government jobs to be allocated through temporary contracts (i.e., outside the civil service). Therefore, civil service systems’ ability to constrain political discretion in the hiring of bureaucrats is only as valid as is their scope.

Even with perfect implementation, civil service systems have a number of weaknesses as policy solutions for patronage. First, by increasing the autonomy of bureaucrats (who are appointed for life and, sometimes after a probationary period, are in practice very hard to dismiss), civil service systems can make it very hard to keep bureaucrats motivated and committed to solving public problems. Second, meritocratic recruitment into tenured jobs will not necessarily lead to the selection of highly trained candidates – in many context there simply is not a sufficient level of human capital for those candidates to exist in sufficient numbers. While higher wages can help attracting more able candidates in undesirable locations (Dal Bó et al., 2013), many developing contexts are characterized by both low levels of human capital and tighter financial constraints that bar the use of such incentives. Third, while civil service systems, when well implemented, constrain politicians’ discretion on *who* to hire, they do not significantly constrain their discretion

in *how many* to hire and *when* to do so. The numbers and timing of hiring are critical dimensions of human resources management in any organization, including public ones, and they can be leveraged politically even in a civil service system, for example by hiring more people ahead of elections.

In practice, once civil servants are hired they are not necessarily free from political pressures. While they cannot easily be demoted, they can certainly be transferred to other, less desirable positions. Transfers are therefore useful tools for exercising political pressure on civil servants (Iyer and Mani, 2012), and even when Weberian protections are strong politicians can retain significant control over the careers of civil servants (Dahlström and Lapuente, 2017). Finally, even with well implemented and wide-ranging civil service systems may lead to politicians diverting their rent-seeking efforts through other avenues where their actions are less visible and accountability is less likely. For example, Ujhelyi (2014) reports that the adoption of civil service system in US states led to government spending to be redirected from state bureaucracies to local governments. In Brazil and other settings, constraints on the hiring of bureaucrats are one of the main reasons behind the subcontracting of public service delivery to firms or other private organizations (such that the government appears to contract services rather than hire people).

Selecting bureaucrats through election is another strategy that is sometimes used to constrain patronage. In the United States, positions as diverse as sheriffs, school superintendents, prosecutors, and judges are sometimes allocated through popular election. In Brazil, school directors are sometimes elected by a mix of parents, students, teachers, and other school personnel. Part of the rationale for using elections to select bureaucrats is that taking the decision away from politicians and putting in “people’s hands” will boost bureaucratic performance and accountability. While there are many reasons to believe that elections can in fact promote good outcomes, there is good reason to be skeptic as well. First, if elections for national office often fail to promote accountability because of information and behavioral obstacles (Achen and Bartels, 2017), these problems are likely to be larger in these elections where stakes are lower and campaigns are less visible. Second, elections for key bureaucratic positions are much more likely to suffer from low levels of electoral competition and/or participation, thus weakening the ability of “the community” to discipline those who are elected. In fact, these elections may be prone to capture by interest groups (Anzia, 2011). Elected bureaucrats may, as a result, take decisions that exacerbate inequality (Sances, 2016) or lead to other undesirable outcomes.

On the other hand, if elections take place in environments of high information, high competition, and high participation, they may lead not to the breaking of political influence on appointments

but to its intensification through other means. If elections are highly contested and visible, it may be harder for politicians in the executive to control the outcome but not because it is in the hands of community members but because other powerful political actors (like opposition parties or interest groups) are in the race. This politicization of elections for bureaucrats may lead to perverse accountability dynamics, making elected bureaucrats not responsive to service users, nor to the public officials who manage government agencies, but to third-party actors who may capture elections.

Establishing legal limits on the numbers and timing of hires is another common tool to constrain patronage, particularly around elections. Countries like the Philippines, Colombia, and Brazil impose constraints on governments' discretion to hire in the period immediately preceding an election as a strategy to constrain the use of patronage for electioneering. The logic here is to simply "ban patronage" in a period when it is believed to be particularly tempting for politicians and/or particularly harmful for citizen welfare. In practice, however, it is not because a limit is enshrined in the law that it is followed in practice – compliance necessitates a system of monitoring and enforcement that is not always present or not fully operative. If enforcement and compliance are the norm, legal constraints on hiring around elections may create their own problems. First, politicians may simply inflate the bureaucracy earlier than they would otherwise, in anticipation of the period when they are not allowed to do so. Second, even if they do not engage in this behavior, the un-smoothing of hiring introduces rigidities in human resources management, which may have a detrimental effect on public service delivery especially if the ban is in effect for a particularly long time. Last but not least, if politicians cannot use government jobs as an electoral tool right before the election, they may choose to manipulate other budget items, creating new distortions.

To sum up, while civil service systems, elections for key bureaucratic positions, and legal constraints on hiring are three common and powerful policy tools used to constrain patronage, gaps in their implementation, features of the context in which they are applied, and the strategies through which politicians adapt and respond to the new constraints may all lead to undesirable consequences. It is therefore essential to think through the assumptions these policy solutions make (often implicitly) and the extent to which they apply in different contexts, and to examine politicians' strategic responses to them. The following chapters present empirical studies of different uses of patronage, while at the same time addressing some of the limitations of anti-patronage policies discussed here.

## 2.7 Summary of the theory

This chapter has provided a theoretical framework distinguishing five political logics or rationales for patronage. Contrary to the common view of patronage as merely the clientelistic hiring of supporters, this dissertation advances an understanding of patronage as a versatile political resource that can be put to different uses, not all of them detrimental for development.

Section 2.1 conceptualized patronage as the hiring and firing of bureaucrats based, at least partly, on political criteria. This contrasts to more established definitions of patronage as a social relationship of exchange between parties of unequal parties, as clientelism, or as clientelism in the allocation of public jobs. Patronage, as defined in this chapter, includes the clientelistic use of public employment but covers also other non-clientelistic uses of the government payroll. In fact, the definition advanced in this chapter remains agnostic about the purpose of patronage, its scale, and its normative value, and draws attention to the specific hiring and firing decisions politicians make and the different political strategies (clientelistic or not) that they support.

Section 2.2 discussed why government jobs are unlike any other resource at the hands of incumbent politicians. Whereas clientelism scholars often consider public jobs together with other types of government benefits (such as cash, food, or preferential access to services), this dissertation embraces the uniqueness of jobs as a political resource. Jobs are highly valued by citizens (since they provide liquidity over time), targetable, revokable (unless they are tenured), and visible to third parties. These characteristics make jobs valuable not only to sustain clientelistic strategies (which always face a double credibility problem that jobs can help solve), but also to boost responsiveness and accountability in other sorts of exchanges. Critically, the section argued, jobs come with the obligation to work for the public good (at least in theory). Politicians are likely to be concerned with the activities bureaucrats perform (be them in public service delivery, rent extraction, or both) and so should we.

Section 2.2 considered the normative dimension of patronage. It argued that the established theories of bureaucratic governance tend to represent bureaucrats and politicians in too Manichean terms (where bureaucrats are either Weberian heroes or indolent agents), and to equate patronage with corruption. The section argued for a more nuanced approach to bureaucratic governance, in two levels. First, engaging with a more complex view of state agents as actors who have a variety of concerns, which may often combine extracting rents and improving the lives of people in their community. Second, acknowledging that both patronage systems and civil service systems have



their own tensions and paradoxes, and that a critical assessment of their relative strengths and weaknesses can help us better comprehend politicians' choices and the outcomes we observe.

Section 2.4 distinguished and described five distinct political logics of patronage: managing bureaucrats, mobilizing voters, rewarding supporters, tying the opponent's hands, and anchoring coalitions. Each of them has a distinct rationale, entails different observable employment patterns, has distinct implications for public service delivery and development, and poses different policy challenges. By differentiating these logics, it is easier to see that patronage is central to the exercise of political power, since it can help with three fundamental tasks all incumbents are concerned with, namely staying in office, enacting policy, and implementing policy.

Section 2.5 discussed how key features of the economic, political, and regulatory environment constrain the use politicians make of patronage. Economic development shapes politicians' patronage strategies through three mechanisms: the income of voters, the size of the economy, and the level and distribution of human development. These factors influence the relative value of government jobs for citizens, and the relative benefits and costs of patronage for politicians. In the political sphere, democracy, levels of political competition, and political institutions that weaken the authority of executive leaders determine the relative importance of some logics over others. Finally, regulations about the hiring of bureaucrats constrain patronage strategies, in two ways. First, regulations that determine the legal and fiscal capacity of a government to hire its own bureaucrats, regardless of the selection method, dictate the scope of patronage. Second, patronage strategies are constrained by regulations about how bureaucrats are to be selected.

Section 2.6 questioned the received wisdom that common policies restricting politicians' discretion in hiring, including civil service systems, legal constraints on hiring around elections, and holding elections for key bureaucratic positions, are always effective at containing patronage. While these policy solutions have powerful rationales, in practice gaps in their implementation and the strategic responses of politicians to the constraints they impose may lead to undesirable consequences.

The following chapters present three separate studies of different uses of patronage and their effect on public service delivery and development, leveraging data on Brazilian municipal governments. Each of them illustrates one or two of the logics of patronage theorized in this chapter, and draws attention to the limitations of some of the most common anti-patronage policies. While other contexts may not exhibit the same range of variation in patronage strategies found in Brazil

(for instance because economic development makes clientelistic strategies excessively expensive for politicians), these studies have implications for the study and improvement of bureaucratic governance both in less and more developed settings.

## Chapter 3

### Patronage for performance:

### How governments use patronage to manage bureaucrats and how it can improve public service delivery

In contrast to the common view of patronage as rent seeking, this Chapter presents a theory of how and when patronage can enhance bureaucratic accountability and effectiveness. I use bureaucratic *accountability* to refer to bureaucrats' responsiveness to the demands of their principals (politicians, senior officials, and upper-level bureaucrats), and their career paths being affected by it. By bureaucratic *effectiveness* I mean bureaucrats' success at delivering public services and improving policy outcomes within their area of competency. I advance a view of patronage as a governance technology that, thanks to the social and political connections between bureaucrats and politicians, facilitates bureaucratic accountability and effectiveness. In particular, I argue that patronage gives bureaucrats access to material and immaterial resources, provides monitoring technology to politicians, facilitates the application of sanctions and rewards, aligns priorities and incentives, and increases mutual trust. In certain contexts, patronage can improve public service delivery and citizen welfare by making bureaucrats more accountable and effective.<sup>1</sup>

My argument is not that patronage is universally good, or that it comes with no costs. The governance technology provided by patronage can be mobilized for rent extraction, public service delivery, or both. The costs of patronage have long been recognized ([Pollock, 1937](#)), and we have good quasi-experimental evidence of how patronage can distort the allocation of public jobs and disincentivize bureaucratic effort and performance ([Xu, 2018](#); [Colonnelli et al., 2019](#); [Barbosa and](#)

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<sup>1</sup>My argument differs from that of [Voth and Xu \(2019\)](#), who argue that patronage can improve selection when appointments are based on merit. My focus is on appointments based on political criteria.

Ferreira, 2019). Beyond these long-noted costs of patronage for bureaucrat selection and effort, the theory and evidence I offer in this chapter suggest other channels through which patronage can enhance rent extraction, related less to who is inducted into the bureaucracy and how much they work, and more to *how* they work. This governance technology, however, can be used not only to extract rents, but also to deliver better public services. In this chapter I focus on these often overlooked benefits of patronage, and offer a theory of the conditions under which they are most likely to outweigh the costs.

The net benefits of patronage are more likely to be positive in contexts where there are no easy substitutes for this governance technology. This is often the case in developing contexts, and in particular in poor and small localities, with dire financial constraints, small labor markets, and limited human capital. In these settings, the competitive, merit-based recruitment of bureaucrats is less likely to be sufficient for selecting and motivating effective bureaucrats. The benefits of patronage are especially important among “street-level managers” (Gassner and Gofen, 2018), namely bureaucrats like school directors<sup>2</sup> or health clinic managers who lead public service delivery units throughout the territory, occupying a critical position in between senior officials and front-line providers. The effectiveness of these managers, especially in transaction-intensive services like healthcare and education, depends to a large extent on their ability to motivate and coordinate street-level employees and to align their work with both managerial and citizen demands. These are two tasks that political appointments and connections facilitate. A last but critical scope condition for the governance technology of patronage to be beneficial is that politicians value at least partly the delivery of public services, something that may hold in contexts with electoral accountability and strong oversight institutions.

The argument that patronage is beneficial for service delivery is not completely new, and builds on insights from political science, economics, and public administration. Previous research in political science has acknowledged the ambivalence of patronage and recognized its beneficial uses for party building (Sorauf, 1960; Huntington, 1968), integration of isolated communities into the nation (Weingrod, 1968), interest aggregation (Scott, 1969), political stability (Arriola, 2009), and state building (Grindle, 2012). In public administration there is a long tradition of research on the politicization of the bureaucracy in high-income countries, where politicization is often seen as a resource politicians use to improve their control over policy and implementation (Peters and Pierre, 2004; Kopecký et al., 2016; Bach and Veit, 2017) and to build party networks (Kopecký et al., 2012). The use of political appointments to increase policy control of agencies has been most thor-

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<sup>2</sup>By directors I refer to school leaders, also called principals, headmasters, or headteachers.

oughly studied in the case of US Presidential appointments (Aberbach and Rockman, 2009; Lewis, 2011). In this tradition, a trade-off is commonly theorized between policy control and bureaucratic performance (Moe, 1985; Lewis, 2007, 2008; Hollibaugh, 2014). Finally, in economics there is some consideration of the theoretical possibility that patronage may improve politicians' ability to deal with selection and agency problems, although no empirical evidence has been uncovered to support this idea (Xu, 2018; Colonnelli et al., 2019). I build on these contributions to offer a theory that links patronage to public service delivery and to development outcomes, specifying testable mechanisms and scope conditions. My argument contrasts with the line of thought in American politics and economics, in that patronage may help not only increase control or decrease agency losses, but also enhance bureaucrats' ability to do their job. Empirically, the chapter contributes with causally identified evidence of the benefits of patronage.

I combine quasi-experiments, surveys, and interviews to empirically study patronage and its effects on bureaucratic effectiveness and accountability. I focus on municipal governments in Brazil, a data-rich environment where political appointments coexist with other modes for bureaucratic selection. First, I present results from two quasi-experimental studies leveraging administrative data of municipal schools in the whole country. A difference-in-discontinuities (combining a difference-in-differences and a regression discontinuity) shows that when politically appointed school directors lose their connections to the local government (because of an electoral defeat of the mayor who appointed them) the school experiences a drop in its quality (measured through students' academic performance), when compared to schools with un-appointed directors. This demonstrates that the connections that patronage facilitates increase bureaucratic effectiveness. A separate regression discontinuity design examines whether the performance of politically appointed bureaucrats affects their job security. If my theory is correct, we would expect to see politicians holding school directors accountable for their performance. This is exactly what the design uncovers: politically appointed school directors who meet their target in a highly visible school quality metric are less likely to be replaced, but meeting the target has no effect on the turnover of un-appointed school directors. This shows that patronage can enhance bureaucratic accountability.

I use two original surveys in the Brazilian state of Rio Grande do Norte to document empirically the mechanisms through which patronage can enhance bureaucratic effectiveness and accountability. First, I use a face-to-face survey of 926 street-level managers (school directors, clinic managers, and social assistance center coordinators) representative of urban areas in all but the largest municipalities of that state. Observational regressions show that appointed bureaucrats have more frequent contacts, higher levels of trust, and better alignment with politicians than un-appointed

bureaucrats. A conjoint experiment embedded in the survey also shows that managers expect those who are politically appointed or connected to communicate better with the government, to be more responsive to its demands, and to be more effective at raising funds from it. These results are corroborated by similar findings in a separate, online survey of 755 local politicians. Politicians perceive bureaucrats with political connections as more responsive, better at communicating with them, and more likely to exert more effort.

Last but not least, I used in-depth interviews to understand the informal institutions of bureaucratic politics in Brazilian local governments, develop hypotheses, and probe mechanisms. Over 18 months of fieldwork, I conducted 121 in-depth interviews with bureaucrats, politicians, and anti-corruption actors (such as auditors and prosecutors) in 45 municipalities in 7 states across 3 different regions of Brazil. Specific accounts from local actors in widely diverging contexts help understand how appointments work in practice, and what the costs and benefits of patronage are.

The finding that political appointments and connections can be beneficial for bureaucratic accountability and effectiveness has important implications for research in political science, economics, and public administration. First, the chapter contributes to classical and emerging debates on bureaucratic politics and the so-called personnel economics of the state (Finan et al., 2016), and opens up new ways of understanding and connecting some of its recent empirical findings. Second, the chapter helps reconcile the standard view of patronage as rent-seeking with other views linking patronage to political development. Patronage can serve both rent-seeking and public service delivery projects precisely because of the governance technology it provides. This opens new avenues of research on the conditions under which the costs or the benefits are likely to dominate, and connects the literature on patronage to the literature on the benefits of connections in both public and private organizations (Schneider, 1991; Khwaja and Mian, 2005; Bandiera et al., 2009; Brollo and Nannicini, 2012; Baldwin, 2013; Boas et al., 2014; Tsai and Xu, 2018). Finally, the chapter advances our understanding of the mechanisms through which political appointments may facilitate policy control and implementation, and thus helps bridge the gap between the comparative politics research on patronage in developing contexts, on one hand, and the public administration and American politics research on political appointments in high-income countries, on the other.

The chapter also suggests some implications for policy makers working on public sector reform. The results presented here on the overlooked benefits of patronage imply that reforms aimed at insulating local bureaucrats from politicians can in some contexts have detrimental effects on service delivery, at least in the short term and when not preceded by significant increases in human capital

that would foster the performance of more autonomous bureaucrats. In this, the chapter contributes to an emerging literature on the costs of anti-corruption strategies (Ujhelyi, 2014; Lichand et al., 2017; Gerardino et al., 2017; Wang, 2019). Rather than reducing politician discretion in the appointment of bureaucrats, the findings suggest three alternative and complementary avenues for improving service delivery. First, establishing formal and informal incentives for politicians to use their discretion, local knowledge, and local governance structures for the improvement of service delivery. Second, providing regular, credible, and visible measures of bureaucratic performance in order to ease the information constraints of politicians, bureaucrats, and citizens. Last, investing in the management skills of street-level managers, regardless of their appointment mode.

The rest of the chapter proceeds as follows. Section 3.1 presents my theory of patronage as governance technology, and contrasts it with classical and recent research on bureaucratic politics. Section 3.2 discusses the scope conditions of the argument. Section 3.4 presents empirical evidence from interviews with and surveys of bureaucrats and politicians. Sections 3.5 and 3.6 present evidence from two quasi-experiments in support of the theory. Section 3.7 concludes by summarizing the findings and discussing their implications.

### 3.1 How patronage can help governance

The political appointment of bureaucrats is usually seen as a clientelistic, rent-seeking strategy. Scholars of clientelism have long studied the critical role that jobs play in clientelistic equilibria (Wilson, 1961; Chubb, 1982; Auyero, 2001; Golden, 2003; Calvo and Murillo, 2004; Folke et al., 2011; Stokes et al., 2013). In fact, jobs may play a unique role in clientelistic arrangements since they constitute a targetable, credible, and reversible method for redistribution (Robinson and Verdier, 2013). Under this light, patronage is seen as hurting development, through mechanisms like the misallocation of public jobs (Xu, 2018) or reductions in bureaucratic effort (Callen et al., 2018).

Both Weberian and principal-agent models of public bureaucracies tend to see political connections between bureaucrats and politicians as detrimental for development, either because they hinder bureaucratic autonomy or because they limit politicians' ability to hold them accountable for their performance on the job. In the Weberian paradigm, it is precisely bureaucracies' isolation from political intervention, together with bureaucrats' vocation and professional norms, that ensures bureaucratic effectiveness (Weber, 1922; Johnson, 1982; Evans and Rauch, 1999; Carpenter, 2001;

Cingolani et al., 2015; Dahlström and Lapuente, 2017). Implicit in this paradigm is the assumption that politicians' interventions in the bureaucracy are oriented towards short-term political goals that are detrimental to development, if not towards mere rent extraction, as opposed to the long-term, development-enhancing actions of technical and capable bureaucrats.

The principal-agent paradigm, on the other hand, understands the relationship between bureaucrats and politicians through the lens of microeconomic theory. In the classic principal-agent problem, politicians and bureaucrats are seen as parties to a contract where politicians delegate tasks to bureaucrats (Tullock, 1967; Niskanen, 1971; Banerjee, 1997; Gailmard and Patty, 2012; Khemani et al., 2016). The principal-agent paradigm thus assumes a strict separation of roles between the two parties, with politicians seen as able and willing to foster better outcomes through interventions in the bureaucracy. In contrast to the Weberian paradigm, here it is bureaucrats who are seen through a pessimistic lens. While founded on different theoretical assumptions, both models prescribe a separation between bureaucrats and politicians. In contrast, I argue that, at least in some contexts, political connections between them can be beneficial for development.

In contrast to these classical models of bureaucrat-politician relationships, while building on some of their insights, I advance a theory of when and how patronage can be beneficial for development. I start by proposing the concept of *upward embeddedness*, namely bureaucrats' political and social connections to politicians. The concepts of embeddedness (Granovetter, 1985) and embedded autonomy (Evans, 1995) are often used to describe bureaucrats' relations to local communities and how they can foster government effectiveness (Evans, 1995; Tsai, 2007; Bhavnani and Lee, 2018). Applying the concept of embeddedness "upward" (i.e., in relation to politicians instead of societal actors) enables a more positive view of bureaucrats' political connections than existing models of bureaucratic politics allow. It also helps integrate into a single framework a range of social and political connections within bureaucracies, including those based on partisanship (Grindle, 2012), family (Fafchamps and Labonne, 2017), ethnicity (Vanden Eynde et al., 2018) and membership in elite groups (Xu, 2018).

In essence, I argue that political appointments and/or connections make bureaucrats upwardly embedded, which provides a governance technology that can be beneficial for both bureaucrats and the politicians who oversee them. Depending on how this technology is used, patronage can enhance rent seeking and/or public service delivery. Patronage increases bureaucrats' access to material and immaterial resources, provides monitoring technology to politicians, facilitates the application of sanctions and rewards, aligns priorities and incentives, and increases mutual trust. I



develop each of these effects below, discussing their relevance for the governance of bureaucracies.

First, bureaucrats with upward embeddedness have enhanced access to political leaders and can more easily obtain *material resources* for public service delivery, as well as *immaterial resources* like legitimacy and authority, which help mobilize and coordinate other bureaucrats. This facilitates their effectiveness at their job. Second, upward embeddedness facilitates the *monitoring* of bureaucrats by politicians and reduces information asymmetries, thanks to shared political and social networks. Upward embeddedness therefore facilitates the oversight of bureaucrats, which has been shown to be a key ingredient for government effectiveness (Gulzar and Pasquale, 2017; Raffler, 2019).<sup>3</sup> Upward embeddedness also enhances bureaucrats' accountability to politicians, by facilitating both *formal and informal sanctions and rewards*. This motivates bureaucrats to exert more effort, and makes them more responsive to politicians' demands. Political appointees are usually hired at will, which makes it much easier to sanction bad performers (through firing) and reward good performers (through promotions). Transfers can be used for both sanctions and rewards (Iyer and Mani, 2012; Khan et al., 2019), and career incentives and extrinsic immaterial rewards can improve the effectiveness of bureaucrats at delivering public services (Ashraf et al., 2014, 2018; Bertrand et al., 2019). Informal sanctions and rewards are also enhanced by upward embeddedness, thanks to shared social and political networks.

By virtue of actors' common political background and shared networks, upward embeddedness fosters the *alignment of priorities and values* between bureaucrats and politicians. Bureaucrats often operate in highly complex environments that require them to multi-task and to negotiate contradictory priorities from different societal actors (Lipsky, 1980; Zacka, 2017; Dasgupta and Kapur, 2019). In such challenging environments, alignment of bureaucrats' and politicians' priorities may facilitate implementation and improve service delivery. In fact, alignment has long been recognized as a driver of organizations' performance in the management literature (Biggs et al., 2014), and the importance of collective choice for policy implementation has recently been highlighted in political science (Williams, 2017; Gottlieb and Kosec, 2019). Upward embeddedness also works by *aligning the the incentives* of bureaucrats and politicians, given their shared fate. Unlike civil service bureaucrats, political appointees are usually fired after a government change, which aligns their incentives to the incumbent's. Recent research has shown that Indian bureaucrats respond to the dynamic incentives used by politicians when their re-election prospects are more certain (Nath, 2016), and Argentinean patronage employees internalize the incumbent's incentives

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<sup>3</sup>Brierley (2019b) on the other hand finds that when politicians are focused on extracting rents monitoring may fuel corruption. This contrast illustrates the logic of my theory of patronage as technology.

for re-election (Oliveros, 2020).<sup>4</sup> Finally, and largely due to the shared political and social networks and the alignment of priorities and incentives, upward embeddedness fosters *mutual trust* between bureaucrats and politicians. Abundant evidence from psychology shows that trust has beneficial impacts for organizations, which work through multiple mechanisms like lower transaction costs and improved compliance (Kramer, 1999; Dirks and Ferrin, 2002). Together with the alignment of priorities and incentives, trust may also decrease the need for monitoring.

To sum up, political appointments and connections foster bureaucrats' upward embeddedness, which provides a number of governance resources, namely access to material and immaterial resources, monitoring technology, better ability to apply sanctions and rewards, alignment of priorities and incentives, and increased trust. There is however an inherent ambivalence in the governance technology that patronage provides, since it can be mobilized for improving public service delivery, for extracting rents, or for both. On one hand, my theory implies that political appointments and connections make political machines more effective at extracting rents, which may help explain their resilience. On the other hand, the theory implies that they can also make governments more effective at delivering public services. I do not claim that patronage does not have costs. Rather, my argument is that we have overlooked its benefits, and that in certain contexts these benefits may outweigh the costs. Under what conditions is this more likely to be the case?

### 3.2 When are the benefits most likely to outweigh the costs?

The benefits of patronage will be larger in contexts where potential substitutes for the governance technology it provides are not available. This is true in developing contexts with stricter financial constraints and less human capital, which means the government has drastic constraints to attract and motivate bureaucrats to perform. The benefits are more likely to be worth the potential costs<sup>5</sup> for the appointment of street-level managers who work in the delivery of complex public services, because their activities can benefit more from this governance technology. The costs of patronage will be smaller in contexts where politicians value (at least partially) the delivery of public services. Where some or all of these conditions are not present, the net benefits of political

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<sup>4</sup>The importance of alignment between bureaucrats and politicians is also highlighted in the formal literature on delegation through the so-called "ally principle", by which politicians grant more discretion to bureaucrats as their policy preferences converge (Huber and Shipan, 2006; Fiva et al., 2019).

<sup>5</sup>Costs may include, for example, selecting less educated or less experienced bureaucrats, politicizing public administration, or strengthening the link between political and bureaucratic turnover.

connections are less likely to be positive. My theory of patronage therefore implies that its effects depend on the logic of appointments. In a broad sense, a variety of patronage strategies with divergent implications for development can be identified: whereas short-term, electorally-focused appointments are detrimental for service delivery (see Chapter 4), the political appointment of street-level managers at the beginning of a mandate can enhance bureaucratic accountability and effectiveness.<sup>6</sup>

Governments are constrained in their capacity to use monetary incentives and market mechanisms to foster performance, because they face legal and political barriers and they often act precisely where markets fail (Wilson, 1989; Banerjee, 1997). Local governments in developing contexts have it more difficult, since they face severe financial constraints, and –at least outside large metropolitan areas– hire from a particularly limited pool of candidates with low levels of human capital. While higher wages have been shown to help attract more able people to bureaucratic positions, and to overcome some of the undesirability of remote locations (Dal Bó et al., 2013), local governments in developing countries often face dire financial constraints that prevent them from implementing these or other performance-enhancing policies like performance pay (Hasnain et al., 2014). In these difficult environments, the counterfactual to a political appointee is not necessarily the highly capable, autonomous and driven bureaucrat that the Weberian model envisions. Instead, without adequate human capital and incentives, bureaucrats may lack the capacity and/or motivation to overcome the challenges of the job.<sup>7</sup> In those settings, the governance technology provided by patronage can be particularly useful, to a point where benefits may outweigh the costs.

Street-level managers (e.g., school directors or clinic managers) working to deliver public services in challenging environments are particularly likely to benefit from the governance technology that patronage provides. The success of these managers, who can have large impacts on the quality of public services (Bloom et al., 2014, 2015; Dhuey and Smith, 2014; Tavares, 2015), depends largely on their ability to coordinate efforts and align a complex set of tasks to objectives that are multidimensional and hard to assess. In developing contexts, with less human capital, more rudimentary information systems, and dire financial constraints, the benefits of patronage can be particularly useful for bureaucrats in these managerial positions, especially in the provision of complex services like healthcare or education. These services depend heavily on discretionary

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<sup>6</sup>Brierley (2019a) presents a similar argument of differentiating patronage strategies. Her logic is however opposite to mine: she finds that in Ghana politicians hire partisans for menial positions but select professionals on the basis of merit.

<sup>7</sup>Consider for example the evidence presented by Chaudhury et al. (2006), showing two-digit rates of absenteeism among bureaucrats in six countries in Asia, Africa, and Latin America.

and transaction-intensive work, thus making principal-agent problems more severe (Pritchett and Woolcock, 2004). To complicate things further for street-level managers in these policy areas, most of their subordinates (like teachers or nurses) work with very high levels of autonomy and discretion (Lipsky, 1980), often behind closed doors. To handle these challenges, street-level managers need to leverage trust, legitimacy, and the ability to coordinate efforts and align teams (Gassner and Gofen, 2018). Upward embeddedness helps overcome these challenges.<sup>8</sup>

For the benefits of patronage to outweigh the costs politicians must be concerned at least partly with public service delivery. Without that, the governance technology of patronage is likely to be leveraged for rent extraction, for instance by using the bureaucracy to campaign or to target public services to core or swing constituents. A variety of reasons may make politicians value the delivery of public services, including intrinsic beliefs and norms (Habyarimana et al., 2018), electoral competition (Rosenzweig, 2015), fear of retrospective voting (Healy and Malhotra, 2013), or constraints imposed by horizontal accountability institutions like anti-corruption agencies (O'Donnell, 1998). In contexts where norms, competition, electoral accountability and/or external control increase politicians' valuing of service delivery, upward embeddedness is more likely to have net beneficial effects. The availability of regular and credible measures of bureaucratic performance can strengthen each and all of these sources of politicians' valuing of service delivery.

### 3.3 Observable implications

My theory of upward embeddedness and governance has a number of observable implications that I test in this chapter. First, if the effectiveness of politically appointed bureaucrats relies partly on their connections to politicians, an electoral defeat of the government should hurt their effectiveness more than that of non-appointed bureaucrats. I test this through the difference-in-discontinuities design in Section 3.5. Second, if political appointments respond to a concern with public service delivery and not to mere rent extraction, and if upward embeddedness facilitates accountability, appointed bureaucrats should be more likely to be replaced when they underperform in service provision. I test this with the regression discontinuity design in Section 3.6. Third, politically appointed street-level managers should have closer connections to politicians than those who are not politically appointed. I empirically address this in Section 3.4.2 with observational data from the

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<sup>8</sup>In contrast, the effectiveness of street-level bureaucrats like teachers or doctors does not depend so much on their ability to coordinate efforts with other bureaucrats or with higher-ups. In general, these are highly autonomous workers that provide services directly to citizens.

survey of bureaucrats. Last, if my theory is right, local actors should perceive political appointments and connections as enhancing bureaucratic accountability and effectiveness. I test this with conjoint experiments in the surveys of bureaucrats and politicians in Sections 3.4.2 and 3.4.3. Table 3.1 synthesizes the links between the chapter’s theory and empirical tests.

Table 3.1: Patronage as technology: Mapping of theory to empirics

Theoretical elements	Test	Data	Section
<i>Core arguments: Upward embeddedness facilitates...</i>			
... bureaucratic effectiveness in service delivery	Diff-in-disc	Admin. school data	3.5
... bureaucratic accountability	RDD	Admin. school data	3.6
<i>Mechanisms: Bureaucrats with upward embeddedness...</i>			
... have higher levels of trust in, alignment with, and access to politicians	Correlations	Bureaucrat survey	3.4
... communicate better with and are more responsive to the government	Conjoint	Bureaucrat & politician surveys	3.4
... have more access to material resources	Conjoint	Bureaucrat survey	3.4
... exert more effort	Conjoint	Politician survey	3.4

I leverage several data and methods to test whether upward embeddedness enhances the accountability and effectiveness of street-level managers. First, I use a difference-in-discontinuities to show that an electoral defeat of the mayor causes a drop in the quality of schools with appointed director, relative to schools with un-appointed directors. This is consistent with a negative shock in upward embeddedness hurting bureaucratic effectiveness. Second, I use a regression discontinuity to show that appointed directors (but not elected or tenured ones) experience a decrease in their probability of turnover after meeting their school quality target. This is consistent with upward embeddedness enhancing accountability, and with politicians caring about public service delivery (which is an important scope condition of the argument). Third and last, I leverage original surveys of bureaucrats and politicians, including conjoint experiments, to show that bureaucrats with upward embeddedness are perceived as communicating better with and being more responsive to the government, exerting more effort, and raising more resources. Together, these three sets of causally identified evidence and the qualitative data from 121 interviews demonstrate that bureaucrats’ upward embeddedness can be beneficial for development.

## 3.4 The views of bureaucrats and politicians

In this section I leverage data from in-depth interviews with and original surveys of bureaucrats and politicians to show that they perceive political connections as potentially fostering bureaucratic effectiveness and accountability. Sections 3.5 and 3.6 subject this hypothesis to quasi-experimental tests.

### 3.4.1 Insights from in-depth interviews about the informal institutions in bureaucratic appointments

Principal-agent theories envision a linear hierarchy of nested relationships between principals and agents. For municipal education in Brazil, this model would envision a neat line where the mayor appoints the secretary of education, who appoints school directors, who appoint teachers. Even though Weberian theories would envision bureaucrats as holding their jobs not on the basis of appointment but of civil service statutes, they would still assume the same hierarchical structure. The reality of street-level manager appointment systems, interviews showed, heavily deviates from both these models. Understanding how appointments work in practice, and the actual flows of accountability that ensue from them, provides a critical foundation for analyzing the relationship between appointment systems and outcomes, as well as for reforms aimed at changing local governance structures.

Municipal school directors are most frequently political appointees, but other appointment modes exist, including election by the school community<sup>9</sup>, civil service, and other sorts of merit-based selection. As of 2017, about 65% of municipal directors were appointed by politicians, 24% elected by the community, 5% tenured in a civil service regime, 3% selected through some meritocratic criteria, and the rest appointed through other means.<sup>10</sup>

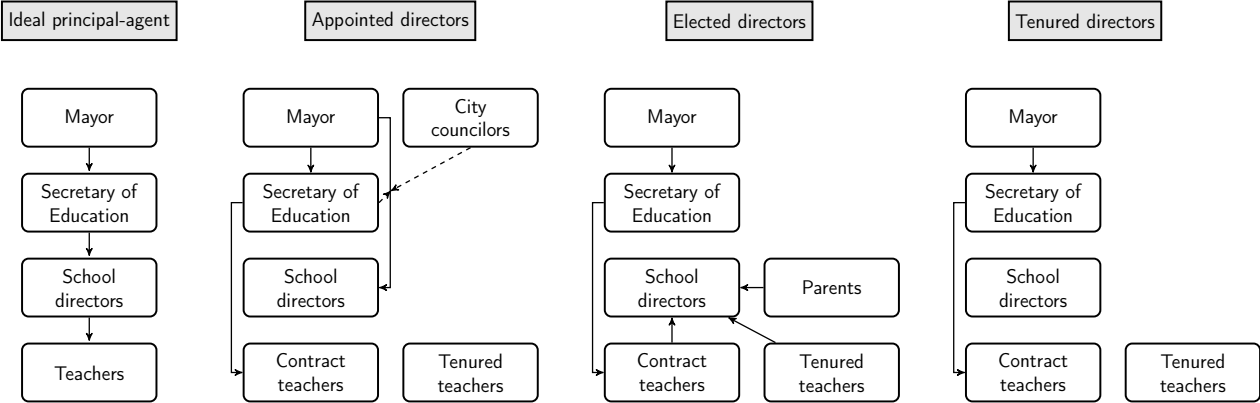
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<sup>9</sup>Transitions to director election systems appear fostered by a participatory norm, by federal and state government action, and by pressure from teacher unions. Previous research suggests government decisions to move away from patronage systems may be driven by electoral competition, party organization, political institutions, financial constraints, or societal demands (Schuster, 2016).

<sup>10</sup>Appendix E.4 shows the variables that are significantly associated to whether a school has an appointed director. Other things being equal, schools are more likely to have an appointed director in municipalities that are smaller, poorer, more electorally fragmented, with a larger share of the population employed by the municipality, and with a larger share of children enrolled in municipal schools. At the school level, it is schools with less organizational complexity that are more likely to have an appointed director. Appointed directors appear to have less experience. This result gives quantitative support to the idea that discretionary appointments in this context are usually based

Interviews revealed that, in practice, decisions on the political appointment of street-level managers are usually taken by the mayor, sometimes in consultation with city councilors in their coalition or with the secretary of the area. In many cases there is thus no direct link between the secretary of the area and street-level managers. Secretaries are however in charge of the selection of temporary street-level bureaucrats (like teachers or nurses), who generally hold one-year contracts. Civil service street-level bureaucrats, on the other hand, hold their jobs on the basis of a competitive examination and are in practice extremely hard to fire once they pass a short probationary period. Street-level managers generally do not control the hiring of street-level bureaucrats nor their assignment to specific units. Figure 3-1 below shows diagrams of the accountability relationships in the education sector under the ideal principal-agent model and under the actually existing models of political appointment and election.

Figure 3-1: Accountability relationships under four models of director appointment in Brazil’s municipal education sector



The dashed lines represent occasional participation of city councilors and secretaries in political appointments.

Street-level manager positions are particularly important for politicians, given their strategic position in the center of many social networks and visibility for the community, as well as their wide territorial reach in both urban and rural areas. From the point of view of street-level managers, political appointments and connections may be useful to advance their bureaucratic and/or political career, to increase their material and immaterial resources they can tap on as managers, and to boost their power in the community. In settings where clientelism predominates, street-level manager

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on political criteria and not merit. Further support comes from my survey of street-level managers in education, healthcare, and social assistance one state. Results shown in Appendix F.19 suggest that politically appointed managers are less likely to have a post-graduate degree, to be a union member, and to live in the municipality where they work, with the opposite applying to civil service managers. After controlling for schools’ socioeconomic context, director appointment modes are not correlated with school performance, as shown in Appendix E.4.

positions are sometimes used for political mobilization. An elected director reported that “at the time of elections, [a previous, appointed director] asked school staff to wear the party’s t-shirt, intimidating temporary teachers with the possibility of them losing their contract, and intimidating tenured teachers with them being transferred to another school. [...] People were expected to go to the city councilor’s rally, and attendance was recorded on a list.”<sup>11</sup> During my interviews, bureaucrats under different appointment systems and politicians conveyed multiple accounts like this one where the resources, monitoring, and accountability of upward embeddedness were being mobilized with rent-seeking purposes.

Nonetheless, more commonly stories emerged of political connections being leveraged for the improvement of public services. The importance of alignment for bureaucratic effectiveness is clearer under the light of the stark contrast between the way manager appointments work in practice and the accountability relationships envisioned by principal-agent and Weberian models. Interviews with both street-level managers and secretaries suggested that the system of political appointment puts pressure on bureaucrats to work more and to be more responsive to the demands of the local government, which are usually oriented towards service delivery. For example, a secretary said: “our directors are political appointees, but we do it with some criteria, including that they have a university degree, that they live in the community, that they communicate well [...]. But it has to be someone we trust, that’s why political appointments matter.” When I asked them what was trust important for, they said: “To meet deadlines, to implement programs within the law, to treat families well, and to be a bridge between the government and the families – whether we like it or not, the director is a very political position, they relate to many people, manage many people.”<sup>12</sup> The importance of alignment also came up in the report of a school director who had previously been secretary of education. When talking about how a previous government wanted to reform the director election system to reinstate political appointments, she said that the government argued they could not “govern with enemies.”<sup>13</sup>

Another dimension that often came up when asking interviewees about appointment systems was street-level managers’ responsiveness to politicians. For example, a director said that “when the director is appointed they want to measure up to the invitation that was made to them. But the person who became director because they passed a test thinks they have that position because of a test and that they owe nothing to anybody.”<sup>14</sup> When I asked a secretary whether they felt

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<sup>11</sup>School director interviewed in the state of Rio de Janeiro in February of 2017.

<sup>12</sup>Secretary of education interviewed in the state of Paraíba in August 2018.

<sup>13</sup>School director interviewed in the state of Rio de Janeiro in February 2017.

<sup>14</sup>School director interviewed in the state of Goiás in March 2017.



any difference in the relationship to the elected and appointed directors, they said: “yes, absolutely. One would expect elected directors to be better, that we would see more committed. But it is quite the opposite, it’s as if elected directors felt that it was the people who gave them the post and thus they owe nothing to the secretariat.”<sup>15</sup>

Some appointed managers also talked about the material and immaterial resources that they gained as a result of their connections. For example, when I asked a bureaucrat what connections were valuable for, they said: “Things are *really* hard with connections already, I do not know what I would do without them. [...] For example, we do not have running water in the center, and it is thanks to political connections that I manage to get a water truck to come and fill our tank. That requires an articulation with the secretary of transportation and other actors – I only manage that thanks to my connections to the mayor.”<sup>16</sup>

Taken together, interviews with municipal street-level managers and secretaries suggest that the political appointment of bureaucrats can respond to a combined concern for rent-seeking and service provision. Political appointments may come with some costs (like the deployment of bureaucrats with less education),<sup>17</sup> but politicians often appoint street-level managers thinking of their professional abilities (not just their political ones), and leverage political connections for the improvement of public services. While interviews provided a critical role for developing and probing hypotheses, as well as for designing quasi-experiments and interpreting their results, they make it hard to quantify relationships. The next section turns to quantitative evidence.

### **3.4.2 Bureaucrats perceive political appointments and connections as making bureaucrats more responsive: Evidence from a face-to-face survey of street-level managers**

Based on my in-depth interviews with bureaucrats and politicians, I designed and implemented a large, face-to-face, representative survey of municipal street-level managers (school directors, health clinic managers, and social assistance center coordinators) between November and December of 2018. This is, to my knowledge, the first representative survey of street-level managers collecting

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<sup>15</sup>Secretary of education interviewed in the state of Paraíba in August 2018.

<sup>16</sup>Social assistance center coordinator interviewed in the state of Rio Grande do Norte in December 2018.

<sup>17</sup>My survey of street-level managers (detailed in Section 3.4.2) indeed suggests that political appointees have lower education levels, as shown in Appendix F.19.

data about their political connections and attitudes.<sup>18</sup>

The survey took place in Rio Grande do Norte (RN), a state at the heart of Brazil’s Northeastern region, which has historically been characterized by inferior development outcomes, corruption, and clientelism (Leal, 1948). I chose this particular state due to the state audit court’s willingness to partner for a field experiment (Toral, 2019). Its municipalities, mostly underdeveloped and distant from large metropolitan areas, are typical of the Northeast and fit well the scope conditions described in Section 3.2. Rio Grande do Norte is also convenient in that its relatively small size limits the costs of implementing an in-person survey.<sup>19</sup> Municipalities in Rio Grande do Norte exhibit wide variation across a range of socioeconomic and political variables, as shown in Figure 1-6, but generally lag behind in human development outcomes such as infant mortality rates, student learning, and student passing rates. Despite persistent challenges of clientelism, elections are generally competitive. The survey focused on the urban areas of 150 small and medium municipalities – the largest 17 municipalities of the state were excluded due to budget and security constraints.<sup>20</sup> The field team traveled more than 25,000 kilometers over four weeks to locate every municipal school, health clinic, and social assistance center in the urban area of those municipalities. The managers of 926 out of 1,027 units (over 90%) were surveyed, with a median number of 5 surveys done per municipality.<sup>21</sup>

First I present results from the observational module of the survey. I collected data on the number of meetings street-level managers held, over the previous three months, with a number of local stakeholders such as the mayor, the secretary in their area, or city councilors. I also asked them how much they agreed (on a 4-point scale) with statements about the mayor and their secretary.<sup>22</sup> To find if there are robust correlations between managers’ appointment mode and their number of meetings with, or attitudes about, local stakeholders, I regress respondents’ answers on indicators for appointment modes (appointed or elected, leaving civil service as the baseline) and controls:

$$Y_i = \alpha + \beta_1 A_i + \beta_2 E_i + \sum_{k=1}^K \gamma^k X_i^k + \varepsilon_{im} \quad (3.1)$$

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<sup>18</sup>A link to the survey instrument can be found in Appendix B.1.

<sup>19</sup>The state has 167 municipalities, of which only 3 have more than 200,000 inhabitants – the rest are quite small, with a median population below 10,000.

<sup>20</sup>See Appendix B.2 for details on respondent recruitment and non-response.

<sup>21</sup>Descriptive statistics are reported in Appendix B.3.

<sup>22</sup>Response options are “not at all”, “a little”, “quite” and “a lot”.

Where  $Y_i$  is the response given by manager  $i$  (namely, the log of the number of reported meetings with a given stakeholder +1, or the level of agreement with a given statement);  $A_i$  and  $E_i$  are indicators for whether that manager is appointed or elected (with civil service being the baseline); and  $\sum_{k=1}^K \gamma^k X_i^k$  is a set of all the demographic and political covariates I collected<sup>23</sup> as well as municipality and social sector (education / healthcare / social assistance) fixed effects. To facilitate comparisons between appointment modes I exclude from these regressions the 18% respondents who report having been appointed through a mixture of methods.<sup>24</sup> For inference I use HC1 heteroskedasticity-consistent standard errors.

The results of these descriptive analyses are presented in Figure 3-2. While not causal, and based on self-reported attitudes and behaviors, these results lend support to the theory's predictions. Compared to civil service managers, political appointees report, on average, a higher number of meetings with the mayor, the secretary, and technicians in the area; as well as higher levels of trust in the mayor and the secretary, feelings of proximity to them, and beliefs that the mayor cares about improving public services and has the same priorities as professionals in the education/healthcare/-social assistance sector.<sup>25</sup> For items about the mayor, the appointed managers have significantly higher levels of agreement than elected managers as well.

These associations are strong and aligned with both qualitative evidence and the predictions of the theory. They are however not causal relationships, and one may be concerned that other factors may explain these correlations. For example, civil service bureaucrats may be less subject to demand effects with questions about trust and alignment. Another source of concern is that there may be omitted variable bias. To more directly test the relationship between upward embeddedness and accountability and performance, I use a conjoint experiment embedded in the survey. Conjoint experiments allow researchers to non-parametrically identify and estimate the causal effect of several variables simultaneously while limiting social desirability bias (Hainmueller et al., 2014), and have already been successfully used to measure perceptions of clientelism among bureaucrats (Oliveros and Schuster, 2016).

In the conjoint, respondents were offered four sets of two hypothetical profiles of managers, with randomly assigned attributes in six dimensions (appointment mode, political connections,

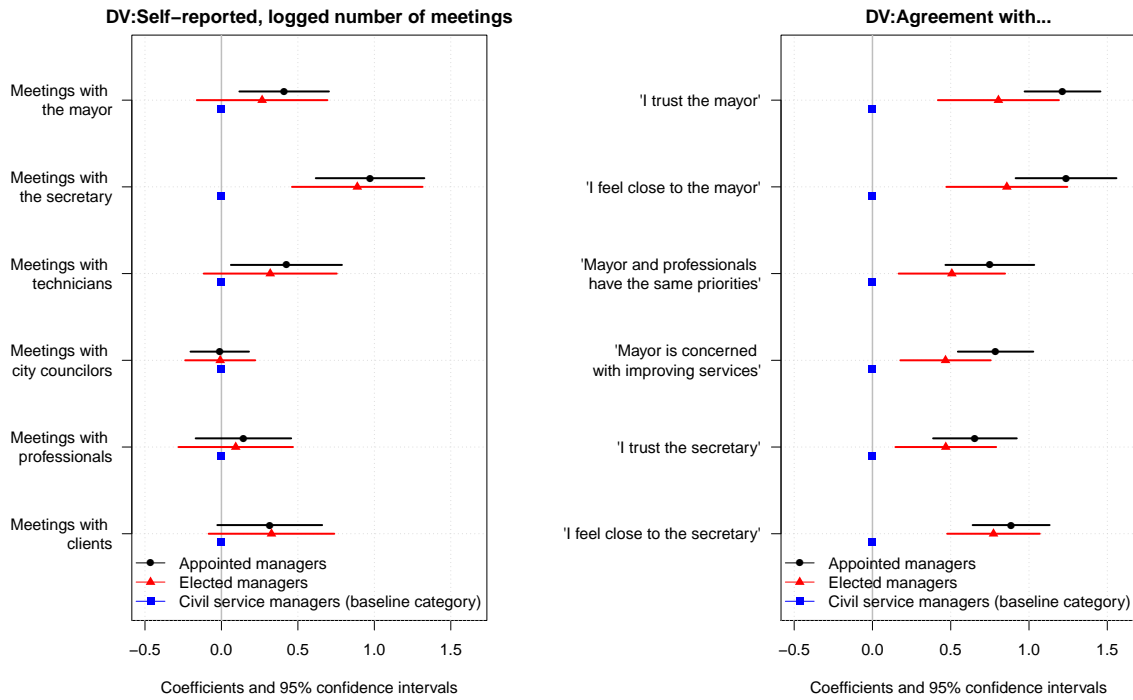
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<sup>23</sup>Controls include respondents' sector, age, gender, years of experience as professional in the sector, years of experience as manager, party membership, union membership, whether they have less or more education than a college degree, whether they have other jobs, and whether they live in the municipality where the unit (school/clinic/social assistance center) is located.

<sup>24</sup>Results for appointed bureaucrats are similar when including the whole sample.

<sup>25</sup>While these dependent variables are highly non-normal, results are similar when using a binary version.

Figure 3-2: Observational results from the face-to-face survey of street-level managers: Relationship between appointment type and meetings with and attitudes about politicians.



Points are the regression coefficient corresponding to each appointment mode, and bars are their 95% confidence intervals. Regressions include individual-level controls and municipality and sector fixed effects, as per Equation 3.1. Results are detailed in Appendix F.20.

education, experience, relationship to professionals, and unit performance in federal indicators).<sup>26</sup> To avoid primacy and recency effects, the order of the attributes was randomized across respondents. For each pair, respondents were asked to choose which one they believed would be more likely to: (i) maintain better communication with the secretariat; (ii) implement school changes requested by the municipal government; (iii) raise more material resources for a reform of the school / clinic / social assistance center; and (iv) increase the unit's performance in indicators of learning / healthcare / social assistance. These four choice tasks aim at measuring the relative impact of different bureaucratic characteristics on their (perceived) ability to perform on key areas of management that my theory predicts upward embeddedness should facilitate.

With randomly assigned attributes, assuming that potential outcomes take on the same value

<sup>26</sup>Details of the attribute values for conjoint profiles are included in Appendix B.4.

when the hypothetical profiles for the same choice task have the same attributes and that the ordering of profiles has no effect, we can estimate the average marginal component effect (AMCE) for each attribute's value using linear regression (Hainmueller et al., 2014):

$$Y_{ijk} = \alpha + \beta W_{ijkl} + \varepsilon_{ijk} \quad (3.2)$$

Where  $Y_{ijk}$  is the choice expressed by respondent  $i$  for profile  $j$  in the choice task  $k$  (i.e. whether that given manager profile was chosen);  $W_{ijkl}$  is the vector of dummy variables for the  $l$  levels of each attribute in profile  $j$  (omitting a baseline category in each attribute); and  $\varepsilon_{ijk}$  is an error term. I cluster standard errors at the respondent level to account for the dependencies between the choices each respondent makes.  $\beta$  non-parametrically identifies the AMCE for each of the attributes and their values on a hypothetical manager being chosen for a given task in the sample.

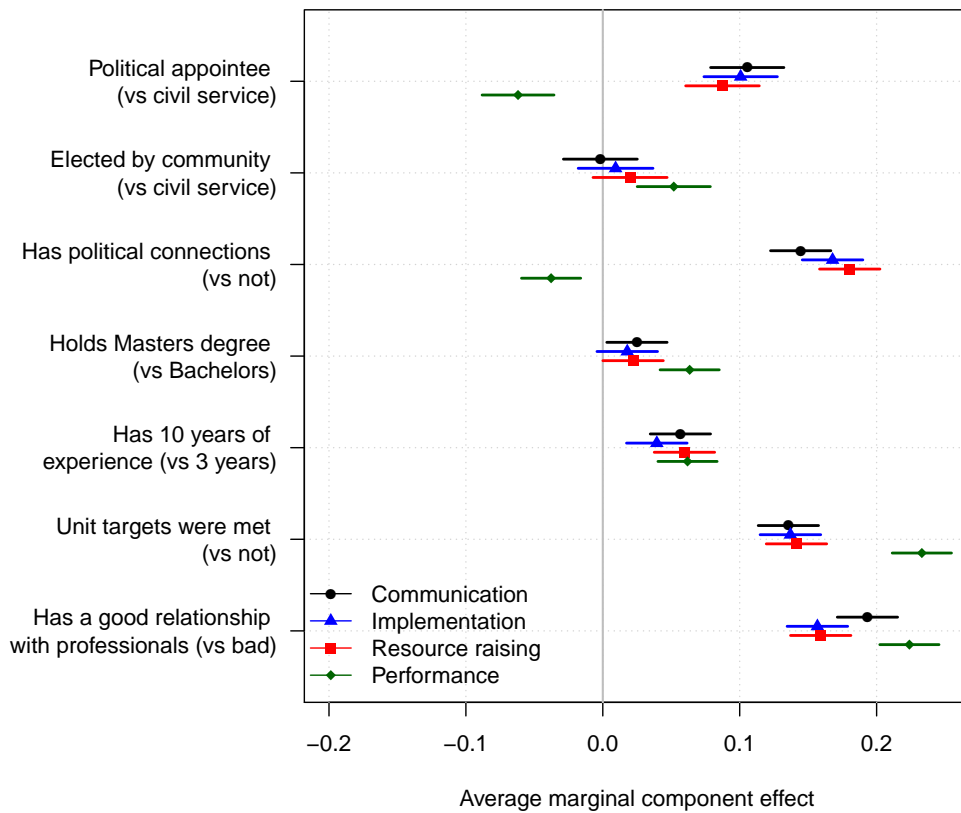
The results of the conjoint experiment, shown in Figure 3-3, demonstrate that street-level managers see upward embeddedness as an important resource facilitating bureaucratic communication with and responsiveness to the local government, as well as fund raising. Profiles of managers with political connections, or who are political appointees, are seen as significantly more likely to have better communication with the secretariat of their area, to implement changes requested by the local government, or to raise resources for reforming the school/clinic/social assistance center, when compared to civil service managers. One potential concern is that these results are merely driven by appointed and connected bureaucrats trying to portray a good picture of themselves. Results however are similar when subsetting to un-appointed managers, as shown in Appendix F.22.

On the other hand, managers who are politically appointed or have political connections are seen as less likely to improve the performance of the school/clinic/social assistance center. This suggests that upward embeddedness may hinder public sector delivery, and goes counter to the quasi-experimental results of the difference-in-discontinuities. Several factors may explain this. First, the strong Weberian norm existing in the field, where actors (including politically appointed bureaucrats) often believe that all bureaucrats should in principle be tenured, may lead managers to believe that appointees perform worse. Second, respondents may be underestimating the indirect effects that upward embeddedness has on public service delivery. Third, managers may be expressing here that politically appointed bureaucrats are in fact worse types who would indeed perform worse without the benefits of upward embeddedness.<sup>27</sup> Fourth and last, part of this result may be driven

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<sup>27</sup>Descriptive evidence from the survey of managers showing that political appointees are less likely to have

Figure 3-3: Results from the face-to-face conjoint experiment with municipal street-level managers.



Points are the average marginal component effect (AMCE), and bars their 95% confidence intervals. AMCEs estimated for each choice task separately, as per Equation 3.2. Results are detailed in Appendix F.21.

by the inclusion in the respondent pool of street-level managers who work in a variety of settings, including highly clientelistic ones. Some evidence included in Appendix F.23 lends support to this possibility. Including only respondents who agree with statements about the mayor and the secretary having programmatic concerns leads to coefficients for the performance question that are much smaller and statistically insignificant, without substantially altering the results for all other questions. In any case, these results draw attention to the potential costs of political appointments and connections discussed in Section 3.1.

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graduate degrees, shown in Appendix F.19, lends some support to this idea.

### 3.4.3 Politicians perceive political appointments and connections as making bureaucrats more responsive: Evidence from an online survey of politicians

Local politicians also perceive bureaucrats with upward embeddedness as more accountable. In partnership with the state audit court of Rio Grande do Norte I implemented an online survey of local politicians. The primary purpose of the survey was to measure intermediate outcomes of a field experiment (Torralba, 2019), but I included a conjoint experiment to measure their perceptions of how political connections impact bureaucratic responsiveness, effort, and performance.<sup>28</sup> The descriptive module of the survey also offers some evidence in support of the assumption that politicians care about public service delivery.<sup>29</sup> The survey was sent through the state audit court's online system to all mayors and city councilors of the 167 municipalities in the state, plus all municipal secretaries of five key areas.<sup>30</sup> 755 politicians completed the survey, for a response rate of 27% and a median number of 5 responses per municipality.<sup>31</sup> This response rate is relatively high for a survey of elites: recent surveys of state legislators in the US typically have one-digit response rates.<sup>32</sup>

In this conjoint experiment, respondents saw four pairs of hypothetical bureaucrats (without specifying their rank or area of work), with randomly assigned attributes in six dimensions (contract type, political connections, education, experience, union membership, and gender).<sup>33</sup> Contract type (temporary versus civil service) was used instead of appointment mode because political appointment and election can only be used for managers. Like political appointments, temporary hires are at will and often based on political connections (Colonnelli et al., 2019; Barbosa and Ferreira, 2019). In fact, the majority of the street-level managers I surveyed believe that political connections influence a lot the appointment of temporary bureaucrats.<sup>34</sup> For each pair, respondents were asked to choose which one they believed would be more likely to: (i) maintain better communication with

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<sup>28</sup>A link to the survey instrument can be found in Appendix C.1.

<sup>29</sup>70% of the mayors believe mayors have the most responsibility for improving the quality of public services like municipal education and healthcare. Secretaries of education and healthcare report, on average, one weekly meeting with street-level managers in their area.

<sup>30</sup>Secretaries of education, healthcare, social assistance, finance, and administration received the survey.

<sup>31</sup>Response rates were higher among secretaries (56%) and mayors (33%) than among city councilors (13%). Details on respondent recruitment and non-response are reported in Appendix C.2. Descriptive statistics are reported in Appendix C.3.

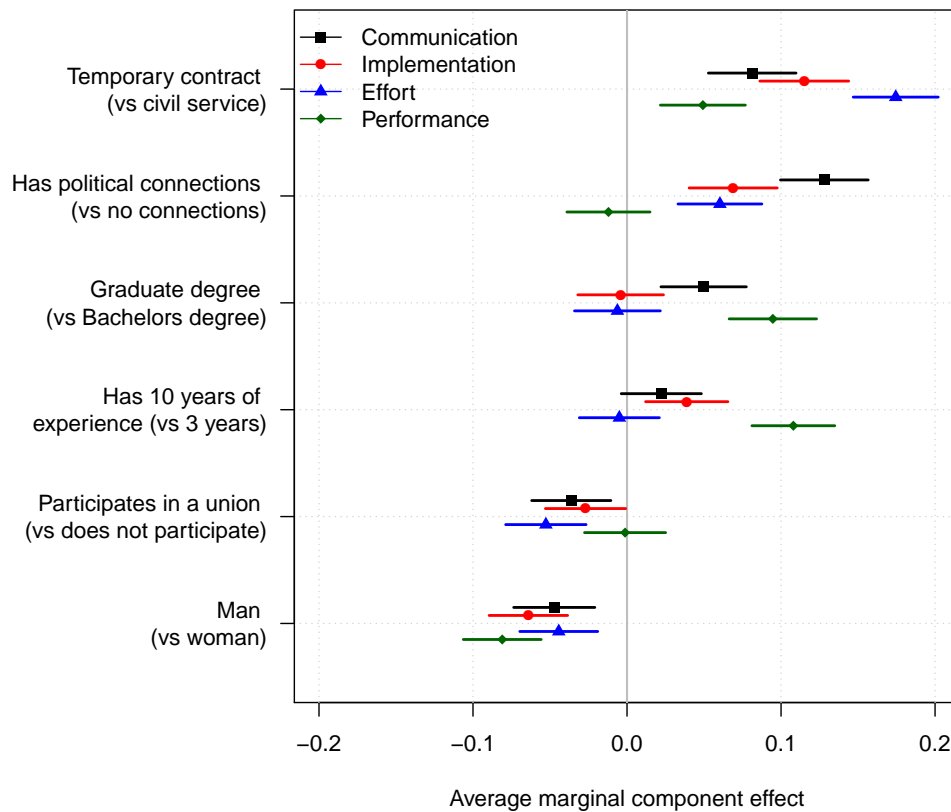
<sup>32</sup>For example, Anderson et al. (2016), Cluverius (2017), Nicholson-Crotty and Carley (2018), and Anderson et al. (2019) report response rates of 5%, 7%, 8%, and 3%, respectively.

<sup>33</sup>Details of the attribute values for conjoint profiles are included in Appendix C.4.

<sup>34</sup>58% of respondents said political appointments influence "a lot" the hiring of street-level bureaucrats, and only 16% responded "nothing" or "a little."

the local government; (ii) implement changes requested by the local government; (iii) work extra hours when necessary; and (iv) achieve better performance.

Figure 3-4: Results from the face-to-face conjoint experiment with municipal street-level managers.



Points are the average marginal component effect (AMCE), and bars their 95% confidence intervals. AMCEs estimated for each choice task separately, as per Equation 3.2. Results are detailed in Appendix F.24.

Conjoint results, shown in Figure 3-4, suggest that politicians see bureaucrats with upward embeddedness (i.e., politically appointed or hired under a temporary contract) as more responsive and exerting more effort. They also see bureaucrats with temporary contracts as likely to perform better than those hired under the civil service regime.<sup>35</sup> While political appointments of street-level managers and contract types of street-level bureaucrats are distinct sources of variation with their own political logics, they are both a source of upward embeddedness and the rationale for their effects on accountability and effectiveness are similar. In words of a secretary of education, “almost

<sup>35</sup>Results are similar when looking only at responses given by mayors, or responses given by secretaries, as shown in Appendix F.25.



all civil service bureaucrats are from other towns. They don't work with the true grit we need, it's just 'I go, teach my class, and that's it.' It's not absenteeism, they know if they do not show up that will be trouble. But there's not enough commitment. Temporary hires dedicate themselves more. Things flow because managers count on contract workers."<sup>36</sup>

All in all, conjoint experiments with bureaucrats and politicians are generally supportive of the key mechanisms of the theory. Both bureaucrats and politicians perceive bureaucrats with more upward embeddedness as more likely to communicate well with the local government and respond to its demands. Bureaucrats also perceive them as more likely to raise funds from the government, and politicians perceive them as more likely to work extra hours when needed. Together, these results show that actors in the field perceive political appointments and connections as benefiting bureaucratic accountability and – at least in some dimensions – their effectiveness. Nonetheless, the inferential leverage of conjoint experiments is limited, since they rely on perceptions. Future research should further examine the mechanisms of upward embeddedness using other designs.

### 3.5 Patronage and bureaucratic effectiveness

An observable implication of my theory is that political turnover should differentially affect appointed and un-appointed bureaucrats. For appointed bureaucrats, mayoral turnover means a negative shock to upward embeddedness, and therefore to governance resources that help them in public service delivery. For un-appointed bureaucrats, however, mayoral turnover should not change their upward embeddedness. Both types of bureaucrats are exposed to the general effects that political turnover can have on public administration, including the organizational costs of transition, the potential benefits of a renewed leadership, policy switches, and other shocks to the bureaucracy (Akhtari et al., 2018; Colonnelli et al., 2019; Dahlström and Holmgren, 2019). If my theory is right, the performance of appointed bureaucrats should worsen as a result of political turnover, when compared to that of un-appointed bureaucrats. This is precisely what I find.

To exploit the differential impact of political turnover on upward embeddedness I use a difference-in-discontinuities design (Grembi et al., 2016). In essence, this design combines a difference-in-differences (comparing the performance of appointed and un-appointed bureaucrats, before and after the election) with a close-races regression discontinuity (comparing the perfor-

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<sup>36</sup>Secretary of education interviewed in the state of Paraíba in August 2018.

mance of bureaucrats in municipalities where the mayor barely lost the re-election to bureaucrats in municipalities where the mayor was barely re-elected). I use data for municipal school directors, for whom the federal government releases every two years a measure of performance (based on student test scores and passing rates) as well as an administrative survey that includes data about their appointment mode. The design shows that an electoral defeat of the mayor causes a drop of about 0.3 standard deviations in the quality score of schools with appointed directors, when compared to those with un-appointed directors ( $p < 0.01$ ).

## Design

The design exploits two treatments: whether a municipality  $m$  experiences political turnover ( $P_m$ ), and whether a school  $s$  experiences a negative shock in upward embeddedness after the election ( $U_{sm}$ ), which in turn is a function of whether the mayor loses the election and the director had been appointed by them ( $A_{sm}$ ). The political turnover treatment is assigned by the difference between the vote share of the strongest challenger ( $V_m^c$ ) and that of the incumbent ( $V_m^i$ ):  $D_m = V_m^c - V_m^i$ . If this forcing variable is above 0, the municipality experiences political turnover, otherwise the mayor is re-elected and there is no political turnover. The upward embeddedness treatment is assigned by the combination of the municipality experiencing political turnover and the school having a director that had been appointed by the mayor:

$$P_{sm} = \begin{cases} 1 & \text{if } D_m > 0 \text{ (mayor loses re-election)} \\ 0 & \text{otherwise} \end{cases} \quad (3.3)$$

$$U_{sm} = \begin{cases} 1 & \text{if } D_m > 0 \text{ and } A_{sm} = 1 \text{ (mayor loses re-election, director was appointed)} \\ 0 & \text{otherwise} \end{cases} \quad (3.4)$$

To separate the effect of a negative shock to upward embeddedness from that of political turnover, I exploit the difference between appointed directors (who lose upward embeddedness when their patron loses the election) and un-appointed directors (whose upward embeddedness is expected to remain unchanged under political turnover). Potential outcomes are therefore a function of both  $P_{sm} = p \in \{0, 1\}$  and  $U_{sm} = u \in \{0, 1\}$ , so we can define them as  $Y_{sm}(p, u)$ .

With that notation, the estimand of interest is:

$$\tau_{ddisc} = \mathbb{E}[Y_{sm}(0, 0) - Y_{sm}(1, 1)|D_m = 0, A_{sm} = 1] - \mathbb{E}[Y_{sm}(0, 0) - Y_{sm}(1, 0)|D_m = 0, A_{sm} = 0] \quad (3.5)$$

We can identify the local average treatment effect (LATE) around the threshold by taking the difference in means from below and above the threshold for each type of director, and subtracting them:

$$\hat{\tau}_{ddisc} = \left( \lim_{D_m \downarrow 0} \mathbb{E}[Y_{sm}|D_m = 0, A_{sm} = 1] - \lim_{D_m \uparrow 0} \mathbb{E}[Y_{sm}|D_m = 0, A_{sm} = 1] \right) - \left( \lim_{D_m \downarrow 0} \mathbb{E}[Y_{sm}|D_m = 0, A_{sm} = 0] - \lim_{D_m \uparrow 0} \mathbb{E}[Y_{sm}|D_m = 0, A_{sm} = 0] \right) \quad (3.6)$$

Three assumptions are needed for this design to give us an internally valid estimate ([Grembi et al., 2016](#)). First, potential outcomes  $Y_{sm}(p, u)$  should be continuous in the forcing variable around the threshold. To examine the observable implications of this continuity assumption, I verify in [Appendix F.2](#) that pre-treatment covariates are generally continuous around the cutoff. Second, we need to assume that the effect of political appointment when there is no change to upward embeddedness is constant over time, such that schools with appointed and un-appointed directors would follow parallel trends. To indirectly test for this assumption, I verify in [Appendix F.3](#) that schools with appointed and with un-appointed directors, as well as schools in municipalities with and without political turnover, had parallel trends in performance before the election. With these two assumptions, the diff-in-disc estimator estimates the local causal effect of a negative shock in upward embeddedness, close to the threshold, and for appointed directors. If we make a third homogeneity assumption that the effects of the negative shock in upward embeddedness and of political turnover do not interact, then we can recover a more externally valid quantity, i.e. the local average treatment effect of a drop in upward embeddedness for schools in municipalities close to the threshold.

The design focuses on within-director changes in performance. I include only schools where the director had been assigned to their school in the years before the election, and was still in their

post one year after. Since for schools with a new director performance cannot be associated to the change or stability of the director's upward embeddedness, schools with director turnover are excluded from the sample. However since director turnover can happen after the election (and is in fact affected by election results), excluding schools with director turnover may introduce sample selection bias (Heckman, 1979). In Section 3.5 I discuss this issue more fully, show that it is likely to bias my results towards zero, that removing part of that bias increases the size of the effect, and that bounds that account for the worst possible case of sample selection bias are fully below zero.

The design focuses on relatively short-term effects of negative shocks to upward embeddedness. Elections take place every four years on the first Sunday of October, the new government is sworn in on January 1st of the following year, and the next student tests are done in early November of the following year. While increasing student learning is a complex task that requires long-term efforts, short-term actions implemented in the months and the weeks leading up to the tests can have a significant impact on the results, including raising awareness of the relevance of student evaluations (among both teachers and students), implementing special remedial classes, doing test simulations to familiarize students with the specifics of federal tests, and even logistics planning to ensure an adequate testing environment. All these actions depend critically on management efforts of the school director, and on their ability to boost the motivation and coordination of school personnel. The existence of materials produced by education stakeholders (including NGO's and governments) to help directors prepare the school for the tests attests to the impact of actions they can take in the short term on test results.<sup>37</sup> The successful implementation of municipality-wide initiatives also depends on the adequate communication and coordination with school directors.<sup>38</sup>

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<sup>37</sup>For example, "Como preparar a escola para a Prova Brasil" (How to prepare the school for Prova Brasil), published on August 3, 2011 (three months before the test), published by *Gestao Escolar* (School Management), the director-gearred section of *Nova Escola*, which is a leading education magazine in Brazil, <https://gestaoescolar.org.br/conteudo/447/como-preparar-a-escola-para-a-prova-brasil> (last accessed in April 2020). Another example is "Dicas para preparar sua escola para a Prova Brasil (Tips to prepare your school for Prova Brasil), produced by Educador360, another education site, in a section called Pedagogic management, published in early November, at the beginning of the period when the test was implemented, <https://educador360.com/pedagogico/prova-brasil/> (last accessed on April 2020).

<sup>38</sup>See for example this note on the activities done by the secretariat of education of the municipality of Manaus: "Escolas da Semed reforçam atividades de preparação da Prova Brasil", Prefeitura de Manaus, September 29, 2017, <http://semed.manaus.am.gov.br/escolas-da-semed-reforcam-atividades-de-preparacao-para-prova-brasil/> (last accessed on April 2020).

## Estimation and inference

To estimate the difference-in-discontinuities, I follow the common practice of using local linear regression (Gelman and Imbens, 2018)<sup>39</sup> within the optimal bandwidth of the Calonico et al. (2014) algorithm, and apply it to the following estimating equation:

$$Y_{smj} = \alpha + \beta_1 P_{mj} + \beta_2 D_{mj} + \beta_3 P_{mj} D_{mj} + A_{smj}(\gamma_1 + \gamma_2 P_{mj} + \gamma_3 D_{mj} + \gamma_4 P_{mj} D_{mj}) \quad (3.7) \\ + \lambda \mathbf{I}[j = 2016] + \sum_{k=1}^K \eta_k X_{smj}^k + \varepsilon_{smj}$$

Where  $Y_{smj}$  is the change in the quality score of school  $s$  in municipality  $m$  and election cycle  $j$ ,  $\sum_{k=1}^K \eta_k X_{smj}^k$  is a set of state fixed effects and director-, school-, and municipality pre-treatment covariates that significantly predict directors' appointment mode,<sup>40</sup> which I include in some specifications to partially address the endogeneity of appointment modes.  $\varepsilon_{smj}$  is an error term. Standard errors are clustered at the municipality level, where political turnover is determined.

If the diff-in-disc assumptions of continuity in potential outcomes and local parallel trends hold,  $\gamma_2$  identifies  $\tau_{ddisc}$ , namely the effect of a negative shock of upward embeddedness on school performance in municipalities with political turnover, around the threshold. If the separability assumption holds,  $\gamma_2$  more generally identifies the local average treatment around the threshold of a negative shock in upward embeddedness. My hypothesis is that  $\gamma_2 < 0$ .

## Data

I leverage regular, valid, and well-established measurements of school performance done by the federal government every two years through the National Assessment of School Performance (AN-RESC, *Avaliação Nacional do Rendimento Escolar*), also called *Prova Brasil*. This system tests students in 5<sup>th</sup> and 9<sup>th</sup> grades (i.e., at the end of primary and middle school) in public schools across the country, every odd year. Exams are based on item response theory, which ensures that

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<sup>39</sup>I do not apply kernel weighting, and 'localize' the regression function using the bandwidth alone, as recommended by Lee and Card (2008, 319).

<sup>40</sup>Results of the correlational regression of appointment mode on covariates are included in Appendix E.4.

its measures of learning outcomes are valid and comparable over time. Together with the tests, the government also implements a survey of the director of the school, with questions about their appointment, experience, demographics, and perceptions of the school. Combining test results and administrative data on student passing rates, the federal government calculates a score for each school in the Basic Education Development Index (IDEB, *Índice de Desenvolvimento da Educação Básica*). IDEB scores (which are separate for primary and middle education) are normalized so that they range from 0 to 10. All in all, and in words of a group of World Bank economists, Brazil has “one of the world’s most impressive systems for measuring education results [...], superior to current practice in the United States and in many other OECD countries in the quantity, relevance, and quality of the student and school performance information it provides” (Bruns et al., 2012, 7).

I use Ministry of Education data for all municipal primary schools, in the years immediately before and after the elections of 2012 and 2016.<sup>41</sup> I use the Ministry’s survey of directors to identify schools where the director had been deployed (through political appointment or through other means) in the years leading to the election and were still in their post one year after, as well as to identify the director’s appointment mode. I merge the school-level data with data on municipal election candidates and their performance obtained from Brazil’s Supreme Electoral Court (TSE).

## Results

Results of the diff-in-disc are shown in Table 3.2. The negative shock on upward embeddedness (identified by the differential effect of political turnover among appointed directors) has a negative effect on school performance. In particular, the decrease in upward embeddedness reduces the school quality score by 0.39 points or about 0.36 standard deviations ( $p < 0.01$ ). Figure 3-5 illustrates the two discontinuities on which the design is based. The result is robust to the inclusion of covariates and to alternative bandwidths, as shown in Appendix F.4.<sup>42</sup>

This design may suffer from sample selection bias (Heckman, 1979) because, in order to examine within-director changes in performance, schools where the director changes after the election are excluded from the sample. Director turnover however is directly affected by mayor turnover.<sup>43</sup>

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<sup>41</sup>I focus on the 2012 and 2016 cycles because before 2011 the question on director turnover has different response options and much higher levels of non-response (17% in 2009 vs 3.5% in 2011 and 1% in 2013).

<sup>42</sup>If treatment effects are sometimes insignificant with bandwidths smaller than the optimal (likely due to reduced power from smaller samples), their size remains stable.

<sup>43</sup>On average, 71% of directors stay in their post after the election if the mayor wins the election, compared to 33.8% if the mayor loses. In fact, an electoral defeat of the mayor leads to a significant increase in a director’s

Table 3.2: Diff-in-disc estimates of the differential impact of political turnover on changes in school quality scores, by director appointment mode

	Model 1	Model 2	Model 3
Political turnover	0.173 (0.108)	0.140 (0.111)	0.051 (0.128)
Political turnover × Appointed	-0.392*** (0.145)	-0.376*** (0.144)	-0.369** (0.164)
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.136	0.136	0.136
N	1531	1531	831

Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a vector of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors in brackets.

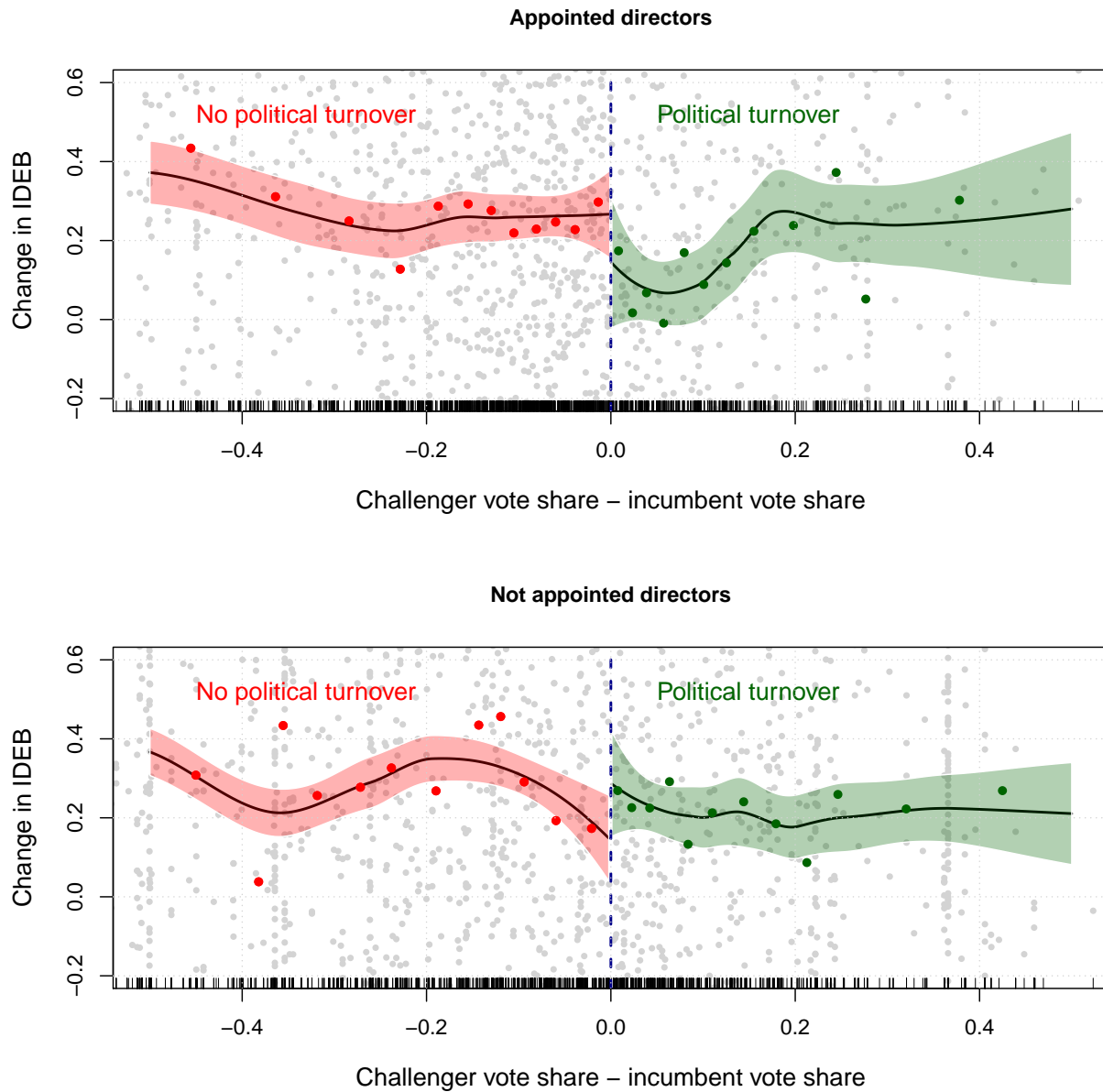
\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

This generates groups of schools (under mayor re-election and mayor turnover) that are not necessarily comparable.<sup>44</sup> I address this issue of sample selection bias through three complementary strategies. First, I show in Appendix F.6 that when there is mayor turnover, directors with better performance at baseline or with a number of characteristics associated to performance (like years of experience in the post) are significantly more likely to stay in their post. This is consistent with several interviewees’ reports that IDEB performance is an important input when a new government decides what directors to keep. For example a school director said “political appointment makes sense, it’s a position of trust – but when the government changes, and the director has made a good job (with a good diagnosis, a good IDEB score, has sent paperwork in time...) he gets

probability of turnover, as shown in Appendix F.5 using a close-races regression discontinuity. The link between political and bureaucratic turnover in Brazilian schools is also studied by Akhtari et al. (2018).

<sup>44</sup>If we think of mayor turnover as an encouragement instead of a treatment, we can apply the language of instrumental variables (Angrist et al., 1996) to define four types of units in this setting: compliers (schools that would have director turnover only if the mayor lost the election), never-takers (schools where the director would not leave, regardless of the election results), always-takers (schools that would have director turnout regardless of the election), and defiers (where the director would leave if the mayor won the election, but stay if the mayor lost the election). If we make a monotonicity assumption, which is likely safe in this setting, we can rule out defiers. The bias emerges because on one side of the discontinuity (under mayor turnover), schools are of the never-taker type, whereas on the other side of the discontinuity (without mayor turnover) schools can be never-takers or compliers. That is to say, there is a subset of the schools where the director would have changed had the mayor lost the election – in which case they would have left the sample. Because schools with and without mayor turnover have different combinations of principal strata, comparisons of these two groups will not identify the causal effect of treatment (Zhang and Rubin, 2003).

Figure 3-5: Effect of political turnover on change in school quality scores, by director appointment mode



Grey dots are school observations. Colored dots are local averages for equally-sized bins. Lines are loess regression lines estimated at both sides of the threshold with no controls. Shaded regions are their 95% confidence intervals.

to stay."<sup>45</sup> This implies that including in the analysis schools without mayor turnover that would have seen their director charge under mayor turnover is actually biasing the results towards zero.<sup>46</sup>

<sup>45</sup>School director interviewed in the state of Goiás in March 2017.

<sup>46</sup>In terms of principal strata, this analysis suggests the complier-type schools perform worse than never-takers,



Second, I show in Appendix F.7 that diff-in-disc estimates are still significant (and larger) when pre-processing the data with exact matching, such that schools without mayor turnover that do not have an exact match among the schools with political turnover (on the covariates that significantly predict director turnover under political turnover) are excluded from the sample.<sup>47</sup> Third and last, I show in Appendix F.8 that adapting the trimming procedure in Lee (2009) for creating sharp bounds for treatment effects in the presence of sample selection bias generates bounds that are completely below zero. This suggests that, even in the worst-case scenario of sample selection bias, the diff-in-disc estimates of the effect of political turnover on the effectiveness of appointed directors would be negative.<sup>48</sup>

### Alternative mechanism tests and placebo test

The diff-in-disc shows a significant deterioration of the performance of schools with appointed directors in municipalities where the mayor changes. My theory attributes this change to the negative shock to appointed directors' upward embeddedness, but other mechanisms could explain the same result, including changes in the supply and effort of teachers. To test for these alternative mechanisms, I estimate Equation 3.7 using as the dependent variable changes in the director's answers to survey questions about the prevalence of problems of insufficient teachers, of teacher turnover, and of teacher absenteeism. Results, presented in Appendix F.9, show that there is no effect on these alternative mechanisms, which are therefore unlikely to explain the results in Table 3.2. Another alternative mechanism may be that appointed directors who survive mayor turnover simply anticipate they will be eventually fired and therefore adjust their level of effort downward. Data however suggest that most appointed directors who are replaced under a new

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and therefore their inclusion in the data (and in particular in the group with no mayor turnover) biases the diff-in-disc estimates towards zero.

<sup>47</sup>This procedure removes some schools in the group without mayor turnover that are predicted to be of the complier type, and thus removes part of the sample selection bias. The resulting diff-in-disc estimate is larger: -0.469 points or 0.44 standard deviations ( $p < 0.05$ ). While other matching procedures could be used (including matching on a score for a school's propensity to have director turnover under political turnover), the exact matching procedure detailed in Appendix F.7 is appealing for its simplicity.

<sup>48</sup>Relying on the assumption of monotonicity (i.e., the non-existence of directors who would remain in the school if the mayor lost but leave if the mayor won), these bounds essentially give us best- and worst-case extremes of the potential impact of sample selection, given the data. Using this procedure I obtain bounds of [-0.907, -0.074]. I then use the bootstrap and the confidence intervals of Imbens and Manski (2004) to estimate a 95% confidence interval of [-0.978, -0.024]. These bounds show that even in the worst-case scenario of sample selection bias, the data is not compatible with the negative shock to appointees' upward embeddedness having a non-negative effect on performance. Details of the bounding exercise and inference by bootstrap are reported in Appendix F.8.

government lose their post at the beginning of the administration.<sup>49</sup>

I further test the validity of the design through a placebo test. I replicate the design with data for state schools, which should be unaffected by whether the mayor changes or not because they are managed by state governments, and state elections are held two years before and after municipal elections. As shown in Appendix F.10, I find no treatment effect among state schools. This placebo test lends additional support to the design.

In sum, I find that an electoral defeat of the mayor differentially hurts the quality of schools with directors that had been appointed by them, when compared to schools with directors that had been deployed in the same period through other methods. This is consistent with a negative shock to upward embeddedness hurting bureaucratic effectiveness. The results are unlikely to be explained by a form of post-treatment or compositional bias (introduced by the fact that schools whose directors change after the election are excluded from the sample), or by alternative mechanisms like differential changes in director effort, teacher supply, teacher turnover, or teacher absenteeism.

### **3.6 Patronage and bureaucratic accountability**

My theory posits that the political appointment of bureaucrats enhances accountability, and rests on the assumption that politicians care (at least partly) about the delivery of public services. Brazilian school directors offer another opportunity for a quasi-experiment that allows us to test these two ideas. The federal government regularly publishes school quality scores called IDEB, and these are usually compared to targets that were defined over a decade ago. We can therefore examine the extent to which directors of schools that miss their targets have higher turnover rates, and how this varies across director appointment types. My theory predicts that appointed directors that miss their targets have higher turnover rates, because they are more likely to be let go by politicians.

To test this, I leverage a regression discontinuity design, where I study the effect of schools meeting their school quality target for 2013 on the probability of the director being replaced by 2015. Results support the hypothesis that political appointment enhances accountability, and provide evidence for the assumption that politicians care about public service delivery. Among schools with

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<sup>49</sup>Of those directors appointed under the 2009-2012 administration in municipalities where a new government was sworn in January 2013 and who were not replaced by November 2013, 60% remained in their post in late 2015. Others could have been relocated to another school. Among schools where the director changes, 77% have the same director in late 2015.

appointed directors, meeting the quality target reduces director turnover by 0.2 standard deviations ( $p < 0.01$ ). For schools with elected or tenured directors, the rate of director turnover is not affected by whether they meet their target. This suggests that politicians replace school directors who under-perform.

## Design

Together with the establishment of IDEB as a system for measuring the quality of public schools, the federal government defined targets for every two-year period from 2007 to 2021. These targets (which are lower for units with a lower baseline performance) were defined following an algorithm that projects progress of schools along logistic trajectories with the goal of getting the country to a score of 6 by 2021 (Fernandes, 2007).<sup>50</sup> Targets were released at the beginning of the period and have not been revised. As a result, every two years schools get a quality score for their performance, which can be compared to their pre-defined target for that year. If the difference between the score and the target is zero (or above), the school met (or surpassed) its target. Conversely, if that difference is negative, the school missed its target. I exploit this discontinuity to measure the causal effect of a school meeting its target in the 2013 test (which was published in 2014) on the school experiencing director turnover between 2014 and 2015, and to explore heterogeneity by the appointment type of the school's director in 2013. Information about IDEB is widely disseminated after its release by the federal government, and emphasis is usually given to whether targets were met (Boas et al., 2020). While actors in the local government and education sector have other sources of information about the quality of schools, IDEB reveals quantitative, reliable information and facilitates common knowledge.<sup>51</sup> I focus on the 2013-2015 IDEB cycle to avoid years with municipal elections, which significantly increase director turnover as shown in Appendix F.5.<sup>52</sup>

More formally, treatment for school  $s$  (meeting the school quality target),  $T_s$ , is assigned by

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<sup>50</sup>A score of 6 was estimated to be equivalent to the average performance levels in OECD countries.

<sup>51</sup>Note for example that actors in financial markets also respond to binary signals (e.g. credit rating downgrades) despite being in a much thicker information environment (Hull et al., 2004; Ismailescu and Kazemi, 2010).

<sup>52</sup>I do not use data from the 2009-2011 IDEB cycle because, as noted above, before 2011 the question on appointment mode had significantly higher levels of non-response.

the difference between its quality score and target ( $D_s = score_s - target_s$ ):<sup>53</sup>

$$T_s = \begin{cases} 1 & \text{if } D_s \geq 0 \quad (\text{quality score} \geq \text{quality target}) \\ 0 & \text{if } D_s < 0 \quad (\text{quality score} < \text{quality target}) \end{cases} \quad (3.8)$$

The estimand of interest is  $\tau = \mathbb{E}[Y_s(1) - Y_s(0)]$ , where  $Y_s(1)$  and  $Y_s(0)$  represent the potential outcome of interest (director turnover in school  $s$ ), under treatment (having met the target) and under control (having missed it). We can identify the local average treatment effect (LATE) around the cutoff by taking the difference in means from above and from below the threshold:

$$\hat{\tau}_{rdd} = \lim_{D_s \downarrow 0} \mathbb{E}[Y_s(1) | D_s = 0] - \lim_{D_s \uparrow 0} \mathbb{E}[Y_s(0) | D_s = 0] \quad (3.9)$$

The key assumption of this design is that potential outcomes are continuous around the threshold (Imbens and Lemieux, 2008). While this assumption is empirically untestable, we can examine some of its observable implications, including that there is no evidence of sorting around the threshold (as shown in Appendix F.11) and that pre-treatment covariates are continuous around the threshold (Appendix F.12).

## Estimation and inference

I use local linear regression (Gelman and Imbens, 2018),<sup>54</sup> and apply it to the following estimating equation, within the bandwidth selected by the Calonico et al. (2014) algorithm:

$$Y_s = \alpha + \beta_1 T_s + \beta_2 D_s + \beta_3 T_s D_s + \varepsilon_s \quad (3.10)$$

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<sup>53</sup>While the Ministry of Education uses figures with one decimal only, I use a continuous measure to increase statistical power and avoid the issues with discrete forcing variables in RDDs (Lee and Card, 2008). -0.05 in the continuous measure is equivalent to 0 with the rounding applied by the Ministry. I therefore re-center the forcing variable by adding 0.05.

<sup>54</sup>I do not apply kernel weighting, and 'localize' the regression function using the bandwidth alone, as recommended by Lee and Card (2008, 319).

Where  $Y_s$  is the indicator for whether school  $s$  had director turnover between 2014 and 2015.  $T_s$  is a treatment indicator for school  $s$ :  $\mathbb{1}(\text{quality score for 2013} \geq \text{quality target for 2013})$ .  $D_s$  is the distance to the threshold in the forcing variable.  $\varepsilon_s$  is an error term. If the RDD assumptions hold,  $\beta_1$  identifies the LATE in Equation 5.1. For inference I use the HC1 heteroskedasticity consistent estimator. In order to examine whether appointed directors are held accountable for their performance, we need to measure and make inference about the effect of treatment in a subset of the data. Here the estimand is the heterogeneous local average treatment effect or HLATE (Becker et al., 2013). To estimate it, I allow for separate slopes for appointed and not appointed directors:

$$Y_s = \alpha + \beta_1 T_s + \beta_2 D_s + \beta_3 T_s D_s + A_s (\gamma_1 + \gamma_2 T_s + \gamma_3 D_s + \gamma_4 T_s D_s) + \sum_{k=1}^K \eta_k X_s^k + \varepsilon_s \quad (3.11)$$

Where  $A_s$  is an indicator for whether the school's director in 2013 was appointed.  $\beta_1 + \gamma_2$  identify the HLATE, under two additional assumptions. First, the subgroup indicator  $A_s$  must be continuous around the threshold. Appendix F.12 shows that there is continuity around the threshold in this and dozens of other pre-treatment covariates. Second, the subgroup indicator  $A_s$  must be conditionally ignorable, or as if-randomly assigned, such that around the threshold and conditional on their distance to the RD threshold, schools with appointed and not appointed directors do not differ systematically in a way that affects their turnover. Existing ways to relax this assumption are to include region fixed effects (Becker et al., 2013) or to use propensity score weighting (Gerardino et al., 2017). I include  $\sum_{k=1}^K \eta_k X_s^k$ : state and municipality fixed effects, and a vector of director-, school-, and municipality-level pre-treatment covariates that predict whether the school has an appointed director.<sup>55</sup>

## Data

I use official data on primary education quality scores from the Ministry of Education, and combine them with data from the 2015 director survey to measure director turnover. I code a school as having director turnover when the respondent says they have been in their post for a year or less.<sup>56</sup> I

<sup>55</sup>Results of the correlational regression of appointment mode on covariates are included in Appendix E.4.

<sup>56</sup>Unfortunately school directors are not identified, so I cannot track directors who are replaced.

use data for school performance in primary education, since this is the most important responsibility of municipal education systems and some but not all schools receive scores for middle education.<sup>57</sup>

## Results

Table 3.3 presents the results. Model 1 shows that, overall, reaching the quality target does not affect school directors' turnover. Among schools that had an appointed director in 2013, however, meeting the target depresses the probability of director turnover in the year following the publication of the results by 7.3 percentage points or about 0.19 standard deviations ( $p < 0.01$ ). Figure 3-6 visualizes this effect.<sup>58</sup> This HLATE could however be biased by confounding in the appointment mode. To explore this possibility, models 3-5 include state fixed effects, municipality fixed effects, and a long set of pre-treatment covariates that significantly predict school directors being appointed. Results are robust to the inclusion of these covariates. It could still be the case that there is unobserved confounding biasing the HLATE estimate, but its stability across specifications including significant predictors of appointment mode gives some confidence in the results. Results are similar when splitting the sample by appointment mode, as shown in Appendix F.14.

Among elected or tenured directors, however, meeting the target does not cause any significant change in the probability of turnover, as shown in Appendices F.14 and F.15. While tenured directors generally cannot be fired, they can be transferred to a different school. Research from India shows that bureaucratic transfers are frequently used to discipline bureaucrats (Iyer and Mani, 2012), and my interviews suggest this is the case in Brazil as well. Schools in rural areas and schools with worse teaching conditions (more disadvantaged students or older facilities, for example) are generally less desirable and transfers to them could be used to sanction worse performers.

### Why are elected directors not held accountable for school performance?

The lack of accountability among elected school directors may seem particularly surprising at first. We tend to think of elections as political institutions to discipline agents and make them more accountable. Elected directors however are not being held accountable for their performance in this highly visible metric of school quality. The fact that voters (teachers and parents, mostly) are not

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<sup>57</sup>Some municipal schools offer middle education (instead of or in addition to primary education) and get quality scores and targets for that level. Since not all schools have two signals a two-dimensional RDD is not possible.

<sup>58</sup>RD plots for schools with elected or with tenured directors, are shown in Appendix F.13.

Table 3.3: Effect of reaching the primary school quality target in 2013 on school director turnover between 2014 and 2015, by whether the director in 2013 was appointed

	Model 1	Model 2	Model 3	Model 4	Model 5
Quality target met	-0.024 (0.018)	0.011 (0.027)	0.008 (0.026)	0.013 (0.032)	-0.003 (0.027)
Quality target met × Appointed		-0.084** (0.035)	-0.082** (0.035)	-0.099** (0.045)	-0.067* (0.036)
State fixed effects			✓		✓
Municipality fixed effects				✓	
Predictors of Appointed					✓
Quality target met + interaction		-0.073*** (0.023)	-0.074*** (0.023)	-0.085*** (0.029)	-0.070*** (0.024)
Bandwidth	0.437	0.467	0.467	0.467	0.467
N	7362	7466	7434	7434	6942

Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. HC1 heteroskedasticity consistent standard errors in brackets.

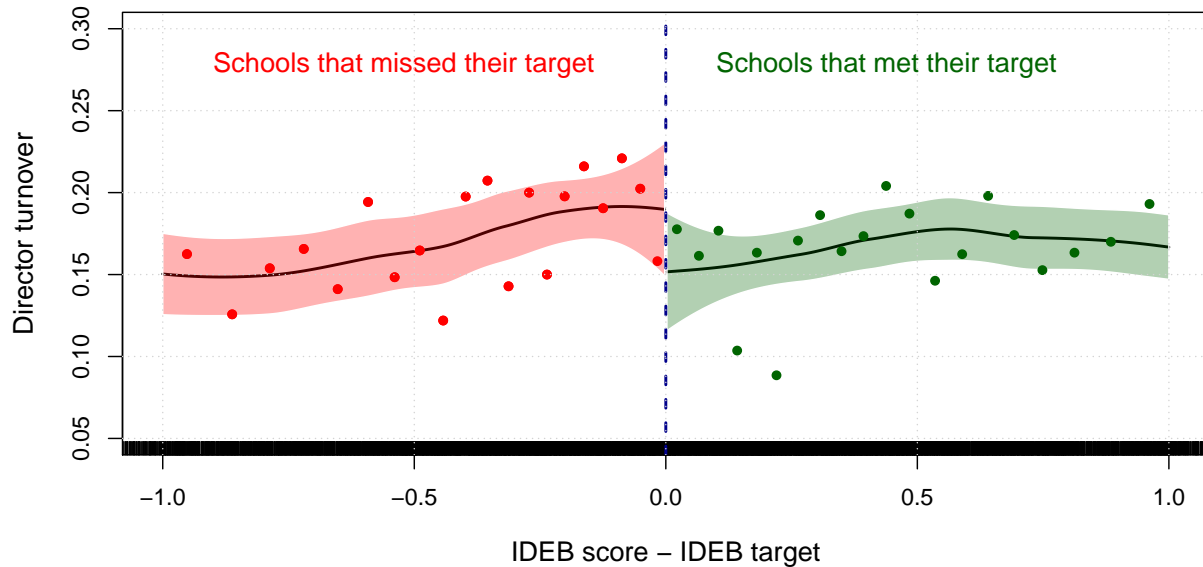
\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

holding directors accountable is remarkable, given their stakes in the quality of the school, their relatively high levels of information, and their ability to take action through voting and coordination among relatively small groups.

Qualitative and quantitative evidence suggests low competition, capture, and low participation make director elections unlikely to boost bureaucratic accountability.<sup>59</sup> The election of school directors – which is in practice the most common alternative to political appointment in this setting – establishes even more complex accountability relationships. Director elections are regulated by municipal laws, but generally they provide for the electoral participation of teachers, other school staff, and parents (or students, in high schools), sometimes with larger weights for teachers' votes. Interviews provided evidence of why director elections fail to boost accountability and performance.

<sup>59</sup>This finding of elections failing to enhance performance-based accountability of school directors contributes to a literature comparing the effectiveness of appointed and elected bureaucrats in other settings, such as US judges (Maskin and Tirole, 2004; Iaryczower et al., 2013; Lim, 2013; Canes-Wrone et al., 2014), city managers in Germany or California (Garmann, 2015; Whalley, 2013), heads of regulatory agencies in the US (Besley and Coate, 2003), or school superintendents and school boards in Alabama (Hoover, 2008). These studies suggest that taking bureaucratic appointments away from politicians by establishing bureaucrat elections can make bureaucrats more responsive to constituents and at the same time lead to undesirable consequences – for example in the application of penal law or in fiscal management. They also provide evidence of how the details of bureaucrat election systems matter. The issue has been less studied in mass public service delivery bureaucracies like education or healthcare, especially in developing countries.

Figure 3-6: Effect of meeting the school quality (IDEB) target on director turnover, for schools that had an appointed director



Dots are local averages for equally-sized bins. Lines are loess regression lines estimated at both sides of the threshold with no controls. Shaded regions are their 95% confidence intervals.

Elections for school director are often uncompetitive – several school directors reported having been elected with vote shares above 95%. My survey of school directors provides some quantitative data on school director elections, representative for the urban areas of all but the largest municipalities in Rio Grande do Norte. In this setting, elected directors reported a median level of support of 90% of the votes in the last election. More than 70% of directors report having run unopposed.<sup>60</sup>

Oftentimes schools have no candidates, and in those cases the director is normally directly appointed by the mayor. When the election does happen, it is easily prone to capture. A director said that “in community consultations [elections] it is very easy to get the support of the community – your supporters show up to vote, the rest does not show up.”<sup>61</sup> In practice, the results of the

<sup>60</sup>The uncompetitive nature of director elections is probably not particular to Rio Grande do Norte. While it is surprisingly hard to find electoral data for school director elections, I found data on director election results in two large cities. In the municipal school director elections held in 2015 in Vitória da Conquista (the third largest city in the state of Bahia), the average vote share of the winner for schools where valid elections were held was 95.96%. Over a third of the schools had no candidates. The results for the urban, municipal school director elections held in 2013 in Santarém, the third largest city in the state of Pará, had winners with an average vote share of 81.95%.

<sup>61</sup>School director interviewed in the state of Rio de Janeiro in February 2017.



election are usually determined by teachers, especially tenured ones. These dynamics of capture are strengthened by the erosion of the democratic norm once elections are established – interviewees often reported a significant drop in community interest and participation in director elections after the first wave. In the words of a secretary, “first there was a democratic response – the first election was genuine, with interest, but the second one had just the very same candidates, and after that it just became a mere [formal] commitment, with the same people. After four years when candidates reached their re-election limit no one ran and the mayor had to appoint somebody.”<sup>62</sup>

## Robustness checks

Additional robustness checks lend further support to the results on the link between patronage and bureaucratic accountability. Appendix F.16 shows that the effect of treatment for appointed directors is robust to alternative bandwidths.<sup>63</sup> Placebo tests moving the RD threshold to 20 alternative values of the forcing variable show insignificant results except in 1 case (which is what we would expect with an  $\alpha$  of 0.05), as shown in Appendix F.17. Replicating the design with data for municipalities that had a mayor belonging to one of the (back then) two large programmatic parties in Brazil (PT or PSDB) shows larger HLATE estimates, as we would expect if this is a case of governments holding their bureaucrats accountable for their performance in service delivery.<sup>64</sup> Results are shown in Appendix F.18.

To sum up, these results suggest that appointed directors are held accountable for school quality, while elected or tenured ones are not. The robustness of the HLATE estimate to the inclusion of relevant pre-treatment covariates and to alternative bandwidths, and the passing of placebo tests all lend support to the interpretation of these findings as causal. The effect is also consistent with qualitative evidence. Secretaries of education often say in interviews that school performance is among the criteria considered for assessing directors and deciding on appointments. For instance, an education secretary replied to a question about how they decide whether to keep or replace a director by saying: “We use the school’s performance (for example on IDEB) as well as the relationship to families as the main criteria to decide whether we keep a director or not.”<sup>65</sup>

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<sup>62</sup>Secretary of education interviewed in the state of Rio de Janeiro in February 2017.

<sup>63</sup>If treatment effects are sometimes insignificant with bandwidths smaller than the optimal (likely due to reduced power from smaller samples), their size increases closer to the threshold.

<sup>64</sup>Programmatic parties are those having identifiable platforms, and are generally thought as less likely to rely on clientelism (Cruz and Keefer, 2015).

<sup>65</sup>Secretary of education interviewed in the state of Ceará in August 2017.

Another one said “IDEB is useful to rank schools, which helps management... And it is also useful when it comes to assessing the director. The school’s IDEB is a factor to decide if the director continues or not.”<sup>66</sup>

### 3.7 Summary of findings and implications

Patronage has traditionally been seen as a clientelistic exchange that hurts development, both from Weberian and principal-agent paradigms (Golden, 2003; Robinson and Verdier, 2013; Dahlström and Lapuente, 2017; Xu, 2018). Previous research in political science, public administration, and economics suggests, however, a brighter side of patronage. In comparative politics, some scholars have highlighted the beneficial uses of patronage for party building (Sorauf, 1960; Huntington, 1968), integrating isolated communities into the nation (Weingrod, 1968), aggregating interests (Scott, 1969), reducing the risk of coups (Arriola, 2009), or supporting a variety of state building projects (Grindle, 2012). Recent research in economics recognizes that, theoretically, patronage may enhance organizational effectiveness in public bureaucracies (Brollo et al., 2017; Xu, 2018; Colonnelli et al., 2019). In public administration and in American politics, researchers have long seen political appointments as an instrument for politicians to gain control over policy and implementation (Peters and Pierre, 2004; Lewis, 2008; Kopecký et al., 2016). Yet, existing theories of the benefits of patronage either do not directly address the impact on public service delivery, fail to spell out mechanisms and scope conditions, and/or do not provide causally identified evidence. This chapter contributes to fill this gap.

The core of my argument is that political appointments and connections provide bureaucrats with *upward embeddedness* (political, social, and professional ties to politicians) which can make them more effective and accountable in the delivery of public services. Upward embeddedness works by giving bureaucrats access to material and immaterial resources, providing politicians with monitoring technology, facilitating the application of sanctions and rewards, aligning their priorities and incentives, and increasing mutual trust. These resources, which together may be seen as a *governance technology*, can be leveraged for extracting rents, for delivering public services, or for both. In the following chapters I show how patronage in the allocation of jobs around elections can hurt public service delivery, either because it is geared towards electoral mobilization (Chapter 4) or because it seeks to stack the deck against the opponent before leaving office (Chapter 5). Others

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<sup>66</sup>Secretary of education interviewed in the state of Paraíba in August 2018.

have also studied how patronage can be a rent-seeking strategy targeted at rewarding supporters (Colonnelli et al., 2019; Barbosa and Ferreira, 2019). This chapter focuses on the often-overlooked benefits of patronage. I argue these benefits are more likely to be net positive in the appointment of street-level managers (like school directors) in developing contexts where politicians value the delivery of public goods but face human capital and financial constraints on their capacity to attract and motivate bureaucrats to perform.

The main empirical contribution of the chapter is to provide causally identified evidence of the benefits of political appointments for bureaucrats' effectiveness and accountability. It does so by leveraging administrative and survey data of municipal bureaucracies in Brazil, a setting where multiple appointment systems coexist. Using a difference-in-discontinuities, I show that the quality of schools with appointed directors decreases (relative to that of schools with un-appointed directors) when the mayor loses the re-election. This is consistent with political connections facilitating bureaucratic effectiveness. Using a regression discontinuity, I show that appointed directors (but not un-appointed ones) are less likely to be replaced when they meet a highly visible school quality target. This is consistent with politicians using new information on director performance to decide which ones to keep and which ones to replace, thus holding directors accountable for the quality of the schools they manage. I explore the mechanisms of political appointments and connections through original, large surveys of street-level managers and politicians, as well as through conjoint experiments embedded in them. Correlational analyses show that appointed bureaucrats tend to have more meetings with local politicians, and to express higher levels of trust in and alignment with them. Conjoint experiments show that both street-level managers and politicians perceive bureaucrats with upward embeddedness as better at communicating with the government and responding to its demands. Quantitative findings are grounded on 121 in-depth interviews with bureaucrats, politicians, and anti-corruption agents. Interviews provide rich accounts of how upward embeddedness can be leveraged to enhance the effectiveness and accountability of street-level managers.

The chapter has several implications for the study of bureaucratic politics and governance, and for policies of public sector reform. The findings suggest that politics in the developing world can be a source not only of corruption, misallocations, and other "government failures" (Devarajan and Khemani, 2018), as is often assumed, but also of governance resources that can help overcome development challenges. While the costs of patronage have long been studied (Pollock, 1937), the advantages that upward embeddedness can provide for enhancing bureaucrats' accountability and effectiveness in public service delivery have been largely overlooked. In certain contexts, the chapter

has shown, these advantages may outweigh the costs. Therefore, the common prescription that bureaucracies be highly depersonalized and insulated<sup>67</sup> can actually be detrimental for development, at least when such a reform is not preceded by significant increases in human capital, which usually take decades to accrue. The fact that we observe robust cross-country correlations between governance outcomes and the separation of bureaucrats and politicians ([Dahlström and Lapuente, 2017](#)) does not necessarily imply that imposing such separations where they do not exist will be beneficial.

The evidence presented here does not mean that patronage is necessarily preferable to civil service systems. Patronage may however be a second best for some developing contexts. By drawing attention to the governance technology that patronage provides, the chapter helps us better understand the connection between patronage and rent extraction. Political appointments and connections influence not only who enters the bureaucracy and how much they work, but also and perhaps most importantly, *how* they work. This explains why patronage can be useful both to extract rents and for developmental projects, and may be one of the reasons why it is such a prevalent phenomenon around the world, even in high-income democracies.

In the short term, a more productive policy approach may be to establish formal and informal mechanisms that increase politicians' concerns with public service delivery. The easiest of these may be establishing strong information systems that provide regular, detailed, and credible measurement of the performance of local bureaucracies, and the widespread dissemination of easy-to-digest results. Measuring performance and communicating the results to local actors has been shown to improve bureaucratic effort ([Muralidharan and Sundararaman, 2010](#)) and effectiveness ([De Hoyos et al., 2019](#)). Widespread and reliable performance metrics can also contribute to make politicians value service delivery, especially when accompanied by incentive schemes, communications campaigns, and oversight mechanisms. While transparency initiatives geared towards citizens often fail to foster accountability ([Lieberman et al., 2014](#); [Kosack and Fung, 2014](#)), politicians, bureaucrats, and oversight agents like auditors and prosecutors are likely to understand, process, and act on the information because they have direct responsibilities to do so. While ending politician discretion in appointments (through civil service systems or bureaucratic elections, for example) usually requires politically costly reforms that may be hard to sustain when imposed from above, collecting and delivering data on the performance of local bureaucracies can be a relatively inexpensive way to

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<sup>67</sup>Proposals to insulate bureaucrats from political influence are recurrent in academic and policy circles. In Brazil, bills in both the federal House of Representatives and the Senate have proposed to constrain the political appointment of school directors ([PL 1672/2019](#) and [PLS 321/2014](#), respectively).

encourage the use of that political discretion for the improvement of service delivery. A complementary strategy suggested by the chapter would be to boost the management skills of street-level managers through training programs. More management skills would increase the quality of service delivery, especially when complemented with public data about bureaucratic performance.

The chapter also has novel implications for our understanding of how political turnover impacts the bureaucracy. Other research focused on Brazilian local governments has shown that political turnover can disrupt the bureaucracy through the hiring of campaign supporters and co-partisans (Colonnelli et al., 2019; Barbosa and Ferreira, 2019) or the replacement of school personnel, including directors (Akhtari et al., 2018). Chapter 5 shows that political turnover can hurt public service delivery through increases in the firing, hiring, and resignation of public employees. Results presented in this chapter suggest a different, complementary mechanism through which political turnover can disrupt public bureaucracies, even in the absence of bureaucratic turnover: the undermining of connections between bureaucrats and public officials. Disruption therefore does not depend on bureaucratic turnover. Neither does the connection between political and bureaucratic turnover depend on a system of political appointments. In Brazil, political turnover increases the turnover not only of politically appointed directors but also elected or tenured ones. Even in Sweden, political turnover significantly increases the turnover of agency heads, despite very strong legal protections of their meritocratic recruitment, autonomy, and fixed terms (Dahlström and Holmgren, 2019). The frequent policy prescription of using civil service regimes to shield the bureaucracy from political influence puts too much faith on the power of formal institutions, and neglects the multiple channels through which political turnover can influence bureaucrats, with or without affecting their turnover. While more research is needed on the different mechanisms through which political turnover affects bureaucrats and public service delivery, ultimately there is a fundamental tension between the democratic commitment to electoral accountability and the desire for a completely impersonal and politically shielded administration of the state.

## Chapter 4

### Political bureaucratic cycles: How governments use patronage around elections and how it hurts public service delivery

If we want to understand how patronage is leveraged for rent seeking, we need to look first and foremost at its uses around elections. Elections, at least when they are fair and competitive, are a key moment that punctuates political careers at all levels. Even when the incumbent's political survival is not at stake, elections constitute a unique moment for incumbents to mobilize support, measure the strength of their bases, and discourage opposition. During elections, therefore, politicians are likely to intensely mobilize the resources at their disposal, even if that requires bending the rules. Government jobs are, for most governments, a central tool in their electoral toolbox. This Chapter presents a theory of how governments mobilize bureaucratic inputs (government jobs) and outputs (public service delivery) around elections, through what I call political bureaucratic cycles. In so doing, this Chapter connects the study of patronage to the study of other policy instruments that politicians mobilize around elections.

For decades, political scientists and economists have studied how politicians' manipulation of economic policy around elections leads to cycles in economic outcomes and/or economic policy. The basic idea is that, in order to increase their chances of re-election, politicians change their economic policy right before the election, in what are often seen as economically suboptimal policy choices that un-smooth government spending and economic activity. This results in what are called political business cycles (related to economic output) or political budget cycles (related to

government policy tools like spending).<sup>1</sup> Studying these cycles is useful not only because they have the potential to shape economic policy and outcomes, but also because they provide a window through which to study broader questions of accountability, democracy, and representation.

While this research agenda has accumulated a significant body of formal models and empirical results – essentially showing that politicians manipulate economic policy variables in advance of elections, at least when they have both the incentives and the ability to do so–, there are three significant gaps in the literature that this chapter contributes to fill in. First, we still do not know much about the temporal dynamics of these cycles, largely because existing studies have used annual, bi-annual or at most quarterly data to measure cycles. Second, little is known about the strategic targeting of policy tools around elections (namely, who the winners and losers of political cycles are). Last but not least, few studies have established a connection between cycles in inputs or policy tools (such as spending or hiring), on one hand, and cycles in outputs and outcomes (such as public service delivery or human development). This chapter contributes to filling these three gaps in the literature on political business/budget cycles, and to bridging the gap between the study of patronage and the study of clientelism.

I propose the concept of *political bureaucratic cycles* to refer to politically-produced cycles in both bureaucratic inputs (public sector jobs) and bureaucratic outputs (public employees' production). Jobs are one of the most important spending categories for governments around the world, and are one of the main distributive tools used by governments in developing countries. In fact, to try and constrain the use of public jobs as a clientelistic tool in general and especially around elections, several countries (including Brazil, the Philippines, and Colombia) have imposed legal constraints on governments' discretion to hire in the period immediately preceding an election. A fourth key contribution of this chapter is to examine the relationship between cycles and these bans on hiring around elections.

In Brazil, like in other countries (like the Philippines and Colombia) there are legal constraints on hiring around elections precisely to contain the use of public employment for electioneering. In Brazil, two laws constrain municipal government's discretion for hiring around elections: the Fiscal Responsibility Law and the Electoral Law. These laws, which were all approved before 2001, have correlates in similar legal provisions in other countries like Colombia or the Philippines.

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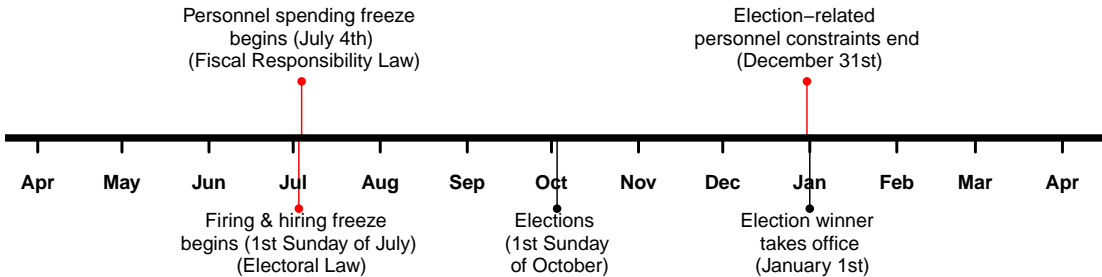
<sup>1</sup>I focus on cycles caused (at least partly) by politicians' actions around elections, but there are also electoral cycles that are not driven by politicians' actions (Block and Vaaler, 2004), and political cycles that are not driven by elections (Guo, 2009).

The Fiscal Responsibility Law (LRF, *Lei de Responsabilidade Fiscal*) was approved as a response to pressures for monetary and fiscal discipline, and problems of fiscal asymmetry between the three levels of the federation (Loureiro and Abrucio, 2004). The most important provision for the purposes of PBCs is that it mandates personnel expenses not to increase during the 180 days before the end of a government’s mandate, i.e. roughly three months before and after the elections. The goal was to limit the potential fiscal costs of governments’ electioneering through the hiring of bureaucrats.

The Electoral Law, on the other hand, forbids hiring, firing or transferring bureaucrats 3 months before and after the election, with the exception of positions of trust, and forbids salary adjustments that exceed inflation during the whole election year. The intention of the law is to prevent behaviors that would hurt the equality of opportunity of candidates running for office. The result of these two laws, which act from different rationales (one fiscal and one electoral) is a period of roughly 3 months before and after the elections in which it is significantly harder for municipalities to hire and fire, illustrated in Figure 4-1.

Finally, the Ineligibilities Law mandates that no public employee can run for office, such that employees who wish to run for office need to take paid leave (if they are tenured) or simply abandon their jobs (if they are not tenured) 3 or 6 months before the election, depending on their post. The candidacy of people who are still government employees during the said period can be challenged before electoral courts.<sup>2</sup>

Figure 4-1: Timeline of election cycles in Brazil



The Fiscal Responsibility Law and the Electoral law establish tough penalties for violation of these rules, sometimes referring to the penalties in other pieces of legislation.<sup>3</sup> For example,

<sup>2</sup>A more detailed description of the legal limits on hiring and firing is included in Appendix E.3.

<sup>3</sup>Including a decree from 1967, the penal code, the 1992 administrative dishonesty law, and the 2002 fiscal crimes law.



mayors who do not comply with the constraints on hiring around elections are subject to penalties of 1-4 years of prison, losing their post, and being disqualified for election for 5 years. Mayors and other local officials are held accountable by multiple instances, including the state audit court and the state prosecutor's office, which was prosecutors deployed throughout the territory. For example, a secretary of management said that prosecutors "are very well informed [of government abuses] because the opposition is strong and they often report. [Prosecutors] receive reports from opposition city councilors."<sup>4</sup>

Recent cases reported in the media demonstrate that these laws are enforced. For example, the former mayor of Chupinguaia in the northern state of Rondônia was condemned to 18 months of prison for increasing personnel expenses during the last 180 days of his mandate.<sup>5</sup> The former mayor of Marília in the southeastern state of São Paulo was recently condemned also for increasing personnel expenses towards the end of his mandate. As a result, his political rights were suspended for 8 years, he was stripped of any public jobs he may had held, he was forbidden from contracting with public governments for 5 years, and he was imposed a fine equivalent to twice the financial loss to the municipality resulting from the increases in personnel.<sup>6</sup> The mayor of Maragogipe in the northeastern state of Bahia was condemned in October 2017 to pay a fine of BRL 53,000 in October 2017 for dismissing 104 temporary workers shortly after the election.<sup>7</sup>

My argument about political bureaucratic cycles (PBCs)<sup>8</sup> has four main elements. First, I retrieve an idea found in early formal models of PBCs but rarely addressed empirically if at all: that rules designed to contain PBCs may simply displace or even exacerbate them. I argue that PBCs are the result of the combined pressures of electoral incentives and legal constraints. In contexts where elections are competitive (such that electoral incentives are strong enough), legal constraints shape and displace, rather than contain, the cycles. From that basic idea and from the institutional design of the country I study – Brazil –, I deduce a number of hypotheses about the

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<sup>4</sup>Secretary of management interviewed in the state of Rio Grande do Norte in June 2018.

<sup>5</sup>"Chupinguaia: Ex-prefeito é condenado a um ano e meio de reclusão", Extra de Rondônia, July 25, 2017, <https://www.extraderondonia.com.br/2017/07/25/chupinguaia-ex-prefeito-e-condenado-a-um-ano-e-meio-de-reclusao/> (last accessed in April 2020).

<sup>6</sup>"Ticiano Dias Toffoli é condenado por improbidade administrativa", Jota, October 10, 2018, [https://www.jota.info/paywall?redirect\\_to=//www.jota.info/justica/ticiano-dias-toffoli-condenado-10082018](https://www.jota.info/paywall?redirect_to=//www.jota.info/justica/ticiano-dias-toffoli-condenado-10082018) (last accessed in April 2020).

<sup>7</sup>"Juiz multa prefeita e vice de Maragogipe por demissão irregular de temporários", Bahia Notícias, October 13, 2017, <https://www.bahianoticias.com.br/noticia/213491-juiz-multa-prefeita-e-vice-de-maragogipe-por-demissao-irregular-de-temporarios.html> (last accessed in April 2020).

<sup>8</sup>Throughout the chapter, I use the acronym PBCs to refer to the broad concept of political cycles, be it in economic outputs (political business cycles), economic policy tools (political budget cycles), or my proposed concept of cycles in bureaucratic inputs and outputs (political bureaucratic cycles).

cyclical behavior of hires and dismissals in electoral years. Second, and in line with the traditional literature on PBCs, I argue that political bureaucratic cycles are stronger where politicians have the incentive and the ability to manipulate public employment. From that idea I deduce some hypotheses about how and why PBCs intensify in certain types of localities and for temporary contracts. Third, I propose a theoretical framework to examine the clientelistic nature of PBCs, bridging the gap between the literatures on PBCs and clientelism. From that exercise I deduce some hypotheses about the targeting of jobs during the electoral cycle. Fourth and last, I argue PBCs are best understood when we connect political inputs (such as public employment) and outputs (such as public service delivery). I hypothesize that because of the combined effects of electoral incentives, legal constraints, and clientelistic targeting, bureaucratic outputs and outcomes worsen around elections.

Empirically, I study political bureaucratic cycles in Brazilian municipalities, a context with extraordinarily detailed data on public employment. I exploit restricted-access, identified, contract-level data on the universe of municipal employees between 2002 and 2016 (a period with four election cycles), as well as administrative municipality-and-month-level data on bureaucratic outputs in the healthcare sector. I use time-series cross-section regressions of over 1 million municipality-month observations. The exogenous timing of municipal elections (which are held on the first Sunday of October every four years) and the inclusion of over 70,000 fixed effects to finely control for local conditions allow me identify the dynamics of political bureaucratic cycles. This empirical strategy allows for much more disaggregated analyses that have been possible until now.<sup>9</sup> In fact, this is, to my knowledge, the first examination of PBCs using municipality-month data. The data also allow for a close examination of the strategic targeting of PBCs, which I start addressing by examining the educational and political background of those hired ahead of elections.

Regression results show that there are significant cycles in the hiring and firing of municipal bureaucrats around elections, which are consistent with politicians responding to *both* the electoral incentives and the legal constraints they face. The inflation of the bureaucracy does not take place in the months immediately before the election (when laws heavily constrain politicians' discretion in hiring) but earlier, in the months leading to the beginning of the personnel freeze. This suggests that rather than eliminating the cycles, the legal constraints shape them. Political bureaucratic cycles in hiring and firing appear much stronger where incumbents have the ability and the incentive

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<sup>9</sup>Most of the literature has traditionally used yearly time-series cross-section regressions. [Labonne \(2016\)](#) shows, using quarterly and yearly data from the Philippines, that the level of aggregation can make a dramatic difference in our ability to observe PBCs.

to manipulate hiring, i.e. for temporary (rather than tenured) contracts, and where incumbents are exposed to higher levels of electoral competition. Some preliminary evidence of the targeting of jobs suggests political bureaucratic cycles are clientelistic in nature: low-education (and thus in expectation low-income) workers are more likely to be hired and fired around elections. Political insiders (measured as those who run for city council) are not more likely to be hired in the pre-electoral period. Finally, evidence shows that the production of healthcare bureaucracies (measured with the number of pre-natal care checkups, a key output in the healthcare sector) worsens around elections. This is consistent with the legal constraints on hiring around elections and the use of hiring for electoral purposes jointly disrupting public service delivery, in a way that can hurt human development.

The rest of the chapter is organized as follows. Section 4.1 reviews the literature on political budget/business cycles to which this chapter contributes. Next, Section 4.2 outlines a theory of political bureaucratic cycles, explains how it applies to the Brazilian context, and lists a number of testable hypotheses. Section 4.3 presents an empirical strategy to test those hypotheses, including research design and data sources. Sections 4.4, 4.5 and 4.6 present the quantitative results on how hiring and firing vary around elections, how they are targeted, and how they impact public service delivery, respectively. Section 4.7 concludes by discussing the findings' implications and by outlining the next analytical steps.

## **4.1 What do we (not) know about political budget/business cycles?**

A brief intellectual history of political budget/business cycles (PBCs) could be split between formal and empirical contributions. The formal contributions, which prevailed during the 1970s and 1980s, moved in three directions. First, the literature moved from examining cycles in economic outcomes (output, employment, inflation) to examining cycles in economic policy tools (spending, taxes, deficit), thus moving from political business cycles to political budget cycles. Second, scholars went from assuming myopic voters who are fooled by politicians to assuming rational voters and politicians in a situation of information asymmetry, with PBCs facilitating signaling at a cost in economic distortion (which would be observed by voters, although with a lag). Finally, the formal literature moved from discussing the rationale for PBCs to examining the institutional and political contexts in which they are likely to arise. The empirical literature has generally used national and subnational time-series cross-section data from around the world to measure PBCs on a wide range

of outcomes, including economic outcomes like unemployment, economic policy tools like spending, and also (although rarely) public employment. This has resulted in an impressive accumulation of evidence about the existence of PBCs around the world, and the conditions under which they are more likely to emerge. All in all, the literature suggests that politicians manipulate economic policy variables in advance of elections, at least when they have both the incentives and the ability to do so.

#### 4.1.1 The foundations: Formal models of PBCs

Among the early models of PBCs, perhaps the most influential contribution was that of [Nordhaus \(1975\)](#). His model basically posits that democratically-elected governments will aim at increasing their chances of re-election by manipulating the Phillips curve, with higher unemployment and lower inflation at the beginning of the mandate and a reverse pattern of lower unemployment at the cost of higher inflation towards the end of the mandate. The result, then, would be political business cycles and deviations from policies along the Phillips curve that are optimal on the long run. In the model, voters are rational in their retrospective assessment of the government, but myopic and ignorant of the macroeconomic trade-off, and thus “fooled” by the government time after time.

Later models questioned this assumption of irrational voters who are not able to anticipate the government’s behavior as elections approached, and modeled PBCs as fully rational equilibria. [Rogoff and Sibert \(1988\)](#) modeled electoral cycles in spending, taxes, and the money supply as a signaling equilibrium driven by temporary information asymmetries. In their model, voters observe government competence only with a lag, and thus incumbents of medium level of competency have an incentive to signal the effectiveness of their policies by setting a policy at a suboptimal level. In their model, PBCs occur even with fully rational voters who recognize incumbents’ incentive to temporarily distort the economy before elections. Similarly, [Rogoff \(1990\)](#) argues that temporary information asymmetries push incumbents to switch fiscal policies before the election towards easily observed consumption expenditures (and away from investment).

From the late 1980s, a number of models started considering how political and economic factors influence or constrain PBCs. A large number of contextual features have been considered here. Because their treatment has been more empirical than formal, I synthesize this literature on conditional PBCs below. A separate stream of work looked into partisan (as opposed to opportunistic) PBCs driven by differences in government parties’ preferences over unemployment and inflation,

moving away from the assumption of homogeneous government preferences (Hibbs, 1977; Alesina, 1987).

To sum up, formal models of PBCs generally moved in three directions in the 1970s and 1980s. First, the literature moved from examining cycles in economic outcomes (output, employment, inflation) to examining cycles in economic policy tools (spending, taxes, deficit), thus moving from political business cycles to political budget cycles. Second, scholars went from assuming myopic voters who were fooled by politicians to assuming rational voters and politicians in a situation of information asymmetry, with PBCs facilitating signaling at a cost in economic distortion (which would be observed by voters, although with a lag). Finally, the literature moved from discussing the rationale for PBCs to examining the institutional and political contexts in which they are likely to arise.

#### 4.1.2 The empirical approach: Panel-data studies of PBCs

Since the 1970s a vast number of empirical studies examining the existence and drivers of PBCs have been published. These studies typically use time-series cross-section regressions with election-year periods (sometimes together with dummies for pre- and post-electoral periods) to measure the effect of electoral periods on a wide range of economic variables. A first generation of studies examined cycles in unemployment and inflation, in line with the model put forward by Nordhaus (1975), and found mixed results (McCallum, 1978; Beck, 1987; Keil, 1988; Haynes and Stone, 1989).

A second generation of dozens (if not hundreds) of papers has examined PBCs in economic policy instruments, generally finding evidence of cycles although with significant heterogeneity. In the words of a recent review on the subject, “empirical tests of the PBC in instruments are much more convincing so that nowadays, tests in relation to outcomes are scarce” (Dubois, 2016, 242). The most common policy tools examined by these studies are government spending and revenue variables, such as overall level of spending (Besley and Case, 1995; Block et al., 2003; Khemani, 2004; Alt and Rose, 2009), level of spending by category (Akhmedov and Zhuravskaya, 2004; Veiga and Veiga, 2007; Saez and Sinha, 2010; Pierskalla and Sacks, 2018), share of government spending by category (Khemani, 2004; Drazen and Eslava, 2010; Brender and Drazen, 2013), tax rates (Besley and Case, 1995; Alesina and Paradisi, 2017), government deficit (Brender and Drazen, 2005; Shi and Svensson, 2006; Veiga and Veiga, 2007; Veiga et al., 2017), government revenue

(Brender and Drazen, 2005; Alt and Lassen, 2006; Veiga and Veiga, 2007; Covre and de Mattos, 2016), and government debt (Khemani, 2004).<sup>10</sup> A third generation of studies has started to look into economic outputs such as road construction (Khemani, 2004), electricity provision (Baskaran et al., 2015) and even non-investment GDP (Canes-Wrone and Park, 2012).

Public employment has also received some empirical attention, but results are pretty mixed. Drazen and Eslava (2010) find that Colombian municipalities contract payments to temporary workers in election years. Similarly, Tavares (2017) finds that non-tenure public employment and personnel expenditures fall in electoral years in Brazilian municipalities. On the other hand, Dahlberg and Mörk (2011) show that Finish and Swedish municipalities increase employment in electoral years. Labonne (2016) finds that both private and public sector employment increase in pre-electoral quarters in the Philippines. Pierskalla and Sacks (2019) find that Indonesian municipalities inflate the teaching force in election years. Cahan (2019) finds that state governments in the United States have higher levels of public employment in the quarter leading to state elections.

A significant part of the recent literature is concerned with identifying the institutional, political, and economic contextual features that mediate PBCs.<sup>11</sup> This has generally been done either by splitting the sample by a variable of interest, or by interacting the election-period dummies with indicators for such contextual features. The proliferation of papers using one of these empirical strategies may be understood as a way of exploiting PBCs to address issues of representation and accountability. As expressed by a recent review of this literature, “context-conditional political budget cycles provide a lens through which to study the extent to which voters are able to select, monitor, sanction, and control politicians – and the extent to which politicians serve their own interests at the expense of voters’ interests – in different political and institutional environments” (Alt and Rose, 2009).

Some of the contextual variables that have received theoretical and/or empirical attention in the conditional PBCs literature are electoral competitiveness (Schultz, 1995; Block et al., 2003), level of development (Shi and Svensson, 2006), level of democracy (Gonzalez, 2002), parliamentary versus presidential system (Persson and Tabellini, 2004), age of democracy and voters’ experience with elections (Brender and Drazen, 2005), media freedom (Veiga et al., 2017), transparency (Alt and Lassen, 2006; Vicente et al., 2013), partisanship (Kneebone and McKenzie, 2001; Sakurai and Menezes-Filho, 2011), partisan polarization (Alt and Lassen, 2006; Canes-Wrone and Park, 2012),

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<sup>10</sup>Some studies have looked at cycles in other policy tools such as the money supply and exchange rates (Block et al., 2003).

<sup>11</sup>For a review of this literature on conditional PBCs see De Haan and Klomp (2013).

party characteristics (Hanusch and Keefer, 2014; Pierskalla and Sacks, 2019), the electoral system (Persson and Tabellini, 2004), term limits (Klein and Sakurai, 2015), fiscal rules (Rose, 2006; Alt and Rose, 2009; Cioffi et al., 2012),<sup>12</sup> alignment with other levels of government (Chortareas et al., 2017; Sakurai and Menezes-Filho, 2011), the flexibility of different policies (Beck, 1987), and the returns to manipulating a given policy tool (Schultz, 1995; Treisman and Gimpelson, 2001).

Econometrically, this literature uses time-series cross-section datasets of either countries or subnational units, typically with country-year observations. The last decade has seen a marked move from national to subnational units, which allows researchers to keep many institutional features fixed. It has become increasingly common to use quarterly or monthly data, since – as noted by Labonne (2016)– using yearly data makes it harder to observe (and may even obstruct) cyclical patterns. With regards to causal identification, researchers typically assume that the timing of elections is exogenous. This assumption is reasonable in cases where the electoral schedule is enshrined in the constitution, but remains problematic in cases (such as parliamentary democracies) where governments decide on the timing of elections. There is a whole literature on the endogenous timing of elections and PBCs,<sup>13</sup> but since the work of Khemani (2004) it has become commonplace to instrument for election timing with the originally scheduled calendar. A couple of recent studies however take issue with the assumption of exogeneity even in the case of constitutionally scheduled elections, and have exploited the phase-in of elections (Pierskalla and Sacks, 2019, 2018) or special elections held after the death of an incumbent (Baskaran et al., 2015). In general, the identification of causal effects from the contextual variables has not been dealt with, and researchers often uncritically split their sample by or interact the election-period dummies with theoretically relevant variables. As for the estimation strategy, most studies include in their regressions lagged dependent variables, unit fixed effects, time-period fixed effects, and some control variables. To avoid Nickell bias (Nickell, 1981) resulting from the inclusion of fixed effects and lagged dependent variables, many papers use a GMM estimator (Arellano and Bond, 1991). Standard errors are usually corrected for serial and spatial correlation with one- or two-way clustering.<sup>14</sup>

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<sup>12</sup>The fiscal rules that have received most attention are balanced budget requirements, budget targets, and specific rules on spending around elections.

<sup>13</sup>I do not review these debates here because, since the timing of elections is not endogenous in Brazil, its findings are less relevant for this Chapter.

<sup>14</sup>Some papers have also tried to explicitly model the spatial dynamics between municipal governments in Brazil, be them driven by either spillovers or yardstick competition (Videira and Mattos, 2011; Covre and de Mattos, 2016).

### 4.1.3 Research frontiers

I identify three large frontier directions where the literature on PBCs seems to be moving, and to which my study of political bureaucratic cycles in Brazil contributes. First, more is to be gained from the use of increasingly disaggregated data. While recent studies have moved from the traditional yearly time-series cross-sections into biannual or quarterly data, I present analyses that exploit contract-level data. This not only allows for much more detailed analyses that finely address the temporal dynamics of PBCs, it also opens a whole research agenda on how hires and dismissals are targeted. This characterization of employees, both in terms of labor market experience and political connections, helps us bridge the gap between the literatures on PBCs and clientelism. Second, more can be done to analyze how political cycles in inputs or policy tools relate to cycles in policy outputs and outcomes. This, which requires detailed outcome data like the healthcare data I leverage here, can be critical for understanding the welfare implications of PBCs. Third and last, more progress can be done to causally identify heterogeneity in PBCs. The Brazilian context has a number of institutional and data features that make it a favorable environment to make progress in these three areas.

I view political bureaucratic cycles as resulting of the strategic behavior of politicians who are election-motivated and who have their choices constrained (significantly but not completely) by legal and fiscal limits. The theory applies especially to low- and middle-income contexts, where the returns to the political use of public employment are likely to be higher for two main reasons. In less developed contexts, where there are fewer job opportunities in the private labor market, the value of public jobs as a political currency increases. Second, governments in less developed contexts have less state capacity to distribute other benefits (such as human development services or infrastructure works) that may be valued by citizens but require more planning, more implementation capacity, and more coordination with higher levels of government and with the private sector. In these settings, therefore, the political value of public is also higher. Nonetheless, my theory could also apply high-income countries, and there is indeed evidence of political cycles in employment in OECD countries ([Dahlberg and Mörk, 2011](#); [Chortareas et al., 2017](#); [Cahan, 2019](#)). The theory and hypotheses emerged jointly from my reading of the literature and my interviews with prosecutors, politicians and bureaucrats.

My theory is innovative in two respects. First, I build on an early contribution of the formal literature that has rarely been empirically tested and argue that legal limits aimed at constraining PBCs simply displace them (and may even exacerbate them). I argue that when electoral incentives



are sufficiently powerful and politicians have administrative capacity to manipulate policy (two conditions that usually hold in settings of competitive elections, some state capacity, and legal constraints that “freeze” a policy instrument during a determined period of time around the election), legal constraints shape but do not remove PBCs. Simply put: if the incentives are strong enough, politicians will anticipate the freeze and manipulate policy when they are allowed to. Second, I connect theories of PBCs with theories of clientelism – two fields that have rarely been linked before. I argue that whether PBCs are clientelistic depends on three dimensions of public employment: *who* is being hired, *when*, and for *what* tasks. I develop each of these points below, while spelling out testable hypotheses for the empirical analysis.

## **4.2 What are political bureaucratic cycles?**

Building on decades of research on political budget/business cycles, I advance a theory of cycles in bureaucratic inputs (hiring and firing of government employees) and bureaucratic outputs (the activities bureaucrats perform). In Section 4.2.1 I present a theory of political bureaucratic cycles as resulting from the combined pressures of electoral cycles and legal constraints. Next, Section 4.2.2 provides a framework for thinking through the relationship between political bureaucratic cycles and clientelism strategies. Section 4.2.3 then discusses the output-side of political bureaucratic cycles, namely how the hiring and firing of bureaucrats around elections affects public service delivery and development outcomes.

### **4.2.1 Political bureaucratic cycles as a product of electoral incentives and legal constraints**

Most if not all of the literature on political business/budget cycles sees them as being suboptimal policy choices, and assumes that fiscal constraints imposed to contain them are welfare enhancing. I argue however that these limits may simply displace or even exacerbate PBCs, at least in contexts where politicians have both the incentive and the ability to manipulate policy around elections. With sufficiently powered electoral incentives, and competence in the use of public resources that experience gives, incumbents will work around the legal limits to engage in PBCs to boost their re-election chances. While the idea of fiscal limits having undesirable consequences was already present in one of the most cited formal contributions in the literature, it has not received much

attention since. Rogoff (1990) noted that PBCs may be a socially efficient mechanism for diffusing information about the government's competence. For instance, by boosting spending or employment, an incumbent may signal his ability to govern the economy. In his own words, "efforts to curtail the cycle can easily reduce welfare, either by impeding the transmission of information or by inducing politicians to select more socially costly ways of signaling" (Rogoff, 1990, 22).<sup>15</sup> Rogoff goes on to note (and argue formally) that "in practice, an incumbent has a wide array of fiscal actions with which he can signal, and it is not realistically possible to constrain him in all dimensions. If this is the case, then attempts to block signaling in one set of fiscal policy instruments will tend to exacerbate distortion in others. Indeed, attempts to suppress the political budget cycle may actually reduce the welfare of the representative citizen by inducing competent types to signal inefficiently" (Rogoff, 1990, 31).

My first high-level hypothesis is that, despite the strong constraints imposed by the Fiscal Responsibility Law and the Electoral Law, there are political bureaucratic cycles in Brazilian municipalities, which are in fact partly shaped by those constraints. While I do not directly test for the effect of legal constraints in this chapter, since they are stable during the period I study, I test a number of hypotheses about cycles that do stem from this idea that rules to control PBCs can have unintended consequences. In particular, I expect to find that the size of the bureaucracy expands in the second quarter of an electoral year (*hypothesis 1a*), ahead of the personnel freezes, because of incumbents' desire to use municipal employment to maximize their chances of re-election, and their anticipation of the legal limits. I expect hiring and firing to decrease in the third quarter, in line with the constraints imposed by the law (*hypothesis 1b* and *hypothesis 1c*, respectively). Following interviews, I expect firing to increase in the fourth quarter of an electoral year (*hypothesis 1d*), after the elections are held, as a result of incumbents' preoccupation with complying with fiscal discipline rules. Finally, I expect hiring to increase in the first quarter of a post-electoral year, namely after the end of the hiring freeze (*hypothesis 1e*).

The second high-level hypothesis I advance is that political bureaucratic cycles are most pronounced where politicians have both the ability and the incentives to manipulate hiring. In particular, I hypothesize political bureaucratic cycles to be more intense where the incumbent mayor is exposed to higher electoral competition (*hypothesis 2a*), and when they are eligible for re-election (*hypothesis 2b*), since incumbents will have more electoral incentives to manipulate hiring. I also hypothesize that cycles will be more pronounced for temporary than for tenured contracts (*hypothesis 2c*), since politicians face less legal constraints for manipulating temporary employment.

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<sup>15</sup>A similar idea was put forward by Tufte (1978, 149).

## 4.2.2 Political bureaucratic cycles as a clientelistic phenomenon: A two-dimensional framework

At face value, political bureaucratic cycles may appear as a clientelistic phenomenon. Scholars of clientelism have long studied the critical role that jobs pay in clientelistic equilibria (Wilson, 1961; Chubb, 1982; Auyero, 2001; Golden, 2003; Stokes et al., 2013). In fact, jobs have been argued to be a particularly valuable clientelistic exchange since they are a targetable and reversible channel for redistributing income (Robinson and Verdier, 2013). I argue however that jobs are a unlike any other benefit, given the potential of the labor force being used in a programmatic way. In this section I develop a framework distinguishing two dimensions of the distribution of public jobs around elections: who is hired, and for what tasks. This two-dimensional framework allows for a more nuanced understanding of the clientelistic nature of political bureaucratic cycles, and can guide its empirical assessment in different contexts. In so doing, this section links the literatures on PBCs and on clientelism, two fields that have rarely been connected before.<sup>16</sup>

The first dimension of the clientelistic nature of PBCs is the mechanism through which jobs are distributed, along a continuum between more and less meritocratic criteria. The second dimension is the way in which the government uses that newly acquired labor force, where there is a continuum between more programmatic work and pure rent extraction. On one end, if hires increase ahead of the election but their distribution is meritocratic and employees are being asked to deliver public services to the whole population, PBCs may be a rent seeking phenomenon (in that politicians are using public employment to increase their chances of re-election) but not a clientelistic one (in as much the public bureaucracy is expanding to the benefit of all). On the other extreme of the spectrum, if hires increase ahead of the election merely to put public money into the pockets of political supporters and/or to boost their campaigning abilities, PBCs would be closer to pure rent seeking. An intermediate scenario would be one where political supporters are hired for delivering public services, thus mixing clientelistic and programmatic strategies. Table 4.1 offers a typology of political bureaucratic cycles based on these two dimensions of clientelism around jobs.<sup>17</sup>

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<sup>16</sup>To my knowledge, the only studies of PBCs that establish a direct dialogue with the clientelism literature are Hanusch and Keefer (2014) and Pierskalla and Sacks (2019).

<sup>17</sup>This typology builds on, and departs from, the conceptualization of distributive politics put forward by Stokes et al. (2013, 7). The authors differentiate non-programmatic politics targeted at individuals by whether benefits are contingent on individuals' political support (if not, they call it nonconditional benefits) and, if they are, by whether benefits are targeted at party members (which they call patronage) or at voters at large (which they call vote buying or turnout buying).

Table 4.1: A two-dimensional typology of political bureaucratic cycles

		Main criterion for allocating job:	
		Merit / ability	Political support
Main use of labor force:	Public service delivery	<i>Programmatic PBC</i>	<i>Hybrid PBC</i>
	Politically selective service delivery and/or political campaign		<i>Political machine PBC</i>

Further connecting the literatures on clientelism and PBCs is useful in at least two fronts. First, given the importance of elections to clientelism, examining political bureaucratic cycles can help us understand the reasons for the persistence of patronage systems (Grindle, 2004) and their decay (Weitz-Shapiro, 2012). Second, the conceptual and theoretical tools of the clientelism literature can be mobilized for examining who benefits from PBCs.<sup>18</sup> In particular, micro-level data like the one available in the Brazilian context can be leveraged to study whether hires around elections are targeted at mobilizing core supporters or at activating those who would not otherwise support the government, an issue that has received both theoretical and empirical attention in the clientelism literature (Nichter, 2008; Stokes et al., 2013). Third and last, examining the clientelistic nature of political bureaucratic cycles allows for better normative, political, and developmental assessments of the phenomenon in different countries. For example, one may hypothesize that the political bureaucratic cycles identified in Scandinavia (Dahlberg and Mörk, 2011) are closer to the programmatic ideal type than those identified in the Philippines (Labonne, 2016). Testing that hypothesis however requires an examination of how the jobs are targeted and how the labor force is used, which the Brazilian data enables to some extent.

In Brazil, public employment in small and medium municipalities has long been seen as a clientelistic phenomenon. This is reflected in old and new academic literature (Leal, 1948; Colonnelli et al., 2019), and commonly emerges in interviews. The adviser to a judge in a municipality of Ceará told me that “at the time of elections, these small municipalities of the interior turn into two sides [...] because of people’s need for municipal contracting of services and hiring of personnel.” A secretary of education in another municipality of the state said “in municipalities in this area, politics is very influential [on hiring], since [the municipal] government is the largest employer.” Following this idea, I hypothesize that political bureaucratic cycles in Brazil are eminently clientelistic. Now, what kind of clientelistic strategy do political bureaucratic cycles follow? Gans-Morse et al. (2014)

<sup>18</sup>The issue of who benefits from PBC’s is rarely addressed in the literature, with one rare exception being Khemani (2004).

propose a two-dimensional framework based on whether the recipient of a good is a supporter or not, and whether they are inclined to vote or not. As a first empirical approximation, I hypothesize that if PBCs are aimed mostly at buying votes or turnout, we should observe that those hired before the elections have lower levels of education (*hypothesis 3a*), since clientelistic efforts are rationally targeted to poorer voters (Stokes et al., 2013). If PBCs are aimed at mobilizing core supporters, we should observe that people who previously ran for city councilor are more likely to be among those hired ahead of elections (*hypothesis 3b*). Finally, if the goal of PBCs is to reward supporters, we should see hiring to be targeted at candidates in the post-electoral period (*hypothesis 3c*).

### 4.2.3 Political bureaucratic cycles in bureaucratic outputs

Electoral incentives for manipulating the bureaucracy ahead of elections, legal constraints to do so, and clientelistic strategies could all contribute to a decline in service delivery around elections. First, if the legal constraints reduce politicians' discretion at hiring and firing around elections, it may be harder to manage bureaucracies effectively. Second, elections may draw political and labor resources away from the normal running of bureaucratic activities, with efforts of politicians, bureaucrats, or both, focused on electioneering. Third and last, to the extent that PBCs are clientelistic the induction of core supporters into the bureaucracy may make it harder for professionals to work and decrease their motivation to exert effort. On the other hand, if PBCs are programmatic in nature, one would observe an improvement of service delivery ahead of elections, at least in areas that are highly visible and/or salient to voters. Following interviews, I hypothesize that bureaucratic outputs (that is, public service delivery) decline in the months immediately before as well as after the election (*hypothesis 4a* and *hypothesis 4b*, respectively). Since public service delivery has a causal impact on development outcomes, I hypothesize that bureaucratic outcomes decline before and after elections as well (*hypothesis 4c* and *hypothesis 4d*, respectively).

Table 4.2 synthesizes the hypotheses about political bureaucratic cycles, and how they relate to the empirical results presented in Sections 4.4, 4.5, and 4.6. These hypotheses were developed based on the literature, Brazil's institutional environment (and in particular a close reading of the relevant laws), and dozens of in-depth interviews with agents in the field, in a variety of economic and political contexts.

Table 4.2: Political bureaucratic cycles: Mapping of theory to empirics

General hypotheses	Specific hypotheses	Test
1. There are cycles in public employment in line with electoral incentives and legal constraints	1a. Hiring expands in the second quarter of an electoral year	Figure 4-2a
	1b. Hiring contracts in the third quarter of an electoral year	Figure 4-2a
	1c. Firing contracts in the third quarter of an electoral year	Figure 4-2b
	1d. Firing expands in the third quarter of an electoral year	Figure 4-2b
	1e. Hiring expands in the first quarter of a post-electoral year	Figure 4-2a
2. Cycles are more pronounced where politicians are able and motivated to manipulate hiring	2a. Cycles are more pronounced where there is more electoral competition	Figure 4-3a
	2b. Cycles are more pronounced where the mayor is eligible for re-election	Figure 4-3b
	2c. Cycles are more pronounced for temporary, rather than tenured contracts	Figure 4-2
3. The hiring during cycles is targeted according to clientelistic strategies	3a. Hiring in the second quarter of an electoral year targets low-skilled workers	Figure 4-4
	3b. Hiring in the second quarter of an electoral year targets political insiders	Figure 4-5
	3c. Hiring in the third and fourth quarters of an electoral year targets political insiders	Figure 4-5
3. Bureaucratic outputs and outcomes decline around elections	4a. Bureaucratic outputs decline in the second quarter of an electoral year	Figure 4-6a
	4b. Bureaucratic outputs decline in the third quarter of an electoral year	Figure 4-6a
	4c. Bureaucratic outcomes decline in the second quarter of an electoral year	Figure 4-6b
	4c. Bureaucratic outcomes decline in the third quarter of an electoral year	Figure 4-6b

### 4.3 How to measure political bureaucratic cycles?

To test these hypotheses on political bureaucratic cycles, I leverage time-series cross-section regressions using micro-level data of all municipal employees between 2002 and 2016.

#### 4.3.1 Identifying political bureaucratic cycles

I follow the common practice in the PBC literature and estimate time-series cross-section models with indicators for the periods before and after the election, controlling for a lag of the dependent variable with municipality-month panel data from 2002 to 2016. I improve on existing approaches in the literature by controlling quite flexibly for seasonality and local shocks by including month and municipality-year fixed effects. I estimate the following equation leveraging over 1 million

municipality-month observations:

$$Y_{iym} = \sum_{j=2}^J \alpha_j \mathbf{I}[j = iy] + \sum_{n=2}^{12} \theta^n \mathbf{I}[n = m] + \sum_{p=1}^{12} \beta^p D_{iym}^p + \gamma Y_{iym-1} + \varepsilon_{iym} \quad (4.1)$$

$Y_{iym}$  is a given outcome (for example, the number of new contracts or dismissals) for municipality  $i$  in year  $y$  in month  $m$ .  $\sum_{j=2}^J \alpha_j \mathbf{I}[j = iy]$  is a set of municipality  $\times$  year fixed effects, which flexibly control for municipality-and-year-specific characteristics (such as levels of economic or political development), as well as for municipality-specific yearly shocks that may affect hiring, such as variations in municipal government revenue or local labor markets.  $\sum_{n=2}^{12} \theta^n \mathbf{I}[n = m]$  is a set of month fixed effects, which control for monthly shocks common to all municipalities and thus account for underlying seasonality in public employment (for example, due to fiscal-year trends).<sup>19</sup>  $D_{iym}^p$  is an indicator for whether observation  $iym$  belongs to electoral cycle period  $p$ , where electoral cycle periods are defined as the 12 months between April of an election year and March of the post-election year, i.e., roughly 6 months before and after the first round municipal elections.  $\beta^p$  are the coefficients corresponding to those 12 electoral cycle periods.  $Y_{iym-1}$  is a lag of the dependent variable.<sup>20</sup> Finally,  $\varepsilon_{iym}$  is an idiosyncratic error term. I cluster standard errors at the municipality level to allow for arbitrary serial correlation and heteroskedasticity.

The coefficients for the electoral cycle periods,  $\beta^p$ , identify the presence of PBCs as long as the timing of elections is independent of the potential outcomes of observation  $iym$  or, more formally,  $D_{iym} \perp\!\!\!\perp \{Y_{iym,1}, Y_{iym,0}\}$ , where  $Y_{iym,1}$  is the potential outcome of observation  $iym$  under elections and  $Y_{iym,0}$  its potential outcome without elections. The fact that since 1998 elections in Brazil always take place on the first Sunday of October, as per the constitution, makes treatment exogenous in this setting. On the other hand, the treatment is not probabilistic, since elections take place at the same time for all municipalities. This would be of particular concern for estimating PBCs if we did not have data for multiple electoral cycles, such that we could not separate seasonality and election effects – in that case, for example, we would not be able to tell whether public employment decreases in the fall due to elections or to an idiosyncratic shock that coincided with elections.

<sup>19</sup>I take January as the baseline category, so the January fixed effect  $\theta^1$  drops from the estimating equation.

<sup>20</sup>While the inclusion of a lagged dependent variable and fixed effects may raise concerns about Nickell bias (Nickell, 1981), this sort of bias is proportional to  $1/T$ , where  $T$  is the number of periods in the panel, and is thus negligible in this setting, with over 179 periods in baseline models. Moreover, Beck and Katz (2011) show that, with a large  $T$ , OLS outperforms the usual instrumental-variable corrections such as the one proposed by Arellano and Bond (1991).

With four municipal election cycles in the period I study (2002-2016), one might still worry about confounding but it is hard to think of a confounder that would be unrelated to elections but would systematically alter patterns of bureaucratic inputs and outputs every four years, coinciding with the municipal electoral season.

I estimate Equation 4.1 with a number of dependent variables. For my baseline models, I use the flow of contracts (new contracts and dismissals) and the stock of contracts, for all contracts, for tenured contracts, and for non-tenured contracts. These are count variables with a skewed distribution, so I use a natural log transformation, adding 1 in order to keep the observations with zeroes since the log of 0 is undefined. I then show robustness to alternative solutions such as not logging the dependent variable, logging it and dropping observations with zeroes, and using a non-linear model. I also examine political bureaucratic cycles in numbers not of contracts but of unique individuals and of Brazilian reais corresponding to contracts (as per their mean salary). Finally, I switch from examining bureaucratic inputs (jobs) to studying bureaucratic outputs and outcomes. I do so by exploiting municipality-month data on healthcare outputs and outcomes available from the Ministry of Healthcare, from 1995 to 2016. Here I focus on pre-natal care checkups<sup>21</sup> and on child and infant deaths due to avoidable causes.

To measure heterogeneity in PBCs, I expand the regression in Equation 4.1 to include covariates that the literature suggests condition PBCs, including the level of electoral competition (measured by the fragmentation of mayoral candidate votes in the previous election, using a Herfindahl index),<sup>22</sup> whether the mayor is in their first term (and thus eligible for re-election), the mayor's partisanship (using the three-categories classification of parties of Power and Zucco Jr (2009)), whether the mayor is a co-partisan of the President, and whether the mayor is re-elected. In the case of electoral competitiveness, which is the only continuous variable, and in order not to bias results by imposing linearity (Hainmueller et al., 2018), I generate a dummy variable based on whether an observation is at or above the median. To examine heterogeneity in PBCs, I interact contextual variables with both the electoral-cycle period dummies and the month fixed effects, as per the equation below:

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<sup>21</sup>Data for pre-natal checkups is only available until 2015.

<sup>22</sup>The Herfindahl index is a common metric of market fragmentation, defined as  $H = \sum_{n=1}^N v_n^2$ , where  $N$  is the number of candidates for mayoral elections and  $v_n$  is their vote share.



$$\begin{aligned}
Y_{iym} = & \sum_{j=2}^J \alpha_j \mathbf{I}[j = iy] + \sum_{n=2}^{12} \theta^n \mathbf{I}[n = m] + \sum_{p=1}^{12} \beta^p D_{iym}^p + \gamma Y_{iym-1} + \\
& + \sum_{k=1}^K \left( \sum_{n=2}^{12} \phi_n^k C_{iym}^k \mathbf{I}[n = m] + \sum_{p=1}^{12} \delta_p^k C_{iym}^k D_{iym}^p + \lambda_k C_{iym}^k \right) + \varepsilon_{iym}
\end{aligned} \tag{4.2}$$

Where  $C_{iym}^k$  is the value that observation  $iym$  takes on the  $k^{th}$  covariate, either 1 or 0. Coefficients  $\delta_p^k$  correspond to the difference in the association between each election cycle period dummy and the outcome of interest for units where the  $k^{th}$  contextual variable is present and those where it is not. Note that the base term of the contextual variables  $C_{iym}^k$  drops out of the estimating equation in most cases because it is perfectly collinear with the municipality  $\times$  year fixed effects.<sup>23</sup>

### 4.3.2 Data

I exploit three sources of administrative data. First, micro-level data of the universe of municipal jobs, obtained from the Ministry of Labor. Second, administrative data on elections and candidates' characteristics, from the Supreme Electoral Court (TSE). Third, data on healthcare outputs and outcomes at the municipality-month level, from the Ministry of Healthcare.

The main data source is the Ministry of Labor's RAIS dataset (*Relação Anual de Informações Sociais*), which includes the universe of formal labor market contracts, from 1985 to 2016, with employer and individual identifiers. All employers, including municipal governments, are legally obliged to enter data for all their employees in RAIS. Nowadays this is typically done by generating a file at the end of the year, using human resources management software, and submitting it to the Ministry of Labor. As bureaucrats at the Ministry of Labor and at two secretariats of management explained to me, politicians are pressured to enter contracts into RAIS because without that report to the federal government the employee's eligibility for a public pension or for PASEP (a transfer for low-paid public employees) is compromised.

For each contract, the data contain among other variables the employer and the employee's

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<sup>23</sup>The exception being alignment with the President, the only contextual variable that has within-year, within-municipality variation.

unique identifiers; the date of hire and fire;<sup>24</sup> the contract's type, the job's professional category, hours, and salary; and the employee's age and level of education. I use municipal government employer ID's<sup>25</sup> to identify municipal employees. As shown in Appendix D.1, for each year RAIS contains data on millions of contracts in municipal employment, roughly two thirds of which correspond to tenured civil servants. The table also illustrates two important limitations of the dataset. First, between 1 and 5 percent of the municipalities do not show up as having any employee. Second, unique identifiers for employees are very low quality in 2002, and unavailable before that date. I thus focus my analyses in the period 2002-2016. In order to keep panels balanced, I exclude from the analyses observations corresponding to the 661 municipalities that, in at least one of the years between 2002 and 2016, showed up as having 0 employees in the month of January, including municipalities that did not exist in the beginning of the period.<sup>26</sup> This leaves me with a balanced panel of 4,909 municipalities, 73,647 municipality  $\times$  year and month fixed effects, and 878,711 observations for baseline models.<sup>27</sup>

For bureaucratic outputs I use data from the Ministry of Healthcare at the municipality-month level. First, as a measure of bureaucratic outputs I look at the number of pre-natal care checkups done by doctors or nurses, at clinics or at home.<sup>28</sup> As a measure of bureaucratic outcomes I look at the number of deaths for children aged 1-4 due to avoidable causes, namely those attributable to weaknesses in the healthcare system.<sup>29</sup> Pre-natal, infant and child health are critical for human development and good indicators of the quality of healthcare systems, as signaled by the inclusion of child and maternal mortality as highly visible indicators in the United Nations' Millennium Development Goals ([United Nations General Assembly, 2000](#)) and the Sustainable Development Goals ([United Nations General Assembly, 2015](#)). Despite significant improvements over the past few decades, child health figures continue to be alarming in some areas of Brazil. By 2010, child

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<sup>24</sup>For some years the data reports the day, month and year, while for others only the month and year is reported. This determines the need to analyze data at the monthly level.

<sup>25</sup>Municipal employer ID's (CNPJ, *Cadastro Nacional da Pessoa Jurídica*) were obtained from the Ministry of Finance's National Secretariat of the Treasury (STN, *Secretaria do Tesouro Nacional*).

<sup>26</sup>The number of municipalities has grown from 4,491 in 1991 to 5,570 today.

<sup>27</sup>See Appendix D.1 for a characterization of municipalities failing to report employment data to RAIS, and a discussion of the implications of this missing data issue. In essence, these are less developed municipalities where (for reasons of capacity, corruption, or both) PBCs should be more pronounced. To the extent that is true, their omission from my data biases my results towards zero.

<sup>28</sup>The data are collected by municipal secretariats of healthcare, consolidated by state governments, and cleaned by the federal government's Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*). More information is available [here](#).

<sup>29</sup>The data are collected by municipal secretariats of healthcare using official death records, and reported to the federal government. The data are then aggregated in the Mortality Information System (SIM, *Sistema de Informações sobre Mortalidade*). More information can be found [here](#).

mortality rates was still 1.72% for the whole of Brazil (compared to 0.5% in high-income countries), with some municipalities having rates around 5%. Similarly, maternal mortality is still relatively high, at about 64 deaths for every 100,000 live births in 2016 (compared to 4 in Finland). Adequate pre-natal care is considered by the World Health Organization as a critical ingredient of effective healthcare systems and in particular to reduce maternal and infant mortality. Recent guidelines recommend 8 pre-natal checkups ([World Health Organization, 2016](#)).

In the sections below I present give sets of results. First, I present results from estimating Equation 4.1 with different outcomes, which show that municipal employment has marked patterns of political bureaucratic cycles, consistent with politicians responding to both legal constraints and electoral incentives. Second, I present results about conditional bureaucratic cycles stemming from estimating Equation 4.2 on the logged number of contracts, by contract type. These results show that cycles are more pronounced in contexts of higher electoral competition, consistent with the hypothesis that cycles are most pronounced where politicians have the incentive to manipulate hiring. I also show that cycles are more pronounced for temporary contracts (where politicians have more discretion) than for civil service contracts. Third, I estimate Equation 4.1 with the share of employees with below-median education, thus showing that the pre-electoral expansion in hiring is targeted at less educated people. This is consistent with politicians targeting jobs in a clientelistic manner to low-income citizens. Next, I estimate Equation 4.1 with the share of employees who are core political supporters (measured as whether they run for city council), and find that they are more likely to be fired before the election and to be hired after it. Fifth and last, I present results from estimating Equation 4.1 with data on the number of pre-natal check-ups and the number of avoidable child deaths, respectively. Results show that outputs (but not outcomes) of the healthcare bureaucracy worsen before and after the election. This is consistent with PBCs having a negative correlate in public service delivery.

## 4.4 Cycles in hiring and firing

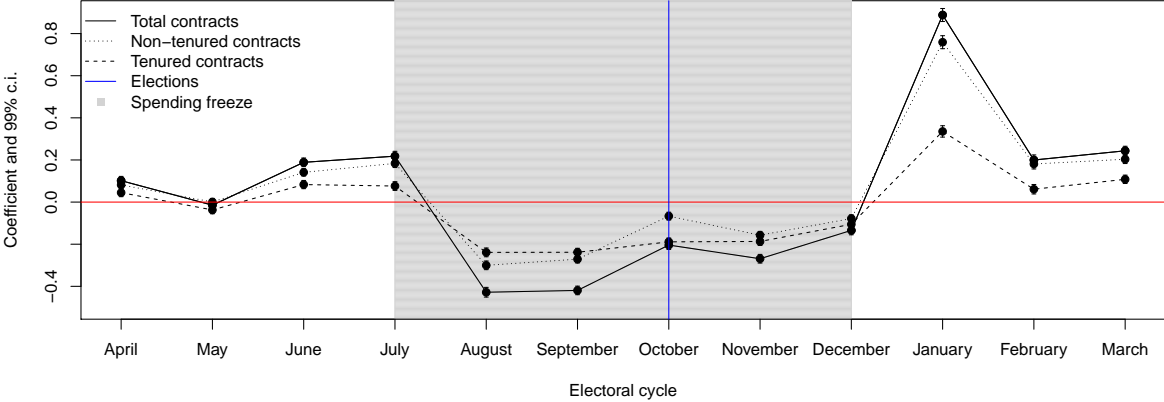
My baseline models examine the existence of political bureaucratic cycles in the inflow and outflow of the logged absolute number of contracts, by contract type (all, tenured, and non-tenured), following Equation 4.1 in page 151.<sup>30</sup> Figure 4-2 plots the coefficients of interest, namely the monthly election-cycle period fixed effects (the vector of  $\beta$  coefficients in Equation 4.1) together

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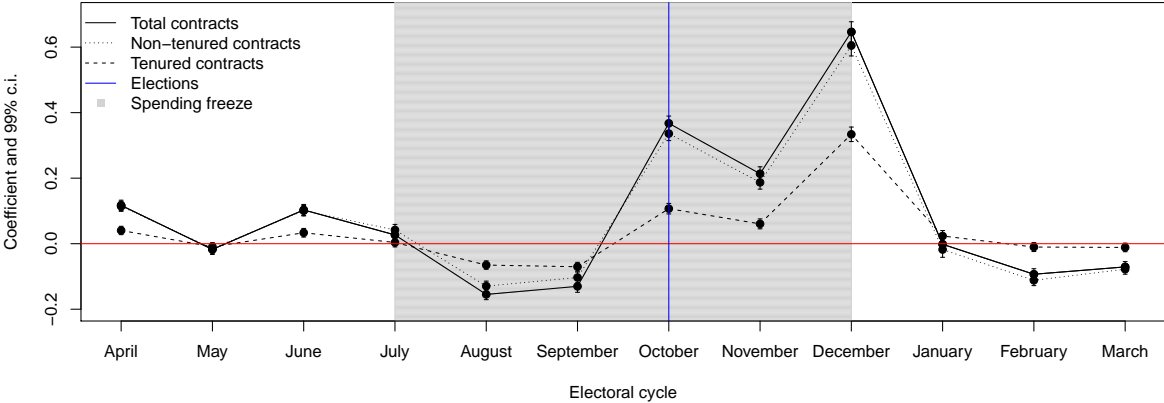
<sup>30</sup>Appendix G.2 shows results for stock variables as well.

with their 99% confidence interval. I join each coefficient by a line that differs by contract type, with each line corresponding to a separate regression. Table G.1 in page 274 in the Appendix presents the results of these nine regressions.<sup>31</sup> The results show that, net of overall seasonality and of highly granular local conditions (thanks to the inclusion of municipality  $\times$  year fixed effects), hires and dismissals have cyclical patterns around elections, consistent with hypotheses 1a-1e. As expected, these patterns are significantly more pronounced for temporary contracts (for which politicians have higher degrees of discretion) than for tenured contracts (although these show cyclical patterns as well), which is consistent with hypothesis 2c.

Figure 4-2: Monthly election cycle effects on logged absolute number of contracts



(a) Inflow of contracts



(b) Outflow of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

<sup>31</sup>For the sake of brevity, for all other models I only show results in figures.

Looking at the results for hires first (Figure 4-2a), we see that municipal governments expand hiring in the months leading up to the legally binding personnel freeze, particularly in June and July.<sup>32</sup> Hires are then lower than in off-election years for the months under the personnel freeze, especially before the election but even after the election in October. This is consistent with politicians responding to legal constraints, especially at a time when horizontal accountability institutions (like state prosecutors and audit courts), media outlets, and opposition parties are likely to be particularly attentive to potential irregularities. Finally, there is a large peak of hires in the first few months of the post-election year, particularly in January, right after the spending freeze ends. These effects are statistically significant, in most cases with p-values below  $2 \times 10^{-16}$ .

The magnitude of these monthly election-cycle effects is large. Since the dependent variables are in the logged scale, coefficients are to be interpreted as follows: other things being equal, a municipality sees its outcome (e.g. hires) changed by  $100 \times e^{\hat{\beta}} - 100$  % in a given month of an electoral cycle. These effects are netted out of seasonality in municipal contracts (controlled for by month fixed effects) and of any municipality-specific effects that vary from one year to the next such as levels of economic or political development (controlled for by municipality  $\times$  year fixed effects). For small coefficients (roughly, between -0.2 and 0.2), it is a fair approximation to interpret the coefficient, when multiplied by 100, as the percentage change in the dependent variable corresponding to that month in the election cycle.

To be specific, the results show that the number of new municipal contracts in June of an electoral year is, other things being equal, about 20.8% higher than in June of a non-electoral year ( $p < 2 \times 10^{-16}$ ). This effect is stronger when we look only at non-tenured contracts (15.1%) than when we look at tenured contracts (8.6%). In contrast, hires in August are 34.8% lower in an electoral year than in a non-electoral year, other things being equal ( $p < 2 \times 10^{-16}$ ). In December, hires are lower than in non-electoral years by about 12.6% ( $p < 2 \times 10^{-16}$ ). In January of an election cycle (i.e. the first month of the post-election year, when the hiring freeze is no longer in place), hiring is, other things being equal, 143% higher than in a January that does not follow elections ( $p < 2 \times 10^{-16}$ ). This major increase makes sense since it follows a 6-month period of personnel spending freeze and intensified vigilance over municipal finances. The expansion in the post-electoral year continues in February and March, with 22.1 and 27.6% more hiring than in the

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<sup>32</sup>The spending freeze in the Fiscal Responsibility Law starts 180 days before the end of the mayor's mandate, i.e. on July 4th. The hiring and firing freeze in the Electoral Law starts 3 months before the election, i.e. on the first Sunday of July. Therefore, hires on the first day of the month (which is the date when contracts tend to start) do not fall under the freeze period.

same months of non-post-electoral years respectively ( $p < 2 \times 10^{-16}$ ).<sup>33</sup>

Contract outflows also show cyclical patterns, as can be seen in Figure 4-2b. Outflows increase in the months leading up to the freeze, which is consistent with politicians anticipating the prohibition to fire in the last 6 months of the year. Outflows then decrease in the pre-electoral half of the freeze period, in line with the legal constraint. Outflows however increase massively after the election, in line with interviewees that suggested politicians compensate for the pre-electoral inflation by terminating contracts in the last quarter of the year. To be specific, results show that in August of an electoral year there are 14.3% less outflows than in August of a non-electoral year, other things being equal ( $p < 2 \times 10^{-16}$ ). On the other hand, outflows increase by 44.4 and 90.9 % in October and December of an electoral year respectively ( $p < 2 \times 10^{-16}$ ), which is consistent with the hypothesis that municipal governments use the post-electoral months to adjust their finances for the fiscal year, after the pre-electoral expansions.

A few clarifications are due here. First, positions of trust are not subject to the prohibition to fire contained in the Electoral Law. Second, some of these outflows may respond not to dismissals or ends of contracts, but rather to bureaucrats retiring or dying. These outflows however should not follow a cycle aligned with elections. Some of the outflows could however be due to bureaucrats' own decisions to leave before the end of a lame-duck mayor's term. Moreover, some of the outflows in April and July may be due to the restrictions of the Ineligibilities Law, which forces any municipal employees who are running for office to take leave of absence (if tenured) or renounce their post (if un-tenured). Nonetheless, as shown in Appendix G.3, the cycle of outflows is similar when subsetting only to outflows due to dismissals. While more work is needed analyzing outflows by whether they correspond to dismissals, resignations, or retirements, evidence suggests these political bureaucratic cycles in outflows are due mostly to actions of employers.

The effects shown in Figure 4-2 effects do not depend on the outcome of the municipal elections held in October. In Chapter 5 I use a close-races regression discontinuity design to show that an electoral defeat of the mayor exacerbates the contraction of the bureaucracy during the months before they leave office, and the expansion of the bureaucracy during the first few months of the incoming administration (partly to compensate for the previous contraction).

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<sup>33</sup>Temporary contracts in the education sector (the most important policy area in Brazilian municipal governments, both in terms of budget and of personnel) are often made later on, since the school year goes from March to December. Month fixed effects for all employees, healthcare employees and education employees are shown in Figures G-14, G-15 and G-16 respectively, in Appendix G.7. That is probably another reason why we see significant increases in hiring in February and March of post-electoral years.

To sum up, results show that hires increase in spending years before the spending freeze, decrease during its duration, and increase again after the end of the freeze, while dismissals increase heavily in the months between the election and the end of the year. Results are robust to different operationalizations of the dependent variable. To make sure that the cyclical patterns uncovered in Figure 4-2 are not driven by the particular way in which I operationalize the dependent variables, I replicated the analyses with different operationalizations. Results included in Appendix G.2 show similar patterns when we look at the logged number of hires and dismissals as a share of the stock in that given month (Figure G-2), the logged number of unique employees (Figure G-3), the logged number of Brazilian reais corresponding to contracts' mean salaries (Figure G-4), the un-logged absolute number of contracts (Figure G-5), or the logged absolute number of contracts excluding observations without adding 1 and thus omitting observations with a zero (Figure G-6).

Why do we observe cycles in civil service contracts? Figure 4-2 shows that cycles are more pronounced for temporary than for tenured contracts, consistent with politicians concentrating efforts where employment is easier to manipulate. But results show civil service contracts are not immune to political bureaucratic cycles. It may seem surprising that tenured contracts follow cyclical patterns, since civil service is often seen as isolating bureaucrats from political influence.<sup>34</sup> My quantitative results and my interviews in the field suggest that while tenured bureaucrats are more protected from political influence than non-tenured ones, they are not exempt from political dynamics. First, calls for hiring tenured bureaucrats are usually made by politicians, and thus the timing of hiring responds partly to political dynamics, also in high-income countries. Second, while hiring of tenured bureaucrats is usually more rule-bound than the hiring of temporary ones, the openings can still be targeted, for instance through general education or experience requirements. Third, exams for tenured bureaucrats are not immune to fraud and manipulation. Fourth, and this is not unique to the Brazilian context, the government is not obliged to hire those who pass a competitive examination for a tenured position. The government is legally obliged to hire in the order of performance in the exam, and to hire those approved for tenure before hiring temporary workers for the same job, but the timing of when those approved are made effective bureaucrats is often politically influenced (and may even depend on the relative placement of candidates in the exam). In fact, in a face-to-face survey of street-level managers I did representative of urban areas of all but the 17 largest municipalities in Rio Grande do Norte (n=926), over 33% of them said that politics influences quite a lot or a lot the hiring of tenured professionals. As for dismissals, the constitution allows for the dismissal of tenured bureaucrats under certain conditions (e.g. judicial

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<sup>34</sup>In fact, some studies examine PBCs in tenured bureaucrats as a placebo test, e.g. [Pierskalla and Sacks \(2019\)](#).

sentence, bad performance), although in practice most dismissals of tenured bureaucrats happen during the probationary period.

Beyond contract type, how do political bureaucratic cycles vary with the political context? A long literature on conditional PBCs has examined how factors such as political competition, partisanship, political alignment, or term limits affect the existence and magnitude of cycles. Despite the endogeneity problems that these kind of analyses have, here I present correlational evidence stemming from estimating Equation 4.2 with the following contextual variables interacted with the month fixed effects and the electoral-cycle month dummies: electoral competition (as measured by whether a municipality had a Herfindahl index below the median in the previous election), whether the mayor is in their first term and thus eligible for re-election, whether the mayor belongs to a left-wing, center, or right-wing party, whether the mayor belongs to the party of the President, and whether the mayor is re-elected in October.<sup>35</sup> I run separate regressions for hires and dismissals, and for tenured and non-tenured contracts.

Of these seven variables, only three show significant effects on political bureaucratic cycles: electoral competition, re-eligibility, and an electoral defeat of the mayor, as shown in Figure 4-3, where red and green lines stem from different regressions.<sup>36</sup> Incumbents who were elected under higher degrees of competition take – other things being equal – more pro-cyclical employment decisions, expanding both hiring and firing in June and July, and contracting hiring between August and December, more than in those same months off the electoral cycle when compared to incumbents elected under low levels of competition. This supports hypothesis 2b, and suggests that electoral incentives are associated to political bureaucratic cycles. While we cannot rule out these results respond to unobserved, time-varying confounders, the inclusion of the above-mentioned 7 contextual variables, together with month and municipality  $\times$  year fixed effects, lends support to the hypotheses that electoral motivations boost political bureaucratic cycles. Results for re-eligibility are quite imprecise. Results for electoral defeat are best measured using a close races regression discontinuity, as I do in Chapter 5. Conditional political bureaucratic cycles in civil service jobs, results for which are reported in Appendix G.6 are much less pronounced.

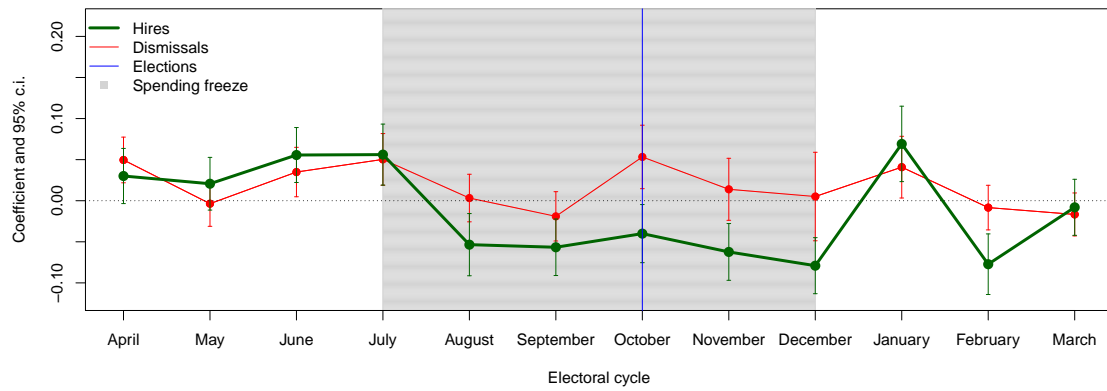
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<sup>35</sup>The choice of contextual variables included here responds to the literature and to data availability. In the future I will include other variables such as alignment with state government, poverty, and size of the municipal labor market as a share of the overall formal labor market.

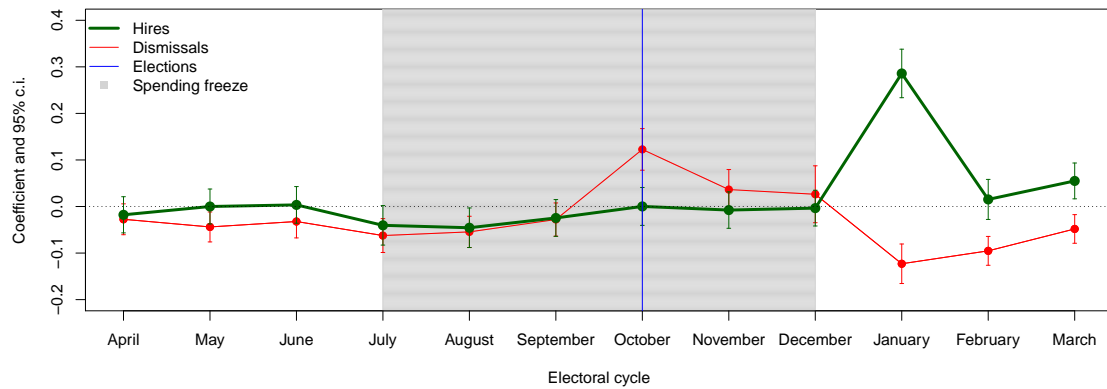
<sup>36</sup>Results for the partisan variables are not included here for brevity, but are available from the author.



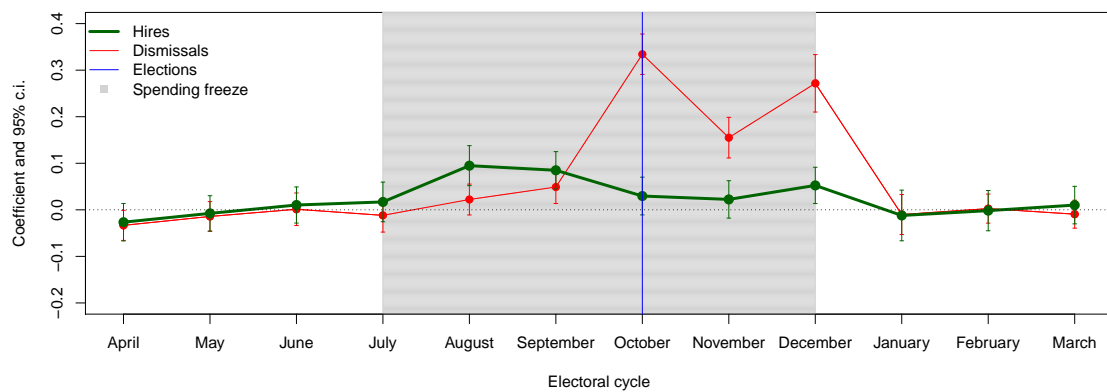
Figure 4-3: Conditional monthly election cycle effects on logged absolute number of non-tenured, municipal employees



(a) Monthly election-cycle effects conditional on high electoral competition



(b) Monthly election-cycle effects conditional on the incumbent mayor being on their first term



(c) Monthly election-cycle effects conditional on the incumbent losing the October election

Dots correspond to the interaction between election cycle effects and an indicator for heterogeneity ( $\hat{\delta}$  in Equation 4.2)

## 4.5 The targeting of jobs around elections

How do politicians target public employment decisions around the elections? And what can the data tell us about the clientelistic (versus programmatic) nature of such employment decisions? As a first approximation to these question, I examine PBCs in the share of municipal employees (hires, dismissals, and stock) with an education level above the median, i.e. more than a high school diploma. Results are shown in Figure 4-4.<sup>37</sup> Figure 4-4a shows that hires in June and July tend to have lower education levels on election years than off-cycle years, higher education levels between August and November, and again lower in January and February. This suggests that the pre-electoral inflation of the bureaucracy is targeted at individuals with low-education levels. This is consistent with hypothesis 3a and with these efforts being clientelistic, but could respond as well to politicians' desire to boost low-skill bureaucratic activities ahead of the election.

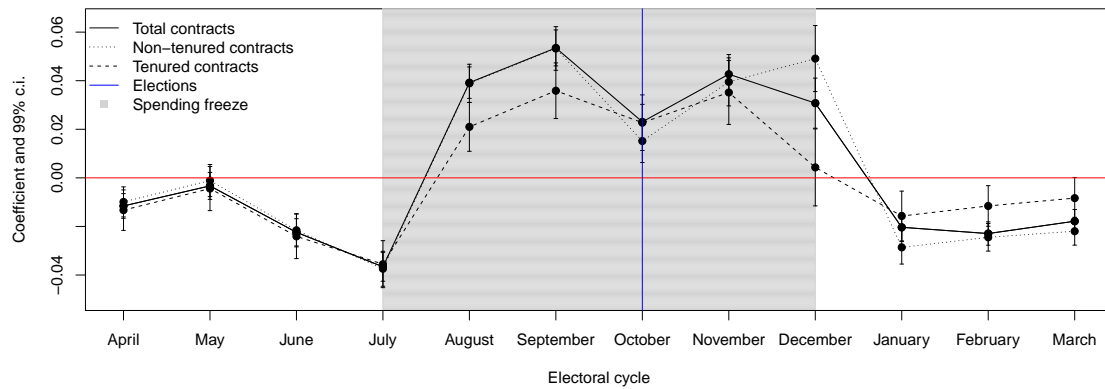
On the other hand, considering that hires contract during the second semester of an electoral year, it is perhaps not surprising that those who get hired in that period tend to have higher educational backgrounds (for example, it may be easier to justify the need to hire a teacher than a cleaner during the duration of the legal freezes on personnel). Figure 4-4b suggests that the contraction of the bureaucracy between the election and the end of the year is at the expense of less educated workers, who may be the more dispensable ones and the ones who are more easily fired. This also helps understand why in the beginning of the post-electoral year hires tend to concentrate in the low-education spectrum. Overall, this examination of the education levels of those hired and fired during election cycles suggests that PBCs may be clientelistic in that they are targeted at low-education (and thus, in expectation, low-income) individuals. This pattern might however also be consistent with programmatic PBCs where low-education employees are hired to boost low-skill activities that may be important for the provision of public services.

Qualitative evidence in general points towards the clientelistic use of public employment ahead of elections. An anti-corruption prosecutor in a municipality in Rio Grande do Norte said: "hiring always have a political bias, the trade of favors. The big problem starts with the election. [...] They hire a lot in the eve of the election." This is an overwhelming opinion among the prosecutors I interviewed. Another one in a municipality in Ceará referred to all temporary contracts as "political currency trading."

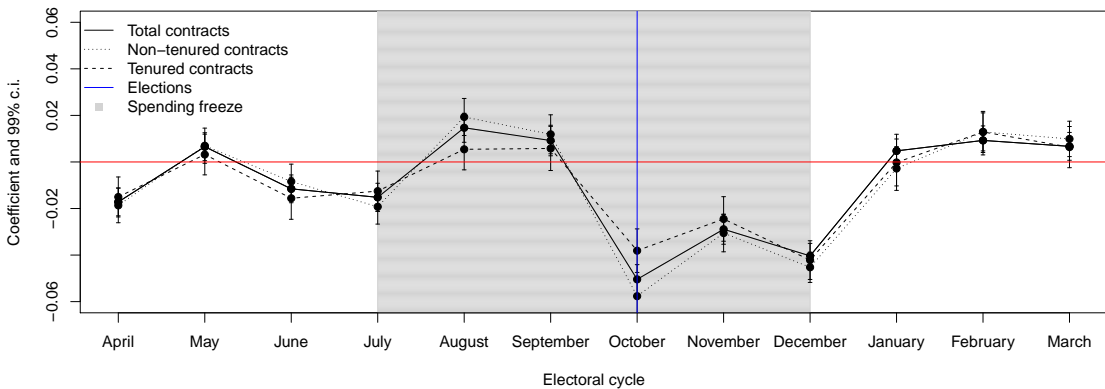
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<sup>37</sup>Note than in these regressions observations with 0 contracts drop from the estimating equation since division by 0 is undefined.

Figure 4-4: Monthly election cycle effects on the share of contracts corresponding to workers with more than a high school diploma



(a) Inflow of contracts



(b) Outflow of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

If PBCs are clientelistic, the next question is whether they are targeted at mobilizing core supporters or swing voters. One possible strategy would be to use the expansion of the bureaucracy to hire political supporters, and thus enable them to engage in political campaigns, or at least give them some income to pay for their support in the electoral period. I test this hypothesis by examining the relative presence of city council candidates in the municipality payroll. People who run for city council are generally political insiders – while only a minority of them will be elected at any given election, parties usually propose long lists of candidates, not least because an open list proportional electoral system makes it possible for candidates to get elected with few votes. Indeed, [Colonnelli et al. \(2019\)](#) have shown that electoral candidates are rewarded by incoming governments when their party wins office. A clear advantage of this measure of political support

is that there is reliable, identified data for all candidates. An alternative would be to use data on partisanship as [Barbosa and Ferreira \(2019\)](#) do, but party membership data, while public, is not as reliable and is identified by name and not by a unique identifier.

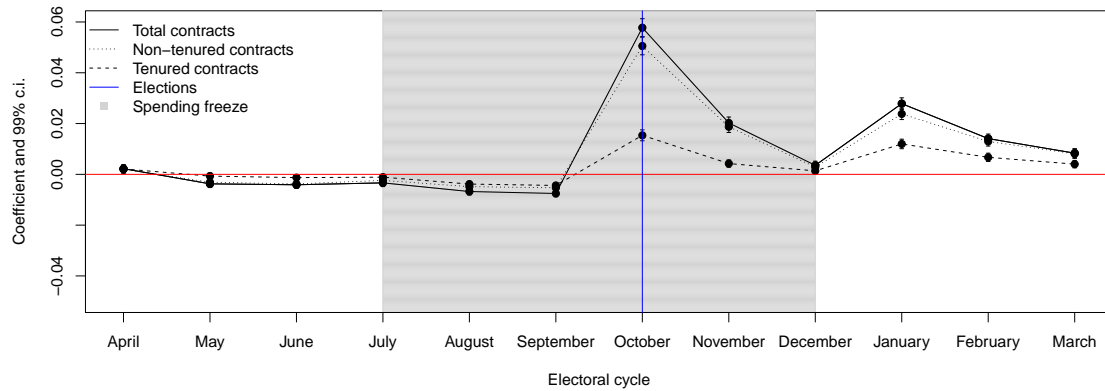
Results are shown in [Figure 4-5](#). This considers people who run in the previous election or in the upcoming one, but patterns are similar when considering only candidates who run in the current election. [Panel 4-5b](#) shows that candidates are more likely to leave the bureaucracy in the April, June, and July. This coincides with the period in which civil servants must leave their posts if they are to run, but the patterns survive when looking not only at bureaucrats who choose to leave but also at dismissals decided by the employer. One possible explanation is that some bureaucrats reveal their allegiance to other candidates when running for city council, and incumbents retaliate by firing them. Hiring before the election, on the other hand, is not targeted at candidates of either the past or the upcoming election. After the election, however, candidates are more likely to be hired, not only once the new government is sworn in (as shown in [\(Colonnelli et al., 2019\)](#)) but even during the transition period between October and December. This calls for further research into how core supporters are rewarded.

## 4.6 Cycles in public service delivery

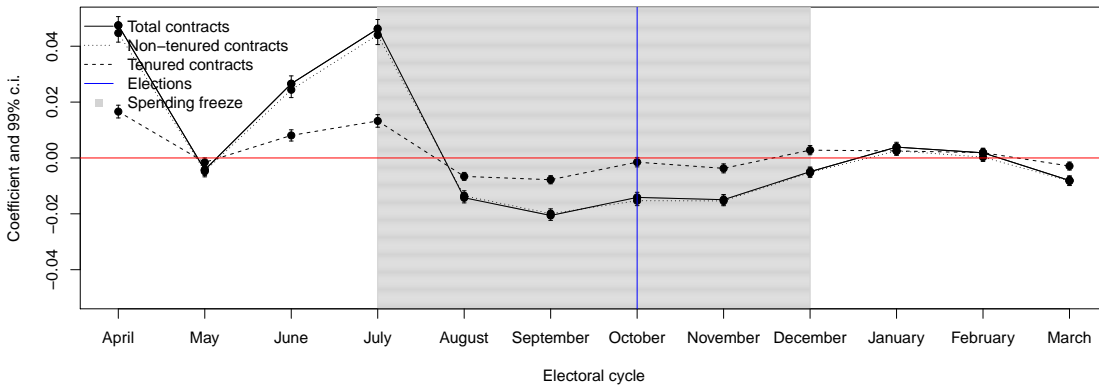
Do political bureaucratic cycles have a correlate in bureaucratic outputs and outcomes? I examine this by looking at two particularly relevant measures of bureaucratic results in the context of Brazilian municipalities: pre-natal check-ups and avoidable child deaths. Healthcare is the second most important policy area in municipal spending after education, and it comes up first among voters' priorities for municipal politics ([Boas et al., 2020](#)). Unlike education, the healthcare sector allows administrative monthly data on outputs and outcomes. Examining healthcare results allows me to examine whether the combined effects of the elections and the LRF limits on bureaucratic inputs have a correlate on bureaucratic outputs. If the expansion of the bureaucracy ahead of elections were programmatic, we would expect to see an improvement in bureaucratic outputs.

Results, shown in [Figure 4-6](#) suggest cycles in bureaucratic inputs shown in [Figure 4-2](#) are indeed associated with cycles in the results of the healthcare bureaucracy. First, [Figure 4-6a](#) shows that the number of pre-natal checkups decreases in the months around the election, from -2.6% in September to -10% in December, with  $p < 9.5 \times 10^{-7}$ ). Decreases are less pronounced but still significant for the first few months of the post-electoral year. While these results are not

Figure 4-5: Monthly election cycle effects on the share of contracts corresponding to workers who ran for city councilor in the preceding or in the upcoming election



(a) Inflow of contracts



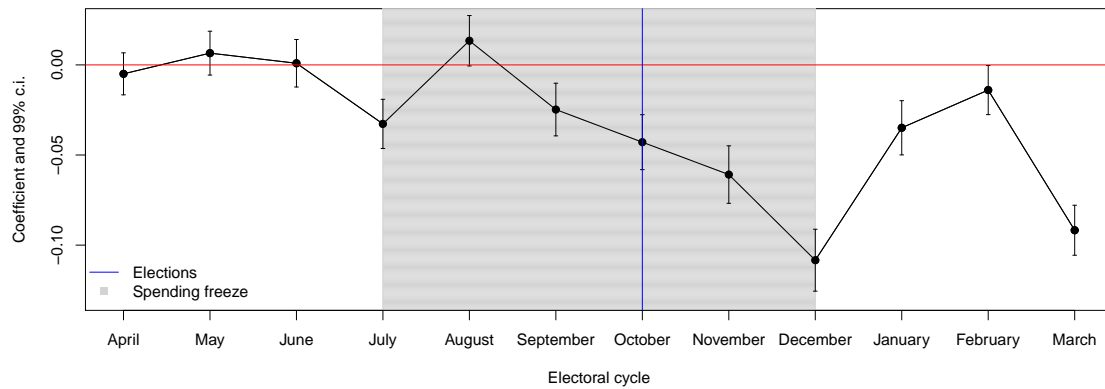
(b) Outflow of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

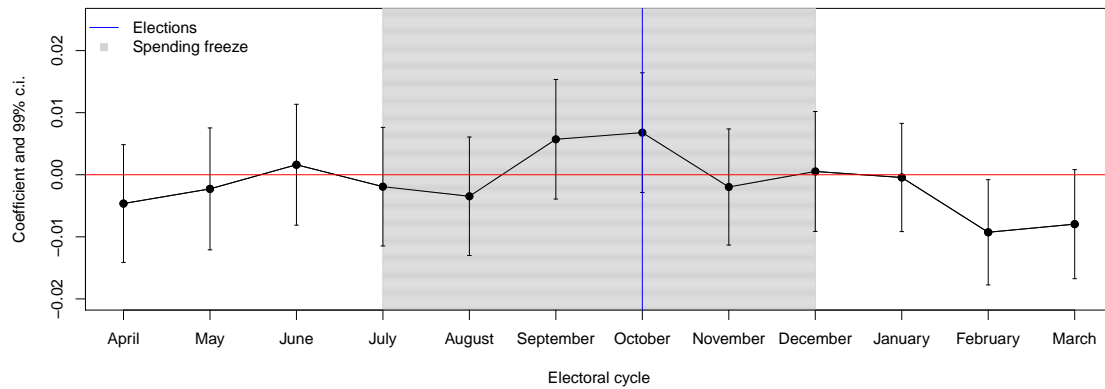
necessarily driven (exclusively) by the drop in hires and the increase in fires in the last few months of the year, it is reasonable to expect that they are at least partly related to them, and interviews with bureaucrats indeed suggest so. Moreover, I find very similar patterns of PBCs in jobs to those shown in Figure 4-2 when subsetting to healthcare professionals only, as shown Appendix G.4.

Figure 4-6b examines political bureaucratic cycles in one of the most important outcomes of a healthcare system, child deaths due to avoidable causes. This outcome is likely less elastic to the effects of hires and fires and, to the extent it responds to cycles in bureaucratic inputs, it does so with a lag. That is possibly the reason why we do not observe the same cyclical behavior in this outcome variable as we do in bureaucratic inputs and outputs. In fact, most of

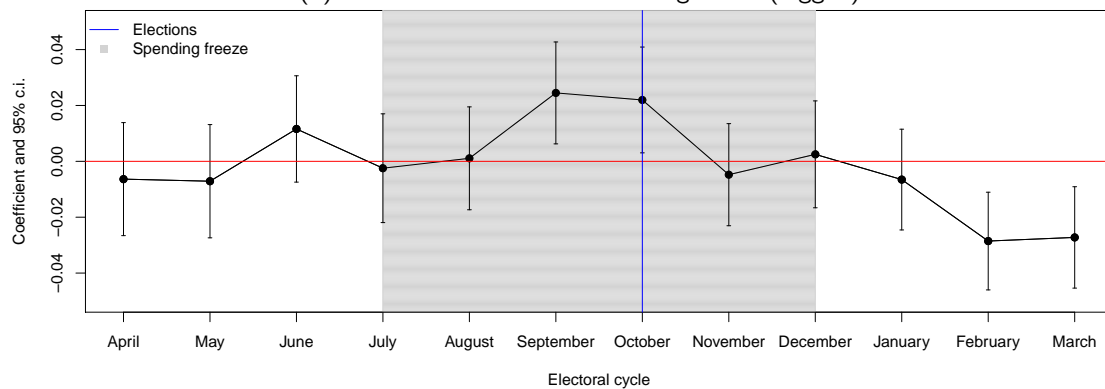
Figure 4-6: Monthly election cycle effects on outputs and outcomes of the healthcare bureaucracy



(a) Number of pre-natal check-ups conducted (logged)



(b) Avoidable deaths of children aged 0-4 (logged)



(c) Avoidable deaths of children aged 0-4 (not logged)

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

the electoral-cycle month coefficients are small and statistically indistinguishable from zero, except

for the positive coefficient in October (significant at the 90% confidence level) and the negative effects for February and March (significant at the 95% level). Interestingly however, these results suggest that the outcomes of the healthcare system may worsen on the month of the election, and improve shortly after the beginning of the post-electoral year. Results for infant deaths (babies of less than one year) instead of child deaths, reported in Appendix G.8, show a similar pattern.

To sum up, the evidence suggests that the results of the healthcare bureaucracy (at least those more directly measuring bureaucratic activity) worsen in the months around elections, which lends support to hypothesis 4a. This is consistent with PBCs in hiring and firing making it more difficult for local bureaucracies to deliver public services. It is possible that other public services (especially those that are more easily targeted and that constitute mostly one-off transactions) are actually expanded in the electoral period. In fact, [Nichter \(2011\)](#) finds that female sterilizations are more common on electoral years. The evidence presented here, however, suggest that transaction-intensive public services ([Pritchett and Woolcock, 2004](#)), like preventive healthcare, suffer as a result of the combined effect of legal rigidities and electoral incentives.

## 4.7 Summary of findings and implications

This chapter advances a theory of political bureaucratic cycles (namely, political cycles in the hiring and firing of bureaucrats, in the activities bureaucrats do, and in the results they achieve), and presented a number of empirical tests using data from Brazilian municipalities. In low- and middle-income environments, with limited private sector employment opportunities and limited government capacity for implementation, the distribution of public jobs is a critical political resource, particularly around elections. Building on decades of research on political business and budget cycles and on clientelism, I put forward a framework where political bureaucratic cycles emerge as the result of combined pressures of electoral incentives and well-meaning anti-corruption policies. I then present a number of testable hypotheses, which are grounded on dozens of interviews with municipal politicians and bureaucrats as well as state prosecutors across seven Brazilian states. I test these hypotheses using time-series cross-section regressions of over 1 million municipality-month observations to identify cycles in bureaucratic inputs and outputs, built with restricted-access administrative data on the universe of municipal bureaucrats from 2002 to 2016.

First, I hypothesized that municipal employment shows marked cyclical patterns around elections, shaped but not removed by the strong limits imposed on hiring in the electoral period by

two major laws (the Fiscal Responsibility Law and the Electoral Law). In time-series cross-section regressions controlling for municipality-and-year specific factors (with municipality  $\times$  year fixed effects) and for overall seasonality (with month fixed effects), I find strong evidence of political bureaucratic cycles in the hiring and firing of municipal bureaucrats. Specifically, I find that hiring expands in the second quarter of an electoral year (when compared to those same months in non-electoral years), contract in the last two quarters of an electoral year (when the personnel spending freeze is in effect), and expand in the first quarter of the post-electoral year. These effects, which are large and statistically significant at high levels of confidence, support the idea that, as a result of the combined incentives of elections and the LRF constraints, politicians manipulate hiring around election time.

Second, I hypothesized that cycles are more pronounced where politicians are able and motivated to manipulate public employment. Political bureaucratic cycles are significantly more pronounced in non-tenured contracts than in tenured ones, although there is evidence of cycles in hires and dismissals of tenured bureaucrats as well, which calls into question the common assumption that tenured bureaucrats are *completely* insulated from political influence. I also interact the monthly election cycle effects with a number of political covariates in order to identify some correlates of PBCs. Results suggest that higher levels of electoral competition in the preceding election are associated with stronger PBCs.

Third, I hypothesized that political bureaucratic cycles are clientelistic phenomena. I argue that the extent to which PBCs are clientelistic depends on the way jobs are distributed as well as on the use that governments make of their labor force. While much more work is needed to analyze the targeting of jobs, I find some preliminary evidence consistent with political bureaucratic cycles being clientelistic. On one hand, workers with an education level above the median (namely, more than a high school diploma) are less likely to be hired during the expansions of June and July, and less likely to be fired during the contraction period between October and December. This is consistent with politicians targeting short-term, electoral-period jobs to low-education (and thus, in expectation, low-income) workers. This could however also be consistent with programmatic political bureaucratic cycles, for instance if politicians chose to boost low-skill bureaucratic activities ahead of the election.

Last but not least, I hypothesized that as a result of both the rigidities imposed by the LRF during the last 6 months of a mayor's mandate and their clientelistic use of public employment, bureaucratic outputs and outcomes would decrease around elections, when compared to non-electoral



years. Using administrative healthcare data at the municipality-month level, I find that the number of pre-natal check-ups is systematically lower during the second half of electoral years (starting before the election). On the other hand, the number of avoidable deaths of children (a good measure of outcomes in the healthcare sector) does not systematically increase in electoral years.

The chapter makes a number of contributions, both theoretical and empirical. First, the chapter advances our understanding of the temporal dynamics of PBCs, partly thanks to the use of administrative, micro-level data. Second, the chapter questions the common assumption that legal and fiscal limits aimed at constraining PBCs are effective and welfare-enhancing, by showing that in fact, under the strict limits of Brazilian legislation, cycles persist and in fact are shaped to those constraints. Third, by linking data on bureaucratic inputs (jobs) to bureaucratic outputs (results of how that labor force is used), the chapter advances our understanding of how politicians' resource allocations and policy outcomes are connected. While others have examined cycles in policy outputs (e.g. [Baskaran et al. \(2015\)](#)), this chapter is to my knowledge the first study examining both bureaucratic inputs and outputs in the same empirical setting. Fourth, by using identified, contract-level data instead of the macro-level yearly or quarterly data commonly found in the literature, the chapter opens a whole set of theoretical and empirical questions about who is targeted by hires and fires in electoral cycles. This characterization, which I have only started here by examining the education level of those who are hired and fired around elections, allows us to better understand the strategies used by politicians, and in particular how they relate to clientelistic and programmatic rationales. By doing so, I hope to strengthen the dialogue between the literatures on PBCs and clientelism, two fields that I believe have a lot to gain from cross-fertilization.

Future work will have to look more systematically at how jobs are targeted (by education, experience, party membership, and other socioeconomic variables for which there is data) and analyze political bureaucratic cycles in a wider range of healthcare services, including less transaction-intensive ones. The chapter nonetheless opens up a research agenda looking at political bureaucratic cycles as a dependent variable. Future research could use close-races regression discontinuity designs (as in [Chapter 5](#)) to causally identify the effect of incumbent characteristics such as partisanship, re-eligibility, gender,<sup>38</sup> and alignment with state governments on PBCs. Other stream of work should causally identify the effect of special fiscal limits on PBCs;<sup>39</sup> and exploit those stronger

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<sup>38</sup>[Brollo and Troiano \(2016\)](#) show that female mayors engage less in patronage ahead of elections.

<sup>39</sup>In particular, one could test the hypotheses that PBCs are more pronounced when municipal finances are not close to or above the limits on personnel expenses imposed by the LRF, and where municipal employment represents a larger share of total formal employment. I expect these two variables to increase politicians' maneuver for engaging in cyclical policies and the returns to doing so, respectively.

LRF limits to identify the effect of PBCs on electoral outcomes and bureaucratic outputs.

## Chapter 5

### Turnover:

### How electoral accountability and lame-duck governments' strategies disrupt bureaucracies and public service delivery

If Chapter 4 describes how politicians manipulate public employment around elections, this chapter focuses on how patronage is used after elections, in the case when the incumbent loses the election. In particular, this chapter uncovers some of the strategic uses that lame-duck governments as well as incoming governments make of patronage. In so doing, the chapter emphasizes the intense politics of so-called “transition periods” and the dynamics of government turnover.

Theorists of representative democracy often see political turnover as one of the its fundamental ingredients. Przeworski famously defined democracy as “a system in which parties lose elections” (1991, 10). The turnover of elected officials is central to democracy from a variety of perspectives. First, political turnover, or the threat of it, is often seen as a disciplining device leading elected officials to be responsive to voter demands (Manin, 1997, 178). Second, political turnover can also be seen as resulting from prospective, rather than retrospective accountability, with voters using elections to select “good types” into office (Fearon, 1999). From these accountability perspectives, political turnover is an essential tool to reduce moral hazard and/or adverse election. Political turnover is also central to democracy from other points of view. From an elitist perspective on democracy, for example, iterated political turnover can be seen as ensuring that the losers of the election will accept the results of the election, since they have the prospect of coming back to power. Political turnover is, from this vantage point, critical for democratic survival, for compliance with

rules, and for reducing political violence (Popper, 1962; Przeworski, 1999). Political turnover is so central to our understanding of democracy that numerous polities around the world use term limits to force the turnover of executive and/or legislative elected officials, on the assumption that increasing turnover improves the quality of democracy.<sup>1</sup>

While political turnover has multiple benefits for governance and accountability, it also imposes some costs through multiple, concurrent dynamics of bureaucratic turnover that, when large enough, can disrupt public service delivery.<sup>2</sup> An electoral defeat of the incumbent can cause four dynamics of bureaucratic turnover: increases in dismissals, under both the outgoing and the incoming governments; increases in hiring of employees by the incoming government; increases in hiring of civil service employees by the outgoing government; and increases in resignations under both. These overlapping processes of bureaucratic turnover can have a deleterious effect on public service delivery, at least in the short term, because they lead to the disruption of teams of providers, and potentially to the induction of less experienced bureaucrats.

Political turnover is therefore best seen not as a discrete moment that occurs when election winners are sworn in, but rather as a process that starts when the election results that declare the defeat of the incumbent become certain. This process ends only months after the winner takes office, when new management teams have been formed. While uncertainty over who will get access to power is “inherent in democracy” (Przeworski, 1991, 12), such uncertainty characteristic of competitive elections in democracy gives way to very high certainty, typically in a matter of hours when most votes are counted and results are published. This chapter focuses on how that switch from uncertainty to certainty affects the turnover of bureaucrats and the activities public bureaucracies perform. These “transition periods” are not, as is commonly believed, periods of mere administration. Instead, they are periods of intensely political dynamics with important implications for development.

Recent research in political science, public administration, and economics has examined some of the effects of political turnover on public employment and service delivery, yet existing studies have some important limitations. First, most research to date typically examines year-to-year

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<sup>1</sup>While term limits are common in contemporary presidential systems, they are far from being a modern invention. In Ancient Athens, for example, members of the Boule (the executive council) could only serve two consecutive years, and were barred from serving more than twice in their lifetime (Thorley, 2004, 29).

<sup>2</sup>Throughout the chapter, I refer to the political turnover that occurs in consolidated democracies as a result of regular elections the results of which are accepted by an overwhelming majority of society. Political turnover resulting from coups, revolutions, and irregular elections can be expected to have more disruptive effects on bureaucracies, public service delivery, and private sector economic activity.

changes in public employment and/or public service delivery ([Barbosa and Ferreira, 2019](#); [Bolton et al., 2019](#); [Colonnelli et al., 2019](#); [Dahlström and Holmgren, 2019](#); [Doherty et al., 2019b](#); [Akhtari et al., 2018](#)). Implicit in this choice is a view of political turnover as a discrete moment that takes place when election winners are sworn in.

Examining month-to-month dynamics gives us a more detailed view of the turnover process, starting on the month of the election. This matters especially because some of the effects on bureaucratic turnover and on public service delivery may be of opposite signs under the lame-duck government and under the new administrations. For example, outflows of bureaucrats under the last few months of an administration may be compensated with inflows of bureaucrats at the beginning of the next administration; and declines in service delivery under lame-duck governments may be reversed in the initial stages of the winner's mandate. It is essential therefore to go beyond yearly data to measure those distinct political dynamics. [Doherty et al. \(2019a\)](#) examine month-to-month changes in employment, using data from a large survey of senior civil servants in the US.

Second, most previous studies of the effects of political turnover on public employment focus on either hires, dismissals, resignations, or a more generic measure of bureaucratic exit.<sup>3</sup> Electoral turnover may however affect differently the hiring, firing, and resignations of public employees, and examining these three outcomes separately, month by month, before and after election winners take office is critical for understanding the dynamics of turnover.

Finally, recent studies often examine the effect of political turnover by analyzing whether public employment outcomes differ on the first year of an administration, compared to other years ([Bolton et al., 2019](#); [Dahlström and Holmgren, 2019](#); [Doherty et al., 2019a,b](#)) This approach is not ideal to identify the causal effect of political turnover, since post-election years could be systematically different from other years regardless of the election outcome (for example, due to political budget cycles). It could also be that instances where the incumbent loses are systematically different (for example, more politically competitive) than those where the incumbent wins the reelection. While not feasible in all contexts, quasi-experimental approaches are better suited for identifying causal effects. [Colonnelli et al. \(2019\)](#), [Barbosa and Ferreira \(2019\)](#) and [Akhtari et al. \(2018\)](#) all use close-races regression discontinuity designs in the context of Brazilian local governments.

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<sup>3</sup>For example, data constraints do not enable [Dahlström and Lapuente \(2017\)](#) and [Bolton et al. \(2019\)](#) to identify the reasons behind the turnover of individual public employees in the Swedish and United States governments, respectively. [Akhtari et al. \(2018\)](#) examine effects on both inflows and outflows of teachers in Brazilian municipalities, but they are not able to identify whether teachers who leave a school do so because they resign or because they are dismissed.

This chapter overcomes some of the limitations of existing studies by identifying the causal effect of an electoral defeat of the incumbent on hires, fires, and resignations of public employees, as well as on the outputs and outcomes of the healthcare bureaucracy, through a regression discontinuity design with data on Brazilian municipalities. Close-races regression discontinuity designs, commonly used in political science and economics (Eggers et al., 2015), identify causal effects by essentially comparing instances where the incumbent barely wins the re-election and instances where they barely lose. I use close municipal elections in 2004, 2008, 2012 and 2016, and examine a series of employment and healthcare outcomes every month for a six-month period starting on October of an electoral year (i.e., the month when elections take place) and ending on March (i.e., three months after the election winner takes office).

Brazilian municipal governments are an ideal case to study the link between political turnover, bureaucratic turnover, and public service delivery. Brazilian municipalities hire large numbers of bureaucrats (both low- and high-skill) in order to provide primary services of education, healthcare, and social assistance to over 200 million people. Municipal governments have significant discretion over the hiring of bureaucrats. About two thirds of municipal bureaucrats are hired through a civil service mode contract, where they are tenured for life after a short probationary period. The other third have significantly less protection and are therefore more easily affected by politicians' decisions. Mayors are elected every four years in majoritarian elections. Local elections are held simultaneously in all municipalities on the first Sunday of October, and winners take office on January 1st. A final but critical advantage of the Brazilian case is that the federal government facilitates access to detailed data on both public employment and healthcare outcomes.

In-depth interviews with bureaucrats and politicians across several states in Brazil suggest the plausibility of turnover effects on both employment and service delivery. The logic was illustrated well by a municipal secretary of healthcare in the state of Ceará, when I asked them about whether an electoral defeat of the incumbent impacts government action:

“A change in government stops everything, because of the transition... The population suffers as a result. For example, we were a reference municipality in the fight against dengue, but because of that transition dengue cases have increased by over 500%. Pregnant women who used to do prenatal check-ups regularly stopped, which led to fetal deaths, infant deaths, etc. [...] Workers stop working. Those who are in temporary contracts are dismissed, and contracts for example for transportation are canceled. The outgoing mayor does not want to have any more expenses. [...] Tenured professionals

stay but with no conditions to do their job, with no materials.”<sup>4</sup>

I use administrative data on public employment, healthcare outputs, and elections. To measure hires, fires, and resignations, I use identified, contract-level data for the universe of municipal employees obtained from the Ministry of Labor, which I aggregate as municipality-month counts of fires, hires, and resignations, by contract type (civil service versus temporary). To measure healthcare outputs and outcomes, I use municipality-month data from the Ministry of Health on home visits by community health agents, nurses and doctors; prenatal care check-ups and medical consultations with infants and small children; and deaths of infants and children. To measure the performance of mayors and their challengers I use official returns from the Supreme Electoral Court.

The results show that, in Brazilian municipalities with close elections, an electoral defeat of the mayor unleashes a series of bureaucratic turnover dynamics (hires, fires, and resignations) both before and after the election winner taking office. First, under lame-duck governments there is an increase in the firing of workers. Interviews with politicians suggest that outgoing governments increase firing to reduce the size of government –and thus improve their compliance with formal rules– before leaving office and losing control of the accounts. Second, and perhaps more surprisingly, there is also an increase in the hiring of civil servants. Anecdotes suggest hiring in the civil service is sometimes used to stack the deck against opponents, by limiting their discretion for hiring their own supporters. Third, resignations of bureaucrats also increase in the months immediately following the defeat of the incumbent. Finally, political turnover causes large increases in the hiring of temporary workers shortly after the election winner takes office.

An electoral defeat of the incumbent also causes significant declines in the delivery of healthcare services, but only in the months under lame-duck government. In particular, home visits by healthcare professionals, prenatal care check-ups and medical consultations with infants and small children all decline before the election loser leaves office. While I cannot causally link these declines of healthcare outputs to the turnover of healthcare bureaucrats, the size and timing of the effects and qualitative evidence suggest that they are indeed connected. Infant and child mortality on the other hand are not impacted by the results of the election. Yet, the declines in healthcare outputs (like check-ups or medical consultations) may still have an impact on health outcomes.

The chapter suggests that the political strategies of lame-duck governments, relatively overlooked until now, have important implications for bureaucratic effectiveness. By analyzing the

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<sup>4</sup>Secretary of healthcare interviewed in the state of Ceará in August of 2017.

dynamics of political and bureaucratic turnover as well as their effect on service delivery, the chapter contributes to theoretical and empirical debates about the link between politics, bureaucracy, and development. While electoral accountability and its corollary, political turnover, are fundamental to democracy, understanding the dynamics of turnover may enable the design of policies to mitigate some of its negative side effects.

## 5.1 Political turnover as a process

I advance a theory about the links between political and bureaucratic turnover, and their influence on public service delivery, with four main components. First, I see turnover not as a discrete moment but as a process that develops over the course of several months, since election day and until several months after the election winner is sworn in. Second, an electoral defeat of the incumbent originates multiple, overlapping processes of bureaucratic turnover (including fires, hires, and resignations) that have different dynamics under the outgoing versus the incoming administration, and for temporary versus tenured bureaucrats. Third, the civil service system moderates some but not all of these turnover dynamics. Weberian bureaucracies are therefore not immune to these problems. Fourth and last, these processes of bureaucratic turnover have a negative impact on public service delivery, at least in the short term, through changes in the selection of bureaucrats, disruptions to teams, diversion of organizational resources to the management of outflows and inflows in human resources, and the weakening of within-government accountability under lame-duck governments.

This theory suggests political turnover is not so much a discrete moment occurring when the election winner is sworn in, but rather a process starting the moment election results are confirmed and ending several weeks or months into the mandate of the winner. This distinction matters in at least two ways. First, it broadens our attention to consider not only the employment decisions taken by incoming governments, but also those of lame duck governments in the interim between election day and the day when they actually leave office. Second, it calls for analyses of monthly or weekly changes in public employment throughout the transition period. Recent research by [Doherty et al. \(2019a\)](#) examining the exit of senior bureaucrats after elections demonstrates the value of analyzing monthly employment outcomes. Most research, however, examines yearly data, looking at how election results change employment outcomes and/or public service delivery in the year(s) following political turnover ([Barbosa and Ferreira, 2019](#); [Bolton et al., 2019](#); [Colonnelli et al., 2019](#); [Dahlström and Holmgren, 2019](#); [Doherty et al., 2019b](#); [Akhtari et al., 2018](#)).



During the months following an electoral defeat of the incumbent, a series of concurrent processes of bureaucratic turnover take place, including fires, hires, and resignations. These bureaucratic turnover dynamics vary by contract type (civil service versus temporary), and by period (under the outgoing administration versus under the incoming one), because they are related to the incentives, concerns, and constraints of politicians and bureaucrats. While not all of these dynamics of bureaucratic turnover will necessarily take place in a given context (depending on those incentives, concerns, and constraints), most instances will see a variety of them occur over a short period of time.

While civil service systems and other institutional constraints matter for these bureaucratic turnover dynamics, Weberian civil service systems are not immune to all of them and in fact may generate their own unique turnover dynamics. Recent research has shown that even in contexts with high employment protections bureaucratic turnover surges after government changes. This is what [Dahlström and Holmgren \(2019\)](#) find in a study of Swedish agency heads, who work under fixed terms and with constitutionally-enshrined employment protections. A similar finding comes from a study of chief executive officers of state-owned enterprises in South Korea, even though they are formally insulated from political influence ([Kim and Hong, 2019](#)). In the United States, the turnover of federal senior civil servants (not simply appointees) has also been shown to increase after elections ([Doherty et al., 2019a](#); [Bolton et al., 2019](#)). These scholars have pointed to several mechanisms through which electoral turnover affects the turnover of bureaucrats who benefit from formally strong employment protections, including voluntary exits by civil servants (because of anticipated policy conflicts, for example), less voluntary exits (because of more or less overt pressures), and transfers.

I identify four distinct processes of bureaucratic turnover following an electoral defeat of the incumbent. First, an increase in dismissals of employees in the months immediately after the election, both under the outgoing administration and under the incoming one. Second, an increase in hiring of employees in the first few months of the new administration. Third, an increase in resignations under both the outgoing and the incoming administrations. Finally, an increase in hiring of tenured bureaucrats under the outgoing administration.

An electoral defeat of the incumbent can lead to increased dismissals of public employees, both under the lame-duck government and in the early months of the winner's mandate. Election losers may choose to fire public employees for at least two reasons. First, they may use dismissals to adjust their spending after the expansions that are typical in the months leading up to the election.

Politicians often manipulate economic outcomes and economic policy tools ahead of elections in order to maximize their re-election chances, leading to so-called political business and political budget cycles (Canes-Wrone et al., 2014). Similar cycles can be observed in public employment outcomes (Dahlberg and Mörk, 2011; Labonne, 2016; Pierskalla and Sacks, 2019; Cahan, 2019). Firing of employees can be used to adjust spending after the elections. These adjustments may be stronger when the incumbent loses the election, since certainty over the immediate loss of power and control over the government's accounts may heighten concern over compliance with rules. Second, incumbents who lose the reelection may use firing decisions to punish certain bureaucrats for the outcome of the campaign. In either case, we would observe an electoral defeat of the incumbent to increase the number of dismissals.

Dismissals may also be used by the incoming administration in order to remove bureaucrats who they perceive will not be responsive to the new policy directions of the government and/or who may sabotage the new government's efforts. Richard Nixon famously made this logic explicit in his memoirs:

"I urged the new Cabinet members to move quickly to replace holdover bureaucrats with people who believed in what we were trying to do. I warned that if they did not move quickly they would become captives of the bureaucracy they were trying to change. [...] 'We can't depend on people who believe in another philosophy of government to give us their undivided loyalty or their best work', I concluded. [...] 'If we don't get rid of those people, they will either sabotage us from within, or they'll just sit back on their well-paid asses and wait for the next election to bring back their old bosses.'" (Nixon, 1978, 352)

Political turnover can also disrupt the bureaucracy through the hiring of supporters by the winner of the election in the first few months of their mandate. There are two main, distinct rationales for politicians to do this. One rationale is using bureaucratic appointments to return favors to those who supported the campaign (e.g., donors, party operatives, etc.). This is what Colonnelli et al. (2019) find in their study of the employment outcomes of people who supported election winners relative to those of support election losers. They show that, in Brazilian municipalities, political supporters of the winner are much more likely to obtain a government job, and that both the probability of employment and the expected salary increase with the level of support. A similar phenomenon has been found in the hiring of local bureaucrats in Ecuadorean municipalities (Brassiolo et al., 2020). A different logic is to use appointments, as the Nixon quote suggests, to

gain control over policy and implementation. This logic has been studied mostly in the context of American politics and especially presidential appointments (Moe, 1985; Aberbach and Rockman, 2009; Lewis, 2011), but can apply also in developing, decentralized and low-capacity settings, as shown in Chapter 3.

An electoral defeat of the incumbent may lead bureaucrats to resign, if they anticipate they will be dismissed and prefer to exit early to protect their long-term careers, to work for a different employer (in government or in the private sector), or to increase their chances of working for the new government. One mechanism through which voluntary exit may happen is ideological incongruence, particularly among bureaucrats in managerial and leadership positions. If bureaucrats prefer to work for organizations whose leaders have preferences aligned to them, or if they anticipate new leaders to mistreat them (for example by firing them, transferring them, or delegating less desirable work to them), they may choose to leave the bureaucracy. This is in fact what has been found among senior bureaucrats in Sweden (Dahlström and Lapuente, 2017) and the United States (Bolton et al., 2019). If bureaucrats anticipate these conflicts as soon as election results are out, it may be rational for them to leave even before the new leaders get into office, which has been shown to be the case in the transition from the Obama to the Trump administration (Doherty et al., 2019a).

A fourth way in which an electoral defeat of the incumbent can disrupt the bureaucracy is through the hiring of civil service bureaucrats by the lame-duck government before leaving office. By hiring bureaucrats in the civil service, the loser of the election can constrain the hiring discretion of their opponent, limiting their ability to hire their own supporters once they get to office. This rationale runs parallel to that of appointing so-called “midnight judges”, an expression originating in the appointment of judges by US President John Adams right before leaving office in 1801 (Turner, 1960).<sup>5</sup> Appointing civil service bureaucrats may at first sight appear harder than appointing judges or issuing regulations, if not impossible. Civil service bureaucrats are selected after passing objective, competitive tests that often take months to implement. In practice, however, many countries do not automatically appoint candidates who pass the test. Instead, those candidates are added to a list, and they are hired in order of performance as personnel needs arise. In certain contexts, therefore, lame-duck governments are legally able to hire civil service bureaucrats by simply adjudicating jobs to candidates in the pre-approved list. By doing so, they can stack the deck against opponents by making it harder for the incoming administration to use those jobs and funds to hire their own supporters. Civil service hiring, while typically understood as politically neutral, can be mobilized

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<sup>5</sup>Similarly, scholars have studied “midnight regulations”, a similar phenomenon where lame-duck administrations issue regulations before the end of their mandate (Brito and De Rugy, 2009; De Rugy and Davies, 2009).

by lame-duck governments with a political objective.

The concurrent processes of bureaucratic turnover unleashed by an electoral defeat of the incumbent can disrupt public service delivery through a variety of mechanisms. The first and most obvious channel is the exit of bureaucrats with job-specific experience and know-how, and the entry of other bureaucrats with less endowments of both. A second, potential mechanism is the selection of systematically worse or systematically better bureaucrats. Politicians may for example prioritize loyalty over competence, and therefore substitute experienced bureaucrats with systematically worse ones. This is what recent research by development economists working on Brazil suggests (Colonnelli et al., 2019; Akhtari et al., 2018). Selection effects may also work in the opposite direction, however. In education, some programs are designed to identify and dismiss less effective teachers and substitute them with more effective ones. These programs can, if well implemented, have positive effects on service delivery in certain contexts (Adnot et al., 2017). Most research however finds generally negative effects of teacher turnover on learning (Ronfeldt et al., 2013), partly because of the disruptions that dismissing even less effective teachers has on the operations of schools (Hanushek et al., 2016). Since bureaucrats generally work in teams,<sup>6</sup> public employees who are not fired nor resign may be negatively affected if some of their colleagues leave.

Political turnover can also impact public service delivery through mechanisms other than bureaucratic turnover. Bureaucrats who are not dismissed may be transferred to a different working unit as a result of turnover, as demonstrated in the Indian case by Iyer and Mani (2012). Procurement processes and contracts for service and goods providers may be interrupted or otherwise negatively affected after an electoral defeat of the incumbent. Officials' ability to monitor and motivate bureaucrats may decrease sharply in a lame-duck government. Bureaucrats' responsiveness to senior managers and to elected officials, and their level of effort, may decline as a result. Bureaucratic responsiveness and effort may increase once the winner takes office, but bureaucratic effectiveness at the beginning of their mandate may also suffer as a result of policy switches and learning.

To summarize, I advance a theory of political turnover as a process that starts when election results are published and ends only months after the winner is sworn in. During that period, a series of distinct but concurrent processes of bureaucratic turnover take place, consisting of fires, hires, and resignations. Contrary to received wisdom, these overlapping dynamics of bureaucratic

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<sup>6</sup>Even front-line providers who we tend to think of as autonomous workers (such as teachers) generally work in teams and as part of medium-sized organizations (like schools), and their effectiveness depends on those organizations and teams running smoothly.

turnover respond not only to the actions of the new administration, nor are they eliminated by civil service systems. Moreover, the post-electoral bureaucratic turnover dynamics can have a deleterious impact on public service delivery, not only through the selection of less experienced (or otherwise less adequate) bureaucrats, but also through more general disruptions to teams of service providers and public organizations more broadly. Table 5.1 synthesizes the chapter’s theory and their connection to the regression discontinuity tests presented below.

Table 5.1: Turnover: Mapping of theory to empirics

Hypotheses: An electoral defeat of the incumbent leads to...	Test
Increases in dismissals of temporary workers under the lame-duck government	Figure 5-1a
Increases in hiring of civil service workers under the lame-duck government	Figure 5-1e
Increases in hiring of temporary workers under the new government <sup>3</sup> .	Figure 5-1b
Increases in resignations of temporary workers	Figure 5-1c
Declines in public service delivery	Figure 5-2
Declines in human development outcomes	Figure 5-3

## 5.2 How to measure the effects of turnover?

To estimate the average causal impact of political turnover, I leverage a close-races regression discontinuity design. This quasi-experimental design essentially compares instances where the incumbents barely lose the election to those where they are barely re-elected, to identify the causal effect of the election results (Eggers et al., 2015). I use this design to identify the effect of an electoral defeat of the mayor on dynamics of bureaucratic turnover (fires, hires, and resignations) as well as public service delivery in the six months following the election, namely from October (when elections take place) through March (three months after the election winner being sworn in on January 1st). Interviews with bureaucrats and politicians suggest that the most important effects of electoral turnover are felt in this six-month period.

### 5.2.1 Identification

The core of regression discontinuity designs is a forcing variable, with treatment determined sharply at a given threshold on the distribution of that variable. In this case, the forcing variable is the difference between the vote share of the strongest challenger to the incumbent and the vote

share of the incumbent. Treatment is an electoral defeat of the incumbent, which is determined sharply when the forcing variable is positive, i.e. when the incumbent lost the election and a new administration comes in on January 1st. Conversely, if that difference is negative, the incumbent won the election and there is no change of mayor on January 1st. Intuitively, this allows us to interpret a discontinuous jump of the outcome variable at the threshold as the causal effect of an electoral defeat of the mayor. More formally, treatment for municipality  $i$  in election cycle  $y$ ,  $T_{iy}$ , is assigned by the forcing variable, which is the difference between the vote share of the strongest challenger ( $V_{iy}^o$ ) and the vote share of the incumbent ( $V_{iy}^g$ ):  $D_{iy} = V_{iy}^o - V_{iy}^g$ .  $T_{iy} = 1$  if  $D_{iy} > 0$  (i.e., the incumbent loses the election);  $T_{iy} = 0$  otherwise.

The estimand of interest is  $\tau = \mathbb{E}[Y_{1iy} - Y_{0iy}]$ , where  $Y_{1iy}$  and  $Y_{0iy}$  represent the potential outcome of interest (e.g. number of hires in October), under treatment (when the incumbent loses the October election) and under control (when the incumbent wins the election). As long as average potential outcomes are continuous around the threshold, we can estimate the local average treatment effect (LATE) by taking the difference in the difference in means from above and from below the cutoff. This is the LATE for municipalities around the threshold, namely where incumbents run and they barely lose or barely win the election.

$$\tau = \mathbb{E}[Y_{1iy} - Y_{0iy} | D_{iy} = 0] = \lim_{D_{iy} \downarrow 0} \mathbb{E}[Y_{1iy} | D_{iy} = 0] - \lim_{D_{iy} \uparrow 0} \mathbb{E}[Y_{0iy} | D_{iy} = 0] \quad (5.1)$$

The key assumption of this design is that potential outcomes are continuous around the threshold, so that the mean of the outcome of municipalities barely treated is a valid counterfactual for the mean of the outcome of municipalities barely untreated. Formally, I assume that  $\mathbb{E}[Y_{diy} | D_{iy} = d]$  is continuous in  $d$  around  $D_{iy} = 0$  for both the treatment and the control groups (Imbens and Lemieux, 2008). While this assumption is empirically untestable, we can examine some of its observable implications. A key implication is that municipalities do not sort around the threshold. Obviously incumbents will try and win the election, but so will their challengers. Therefore, if the design is valid we should not observe a discontinuous jump in the density of the forcing variable around the threshold. As shown in Appendix H.1, the histogram and density of the forcing variable, which has roughly a normal distribution and no signs of sorting or discontinuity around the threshold, as confirmed by the formal test proposed by McCrary (2008). While incumbents have influence over the difference between the vote share and that of their strongest challenger, they cannot manipulate it *precisely*, which guarantees that, for municipalities around the threshold, treatment assignment is as-if-random (Lee and Lemieux, 2010).

## 5.2.2 Estimation and inference

Regression discontinuity designs require specifying the functional form of the regression on both sides of the cutoff, and choosing a bandwidth, i.e., the range of the forcing variable beyond which observations are excluded from the analysis. I follow the common practice of using local linear regression with a triangular kernel smoother, and apply it to the following estimating equation:

$$Y_{iy} = \alpha + \beta_1 T_{iy} + \beta_2 D_{iy} + \beta_3 T_{iy} D_{iy} + \gamma_y + \varepsilon_{iy} \quad (5.2)$$

$Y_{iy}$  is the outcome of interest (e.g. new hires in October) for municipality  $i$  in the electoral cycle  $y$ . Since the dependent variables I use are count variables with skewed distributions, I add one and take the natural log, such that effects can be interpreted as percentage changes.<sup>7</sup>  $T_{iy}$  is a treatment indicator:  $1(\text{vote share of strongest challenger} \geq \text{vote share of the incumbent})$ .  $D_{iy}$  is the distance to the threshold in the forcing variable for observation  $iy$ .  $\gamma_y$  is an election fixed effect and  $\varepsilon_{iy}$  is an error term. If potential outcomes are continuous around the threshold,  $\beta_1$  in Equation 5.2 identifies the LATE in Equation 5.1:  $\beta_1 = \hat{\tau}$ . To estimate standard errors, I use the HC1 heteroskedasticity consistent estimator. To choose the bandwidth, I use the algorithm proposed by [Imbens and Kalyanaraman \(2012\)](#), which determines an optimal bandwidth by minimizing the mean squared error. I then show the sensitivity of the results to many alternative bandwidths around the optimal one.

For each month between October and March after an election, I run a separate model following Equation 5.2, which allows me to causally identify the effect of an electoral defeat for the incumbent on outcomes in the months following the election. For public employment data, I pool data for the election cycles of 2004, 2008, 2012 and 2016. Because healthcare data are not available after 2015, models examining healthcare outputs and outcomes use data for the election cycles of 2004, 2008 and 2012 only.

## 5.2.3 Data

I exploit three sources of administrative data: candidate-level data on mayoral elections, contract-level data of the universe of municipal employees, and municipality-month data on healthcare

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<sup>7</sup>I also test for robustness of the results replicating Equation 5.2 with an overdispersed Poisson model within the same bandwidth.

outputs and outcomes. The data are from Brazil's Supreme Electoral Court, the Ministry of Labor, and the Ministry of Health, respectively.

To measure the effects of election results on the turnover of public employees I leverage the Ministry of Labor's RAIS dataset (*Relação Anual de Informações Sociais*), which includes the universe of formal labor market contracts, with employer and individual identifiers from 2002 to 2016. For each contract, the dataset contains the employer and the employee's unique identifiers; the date of hire and fire; the contract's type, the job's professional category, hours, and salary; and the employee's age and level of education, among other variables. I use municipal governments' unique employer identifiers (CNPJ, *Cadastro Nacional da Pessoa Jurídica*)<sup>8</sup> to identify municipal employees.<sup>9</sup>

To measure the effects of an electoral defeat of the mayor on public service delivery I use data from the Ministry of Health's Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*) on the outputs of municipal primary healthcare bureaucracies. First, I use data on the number of home visits done by community health agents, nurses, and doctors, who are the main healthcare professionals in Brazil's primary healthcare system. Home visits are an important component of Brazil's primary healthcare system not only as a substitute for patients with reduced mobility, but also as a complement of services provided in healthcare facilities, for example through interventions that change citizens' practices in order to prevent diseases and improve health outcomes (Ministério da Saúde, 2012a). Despite their importance, home visits may be particularly sensitive to turnover dynamics because they require healthcare professionals to reach different households, which may require transportation, especially in rural areas.

Second, I use data on the number of prenatal care check-ups (which may be done by nurses or doctors), medical consultations with infants (less than 1 year old), and medical consultations with small children (between 1 and 4 years old), by municipality and month, in healthcare facilities or at home. The data are collected by municipal secretariats of healthcare, consolidated by state governments, and cleaned by the federal government's SIAB. I focus on these three subsets of the

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<sup>8</sup>I obtained CNPJs corresponding to municipal governments from the Ministry of Finance's National Treasury Secretariat.

<sup>9</sup>As shown in Appendix D.1, between 1 and 5 percent of the municipalities do not show up as having any employee. Municipalities that fail to report employment data to the Ministry of Labor are generally smaller, poorer, and less developed. Analyses presented in this chapter are therefore not representative of all of Brazil but of municipalities that report data to RAIS. It is plausible however that this biases results towards zero, since poorer and less developed municipalities—where the clientelistic uses of public employment are more common and bureaucracies are smaller and less professionalized—are likely to experience more intense turnover dynamics.



population because of the importance of early childhood for human development. Prenatal care check-ups are key to public health programs around the world, and the World Health Organization recommends at least eight of them during a woman's pregnancy ([World Health Organization, 2016](#)).

To examine effects on healthcare outcomes I use data on the number of infants (less than 1 year old) and small children (between 1 and 4 years old) who die due to avoidable causes (i.e., those attributable to weaknesses in the healthcare system), by municipality and month. The data are collected by municipal secretariats of healthcare using official death records, and aggregated by the federal government in the Mortality Information System (SIM, *Sistema de Informações sobre Mortalidade*). I focus on the mortality of infants and small children as proxies for overall population health outcomes, for two main reasons. First, child mortality has long been taken as an indicator for public health outcomes, as suggested by its inclusion among key indicators in the United Nations' Millennium Development Goals ([United Nations General Assembly, 2000](#)) and the Sustainable Development Goals ([United Nations General Assembly, 2015](#)). Second, the provision of primary healthcare services by Brazilian municipalities is systematically associated to lower infant and child mortality rates in Brazil ([Bhalotra et al., 2019](#); [Bastos et al., 2017](#); [Rocha and Soares, 2010](#); [Aquino et al., 2009](#)). While the effects of political turnover on bureaucratic turnover and public service delivery may be too short-lived to have an impact on mortality rates, other measures of population health (like number of hospitalized people, or number of new cases of an infectious disease) may be biased through the depression of bureaucratic activity in the post-electoral period. For example, the effect of an electoral defeat of the incumbent on the number of infants who are underweight (a common indicator of health for babies) may be systematically biased if election results affect the number of infant check-ups.

### 5.3 Effects of electoral turnover on public employment

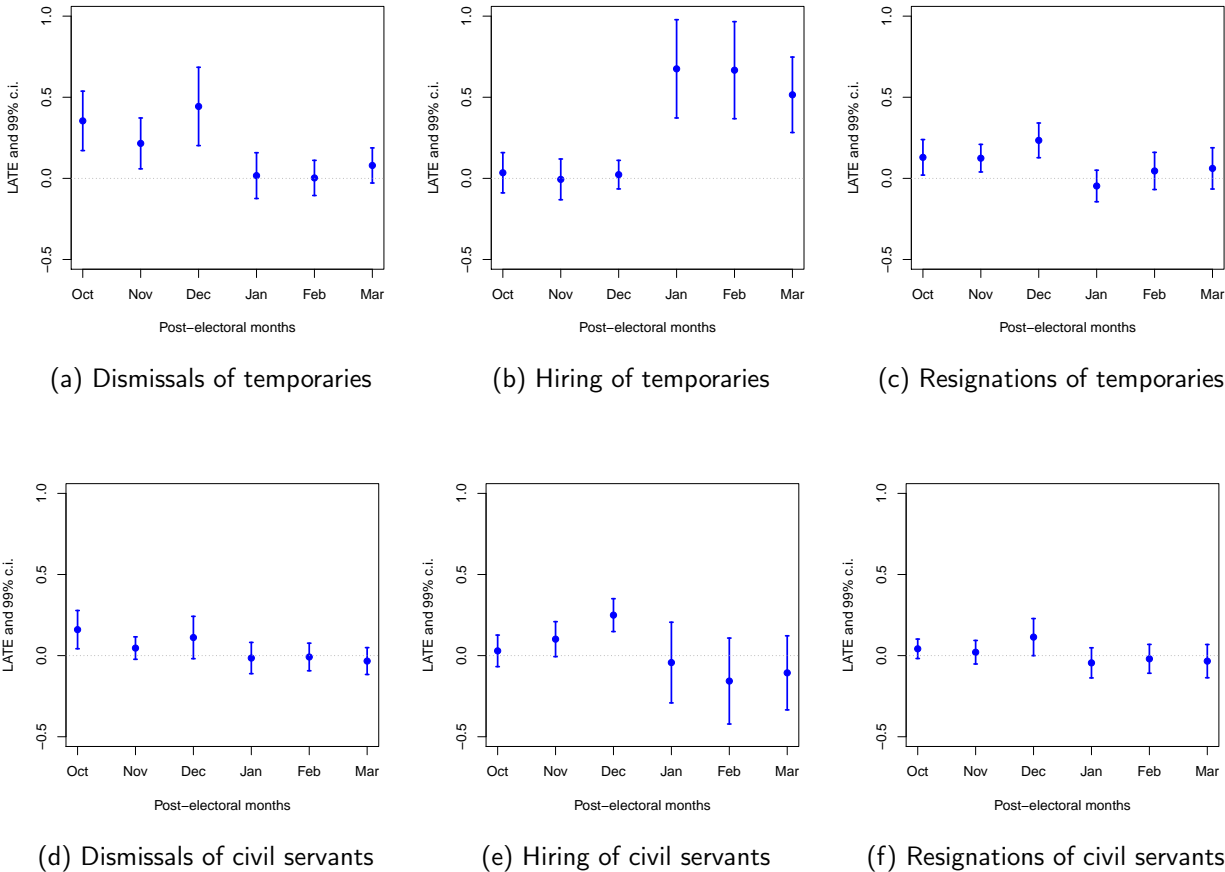
An electoral defeat of the incumbent leads to increases the dismissal of public employees (especially temporary ones) by the outgoing government, as shown in panels (a) and (d) in [Figure 5-1](#). Between October and December, dismissals of temporary employees increase by 42.6, 24.4 and 55.3%, respectively,<sup>10</sup> when compared to municipalities where the mayor wins the reelection ( $p < 0.001$ ). In absolute terms, these effects correspond to few employees, since dismissals are not common in

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<sup>10</sup>Since the dependent variables are in the logged scale, coefficients are to be interpreted as follows: the local average treatment effect of an electoral defeat of the mayor is a change in the outcome by  $100 \times e^{\hat{\beta}} - 100\%$ .

the months after the election. For reference, municipalities where the mayor wins the re-election fire, in average, 3 employees in the month of the election. Increases in dismissals among tenured employees are smaller both in relative and absolute terms, since dismissals of tenured employees are much less common.<sup>11</sup> Still, an electoral defeat of the mayor causes an increase of the dismissal of tenured employees by 17.5% in October ( $p < 0.001$ ), 4.9% in November ( $p < 0.05$ ) and 11.6% in December ( $p < 0.05$ ).

Figure 5-1: Effect of an electoral defeat of the incumbent on public employment



Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. The results represent the local average treatment effect of the mayor losing the re-election, on the dependent variable in a given month following the election. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

Interviews with bureaucrats and politicians suggest that the increase in the dismissal of temporary workers immediately after the defeat of the incumbent are meant to balance the accounts

<sup>11</sup>In municipalities where the mayor wins the re-election an average of 1 tenured employee is dismissed.

before handing the government over to the winner. As the secretary of administration (in charge of human resources management) in the state of Rio Grande do Norte said, about the transition period before his mandate:

“There were cuts in personnel to hand the accounts cleaner, with resources in the account. Expenses were cut to hand over a more balanced city hall. [...] If there is no political turnover expenses do not drop.”<sup>12</sup>

Horizontal accountability actors also point to this phenomenon. When asked about the decisions taken by lame-duck governments, a state prosecutor said:

When a mayor loses the election, they try to save money and they try not to hand out the accounts in a bad state. Some of them do not really care and engaged in scorched earth policy to make things difficult [for the opponent]. When the mayor wins [the re-election], there are no dismissals.”<sup>13</sup>

It is easy to find media reports online about public employees being dismissed after a mayor’s electoral defeat, as illustrated by news reports from three different municipalities in the central state of Tocantins in the weeks following the 2016 elections. In the municipality of Porto Nacional, journalists reported dozens of public employees had been dismissed.<sup>14</sup> The mayor of the municipality of Miracema, in the same state, dismissed about 150 employees after losing the election. As a result of these dismissals, the school year would end in early November instead of ending in mid December. The mayor argued the dismissals were necessary due to the municipality’s financial situation.<sup>15</sup> Both of these cases were reported to the state’s prosecutor’s office. Since the law does prohibit dismissals in the period from three months before to three months after the election, those decisions can be taken to court – and reverted. In the municipality of Colinas do Tocantins, a judge forced the lame-duck government to re-hire about 200 temporary workers who had been

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<sup>12</sup>Secretary of administration interviewed in the state of Rio Grande do Norte in June 2018

<sup>13</sup>Prosecutor interviewed in the state of Rio Grande do Norte in June 2018

<sup>14</sup>“Prefeitura de Porto Nacional faz demissão de funcionários em massa”, Globo G1 TO, October 4, 2016, <http://g1.globo.com/to/tocantins/noticia/2016/10/prefeitura-de-porto-nacional-faz-demissao-de-funcionarios-em-massa.html> (last accessed in April 2020).

<sup>15</sup>“Prefeita demite funcionários e reduz ano letivo após não se reeleger no TO”, Globo G1 TO, October 18, 2016, <http://g1.globo.com/to/tocantins/noticia/2016/10/prefeita-demite-funcionarios-e-reduz-ano-letivo-apos-nao-se-reeleger-no.html> (last accessed in April 2020).

dismissed after the election.<sup>16</sup> Judicial processes about these causes can also have a direct impact on politicians. A former mayor of the municipality of Arinos the southeastern state of Minas Gerais who had dismissed workers after losing the election had his bank account (with over 1 million reais) blocked by a judge at the beginning of the process.<sup>17</sup>

Hiring of tenured employees increases in the last two months of the outgoing administration, as shown in panel (e) of Figure 5-1. Hires of tenured employees increase by 10.2% in November ( $p < 0.01$ ) and by 27.8% in December ( $p < 0.001$ ). These effects are small in absolute terms,<sup>18</sup> but they are substantially significant. Interview evidence suggest that these increases respond to a strategy of hiring civil service employees in order to decrease the opponent's leeway in hiring. Every civil servant that is hired before January means less financial resources that the incoming government can dedicate to hiring their supporters. A different secretary of administration in the state of Rio Grande do Norte reported of a case where an outgoing mayor inflated the bureaucracy with civil servants in order to stack the deck against the winner of the election:

"The previous mayor hired many people [who had previously passed the civil service exam], especially after they lost the election, to make things harder for the new administration."<sup>19</sup>

This finding goes against the common view of civil service systems as politically neutral systems for staffing bureaucracies. When well implemented, civil service systems dramatically reduce (or eliminate) politician discretion on who to hire – they do not, however, eliminate their discretion on how many to hire or when to do so. The quantity and timing of hires are important dimensions of human resources management in any organization (Shafritz et al., 2001), and these results suggest that politicians can make strategic use of them for political gain.<sup>20</sup>

Resignations of public employees are a third concurring phenomenon of bureaucratic turnover caused by an electoral defeat of the incumbent. Effects are displayed in panels (c) and (f) in

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<sup>16</sup>"Justiça manda prefeito recontratar servidores demitidos após eleições", Globo G1 TO, November 4, 2016, <http://g1.globo.com/to/tocantins/noticia/2016/11/justica-manda-prefeito-recontratar-servidores-demitidos-apos-eleicoes.html> (last accessed in April 2020).

<sup>17</sup>"Ex-prefeito acusado de demitir servidores após perder eleições em Arinos tem bens bloqueados", Globo G1 Grande Minas, May 22, 2018, <https://g1.globo.com/mg/grande-minas/noticia/ex-prefeito-acusado-de-demitir-servidores-apos-perder-eleicoes-em-arinos-tem-bens-bloqueados.ghtml> (last accessed in April 2020).

<sup>18</sup>In average, less than 1 civil service employee is hired in December after an election.

<sup>19</sup>Secretary of administration interviewed in the state of Rio Grande do Norte in June 2018.

<sup>20</sup>As per article 73.V.c in the Electoral Law, the hiring of civil service bureaucrats is allowed during the last six months of the mayors' mandate if they had passed the corresponding exam before the hiring freeze period.

Figure 5-1. The number of temporary workers who decide to leave their post increases by 13.8, 13.2 and 26.2% in October, November, and December, respectively ( $p < 0.001$ ). In average, in municipalities where the mayor wins re-election, about 1 temporary workers leaves in October, 1 in November, and 3 in December. Effects are smaller in both absolute and relative terms for tenured employees. Among them, electoral turnover leads to increases of resignations by 4.2% in October ( $p < 0.05$ ) and by 12.1% in December ( $p < 0.01$ ).

Analyses of the effect of political turnover on resignations by high- versus low-pay bureaucrats, reported in Appendix H.5, suggest that resignations are more likely among those with higher wages, which is consistent with a logic of “strategic exit” by more high-skilled bureaucrats who anticipate policy conflicts with the incoming government (Doherty et al., 2019a). Effects on dismissals and hires are roughly equivalent whether we consider only high- or low-pay bureaucrats.

All in all, these regression discontinuity results show that an electoral defeat of the incumbent leads to a number of simultaneous but distinct processes of bureaucratic turnover that respond to different strategic considerations of politicians and (in the case of resignations) bureaucrats. These findings highlight the strategic decisions that election losers take during their last few months in office, as well as the strategic exit decisions of some bureaucrats. The regression discontinuity design, the robustness of these results to many alternative bandwidths (as shown in Appendix H.3), and the failure of placebo tests on the same outcome variables in September (i.e., before the election) and of placebo tests moving the RD threshold to values of the forcing variable other than zero (shown in Appendix H.4) all lend support to the interpretation of these findings as causal effects.

## 5.4 Effects of electoral turnover on public service delivery

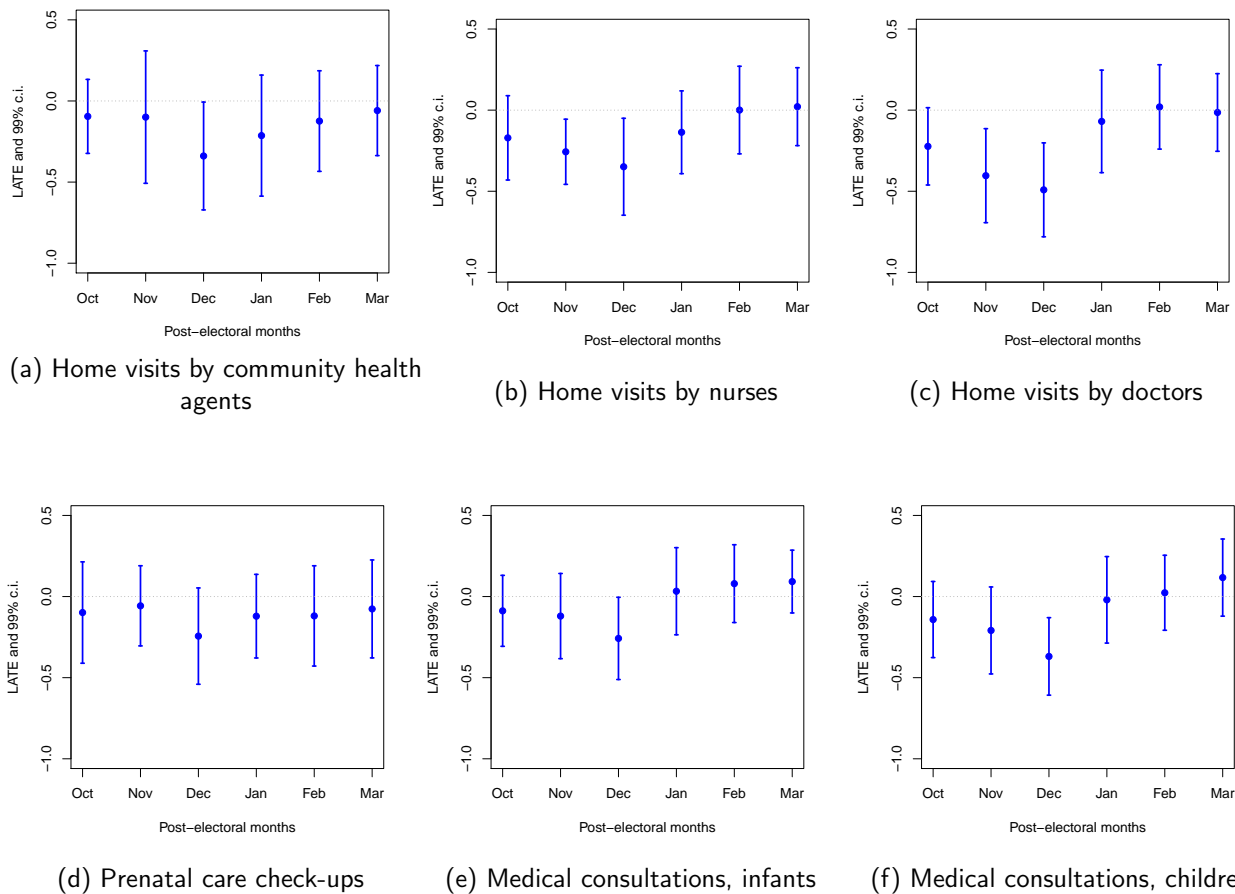
Do these dynamics of bureaucratic turnover have a correlate in public service delivery? To examine this question, I leverage monthly data in bureaucratic outputs and outcomes in the healthcare sector. Interviews with healthcare professionals suggest that the delivery of services worsens during the last few months of an electoral year if the incumbent loses the election, partly as a result of bureaucratic turnover. I examine impacts on three sets of outputs: home visits by healthcare professionals (community health agents, nurses, and doctors); prenatal care check-ups, and medical consultations with infants (less than 1 year old) and small children (between 1 and 4 years old); and deaths of infants and small children.

Political turnover causes a decline in the number of home visits done by healthcare professionals, as shown in panels (a), (b) and (c) in Figure 5-2. When compared to municipalities where the mayor wins the re-election, home visits by community health agents decline by 28.7% in December, one month before the winner takes office ( $p < 0.01$ ). Home visits by nurses decline by 15.7% in October ( $p < 0.05$ ), 22.7% in November ( $p < 0.001$ ) and 29.5% in December ( $p < 0.001$ ). Home visits by doctors during the same period decline even more: 20% in October ( $p < 0.01$ ), 33.2% in November ( $p < 0.001$ ), and 38.8% in December ( $p < 0.001$ ). It seems, therefore, that the higher the skill level of public employees, the more their output is affected by the results of the election. These effects are substantively large. Municipalities without electoral turnover deliver, in average, 3,656 home visits by community health agents, 89 home visits by nurses, and 52 home visits by doctors in December of an electoral year.

Political turnover also has a negative effect on prenatal care check-ups and on medical consultations with both infants and children. Effects are largest for consultations with children, and smallest or less distinguishable from zero for prenatal care check-ups, as shown in Figure 5-2. The number of prenatal care check-ups declines in December as a result of an electoral defeat of the mayor by 21.6% ( $p < 0.05$ ). The number of medical consultations on infants declines in December by 22.7% ( $p < 0.01$ ). Finally, the number of medical consultations with small children declines by 18.9% in November ( $p < 0.05$ ) and 30.9% in December ( $p < 0.001$ ). All these effects are substantively large: municipalities where the mayor wins the reelection perform, in average, 165 prenatal care check-ups, 37 baby check-ups, and 74 child check-ups in December of an electoral year.

These declines in the delivery of healthcare services do not cause an increase in infant and child mortality. Results shown in Figure 5-3 show that effects are precisely estimated zeroes. This is likely due to the fact that declines in healthcare delivery are too short-lived to have an impact on mortality. While it may be hard to measure other indicators of population health without bias, given the declines in bureaucratic activity reported above, the possibility that the turnover dynamics unleashed by an electoral defeat of the incumbent have a detrimental effect on healthcare outcomes cannot be completely ruled out.

Figure 5-2: Effect of an electoral defeat of the incumbent on outputs of the healthcare bureaucracy

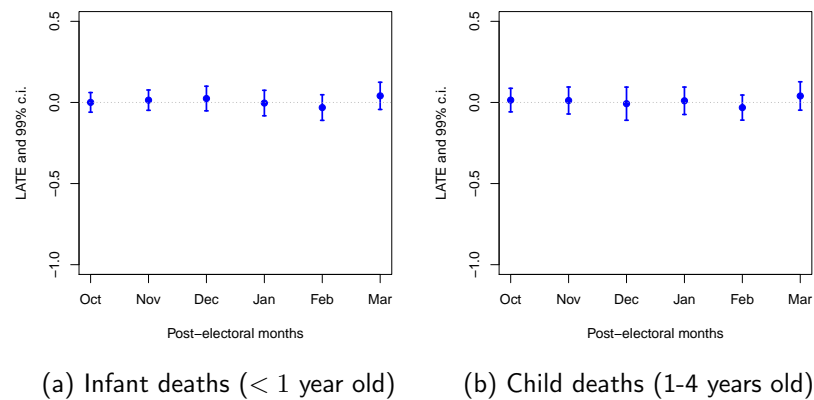


Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. The results represent the local average treatment effect of the mayor losing the re-election, on the dependent variable in a given month following the election. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

## 5.5 Summary of findings and implications

Political turnover is central to the theory and the practice of representative democracy. This chapter argues that, despite its many benefits, political turnover also has costs in terms of bureaucratic turnover (fires, hires, and resignations) and disruptions to public service delivery. The chapter demonstrates this using a close-races regression discontinuity design and administrative data on public employment and healthcare services and outcomes among Brazilian municipalities. Results show that an electoral defeat of the incumbent unleashes a series of concurrent, but distinct,

Figure 5-3: Effect of an electoral defeat of the incumbent on deaths of infants and children



Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2.

The results represent the local average treatment effect of the mayor losing the re-election, on the dependent variable in a given month following the election. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

bureaucratic turnover dynamics (fires, hires, and resignations) and a decline in the delivery of healthcare services. In particular, a defeat of the mayor causes an increase in firing, resignations, and civil service hiring (but not temporary hiring) in the last few months of lame-duck governments' mandate, between the electoral loss and leaving office; and an increase in temporary hiring in the first few months of the new government's mandate. A defeat of the mayor also causes declines in a variety of outputs of the healthcare bureaucracy, including home visits by community health agents, nurses, and doctors; prenatal care check-ups; and medical consultations with infants and small children. These effects are consistent with bureaucratic turnover disrupting public organizations in the short term, as suggested by interviews with politicians and bureaucrats.

The findings have important implications for how we think of political turnover. Rather than a discrete moment, or a process that develops in the first few months of the new government, political turnover may be best seen as process that starts when the uncertainty characteristic of competitive elections turns into the certainty of the incumbent's electoral defeat. The lame-duck government that ensues is not, as is frequently thought, constrained to mere "administration." Despite formal and informal rules limiting what they can do before leaving office, in practice lame-duck governments use their remaining time in office to exercise discretion in unequivocally political strategies.

Three key findings about the uses of patronage by lame-duck governments in Brazilian mu-



nicipalities have especially important implications for the study of governance. First, lame-duck governments increase the hiring of civil service workers. Interviews suggest this is a strategy whereby election losers use civil service hiring to “tie the hands” of election winners – the more people they can hire with tenure, the less positions will be available for opponents to hire their own political supporters. This implies, critically, that civil service hiring is not immune to political pressures or uses, as is often assumed, because politicians can use the timing of hiring strategically.

Second, a defeat in the polls leads governments to increase the firing of temporary workers before leaving office. Interviews with bureaucrats, politicians, and anti-corruption agents, as well as media reports, suggest that this phenomenon stems from election losers’ heightened concern about being prosecuted, after leaving office and losing control of the accounts, for excessive spending on personnel and other hiring practices in breach of the law. This suggests that there is an “incumbency advantage” in the control of information about government irregularities, even in a context with strong anti-corruption institutions and open government datasets.

Finally, the dynamics of bureaucratic turnover appear to be connected to significant declines in public service delivery under lame-duck governments. Interviews suggest that disruptions to teams of providers and muddling of within-government accountability relations drive these results. The fact that effects are found on highly visible and relevant healthcare services (such as prenatal care check-ups or medical consultations with children), which have been found to improve healthcare outcomes, suggests the connection between political and bureaucratic turnover is of relevance to state capacity and human development.

On the policy front, the findings presented in this chapter call for the design and testing of policies that can smooth the connection between political and bureaucratic turnover around elections, and/or reduce its deleterious impact on public service delivery. There are three potential avenues for policy innovation. One avenue would be to shorten the period between elections and winners being sworn in. Another avenue would be to strengthen the constraints on bureaucratic re-arrangements during transition periods. Yet one more avenue would be to focus policy efforts on safeguarding the parts of the bureaucracy (or the bureaucratic tasks) where continuity is deemed most important. To provide one example, the provision of healthcare services should definitely fall into that category, whereas the maintenance of roads probably does not need such priority.

This chapter has brought attention to the unique political dynamics of the months following elections, but further research is needed to understand politicians’ strategies and their impact on

public service delivery. Three directions for future work seem particularly promising. First, analyzing what bureaucrats are most likely to be dismissed by lame-duck governments. If these are recent hires, that would be consistent with contractions being driven by fear of being prosecuted. If they are more established co-partisans, that would be consistent with election losers punishing their supporters for not helping get them reelected. Second, exploring whether some kinds of bureaucratic activities or some types of bureaucrats are systematically less sensitive to the effects of political turnover, and why. That may give us insight into policies that could be designed to limit the detrimental effects of political turnover on public service delivery, an undesirable side effect of electoral accountability. Third and last, examining the dynamics of patronage and public service delivery under lame-duck governments in different contexts. There is some great research on the United States and Sweden, but more case studies from around the world would help clarify the extent to which civil service and temporary hiring regulations, the strength of horizontal accountability institutions, or characteristics of party systems shape the dynamics of turnover.

## Chapter 6

### Conclusions

Patronage is a ubiquitous phenomenon. Politicians all around the world (in small and large polities, democratic and authoritarian systems, poor and wealthy countries) and across history (from ancient Rome up until today) have actively used their ability to hire and fire public employees with a variety of political objectives. Even bureaucracies that are formally insulated from political influence see their composition changed by political dynamics.

Scholars, policymakers and journalists alike have tended to characterize patronage as a pathology of government. Observers frequently assume a Weberian ideal whereby public jobs should be allocated with tenure on the sole basis of objective examinations. The political appointment of bureaucrats is therefore seen as a form of corruption, the solution to which is a strong civil service system. In political science, another influential approach has been that of clientelism scholars, who tend to see patronage as one among multiple benefits that politicians distribute in exchange for political support. In this perspective, government jobs are a way for politicians to build and sustain electoral bases, leveraging the government payroll for private gain.

Building on insights from the Weberian and clientelism traditions, while departing from some of its key assumptions, Chapter 2 advanced a theoretical framework for thinking about the political uses of government jobs, their different impacts on public service delivery and development, and the promises and pitfalls of common anti-patronage policies. I started by conceptualizing patronage as the discretionary hiring and firing of bureaucrats based, at least partly, on political criteria. This definition departs from more traditional conceptualizations that see patronage as a form of clientelism. The definition I advanced –more institutional than sociological– enables a more open-ended examination of patronage, since it remains agnostic about its purpose, its scale, and its normative

implications. Next, the chapter theorized how government jobs differ from other benefits and resources available to politicians, and how those key features make patronage a particularly versatile and powerful tool for clientelistic exchanges as well as for other political strategies. The chapter then engaged with the normative dimension of patronage. I argued that established normative models of bureaucratic governance portrait bureaucrats and politicians in excessively Manichean terms. By building more nuanced understandings of state agents as neither Weberian heroes nor rent-seeking villains we can better make sense of the observable reality, at least in the Brazilian context that I studied.

Chapter 2 then went on to develop a typology of five political logics of patronage. These are managing bureaucrats (to deliver public services or to extract rents), mobilizing voters (to win elections), rewarding supporters (to boost credibility and partisan organizations), tying the opponent's hands (to decrease their leeway in the use of patronage), and anchoring coalitions (to improve legislative support and stability). Each of these political logics of patronage entail distinct rationales, different hiring and firing patterns, and divergent implications for government accountability and effectiveness. The chapter spelled out the characteristics of each of these logics, which tend to dominate in different moments across the political cycle, and discussed the most important trade-offs existing between them. The result is a palette of political strategies that politicians can mobilize according to their motivations, needs, and constraints. The chapter then concluded by discussing the role that the economic, political, and regulatory environment plays in shaping patronage strategies. While anti-patronage policies like civil service systems and legal constraints on hiring around elections constrain patronage strategies, gaps in implementation and, critically, politicians' strategic responses to those policies can lead to undesirable consequences.

The empirical chapters that followed Chapter 2 examined the different political logics of patronage and their implications for development, focusing on Brazilian municipal governments. To do so, they leveraged 121 in-depth interviews conducted in 7 states over 18 months of fieldwork; a face-to-face, representative survey of "street-level managers" (school directors, clinic managers, and social assistance center coordinators); an online survey of politicians (mayors, secretaries, and city councilors); and quasi-experimental studies using detailed administrative data on public employment and the performance of municipal bureaucracies. The case of Brazilian municipal governments is pertinent because it combines wide variation in economic and political development, multiple bureaucrat selection methods, and rich administrative datasets.

Chapter 3 demonstrated that patronage can increase bureaucratic effectiveness and account-

ability when it is used to appoint bureaucrats to management or leadership positions. It argued that political and social connections between bureaucrats and politicians –which I referred to as “upward embeddedness”– provide access to resources, facilitate the application of sanctions and rewards, align priorities and incentives, increase mutual trust, and facilitate monitoring. In so doing, patronage can enhance bureaucrats’ accountability and effectiveness. The central idea to this chapter was not that patronage is universally good, or that it comes with no costs. Rather, I argued that patronage provides a number of governance resources that can be mobilized not only to extract rents but also to improve public service delivery through improvements in bureaucratic accountability and effectiveness.

Chapter 3 then presented evidence from a variety of sources in support of these ideas. Observational regressions of data from the survey of bureaucrats showed that appointed bureaucrats have more frequent contacts, higher levels of trust, and better alignment with politicians than un-appointed bureaucrats. Results from conjoint experiments embedded in the survey of bureaucrats and in the survey of politicians demonstrated that managers and politicians expect those who are politically appointed or connected to communicate better with the government, to be more responsive to its demands, and to be more effective at raising funds from it. A difference-in-discontinuities showed that when politically appointed school directors lose their connections to the local government (because of an electoral defeat of the mayor who appointed them) the school experiences a drop in its quality, when compared to schools with un-appointed directors. This demonstrates that the connections that patronage facilitates can increase bureaucratic effectiveness. A separate regression discontinuity showed that politically appointed school directors (but not un-appointed ones) who meet their school quality target are less likely to be replaced. This shows that patronage can enhance bureaucratic accountability. These findings suggest that political discretion in the appointment of managerial positions can be beneficial, not only in high-income democracies but also (and perhaps especially) in developing contexts where politicians care about the delivery of public services but lack other means to recruit, monitor, and motivate employees.

Chapter 4 switched to examine some of the uses of patronage around elections. It showed that public employment is used to mobilize voters ahead of elections, and to reward supporters after elections. By exploiting a panel study of detailed administrative employment data and the exogenous timing of municipal elections, this chapter showed there are large cycles in the hiring and firing of bureaucrats and in the activities they perform. Before the election there is an increase in hiring, targeted at workers with lower levels of education (and thus, in expectation, low income). This inflation of the payroll occurs not immediately before the election but a few months earlier, right

before the hiring freeze that several laws impose precisely to contain the use of public employment for electioneering. After the election, there is an increase in the hiring of political insiders (people who had run for city councilor positions). The chapter also showed that public service delivery (and in particular the number of prenatal care check-ups, a key indicator of healthcare services) declines both before and after elections. This is consistent with the clientelistic using of public employment ahead of elections, and with the rigidities imposed by the legal limits on hiring and firing around elections, hurting public service delivery. Building on the literatures on political budget/business cycles and on clientelism, the chapter theorized the existence of “political bureaucratic cycles,” or cycles in the hiring and firing of bureaucrats and in the activities they perform.

Chapter 5 examined the uses of patronage that follow a defeat of the incumbent at the polls. Employing a close-races regression discontinuity design, the chapter demonstrated that an electoral defeat of the incumbent causes several concurrent but distinct processes of bureaucratic turnover and, relatedly, declines in the delivery of public services. On the one hand, lame-duck governments fire public employees, partly to improve compliance with legal and fiscal rules about hiring before handing power over to the opponent. On the other hand, lame-duck governments increase the hiring of tenured employees in the months before leaving office, as a strategy to tie the opponent’s hands by reducing their ability to control the government payroll. Possibly due to the disruptions to teams of providers caused by dismissals, and to disruptions to within-government accountability dynamics, the defeat of an incumbent in the polls depresses the delivery of healthcare services in the months following the election, before the winner takes office. In sum, Chapter 5 exposed the connections between political and bureaucratic turnover, and the costs that electoral accountability can have for public service delivery in the short term.

These findings have several crucial implications for scholars and policymakers working to understand and to improve bureaucratic governance. First, patronage is more versatile than it is usually recognized. Politicians can use government jobs to mobilize voters and to reward supporters, as suggested by the clientelism and Weberian perspectives. Counter to these common theories, however, patronage can also be used to increase bureaucratic effectiveness and accountability. These improvements can be mobilized not only to extract rents, but also to improve public service delivery. Moreover, patronage can be used to tie the opponent’s hands right before leaving office, by hiring in the civil service. Positions in the bureaucracy can also be used to anchor legislative coalitions and foster stability. From the results presented in these dissertation emerges a view of patronage as a complex, versatile political resource that can be mobilized for a variety of tasks with varying implications for public service delivery and development – some bad, some good, and some more

ambivalent.

A second key implication worth highlighting once again is that patronage can be beneficial for governance and public service delivery. Patronage is frequently seen as a rent-seeking strategy that leads to giving jobs to worse types, or to having bureaucrats who (because of their political connections) exert less effort on the job. The theory and empirics that this dissertation presented imply that there is a third mechanism of patronage that is critical, namely not who is selected into the bureaucracy, or how much they work, but rather *how they work*. This mechanism has received much less attention but is arguably central to politicians' patronage strategies. Chapters 2 and 3 suggested that, because it provides connections between bureaucrats and politicians, patronage changes how bureaucrats work through what I called a "governance technology." Political connections and appointments have the potential, thus, to alleviate the agency problems that are common in public organizations. This "technology" can of course be used to extract rents, but it can, in developed and developing countries alike, be mobilized for more welfare-enhancing government activities like delivering public services. This suggests that politics can be a source not only of corruption and misallocations, as it is often assumed, but also of critical governance resources that can help overcome development challenges.

Third, the theory and empirical results presented in this dissertation suggest that policies commonly used to constrain patronage by reducing politicians' discretion in hiring, such as civil service systems or legal limits on hiring around elections, can lead to undesirable consequences. Gaps in implementation and especially politicians' strategic responses to those constraints can undermine the success of anti-patronage policies. A key implication of these findings is that policy makers and scholars working on public sector reform should anticipate the strategies politicians can use to undermine constraints to their hiring discretion.

A final, high-level implication of the findings presented in this dissertation is that political turnover can disrupt bureaucracies and service delivery through a variety of mechanisms. The empirical studies of patronage presented in Chapters 3, 4 and 5 use elections and electoral defeats of the incumbent as a quasi-experimental strategy to identify shocks, but their results have broader implications for how we understand the connection between elections and public administration. This dissertation has shown that electoral turnover can lead to the dismissal of bureaucrats, resignations, hiring of supporters, and to the disruption of connections and relationships among state agents. We value political turnover for the key role it plays in keeping politicians accountable (through elections and in between them). Yet, there is a fundamental tension between our demo-

cratic commitment to electoral accountability (with its corollary, the turnover of public officials), and the bureaucratic need for stability and the accumulation of expertise. This tension between the democratic necessity for uncertainty and turnover, on the one hand, and the bureaucratic need for stability and certainty, cannot be solved completely through civil service systems, which as this dissertation has shown are not immune to politically-induced turnover dynamics.

While I hope this dissertation has advanced our understanding of how politicians use political appointments and how those uses affect public service delivery, there are clear limitations on both the theoretical and the empirical fronts. These shortcomings, on the other hand, suggest some avenues for future research in Brazil as well as in other contexts. First, the typology of the political logics of patronage that I advanced is necessarily tied to the Brazilian case where my theory (somewhat inductively) emerged. The theory therefore needs to be tested and developed in light of other comparative cases. For example, an examination of the uses of patronage in places where the political mobilization of ethnicity is more prevalent might reveal other important logics of patronage. Comparative research beyond Brazil would also allow us to better understand how the economic, political, and regulatory environment shape the prevalence and relevance of different logics of patronage.

Second, a more complete examination of the political logics of patronage in Brazilian municipalities would need a study on the use of patronage for anchoring local legislative coalitions, and a study on the use of patronage for managing bureaucrats as a way to bend the rules and facilitate rent extraction. There are feasible studies that would help complete the empirical study of the political logics of patronage that I identify among Brazilian local government. These studies would not only strengthen the empirical bases of the argument – they could also further illuminate the trade-offs between different logics of patronage.

Finally, the limitations of anti-patronage policies (civil service systems, legal constraints on hiring around elections, and elections for key bureaucratic positions) need to be further theorized. What dimensions of these policies are most important for their success? How can policymakers anticipate and adjust to strategic responses by politicians that undermine the effectiveness of these policies? These ideas about the shortcomings of anti-patronage policies also call for better empirical tests, exploiting exogenous variation in the presence or key features of civil service systems, legal constraints on hiring, and bureaucratic elections.



## Appendices

# Appendix A

## Interviews

I conducted 121 in-depth interviews with municipal politicians and bureaucrats, and with state-level horizontal accountability actors. These interviews were conducted over 18 months of fieldwork done between January 2016 and June 2019. The main goal of the interviews was to develop and probe hypotheses. Interviews were approved by MIT's Committee on the Use of Humans as Experimental Subjects under protocols 170593389 and 1806407144.

The break-up of interviewees is as follows: 51 politicians, 54 bureaucrats, and 16 horizontal accountability actors. 41 of the 51 politicians were secretaries, 46 of the 54 bureaucrats were street-level managers, and of the 16 horizontal accountability actors 3 were state audit court councilors or auditors, 8 state prosecutors or prosecutorial staff, and 5 state judges or judicial staff. Three quarters of the interviews correspond to bureaucrats and politicians in the social sectors, including 56 education officials, 25 healthcare officials, and 9 social assistance officials.

## A.1 List of interview locations

Interviews were conducted in the following states and municipalities:

- Ceará (Northeast): Fortaleza, Canindé, Caridade, Madalena, Boa Viagem, Pedra Branca, Tamboril, Sobral, Massapê, Granja, Jijoca de Jericoacoara.
- Rio Grande do Norte (Northeast): Natal, Goianinha, Santa Cruz, Caicó, Cerro Corá, Bento Fernandes, Extremoz, Maxaranguape, Rio do Fogo, Sitio Novo.
- Paraíba (Northeast): Joao Pessoa, Sapé, Sobrado, Riachão do Poço, Cuité de Mamanguapa, Capim.
- Rio de Janeiro (Southeast): Rio de Janeiro, Maricá, Saquarema, Engenheiro Paulo de Frontin, Itaboraí, Mendes, Paracambi, Piraí.
- Minas Gerais (Southeast): Unaí, Paracatú, Itapeva, Camanducaia.
- State of São Paulo (Southeast): São Paulo.
- Goiás (Center-west): Valparaíso de Goiás, Luziânia, Cabeceiras, Formosa, Planaltina, Cristalina.

## A.2 Socioeconomic and political characteristics of interview locations

Figure A-1: Distribution of municipality-level socioeconomic characteristics: in black, the distribution of all municipalities in Brazil; in red, municipalities where interviews were conducted.

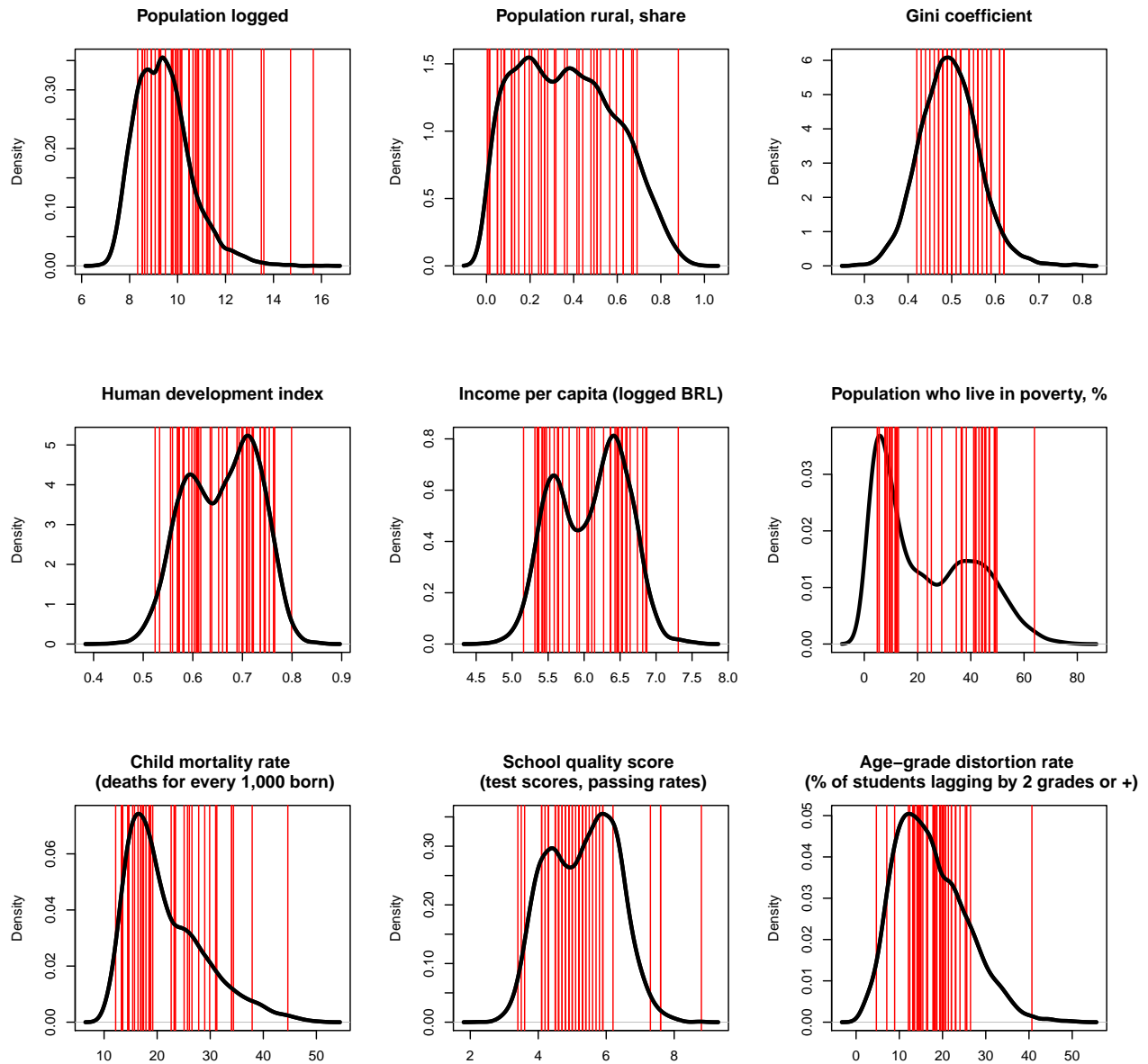
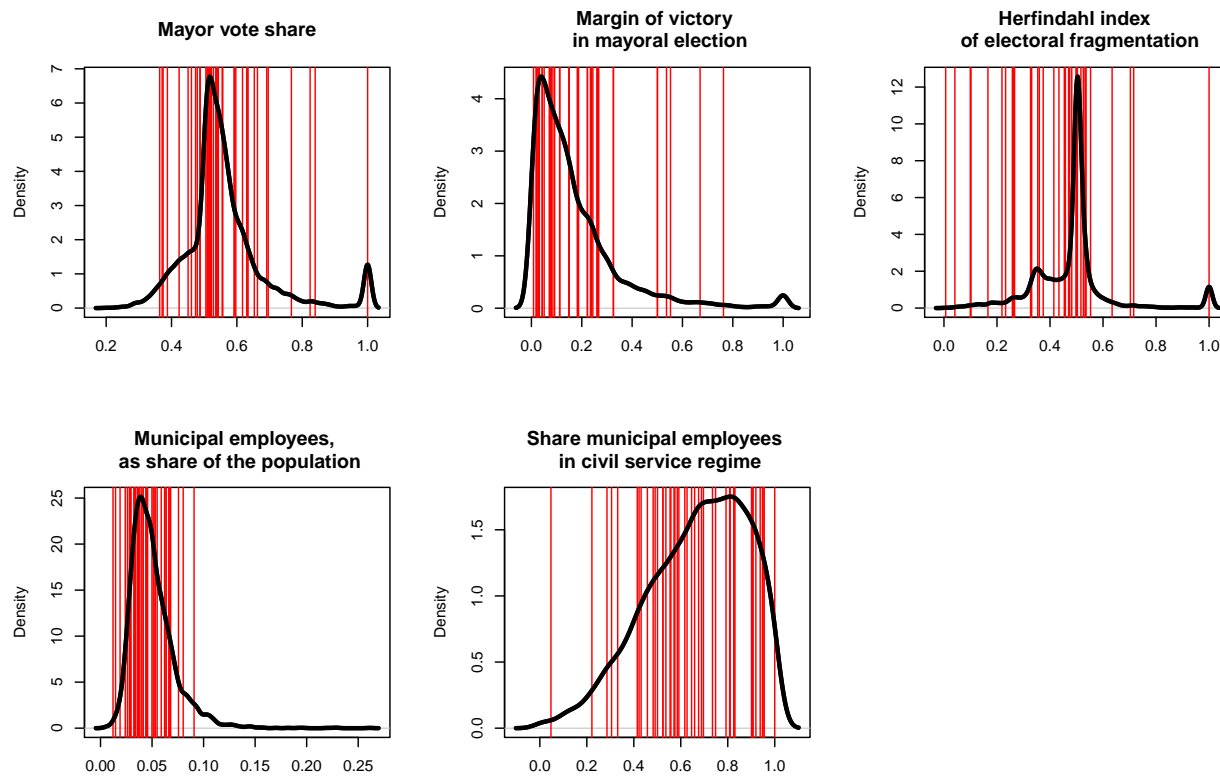


Figure A-2: Distribution of municipality-level political characteristics: in black, the distribution of all municipalities in Brazil; in red, municipalities where interviews were conducted.



## Appendix B

### Survey of bureaucrats

Based on my in-depth interviews with bureaucrats and politicians, I designed and implemented a large, face-to-face, representative survey of municipal street-level managers (school directors, health clinic managers, and social assistance center coordinators) between November and December of 2018 in the Brazilian state of Rio Grande do Norte. This is, to my knowledge, the first representative survey of street-level managers collecting data about their political connections and attitudes. Surveys were approved by MIT's Committee on the Use of Humans as Experimental Subjects under protocol 1810539206. Previous online and in-person pilots of the survey of bureaucrats were approved under protocols 170593389, 1803276033 and 1806407132.

The following 23 people provided excellent research assistance for the implementation of the field survey in Rio Grande do Norte: Jenair Alves, Marcos Aurélio Freire da Silva Júnior, Francymonni Yasmim Marques de Melo, Karoline de Oliveira, Raiany Juliete da Sila, Aline Juliete de Abreu Feliciano, Pedro Henrique Correia do Nascimento Oliveira, Ana Vitória Araújo Fernandes, Jaedson Gomes dos Santos, Ana Beatriz Germano Barroca, Renata Lima de Moraes, Myleyde Dayane Pereira da Silva, Marina Rotenberg, Filipe Ramos Pinheiro, Daniele Vitória Lima da Silva, Elvira Gomes Santos, Matheus Oliveira de Santana, Magda Emanuele Lima da Silva, Ayanne Marília Sousa da Silva, Júlio César Nascimento, Lidiane Freire de Jesús, André Silva, and Pâmela Kaissa Fernandes Lopes. All of them were selected through the Federal University of Rio Grande do Norte (UFRN, *Universidade Federal do Rio Grande do Norte*). Professor Sandra Gomes at UFRN provided generous support for the selection and training of the research assistants.

I designed and delivered a 4-day training to all research assistants, where we covered the basics of surveys, conjoint experiments, human subjects ethics, and security.

## B.1 Questionnaires

The survey instruments can be found online and are available from the author.

- Survey of school directors:
  - In Portuguese: <http://guillermotoral.com/surveyescolaspt.pdf>
  - In English: <http://guillermotoral.com/surveyescolasen.pdf>
- Survey of clinic managers:
  - In Portuguese: <http://guillermotoral.com/surveyubspt.pdf>
  - In English: <http://guillermotoral.com/surveyubsen.pdf>
- Survey of social assistance center coordinators:
  - In Portuguese: <http://guillermotoral.com/surveycraspt.pdf>
  - In English: <http://guillermotoral.com/surveycrasen.pdf>

The survey had the following blocks:

- Identification of the municipality and the unit, and informed consent.
- Professional experience and profile
- Demographic profile
- Attitudes and beliefs about governance actors
- Meetings with governance actors
- Conjoint experiment
- Profile of the unit
- Political activities
- Integrity and public service attitudes

## B.2 Sampling and non-response

I excluded the largest 17 municipalities in the state (which had as of the 2010 census more than 30,000 inhabitants) for budget and security reasons. Surveying street-level managers in these large municipalities would significantly increase the cost of the survey, and more importantly it would have exposed enumerators to the serious security challenges typical of large urban areas of the Northeast.<sup>1</sup>

Rural areas in all municipalities were excluded from the study's population, for three main reasons. First, rural schools, clinics, and social assistance centers in Brazil are often staffed for a limited number of days and hours per week. Second, the managers of these units often work at the municipality's urban center, and tend to direct several units at once. Third, rural areas in the Northeast are logistically hard to reach – they are often accessible only through dirt roads with limited or no GPS service, unmapped on GPS services like Waze or Google Maps – and pose additional security challenges. Therefore, including rural areas in the sampling frame would have heavily increased the time and budget required for the survey, and could have risen security issues for enumerators. While there are many schools and clinics in rural areas, most of the population lives in urban areas and is thus served by urban bureaucracies. For example, while over 55% of the 2,415 municipal schools in Rio Grande do Norte are in rural areas, they concentrate less than 27% of municipal student enrollments in basic education.

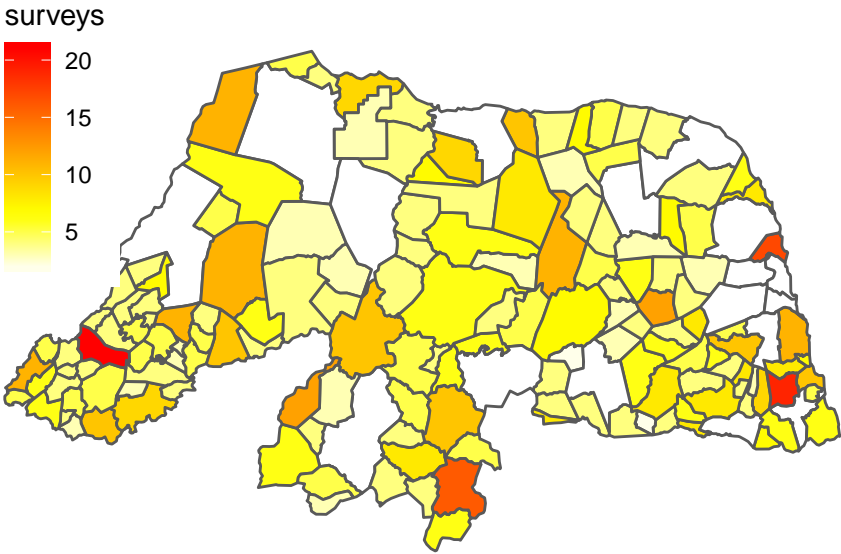
Before the survey, and using the most up-to-date administrative data, I had identified 1,027 schools, clinics, and social assistance centers in the urban areas of the target 150 municipalities. Throughout four weeks of fieldwork, we managed to interview 926 street-level managers. The gap between the two numbers is due to rejections (17 managers refused to participate), overlaps (15 units had as manager somebody who had already been surveyed), misclassification (25 units were mis-identified as urban, when in fact they were in rural areas), and failures to locate some managers (we tried at least twice with each of them). On the other hand, we located and did surveys at 38 urban units that, mostly because they were of recent establishment, were not in the federal data. The break-up by sector is 481 school directors, 292 clinic managers, and 153 social assistance coordinators.

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<sup>1</sup>Note, for example, that the state capital Natal is the city with the fourth highest murder rate in the world (see ranking at [https://en.wikipedia.org/wiki/List\\_of\\_cities\\_by\\_murder\\_rate](https://en.wikipedia.org/wiki/List_of_cities_by_murder_rate); and recent reporting by El País at [https://brasil.elpais.com/brasil/2018/03/16/politica/1521236714\\_432763.html](https://brasil.elpais.com/brasil/2018/03/16/politica/1521236714_432763.html)). Mossoró and Parnamirim, the second and third largest cities in the state, are also among the most dangerous cities in the state. 3 of the other 4 largest cities in the state are in the metropolitan area of Natal.



Figure B-1: Bureaucrat survey responses by municipality



White corresponds to municipalities excluded from the survey

### B.3 Descriptive statistics

Table B.1: Descriptive statistics of the survey of street-level managers, by sector

	All sectors N=926		Education N=481		Healthcare N=292		Social assistance N=153	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	40.71	9.76	45.20	8.34	35.27	8.37	36.99	9.57
Female	0.86	0.34	0.85	0.36	0.86	0.35	0.92	0.27
High school degree or less	0.08	0.27	0.01	0.11	0.22	0.41	0.03	0.16
College degree	0.31	0.46	0.25	0.43	0.29	0.46	0.51	0.50
Politically appointed	0.77	0.42	0.79	0.41	0.67	0.47	0.87	0.34
Elected	0.09	0.28	0.17	0.38	0.00	0.00	0.00	0.00
Selected	0.04	0.21	0.00	0.00	0.11	0.31	0.06	0.24
Civil service	0.04	0.19	0.01	0.09	0.09	0.28	0.03	0.16
Appointed by mayor	0.46	0.50	0.54	0.50	0.34	0.47	0.46	0.50
Appointed by secretary	0.25	0.43	0.24	0.43	0.22	0.42	0.35	0.48
Appointed by city councilor	0.02	0.13	0.02	0.13	0.02	0.15	0.01	0.11
Experience in post	2.66	2.83	3.06	3.17	2.17	2.35	2.32	2.33
Experience as manager	4.66	4.33	5.58	4.79	3.98	3.71	3.05	2.97
Experience as professional	15.15	10.61	20.89	9.00	8.77	7.17	8.61	10.23
Hours worked per week	39.97	8.08	40.91	9.70	39.24	6.01	38.40	4.94
Exclusive dedication	0.57	0.50	0.80	0.40	0.00	0.00	0.92	0.28
Union member	0.35	0.48	0.54	0.50	0.17	0.38	0.10	0.31
Party member	0.16	0.37	0.16	0.37	0.15	0.36	0.18	0.38

Table B.2: Descriptive statistics of the survey of street-level managers, by appointment mode

	All modes N=926		Appointment N=710		Election N=82		Civil service N=41	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	40.71	9.76	41.14	9.61	46.43	8.49	34.67	9.02
Female	0.86	0.34	0.86	0.35	0.85	0.36	0.94	0.24
High school degree or less	0.08	0.27	0.09	0.29	0.02	0.16	0.03	0.17
College degree	0.31	0.46	0.35	0.48	0.10	0.30	0.18	0.39
More than a college degree	0.59	0.49	0.53	0.50	0.88	0.33	0.76	0.44
Experience in post	2.66	2.83	2.53	2.84	3.06	2.99	3.33	2.57
Experience as manager	4.66	4.33	4.58	4.35	4.78	4.52	6.52	5.58
Experience as professional	15.15	10.61	15.34	10.69	22.21	8.81	10.75	8.99
Hours worked per week	39.97	8.08	40.16	8.22	40.54	9.98	36.06	7.37
Exclusive dedication	0.57	0.50	0.60	0.49	0.76	0.43	0.21	0.42
Union member	0.35	0.48	0.31	0.46	0.74	0.44	0.48	0.51
Party member	0.16	0.37	0.17	0.38	0.15	0.36	0.09	0.29

Note that some street-level managers reported having been appointed through a variety of methods.

## B.4 Details of the conjoint experiment with bureaucrats

Table B.3: Attribute and attribute values for bureaucrat profiles used in the conjoint experiment

Attribute	Values
Education	Bachelors degree Masters degree
Experience	3 years 10 years
Political connections	Has no connections with the municipal government Has connections with the municipal government
Relationship to professionals	Bad relationship to professionals Good relationship to professionals
Unit performance	Targets were not met Targets were met
Selection mode	Civil service exam Election by the community Political appointment

Figure B-2: Sample conjoint screen seen by school directors

Rodada 3 de 4

	Diretor A	Diretor B
<b>Selecao</b>	Eleição pela comunidade	Indicação política
<b>Vinculos politicos</b>	Tem vínculos políticos na prefeitura	Não tem vínculos políticos na prefeitura
<b>Experiencia como diretor</b>	3 anos	10 anos
<b>Relacao com os professores</b>	Fraca relação com os professores	Boa relação com os professores
<b>Formacao</b>	Mestrado	Licenciatura
<b>Desempenho no IDEB</b>	Meta da escola foi atingida	Meta da escola foi atingida

## Appendix C

### Survey of politicians

In order to quantify some of the relationships I identified through my interviews with politicians, as well as to measure some of the intermediate outcomes of a randomized control trial ([Toral, 2019](#)), I designed and implemented an online survey of local politicians in the Brazilian state of Rio Grande do Norte. The survey was done in partnership with the state audit court there (TCE-RN, *Tribunal de Contas do Estado do Rio Grande do Norte*), which delivered the survey electronically to politicians, namely all mayors and city councilors, as well as secretaries of 5 key areas, in all 167 municipalities of the state. TCE-RN also sent them reminders regularly. Subjects completed the survey on their own, and therefore, unlike for the survey of bureaucrats, there is no guarantee that it was them (and not their assistants, for example) who responded.

755 politicians completed the survey, for a response rate of 27%.<sup>73</sup> This response rate is relatively high for a survey of elites: recent surveys of state legislators in the US typically have one-digit response rates ([Anderson et al., 2016](#); [Cluverius, 2017](#); [Nicholson-Crotty and Carley, 2018](#); [Anderson et al., 2019](#)).

## C.1 Questionnaire

The survey instrument can be found online and is available from the author:

- In Portuguese: [http://guillermotoral.com/survey\\_politicians\\_pt.pdf](http://guillermotoral.com/survey_politicians_pt.pdf)
- In English: [http://guillermotoral.com/survey\\_politicians\\_en.pdf](http://guillermotoral.com/survey_politicians_en.pdf)

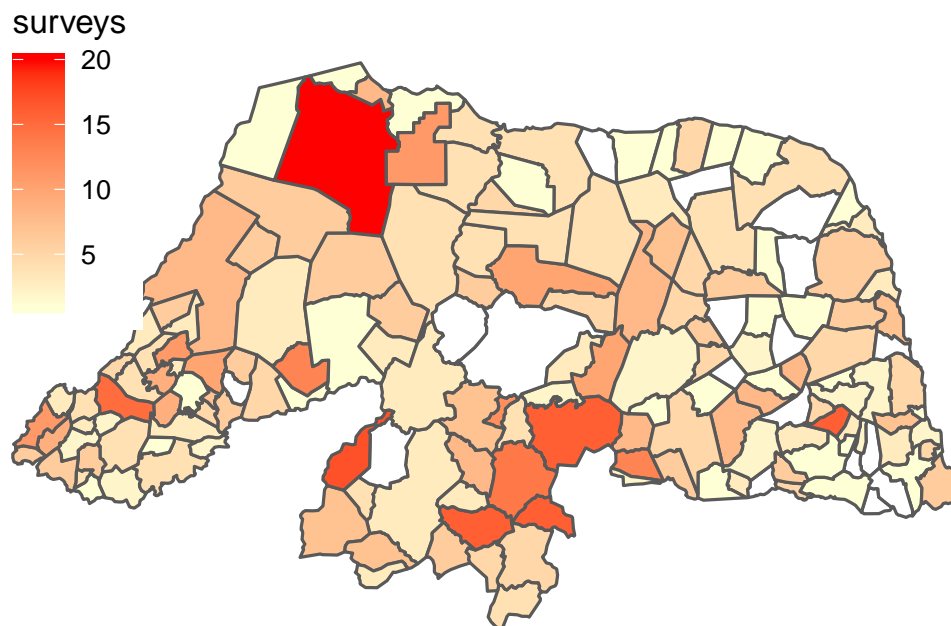
The survey had the following blocks:

- Personal profile and experience
- Knowledge about compliance with rules.
- Attitudes about governance actors
- Meetings and visits
- Conjoint experiment
- Knowledge about rules
- Performance of the municipality

## C.2 Respondent recruitment and non-response

The state audit court of Rio Grande do Norte sent the survey to all mayors, city councilors, and secretaries of five key areas (education, healthcare, social assistance, finance, and human resources) in the 167 municipalities of the state. The survey was sent through the state audit court's online platforms. Politicians were encouraged to respond, and received multiple reminders. Participation was nonetheless voluntary. A total of 755 politicians participated and finished the survey, of which 56 were mayors, 468 secretaries, and 231 city councilors. These respondents come from 142 municipalities, out of the state's 167. Respondents by municipality are shown in Figure C-1

Figure C-1: Politician survey responses by municipality



There are no correlations between the number of participants and basic political and socio-economic characteristics of the municipality, as shown in Table C.1.

Table C.1: Correlates of the number of responses per municipality (excludes responses from city councilors, the number of which varies with the municipality's population)

logpopulation	−0.051 (0.246)
herfindahl	−3.803 (4.066)
mayor_reelected	0.278 (0.475)
mayor_voteshare	4.169 (4.020)
pc_pobres	−0.026 (0.027)
ideb	0.631 (0.380)
Constant	1.867 (3.573)
Observations	134
R <sup>2</sup>	0.062

HC1 standard errors. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

### C.3 Descriptive statistics

Table C.2: Descriptive statistics for the survey of politicians, by position

	All N=755		Mayors N=56		Secretaries N=468		City councilors N=231	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	43.37	10.92	49.88	11.86	41.69	10.42	45.22	10.82
Female	0.45	0.50	0.20	0.40	0.60	0.49	0.18	0.39
High school degree or less	0.22	0.41	0.38	0.49	0.07	0.26	0.48	0.50
College degree or more	0.65	0.48	0.52	0.50	0.82	0.39	0.36	0.48
Party member	0.66	0.47	0.98	0.13	0.46	0.50	0.98	0.15
Experience as bureaucrat (years)	0.64	0.48	0.38	0.49	0.76	0.43	0.46	0.50
Experience as politician (years)	5.56	5.65	7.64	7.21	4.34	4.45	7.53	6.65



## C.4 Details of the conjoint experiment with politicians

Table C.3: Attribute and attribute values for bureaucrat profiles used in the conjoint experiment with politicians

Attribute	Values
Education	Bachelors degree Masters degree
Experience	3 years 10 years
Political connections	Has no connections with the municipal government Has connections with the municipal government
Union membership	Participates in a union Does not participate in a union
Gender	Woman Man
Contract type	Civil service Temporary contract

Figure C-2: Sample conjoint screen seen by politicians

### Rodada 4 de 4

	<b>Servidor A</b>	<b>Servidor B</b>
<b>Tipo de contrato</b>	Concurso público	Contratação temporária
<b>Vínculos políticos</b>	Não tem vínculos políticos na prefeitura	Não tem vínculos políticos na prefeitura
<b>Experiencia como funcionario</b>	3 anos	10 anos
<b>Atividade sindical</b>	Não participa de nenhum sindicato	Participa de um sindicato
<b>Formacao</b>	Graduação	Graduação
<b>Sexo</b>	Homem	Mulher

## Appendix D

### Administrative datasets

#### D.1 Administrative employment data

The main data source on employment data is the Ministry of Labor's RAIS dataset (*Relação Anual de Informações Sociais*), which includes the universe of formal labor market contracts, from 1985 to 2016, with employer and individual identifiers. For each contract, the data contain among other variables the employer and the employee's unique identifiers; the date of hire and fire; the contract type, the job's professional category, hours, and salary; and the employee's age and level of education. I use municipal government employer ID's, obtained from the Ministry of Finance, to identify municipal employees.

The data, which are confidential and restricted-access, were obtained through a formal agreement between MIT Brazil and Brazil's Ministry of Labor.

All employers, including municipal governments, are legally obliged to enter data for all their employees in RAIS. Nowadays this is typically done by generating a file at the end of the year, using human resources management software, and submitting it to the Ministry of Labor. As bureaucrats at the Ministry of Labor and at two secretariats of management explained to me, politicians are pressured to enter contracts into RAIS because without that report to the federal government the employee's eligibility for a public pension or for PASEP (a transfer for low-paid public employees) is compromised. Nonetheless a minority of them (between 1 and 5%, depending on the year) fail to submit employment data. Technical staff at the Ministry of Labor confirmed that some municipalities indeed fail to report employment data to RAIS, and associated it to capacity issues

Table D.1: Administrative micro-data of municipal employees, 2002-2016: Descriptive statistics

Year	# municipal employers	# contracts (millions)	Non-tenure contracts (%)	# individuals hired (millions)	Invalid employee IDs (%)
2016	5449	5.98	32.20	5.44	0.00
2015	5496	6.04	33.32	5.46	0.55
2014	5507	6.08	34.03	5.52	0.54
2013	5486	6.10	35.21	5.50	0.54
2012	5483	5.86	34.41	5.35	0.53
2011	5480	5.70	35.25	5.21	0.55
2010	5496	5.53	35.44	5.06	0.53
2009	5469	5.36	35.26	4.93	0.52
2008	5472	5.16	34.05	4.73	0.55
2007	5475	4.81	33.58	4.46	0.57
2006	5481	4.57	33.36	4.25	0.62
2005	5431	4.24	32.76	3.97	0.77
2004	5366	3.90	29.83	3.66	0.87
2003	5350	3.76	30.29	3.53	0.98
2002	5309	3.61	32.35	0.21	94.06

and/or corruption.

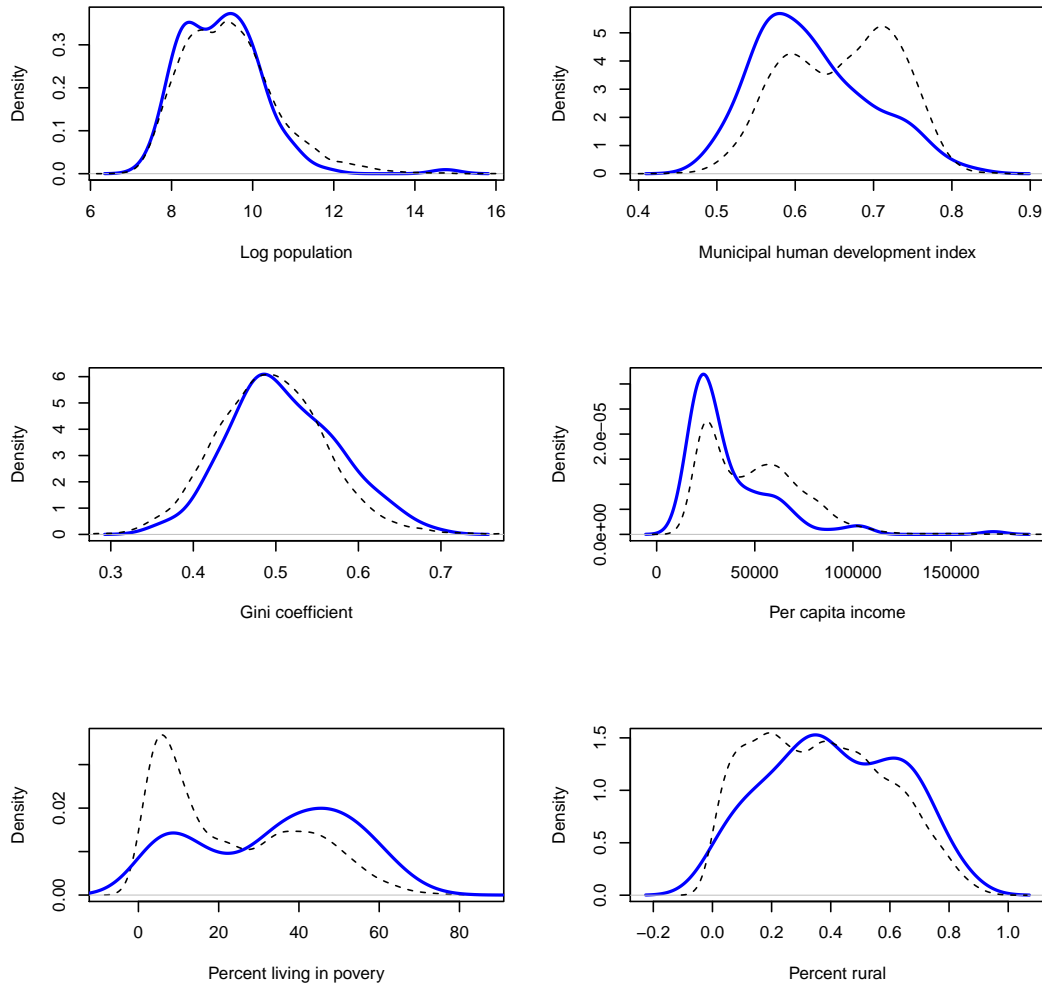
To understand the kind of municipalities that are not reporting employment data to the Ministry of Labor, I examine the 123 municipalities which show as having no employees in January of 2016, and compare them to the whole set of municipalities on a number of outcomes from UNDP's Municipal Human Development Atlas.<sup>1</sup> Figure D-1 shows the results. As can be seen in the plots, municipalities failing to report employment data tend to be smaller, less developed, more unequal, poorer, and more rural. This is consistent with both capacity and corruption mechanisms behind the missing data.

A couple of important conclusions stem from this descriptive analysis. First, missing data is not missing at random, with municipalities without data in RAIS being systematically different. Second, these municipalities seem poorer and less developed, in average. Therefore, to the extent that municipal development correlates with political bureaucratic cycles their exclusion from the data is biasing the results. This bias, however, is likely to be in the direction of attenuating results (i.e. bringing them closer to zero) in as much the cycles are a clientelistic phenomenon, as results shown in Chapter 4 suggest. In any case, results are not representative of the overall population of

<sup>1</sup>Source: <http://www.atlasbrasil.org.br>.

municipalities, but rather of those complying with the RAIS reporting requirement.

Figure D-1: Characterization of municipalities not reporting employment data for 2016



Thick, blue lines correspond to municipalities whose governments did not report employment data to RAIS for 2016. Dashed, black lines correspond to all municipalities in Brazil.

## D.2 Administrative education data

The Brazilian government releases highly detailed administrative data about its education system, mostly through the Anísio Teixeira National Institute of Education Studies and Research (INEP, *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira*), a high-capacity, autonomous body of the federal government linked to the Ministry of Education. The two data sources I use most in this dissertation are the School Census and IDEB or Prova Brasil. They are both available on INEP's website, <http://inep.gov.br/>.

The School Census is an administrative data covering all primary, middle, and high schools in the country, covering enrollments and basic school inputs like facilities and teachers.

The federal government measures the quality of schools through its Basic Education Assessment System (SAEB, *Sistema de Avaliação da Educação Básica*), a set of standardized tests administered across the country. There are two main components to SAEB: the National Literacy Assessment (ANA, *Avaliação Nacional de Alfabetização*), which tests students in third grade, and the National Assessment of School Performance (ANRESC, *Avaliação Nacional do Rendimento Escolar*, also called *Prova Brasil*), which tests students in fifth and ninth grades.<sup>2</sup> ANA is implemented every year, and ANRESC is implemented every two years. Exams are based on item response theory, which ensures that its measures of learning outcomes are valid and comparable over time.

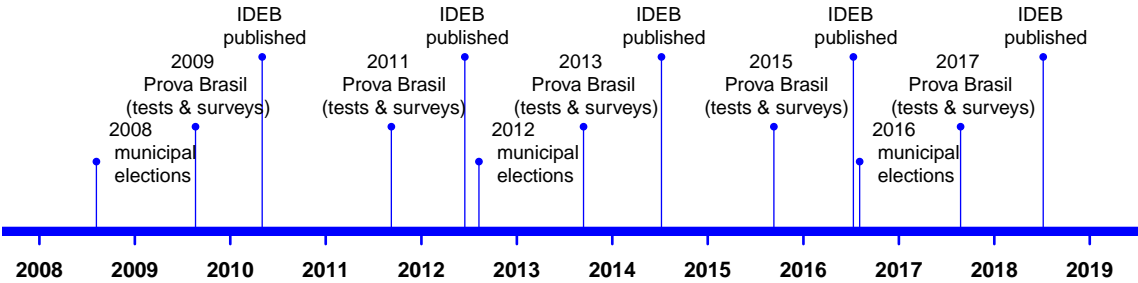
After ANRESC was first implemented in 2005, the federal government created the Basic Education Development Index (IDEB, *Índice de Desenvolvimento da Educação Básica*) to measure and incentivize educational performance. IDEB multiplies average ANRESC test scores by passing rates, so as to avoid perverse incentives for schools to either automatically pass children or hold them back to boost test scores. The government established IDEB targets for the country as well as all schools, municipalities, and states for every two-year period from 2007 to 2021. These targets were defined based on an algorithm that projected school progress along logistic trajectories with the goal of getting the country to average performance levels in OECD countries by 2021 (Fernandes, 2007). Once released at the beginning of the period, IDEB targets have not been revised. World Bank economists have called IDEB “one of the world's most impressive systems

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<sup>2</sup>Because ANRESC is not implemented for school-grade combinations where there are less than 20 students enrolled, a third component of SAEB implements those same tests in a sample of the grades with between 10 and 19 students.

for measuring education results [...], superior to current practice in the United States and in many other OECD countries in the quantity, relevance, and quality of the student and school performance information it provides” (Bruns et al., 2012, 7).

Figure D-2: Timeline of IDEB tests and information release



Schools that have less than 20 students enrolled in the grades to be assessed in a given year did not participate in ANRESC for the years I am examining. Moreover, IDEB results are released at the school level for every school where at least 50% of its enrolled students sit the exam. For schools that do not reach that minimum threshold, the Ministry publishes the information but hides the school identifier. While this may raise concerns that schools strategically select into or out of ANRESC, in practice this is very unlikely to matter for the result. As shown in the Figures below, very few schools do not reach these thresholds, and schools around that (rare) part of the distribution appear to actually select *into* ANRESC and not out of it. Together, this evidence suggests that self-selection into ANRESC is not a significant issue for the validity of the quasi-experimental designs.

Figure D-3: Histogram of the number of students enrolled in the last grade of primary school, by school

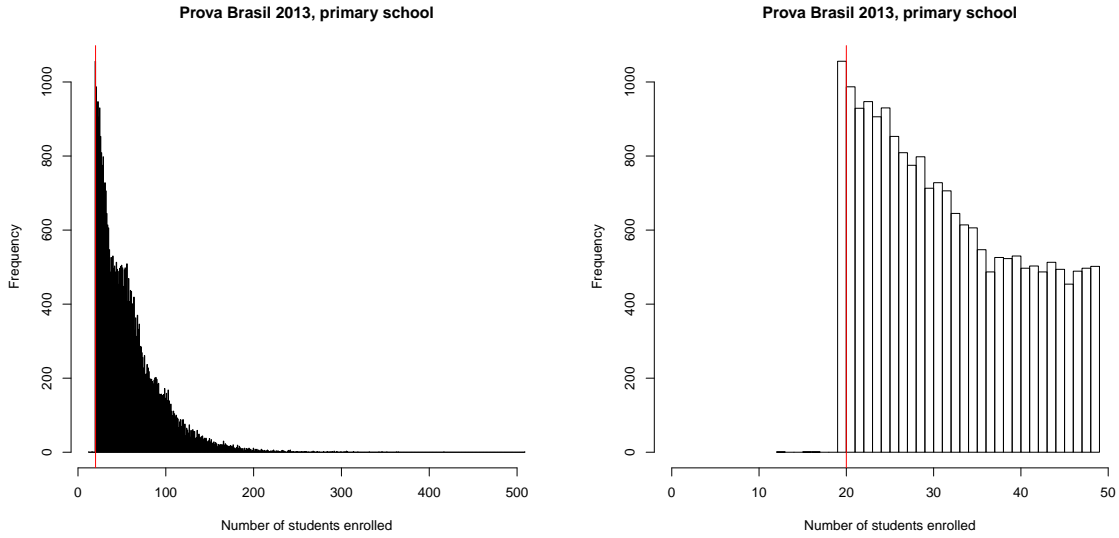
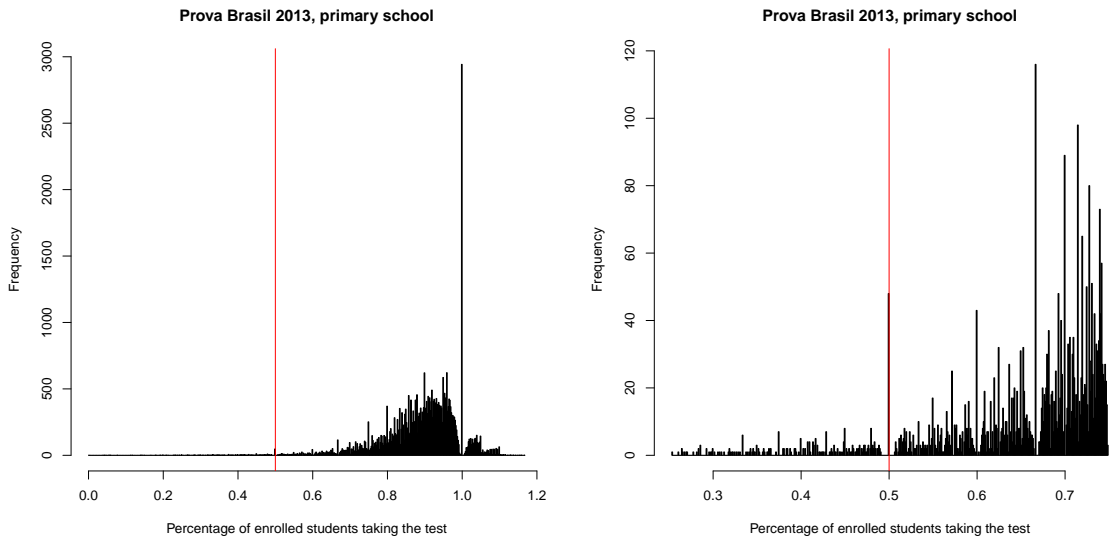


Figure D-4: Histogram of the share of enrolled students who take the test, by school



On the left, histogram over the whole range of the variable. On the right, same histogram zoomed into around the discontinuity.

### D.3 Administrative healthcare data

Brazil's Ministry of Health facilitates access to administrative data about inputs, outputs, and outcomes of its healthcare system. In this dissertation I leverage data from three information systems:

- The Basic Healthcare Information System (SIAB, *Sistema de Informação da Atenção Básica*), which gathers data on the outputs of municipal primary healthcare bureaucracies. The data are collected by municipal secretariats of healthcare, consolidated by state governments, and cleaned by the federal government's SIAB.
- The Mortality Information System (SIM, *Sistema de Informações sobre Mortalidade*), which gathers data on deaths, by age and cause. The data are collected by municipal secretariats of healthcare using official death records, and aggregated by the federal government through SIM.

All data are made available on the Unified Health System's DATASUS portal, <http://www2.datasus.gov.br/>.



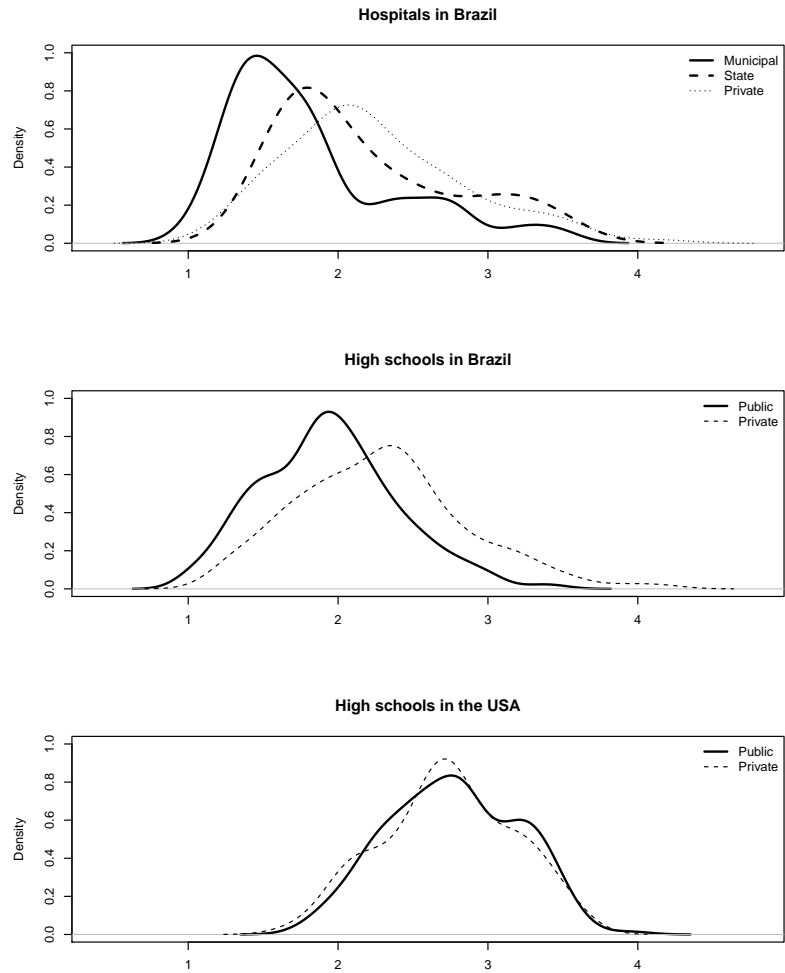
## Appendix E

### Additional details on local governance in Brazil

#### E.1 Management practices in Brazilian schools and hospitals

Data from the World Management Survey ([Bloom et al., 2013, 2015](#)) show that public schools and hospitals in Brazil have significantly worse management practices than their private counterparts.

Figure E-1: Scores of the World Management Survey for hospitals and high schools in Brazil, and for high schools in the USA



Data are from [Bloom et al. \(2014, 2015\)](#) and correspond to 289 hospitals and 513 high schools that were randomly selected in Brazil, as well as 270 high schools in the USA for comparison. I gratefully acknowledge the authors' granting me access to the data.

Most public high schools in Brazil are managed by state governments. I only code as municipal or state hospitals those that have those words in their name.

## E.2 Regressions of human development outcomes

Table E.1: OLS regression of municipal indicators of government effectiveness in education and healthcare

	<i>Dependent variable:</i>	
	Age-grade distortion rate (1)	Child mortality rate (2)
Log(population)	0.283*** (0.082)	-0.454*** (0.057)
Percent rural	-0.408 (0.530)	-1.894*** (0.381)
Log(per capita income)	-9.603*** (0.544)	-7.501*** (0.402)
Log(percent poor)	-0.947*** (0.314)	-0.280 (0.179)
Log(percent extremely poor)	-0.322* (0.178)	0.143 (0.088)
Unemployment rate 18-24	-0.028** (0.013)	-0.053*** (0.010)
Gini coefficient	25.893*** (2.012)	5.232*** (1.375)
Observations	5,389	5,393
R <sup>2</sup>	0.612	0.759
Adjusted R <sup>2</sup>	0.610	0.758

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

HC1 standard errors clustered at the state level in brackets

All regressions include state fixed effects.

Table E.2: OLS regression for school-level effectiveness among municipal primary schools.

	<i>Dependent variable:</i>		
	Age-grade distortion rate		
	(1)	(2)	(3)
School is rural	2.341*** (0.221)	4.258*** (0.212)	2.030*** (0.213)
School complexity index	2.328*** (0.054)	2.040*** (0.056)	1.590*** (0.059)
Average number of students per class		0.282*** (0.017)	0.491*** (0.023)
% of teachers with higher education		-0.0002 (0.003)	0.084*** (0.006)
Socioeconomic index			-0.917*** (0.028)
Observations	87,924	87,915	37,918
R <sup>2</sup>	0.050	0.060	0.193
Adjusted R <sup>2</sup>	0.047	0.056	0.166

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

HC1 standard errors clustered at the municipality level in brackets

All regressions include municipality fixed effects.

## E.3 Details on legal constraints on hiring around elections

Three important pieces of Brazilian legislation constrain hiring around elections: the Fiscal Responsibility Law, the Electoral Law, and the Law of Ineligibilities.

### E.3.1 Rules in the Fiscal Responsibility Law (LRF) concerning personnel expenses

The Fiscal Responsibility Law (LRF, Complementary Law 101, approved on May 4, 2000) includes seven main rules designed for controlling personnel expenses and their use as patronage in electoral years.<sup>1</sup> First, no municipal government can spend more than 60% of the net liquid revenue in personnel expenses, with 6 points being reserved for the legislative and 54 for the executive (article 20). Second, personnel expenses cannot increase during the 180 days before the end of the government's mandate (article 21). Third, compliance with this limit is verified at the end of every quadrimestre or four-month period. If personnel expenses are over 90% of the limit (i.e. over 51.3%), the municipality cannot create new posts or give out salary increase (article 22). Fourth, if the limits are surpassed, the government must comply in the next two quadrimestres, with at least one third of the reduction in the first quadrimestre. However if the limits are surpassed during an electoral year, the government cannot receive so-called voluntary transfers,<sup>2</sup> or get credit or guarantees (article 23). Fifth, up to 30 days after the end of every quadrimestre the government must issue a Fiscal Management Report (RGF, *Relatório de Gestão Fiscal*), which must be open to the public and contain a comparison of actual personnel expenses and the legal limits (articles 54 and 55). Sixth, if personnel expenses reach 90% of the limit (i.e., 48.6% for executive governments), audit courts will alert the legislature and the prosecutor's office (article 59). Finally, municipalities with less than 50,000 inhabitants can issue their RGFs every semester instead of every quadrimestre, and were only obliged to issue some of the other fiscal reports starting 2005 (article 63). While the LRF became an inflection point in the fiscal control of state and municipal governments, some of its rules, especially those concerning the control of personnel expenses were already enshrined in federal legislation (Kerches and Peres, 2010).

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<sup>1</sup>The law can be found at [http://www.planalto.gov.br/ccivil\\_03/leis/lcp/lcp101.htm](http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp101.htm).

<sup>2</sup>Voluntary transfers are transfers from other levels of government that are not related to the healthcare system or mandated by the constitution.

### **E.3.2 Rules in the Electoral Law concerning the hiring and firing of bureaucrats**

Brazil's Electoral Law (Law 9,504, approved on September 30, 1997)<sup>3</sup> establishes a number of rules constraining the behavior of public officials in order to ensure the fair competition of candidates. These rules include a number of provisions regarding the hiring and firing of bureaucrats. First, bureaucrats cannot be hired, dismissed with no fair cause (*sem causa justa*), or transferred, from 3 months before the election up to January 1st, with the exception of positions of trust, the hiring of people who passed a civil service examination before the beginning of the period (article 73.V), or hiring of positions necessary for the delivery of *essential* services (which the jurisprudence of the Supreme Electoral Court has clarified do not include education). Second, wages cannot be increased beyond adjustments that allow employees to recover any purchasing power lost during the election year (article 73.VIII). Municipalities cannot receive voluntary transfers from the federal or state government during the 3 months before and the 3 months after the period, with the exception of those destined to emergency situations (article 73.VI.a).

The law also establishes a number of strong penalties for breaches, including fines (to be paid by the candidate and/or their party), the suspension of the electoral candidacy of those benefited by the decision, the loss of access to the party financing system (*Fundo Partidário*), and the penalties established in the Law of Administrative Improbability (including the loss of any public position, the suspension of political rights between 3 and 5 years, and payment of a fine up to 100 times the wage received as official).

### **E.3.3 Rules in the Law of Ineligibilities concerning the incompatibility of holding a bureaucratic position and running for election**

Brazil's Law of Ineligibilities (Complementary Law 64, approved on May 18, 1990),<sup>4</sup> establishes certain limits on who can run for office, and allows for some time windows before the election in which "incompatibilities" can be fixed. The limits vary by the office a person is running for and the position they hold, but for city councilor art. 1.V establishes that public employees (with or without tenure) should be removed from their post up to 3 months before the election, except those

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<sup>3</sup>The law can be found at [http://www.planalto.gov.br/ccivil\\_03/leis/l9504.htm](http://www.planalto.gov.br/ccivil_03/leis/l9504.htm).

<sup>4</sup>The law can be found at [http://www.planalto.gov.br/ccivil\\_03/leis/lcp/lcp64.htm](http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp64.htm).

involved in tax collection who should be removed from their posts 6 months before the election. Those who are tenured can simply leave their posts until the election, with pay. Those who are hired with temporary contracts or in positions of trust must leave their jobs.<sup>5</sup>

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<sup>5</sup>The Supreme Electoral Court has a varied jurisprudence on the issue, which can be consulted at <http://www.tse.jus.br/eleicoes/desincompatibilizacao/desincompatibilizacao>.

## E.4 Predictors of school directors' appointment mode and school quality score

Table E.3 below shows the correlates of school directors' selection mode, and school performance, using data for 2013. The first block of regressors correspond to school-level variables, the second one to municipality-level variables, and the third one to director-level variables. The final block of regressors are director appointment modes and the school's IDEB target (which is a function of baseline performance in 2005 or 2007 for most schools).

Columns 1, 2 and 3 in Table E.3 show that while appointed, elected, and tenured school directors appear to be systematically different, they also appear to work at systematically different schools and municipalities. Columns 4 and 5 show that there is no significant correlation between appointment type and performance, once we control for contextual characteristics.



Table E.3: Observational predictors of school director appointment modes and school quality test score (IDEB), from cross-section data on municipalities, schools, and directors (2013)

	Dependent variable:				
	Appointed director	Elected director	Tenured director	School quality score	
	(1)	(2)	(3)	(4)	(5)
rural	0.013 (0.010)	-0.008 (0.009)	0.003 (0.005)	-0.044** (0.016)	-0.045** (0.015)
log_workers	0.007 (0.009)	0.014 (0.008)	-0.014** (0.005)	-0.068*** (0.014)	-0.071*** (0.013)
in_assentamento	-0.003 (0.027)	-0.019 (0.024)	0.002 (0.014)	-0.022 (0.044)	-0.031 (0.042)
in_indigenous	-0.174 (0.101)	0.059 (0.089)	0.042 (0.053)	-0.481** (0.176)	-0.465** (0.159)
inse	0.001 (0.001)	-0.001 (0.001)	-0.00002 (0.001)	0.073*** (0.002)	0.072*** (0.002)
complexidade	-0.010*** (0.003)	0.009*** (0.002)	0.001 (0.001)	-0.023*** (0.004)	-0.024*** (0.004)
log(num_alunos)	-0.004 (0.006)	0.004 (0.006)	-0.001 (0.003)	0.052*** (0.010)	0.058*** (0.010)
logpopulation	-0.063*** (0.005)	0.049*** (0.004)	-0.002 (0.002)	-0.039*** (0.007)	-0.038*** (0.007)
bf_fam_to_pop_ratio	-0.088 (0.167)	-0.329* (0.148)	0.348*** (0.088)	1.696*** (0.251)	1.247*** (0.238)
household_monthly_pc_income_2010	-0.0003*** (0.00003)	0.0002*** (0.00002)	0.00001 (0.00001)	-0.00002 (0.00004)	-0.0001 (0.00004)
share_concurados	-0.017 (0.019)	0.045** (0.016)	0.007 (0.010)	0.069* (0.028)	0.053* (0.026)
share_enrolment_mun	0.109*** (0.024)	0.003 (0.021)	-0.060*** (0.013)	-0.0004 (0.036)	0.017 (0.034)
radios_2012	0.006 (0.004)	0.001 (0.003)	-0.001 (0.002)	0.001 (0.006)	0.002 (0.006)
mayor_reelected	-0.005 (0.008)	-0.005 (0.007)	0.017*** (0.004)	0.044*** (0.012)	0.056*** (0.011)
share_funcionarios	0.367 (0.266)	-0.512* (0.235)	0.041 (0.140)	-0.223 (0.400)	-0.186 (0.379)
herfindahl	0.139*** (0.026)	-0.081*** (0.023)	-0.086*** (0.013)	-0.054 (0.038)	-0.079* (0.036)
ideb_mun	0.003 (0.007)	-0.010 (0.006)	0.009** (0.004)	0.535*** (0.011)	0.551*** (0.010)
female	0.031** (0.010)	-0.019* (0.009)	-0.016** (0.005)	0.014 (0.016)	0.014 (0.016)
age_25a29	0.048 (0.046)	-0.022 (0.041)	0.010 (0.024)	-0.006 (0.073)	-0.004 (0.070)
age_30a39	0.059 (0.044)	-0.021 (0.039)	0.002 (0.023)	-0.004 (0.070)	-0.015 (0.070)
age_40a49	0.065 (0.044)	-0.026 (0.039)	-0.003 (0.023)	-0.015 (0.070)	-0.045 (0.071)
age_50a54	0.054 (0.045)	-0.010 (0.040)	0.001 (0.024)	-0.045 (0.071)	-0.055 (0.072)
age_above54	0.088 (0.046)	-0.045 (0.040)	-0.005 (0.024)	-0.005 (0.072)	-0.013 (0.061)
race_black	-0.002 (0.008)	0.016* (0.007)	-0.010* (0.004)	-0.013 (0.012)	-0.041* (0.019)
race_brown	-0.012 (0.013)	0.020 (0.011)	-0.006 (0.007)	0.002 (0.012)	0.108** (0.034)
race_yellow	-0.049* (0.022)	0.042* (0.020)	0.002 (0.012)	-0.073 (0.061)	-0.059 (0.065)
race_indigenous	-0.047 (0.041)	0.044 (0.036)	-0.013 (0.021)	-0.085 (0.144)	0.064 (0.058)
race_notinformed	0.008 (0.044)	0.004 (0.039)	-0.042 (0.023)	0.091 (0.054)	0.096 (0.058)
schooling_lessthanhighschool	0.020 (0.094)	0.074 (0.083)	-0.081 (0.049)	0.082 (0.055)	0.050 (0.058)
schooling_magisterio	0.019 (0.038)	0.018 (0.033)	-0.047* (0.020)	-0.0003 (0.043)	0.026 (0.047)
schooling_tertiary_pedagogy	-0.002 (0.035)	0.061 (0.031)	-0.057** (0.018)	0.053 (0.041)	0.011 (0.017)
schooling_tertiary_normal	-0.018 (0.038)	0.085* (0.033)	-0.065** (0.020)	0.058 (0.029)	0.020 (0.064)
schooling_tertiary_licenciatura	0.006 (0.036)	0.062 (0.031)	-0.061*** (0.019)	0.058 (0.029)	0.020 (0.064)
schooling_tertiary_other	-0.012 (0.038)	0.053 (0.033)	-0.054** (0.020)	0.058 (0.029)	0.020 (0.064)
schooling_noposgraduate	0.036 (0.028)	0.072** (0.025)	-0.114*** (0.015)	0.058 (0.029)	0.020 (0.064)
schooling_atualizacao	0.038 (0.032)	0.073** (0.028)	-0.109*** (0.017)	0.058 (0.029)	0.020 (0.064)
schooling_especializacao	0.010 (0.028)	0.073** (0.024)	-0.099*** (0.014)	0.058 (0.029)	0.020 (0.064)
schooling_doctorate	-0.059 (0.075)	0.001 (0.066)	0.114** (0.039)	0.058 (0.029)	0.020 (0.064)
has_other_job_education	-0.006 (0.009)	-0.006 (0.008)	0.015*** (0.004)	0.058 (0.029)	0.020 (0.064)
has_other_job_noeducation	0.007 (0.013)	-0.015 (0.012)	0.007 (0.007)	0.058 (0.029)	0.020 (0.064)
works_morethan40h	0.004 (0.007)	0.005 (0.007)	-0.010** (0.004)	0.058 (0.029)	0.020 (0.064)
teacher_experience_lessthan1yr	0.086* (0.040)	0.020 (0.035)	-0.054** (0.021)	0.058 (0.029)	0.020 (0.064)
teacher_experience_1to2yr	0.114*** (0.032)	-0.005 (0.028)	-0.075*** (0.017)	0.058 (0.029)	0.020 (0.064)
teacher_experience_3to5yr	0.077** (0.029)	0.037 (0.025)	-0.078*** (0.015)	0.058 (0.029)	0.020 (0.064)
teacher_experience_6to10yr	0.031 (0.028)	0.079** (0.025)	-0.064*** (0.015)	0.058 (0.029)	0.020 (0.064)
teacher_experience_11to15yr	0.040 (0.028)	0.076** (0.025)	-0.065*** (0.015)	0.058 (0.029)	0.020 (0.064)
teacher_experience_16to20yr	0.053 (0.029)	0.072** (0.025)	-0.081*** (0.015)	0.058 (0.029)	0.020 (0.064)
teacher_experience_over20yr	0.073* (0.029)	0.061* (0.026)	-0.081*** (0.015)	0.058 (0.029)	0.020 (0.064)
director_experience_1to2yr	-0.063*** (0.014)	0.085*** (0.012)	-0.022** (0.007)	0.058 (0.029)	0.020 (0.064)
director_experience_3to5yr	0.026 (0.044)	-0.100* (0.039)	0.042 (0.023)	0.058 (0.029)	0.020 (0.064)
director_experience_6to10yr	0.023* (0.011)	-0.036*** (0.010)	-0.005 (0.006)	0.058 (0.029)	0.020 (0.064)
director_experience_11to15yr	0.057 (0.041)	-0.109** (0.037)	0.020 (0.022)	0.058 (0.029)	0.020 (0.064)
director_experience_16to20yr	-0.095*** (0.019)	0.029 (0.017)	0.065*** (0.010)	0.058 (0.029)	0.020 (0.064)
director_experience_over20yr	0.029 (0.042)	-0.102** (0.037)	0.032 (0.022)	0.058 (0.029)	0.020 (0.064)
director_here_lessthan1yr	-0.001 (0.009)	0.009 (0.008)	0.004 (0.005)	0.058 (0.029)	0.020 (0.064)
director_here_1to2yr	-0.147*** (0.013)	0.130*** (0.012)	0.041*** (0.007)	0.058 (0.029)	0.020 (0.064)
director_here_3to5yr	-0.182*** (0.009)	0.196*** (0.008)	0.012** (0.005)	0.058 (0.029)	0.020 (0.064)
director_here_6to10yr	-0.254*** (0.013)	0.243*** (0.012)	0.052*** (0.007)	0.058 (0.029)	0.020 (0.064)
director_here_11to15yr	-0.257*** (0.017)	0.186*** (0.015)	0.100*** (0.009)	0.058 (0.029)	0.020 (0.064)
director_here_morethan20yr	-0.272*** (0.033)	0.197*** (0.030)	0.086*** (0.018)	0.058 (0.029)	0.020 (0.064)
education_experience_1to2yr	0.009 (0.053)	-0.085 (0.047)	0.034 (0.028)	0.058 (0.029)	0.020 (0.064)
education_experience_6to10yr	0.056 (0.042)	-0.110** (0.037)	0.024 (0.022)	0.058 (0.029)	0.020 (0.064)
education_experience_16to20yr	0.059 (0.042)	-0.116** (0.037)	0.027 (0.022)	0.058 (0.029)	0.020 (0.064)
appointed				-0.016 (0.021)	-0.023 (0.020)
elected				-0.016 (0.023)	-0.005 (0.021)
tenured				-0.017 (0.028)	0.002 (0.027)
meta_2013				0.296*** (0.009)	0.299*** (0.009)
Observations	16,570	16,570	16,570	15,497	17,252
R <sup>2</sup>	0.328	0.362	0.283	0.758	0.755

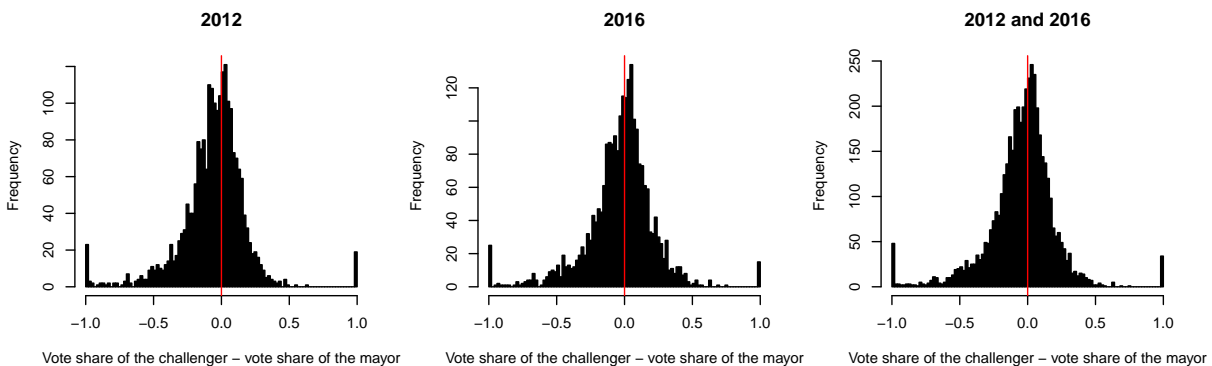
HC1 heteroskedasticity-consistent standard errors in brackets. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

## Appendix F

### Additional results for Chapter 3

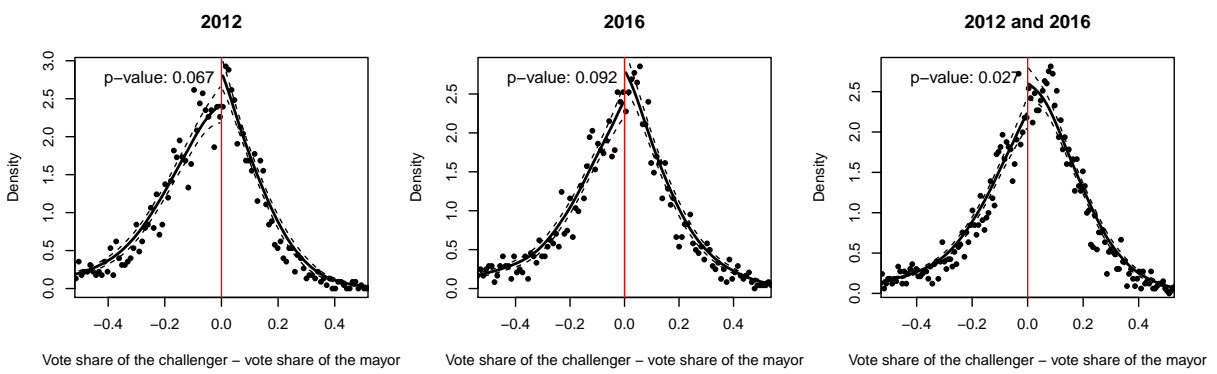
#### F.1 Difference-in-discontinuities: Continuity of the forcing variable

Figure F-1: Histogram of the forcing variable: IDEB target - IDEB score



While “a running variable with a continuous density is neither necessary nor sufficient for identification” (McCrary, 2008, 701), it is important to consider reasons that may drive the discontinuity identified by the density test for data with 2012 and 2016. This may be due to a phenomenon of incumbent disadvantage, which has been identified before for Brazilian mayors (De Magalhaes, 2015). In any case, the key is that actors (in this case, mayors and their challengers) do not have precise manipulation of the forcing variable (Lee and Lemieux, 2010). An additional observable implication of the lack of precise manipulation assumption is that there should be no discontinuous jumps in covariates around the threshold, as shown in Appendix F.2.

Figure F-2: McCrary density test for discontinuity in the forcing variable



## F.2 Difference-in-discontinuities: Continuity in pre-treatment covariates

I check for balance replicating Equation 3.7 with pre-treatment data. These un-adjusted balance checks detect discontinuous jumps in 4 of 60 covariates (roughly what we would expect with an  $\alpha$  of 0.05), 3 of which related to teacher and director experience.

Table F.1: Balance in pre-treatment covariates at the school and municipality level

	RD estimate	Standard error	<i>p</i> value
ideb_pre	0.122	0.151	0.422
logpopulation	0.165	0.217	0.447
bf_families_ratio	-0.028	0.012	0.015
herfindahl_pre	0.019	0.027	0.484
household_monthly_pc_income_2010	59.294	35.604	0.096
share_concursados_pre	0.009	0.034	0.784
share_enrolment_mun_pre	-0.006	0.042	0.877
radios_2012	0.068	0.182	0.706
cod_incumbent_party	2.909	3.540	0.411
ideb_mun_pre	0.043	0.140	0.760
share_funcionarios	0.000	0.002	0.829
elected_pre	0.006	0.048	0.897
appointed_pre	-0.047	0.056	0.404
tenured_pre	0.006	0.015	0.690

Table F.2: Balance in pre-treatment covariates at the director level

	RD estimate	Standard error	<i>p</i> value
director_here_lessthan1yr_pre	0.016	0.036	0.647
director_here_1to2yr_pre	-0.016	0.036	0.647
female	-0.025	0.027	0.352
age_below24	-0.005	0.008	0.509
age_25a29	0.017	0.014	0.233
age_30a39	0.002	0.029	0.938
age_40a49	0.017	0.027	0.537
age_50a54	-0.032	0.019	0.096
age_above54	0.003	0.012	0.776
race_white	-0.080	0.042	0.058
race_black	0.040	0.037	0.277
race_brown	0.002	0.017	0.926
race_yellow	0.011	0.009	0.218
race_indigenous	0.006	0.004	0.124
race_notinformed	0.003	0.003	0.284
schooling_lessthanhighschool	0.001	0.002	0.528
schooling_magisterio	-0.004	0.011	0.740
schooling_otherhighschool	-0.001	0.005	0.784
schooling_tertiary_pedagogy	-0.091	0.047	0.054
schooling_tertiary_normal	0.019	0.015	0.203
schooling_tertiary_licenciatura	0.042	0.034	0.219
schooling_tertiary_other	-0.028	0.022	0.199
schooling_noposgraduate	-0.032	0.039	0.412
schooling_atualizacao	-0.012	0.012	0.338
schooling_especializacao	0.054	0.042	0.198
schooling_masters	0.000	0.008	0.993
schooling_doctorate	-0.003	0.002	0.286
has_other_job_education	-0.017	0.029	0.546
has_other_job_noeducation	-0.006	0.014	0.650
works_morethan40h	0.042	0.038	0.269
teacher_experience_lessthan1yr	0.012	0.008	0.148
teacher_experience_1to2yr	0.002	0.015	0.888
teacher_experience_3to5yr	0.007	0.021	0.757
teacher_experience_6to10yr	0.072	0.029	0.013
teacher_experience_11to15yr	0.014	0.028	0.631
teacher_experience_16to20yr	-0.017	0.026	0.514
teacher_experience_over20yr	-0.062	0.030	0.036
director_experience_1to2yr	-0.086	0.043	0.046
director_experience_3to5yr	0.006	0.014	0.704
director_experience_6to10yr	0.026	0.013	0.051
director_experience_11to15yr	0.015	0.019	0.418
director_experience_16to20yr	0.001	0.008	0.906
director_experience_over20yr	-0.055	0.032	0.085
education_experience_1to2yr	0.005	0.006	0.442
education_experience_6to10yr	-0.020	0.023	0.379
education_experience_16to20yr	0.044	0.027	0.109

### F.3 Difference-in-discontinuities: Pre-election trends

Figure F-3: Pre-treatment trends between appointed and not appointed directors, within the RD bandwidth.

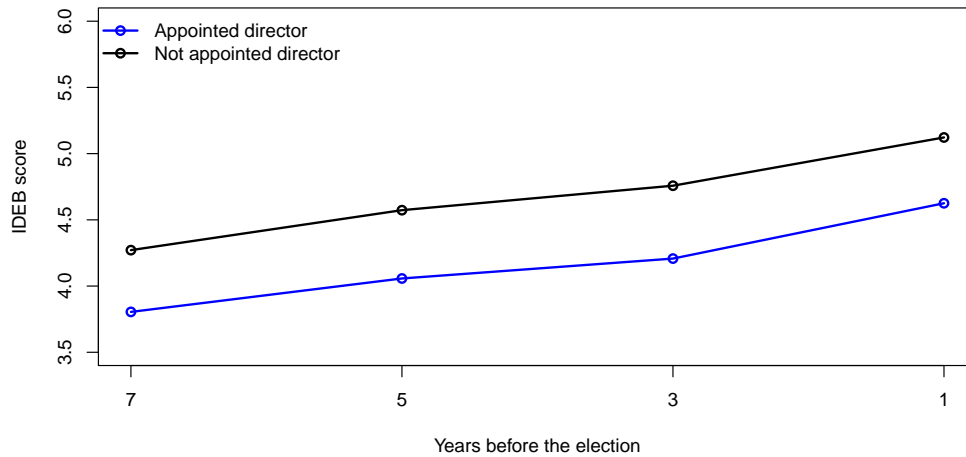
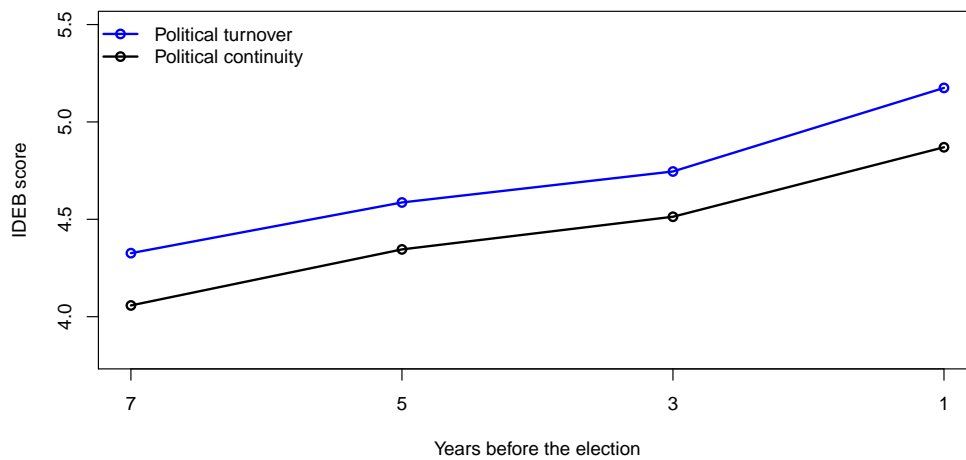
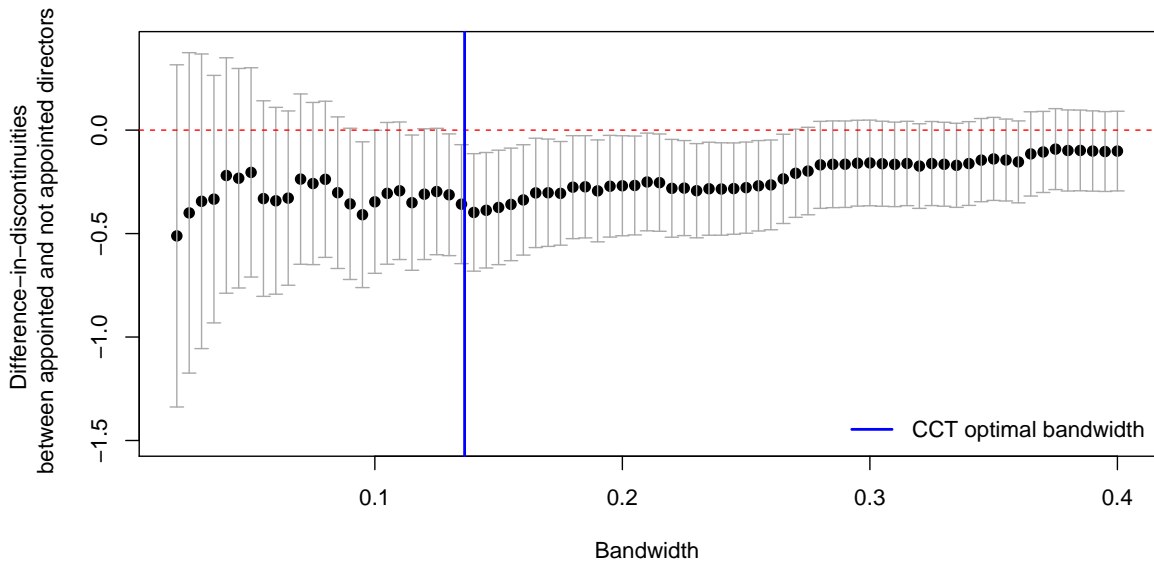


Figure F-4: Pre-treatment trends between schools with and without political turnover, within the RD bandwidth.



## F.4 Difference-in-discontinuities: Alternative bandwidths

Figure F-5: Robustness of results in Model 1 in Table 3.2 to alternative bandwidths



## F.5 Difference-in-discontinuities: Regression discontinuity estimates of the effect of political turnover on director turnover

Table F.3: Effect of political turnover on bureaucratic turnover

	Model 1	Model 2	Model 3	Model 4
Political turnover	0.202***	0.175	0.164	0.148
	0.067	0.115	0.112	0.136
Political turnover × Appointed		0.068	0.077	0.075
		0.126	0.121	0.144
Election cycle fixed effects	✓	✓	✓	✓
State fixed effects			✓	✓
Predictors of Appointed				✓
Political turnover + interaction		0.243***	0.241***	0.223***
		0.063	0.064	0.074
Bandwidth	0.057	0.057	0.057	0.057
N	1727	1721	1721	972

Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

Figure F-6: Effect of political turnover on bureaucratic turnover, regardless of appointment mode

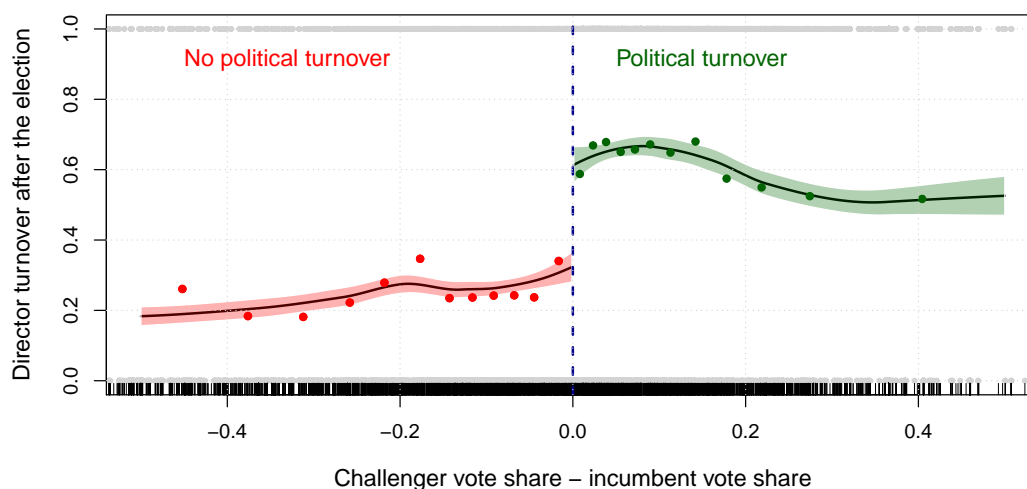
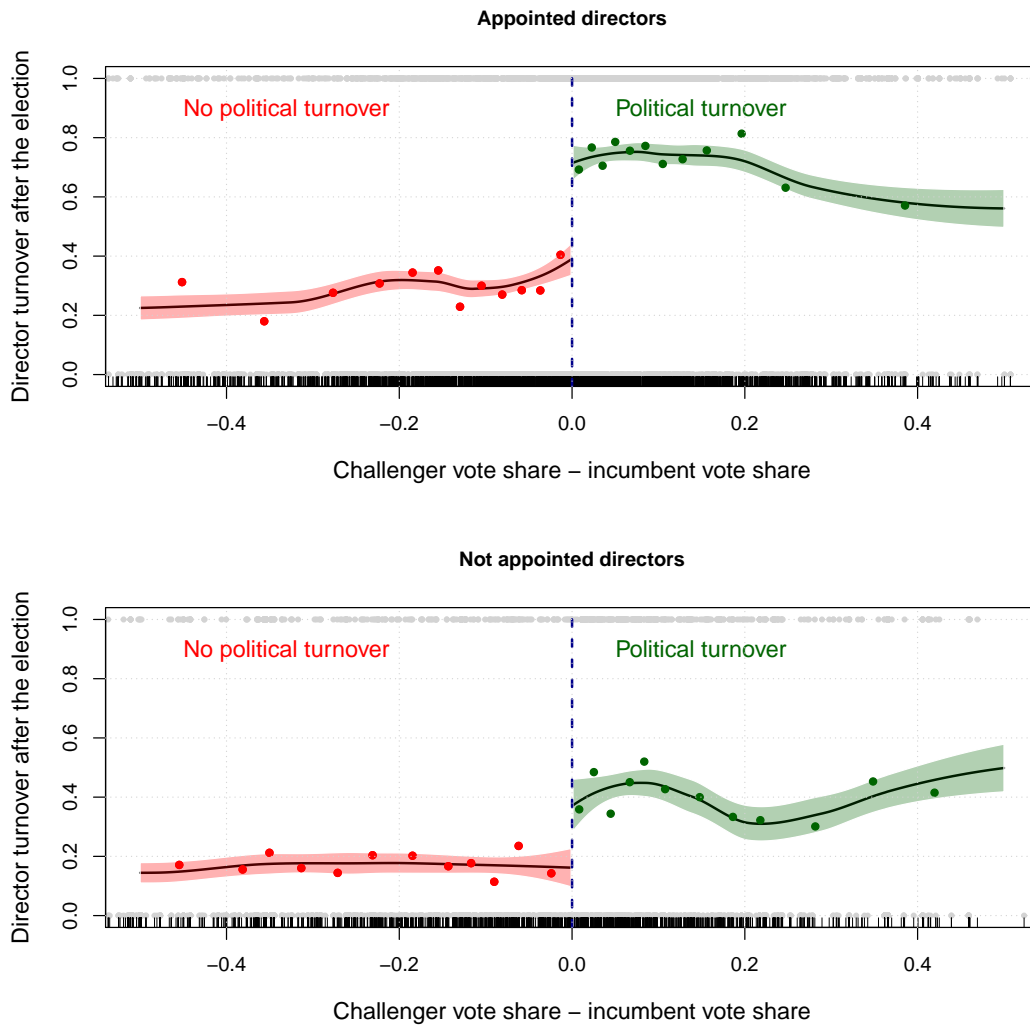




Figure F-7: Effect of political turnover on bureaucratic turnover, by whether schools had appointed or not appointed director



Grey dots are school observations. Colored dots are local averages for equally-sized bins. Lines are loess regression lines estimated at both sides of the threshold with no controls. Shaded regions are their 95% confidence intervals.

## F.6 Difference-in-discontinuities: Characterization of schools that experience director turnover under political turnover

Table F.4: Regression of whether a school experiences director turnover after political turnover. Schools from municipalities without political turnover are excluded.

	Model 1	Model 2
appointed_pre	0.268*** (0.018)	0.269*** (0.018)
ideb_pre	-0.041*** (0.008)	
ideb_3quartile		0.015 (0.024)
ideb_2quartile		0.047* (0.025)
ideb_1quartile		0.122*** (0.026)
female	0.017 (0.022)	0.017 (0.022)
age_below24	0.067 (0.095)	0.073 (0.095)
age_25a29	0.052 (0.073)	0.058 (0.073)
age_30a39	0.038 (0.067)	0.044 (0.067)
age_40a49	0.047 (0.067)	0.051 (0.067)
age_50a54	0.034 (0.071)	0.040 (0.071)
age_above54	0.069 (0.074)	0.074 (0.074)
race_yellow	0.027 (0.095)	0.019 (0.095)
race_white	-0.038 (0.083)	-0.041 (0.083)
race_black	0.017 (0.083)	0.016 (0.083)
race_brown	-0.012 (0.087)	-0.011 (0.087)
race_indigenous	0.089 (0.162)	0.102 (0.162)
schooling_lessthanhighschool	0.211 (0.213)	0.198 (0.213)
schooling_magisterio	0.012 (0.066)	0.012 (0.066)
schooling_otherhighschool	0.050 (0.103)	0.046 (0.103)
schooling_tertiary_pedagogy	-0.094** (0.039)	-0.098** (0.039)
schooling_tertiary_normal	-0.068* (0.040)	-0.068* (0.040)
schooling_tertiary_licenciatura	-0.054 (0.035)	-0.055 (0.035)
schooling_tertiary_other	-0.051 (0.040)	-0.053 (0.040)
schooling_noposgraduate	0.073 (0.097)	0.078 (0.097)
schooling_atualizacao	0.076 (0.104)	0.082 (0.104)
schooling_especializacao	0.031 (0.096)	0.037 (0.096)
schooling_masters	-0.014 (0.112)	-0.009 (0.112)
schooling_doctorate	0.128 (0.217)	0.121 (0.217)
has_other_job_noeducation	0.017 (0.032)	0.016 (0.032)
has_other_job_education	0.010 (0.021)	0.010 (0.021)
works_morethan40h	-0.004 (0.019)	-0.004 (0.019)
director_experience_1to2yr	0.019 (0.024)	0.018 (0.024)
director_experience_3to5yr	0.006 (0.044)	0.010 (0.044)
director_experience_6to10yr	-0.018 (0.035)	-0.018 (0.035)
director_experience_16to20yr	0.036 (0.055)	0.042 (0.055)
director_experience_over20yr	0.009 (0.020)	0.007 (0.020)
director_here_1to2yr_pre	-0.042* (0.022)	-0.042* (0.022)
cycle_2016	0.017 (0.022)	0.015 (0.022)
Constant	0.597*** (0.147)	0.347** (0.145)
Observations	3,185	3,185
R <sup>2</sup>	0.120	0.120

HC1 standard errors in brackets. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## F.7 Difference-in-discontinuities: Alternative estimation: Matching similar schools with and without political turnover

Table F.5: Diff-in-disc estimates of the differential impact of political turnover on changes in school quality scores, by director appointment mode.

	Model 1	Model 2	Model 3
Political turnover	0.298**	0.228	0.067
	0.138	0.140	0.152
Political turnover × Appointed	-0.469**	-0.443**	-0.397**
	0.183	0.177	0.189
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.146	0.146	0.146
	941	941	582

Estimated by Equation 3.7. Excludes schools in the no political turnover group without an exact match in the political turnover group. Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4.

Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

## F.8 Difference-in-discontinuities: Bounds to account for sample selection bias

### F.8.1 The Lee approach to bounding treatment effects when there is sample selection bias

To deal with issues of sample selection bias, Lee (2009) proposes a simple procedure to generate bounds for treatment effects. In his framework, each unit has two latent potential outcomes  $(Y_1^*, Y_0^*)$  as well as a potential sample selection indicators  $(S_1, S_0)$  under treatment ( $D = 1$ ) and under control ( $D = 0$ ). For each unit we only observe  $S_1$  or  $S_0$ , and one potential outcome  $Y_1^*$  or  $Y_0^*$  and only if they select into the sample ( $S = 1$ ). To construct the bounds we need to make two assumptions: independence ( $\{Y_1^*, Y_0^*, S_1, S_0\} \perp\!\!\!\perp D$ ) and monotonicity (either  $S_1 \geq S_0$  or  $S_0 \geq S_1$ ). I use the case where  $S_0 \geq S_1$  (i.e., more units are selected into the sample under control than under treatment), for symmetry with my setting.

Lee's procedure consists of the following steps:

- Estimate  $p_0$ , the proportion of units in the control group that are induced to have a outcome data ( $S = 1$ ) because of their assignment to control:

$$p_0 = \frac{Pr(S = 1|D = 0) - Pr(S = 1|D = 1)}{Pr(S = 1|D = 0)} \quad (\text{F.1})$$

- Estimate the  $p_0^{th}$  and  $(1 - p_0)^{th}$  quantiles of the distribution of  $Y|D = 0, S = 1$ , which we will call  $y_{p_0}$  and  $y_{1-p_0}$ , respectively.
- Estimate the lower bound of the treatment effect by taking the difference in means between the treated and between a trimmed control group where all observations above  $y_{1-p_0}$  are excluded.

$$\Delta_0^{LB} = \mathbb{E}[Y|D = 1, S = 1] - \mathbb{E}[Y|D = 0, S = 1, Y \leq y_{1-p_0}] \quad (\text{F.2})$$

- Estimate the upper bound of the treatment effect by taking the difference in means between the treated and between a trimmed control group where all observations below  $y_{p_0}$  are

excluded.

$$\Delta_0^{UB} = \mathbb{E}[Y|D = 1, S = 1] - \mathbb{E}[Y|D = 0, S = 1, Y \geq y_{p_0}] \quad (\text{F.3})$$

- Using the sample analogues of  $p_0$ ,  $\Delta_0^{LB}$ ,  $\Delta_0^{UB}$ , one can construct sharp bounds for the average treatment effect for units with  $S_1 = 0, S_0 = 1$  (i.e., those that will be selected irrespective of treatment assignment):  $[\Delta_0^{LB}, \Delta_0^{UB}]$ .

## F.8.2 Adaptation of the [Lee \(2009\)](#) procedure for the diff-in-disc

Lee makes it clear that his procedure can be applied to non-experimental settings ([Lee, 2009, 1073](#)). However my estimand is not a difference in means but a difference in discontinuities, where treatment is determined at a discontinuity, and I am comparing how treatment affects one group relative to another. To account for these complications, I adapt the Lee bounding procedure as follows in order to produce sharp bounds on  $\hat{\tau}_{disc}$

- I first simplify the design to a localized experiment based on local randomization instead of continuity ([Sekhon et al., 2017](#)). To do so, I focus exclusively on schools in the 0.01 bandwidth around the discontinuity (vs the optimal RD bandwidth of 0.136). This results in a much smaller dataset of 117 schools. Around this narrow threshold it is more sensible to treat the design as a localized experiment, such that we can simply compare units under mayor turnover and units under mayor continuity.
- Then I build four instead of two trimmed datasets: two trimmed datasets for upper and lower bound for appointed directors, and two trimmed datasets for unappointed directors. This is because the rates of director turnover ( $S$ ) are very different for both types of directors, as shown in [Appendix F.5](#).
  - For appointed directors, I get  $\hat{p}_0^a = 0.59$ .
  - For un-appointed directors, I get  $\hat{p}_0^{-a} = 0.09$ .
- With those probabilities, I trim the data for each subgroup, using the corresponding quantiles on the distribution of the change before and after the election in IDEB scores.

- To estimate the lower bound, I join the data for the group with no mayor turnover to the two trimmed datasets for lower bounds (one for appointed directors and one for not appointed directors). Then I regress the change in IDEB scores on an indicator for mayor turnover and its interaction with an indicator of the director being politically appointed, as well as a fixed effect for the 2016 election cycle. As before, standard errors are clustered at the municipality level, where election results are defined.

$$Y_{smj} = \alpha + \beta_1 P_{mj} + \beta_2 A_{smj} + \beta_3 P_{mj} A_{smj} + \lambda \mathbf{I}[j = 2016] + \varepsilon_{smj} \quad (\text{F.4})$$

- I do the same with the trimmed datasets for the upper bound.
- The  $\hat{\beta}_3$  of each of the two regressions gives me the bounds for  $\hat{\tau}_{ddisc}$ .

Using this procedure within the 0.01 bandwidth, I get bounds [-0.907, -0.074].

### F.8.3 Inference

To make inference about the bounds, I use the bootstrap. For each of 50,000 replications:

1. I first draw, with replacement, a sample of *appointed* directors (with or without attrition) within the 0.01 bandwidth. The following steps take into account whether this sample has more director turnover in the treatment or in the control group, adjusting accordingly. For brevity below I describe the steps I take when the bootstrapped sample has more attrition in the mayor-turnover group (which is the case in 87% of the cases). With that data, I calculate  $p_0^a$ .
2. I then draw a sample with replacement from the set of schools that did not experience director turnover, within the 0.01 bandwidth, and that had appointed directors. I trim the set of schools without mayor turnover according to the  $\hat{p}_0^a$  estimated before, applying the  $\hat{p}_0^a$  and  $1 - \hat{p}_0^a$  quantiles to the distribution of  $Y|D = 0, S = 1$  within this sample.
3. As a result, I build a trimmed sample of appointed directors for a lower bound, and a trimmed sample of appointed directors for an upper bound.

4. I replicate steps 1-3 for *un-appointed directors*, estimating  $p_0^{-a}$  and creating a trimmed sample of un-appointed directors for a lower bound, and a trimmed sample of appointed directors for an upper bound.
5. I merge the adequately trimmed datasets for the lower bound on one hand, and for the upper bound on the other hand.
6. I estimate Equation F.4 with each of the two datasets to estimate the difference in the treatment effect for appointed and un-appointed directors.
7. I store the two values of  $\hat{\beta}_3$  from each of the two regressions into corresponding vectors

As a result of this bootstrapping exercise, I obtain two distributions, one of lower bounds and one of upper bounds. I then estimate the standard deviation of those distributions, and use it to build a confidence interval for the bounds following [Imbens and Manski \(2004\)](#), as suggested by [Lee \(2009\)](#):

$$\left[ \hat{\Delta}^{LB} - \bar{C}_n \times \frac{\hat{\sigma}_{LB}}{\sqrt{n}}, \hat{\Delta}^{UB} + \bar{C}_n \times \frac{\hat{\sigma}_{UB}}{\sqrt{n}} \right] \quad (\text{F.5})$$

The value of  $\bar{C}_n$  is chosen such that it satisfies:

$$\Phi \left( \bar{C}_n + \sqrt{n} \frac{\hat{\Delta}^{LB} - \hat{\Delta}^{UB}}{\max(\hat{\sigma}_{UB}, \hat{\sigma}_{LB})} \right) - \Phi(-\bar{C}_n) = 1 - \alpha \quad (\text{F.6})$$

Following this procedure, I obtain a 95% confidence interval for the bounds of [-0.979, -0.024].

## F.9 Difference-in-discontinuities: Alternative mechanisms: teacher effort and teacher supply

Table F.6: Diff-in-disc estimates of the differential impact of political turnover on changes in director-reported problems of insufficient teachers, by appointment mode..

	Model 1	Model 2	Model 3
Political turnover	0.048	0.092	0.061
	0.183	0.161	0.225
Political turnover $\times$ Appointed	-0.061	-0.098	-0.250
	0.223	0.213	0.283
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.160	0.160	0.160
N	1899	1899	1006

Estimated as per Equation 3.7. Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

Table F.7: Diff-in-disc estimates of the differential impact of political turnover on changes in director-reported problems of teacher turnover, by director appointment mode.

	Model 1	Model 2	Model 3
Political turnover	0.003	-0.021	0.096
	0.165	0.162	0.225
Political turnover $\times$ Appointed	0.017	0.036	-0.045
	0.233	0.236	0.320
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.156	0.156	0.156
N	1855	1855	984

Estimated as per Equation 3.7. Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.



Table F.8: Diff-in-disc estimates of the differential impact of political turnover on changes in director-reported problems of teacher absenteeism, by director appointment mode.

	Model 1	Model 2	Model 3
Political turnover	-0.067	-0.070	-0.105
	0.127	0.130	0.172
Political turnover $\times$ Appointed	0.019	0.026	0.206
	0.188	0.189	0.222
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.191	0.191	0.191
N	2111	2111	1128

Estimated as per Equation 3.7. Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

## F.10 Difference-in-discontinuities: Placebo test with state schools

Table F.9: Diff-in-disc estimates of the differential impact of municipal political turnover on changes in state school quality scores, by director appointment mode.

	Model 1	Model 2	Model 3
Political turnover	0.229	0.090	0.120
	0.155	0.148	0.212
Political turnover $\times$ Appointed	-0.067	-0.038	-0.484
	0.226	0.214	0.473
Election cycle fixed effects	✓	✓	✓
State fixed effects		✓	✓
Predictors of Appointed			✓
Bandwidth	0.092	0.092	0.092
N	618	618	145

Estimated as per Equation 3.7. Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. Municipality-clustered standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

## F.11 Regression discontinuity: Continuity of the forcing variable

Figure F-8: Histogram of the forcing variable: IDEB target - IDEB score

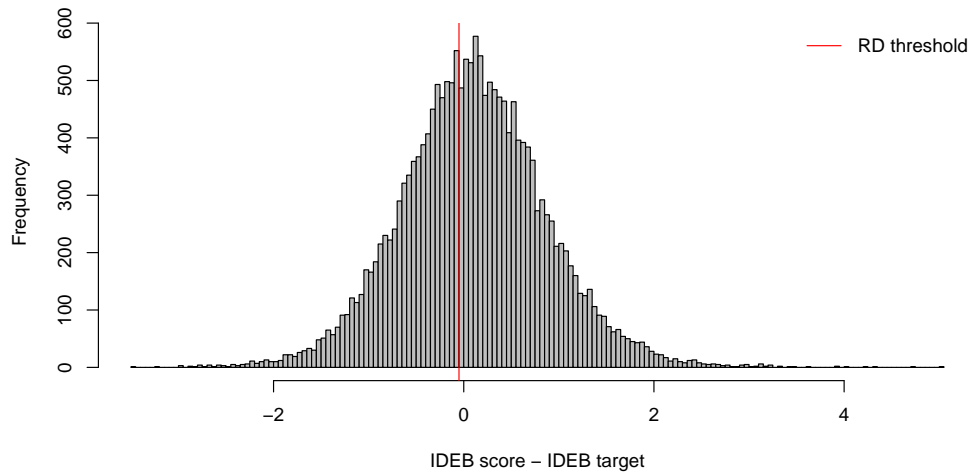
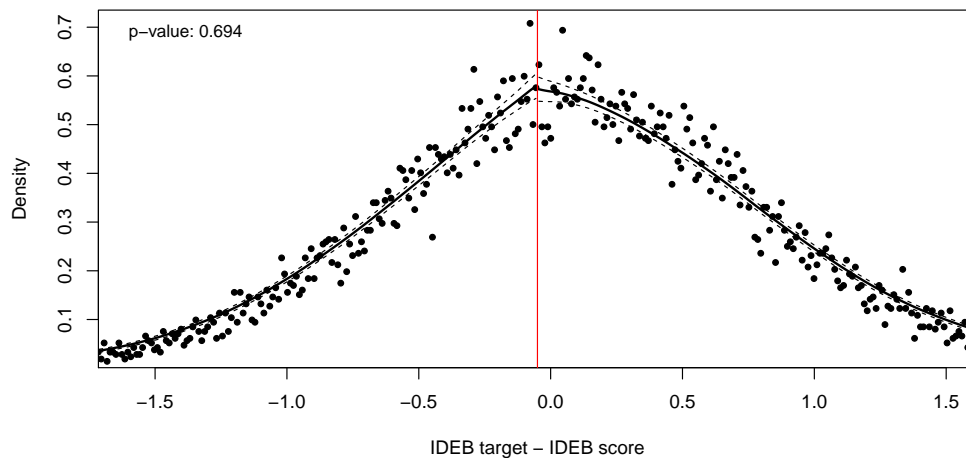


Figure F-9: McCrary density test for discontinuity in the forcing variable



While “a running variable with a continuous density is neither necessary nor sufficient for identification” (McCrary, 2008, 701), it is important to consider possible ways teachers, directors and politicians could be manipulating the forcing variable. IDEB targets are impossible to manipulate. They were defined a priori following technical criteria and published at the beginning of the period.

IDEB scores are themselves composed of two parts: passing rates and learning outcomes. Passing rates are the most obvious lever that school and municipality leaders could manipulate. However, boosting passing rates is likely to lead to a decrease in test scores (since students who would otherwise not pass generally get lower scores): the system is in fact designed to disincentivize this type of manipulation. Last, learning outcomes are under *limited* control of school administrators and teachers. IDEB is precisely targeted at measuring their capacity of “manipulating” this variable, i.e. boosting learning. But boosting learning is difficult, and even units that manage to achieve significant gains in learning may miss their target, particularly if they had been lagging behind. The key fact here is that while teachers, directors and politicians may have some influence over the forcing variable, they cannot manipulate it *precisely*, which guarantees that, for municipalities around the threshold, treatment assignment is as-if-random (Lee and Lemieux, 2010). An additional observable implication of the lack of precise manipulation assumption is that there should be no discontinuous jumps in covariates around the threshold – Appendix F.12 presents a balance table examining this balance in pre-treatment covariates.

## F.12 Regression discontinuity: Continuity in pre-treatment covariates

Table F.10: Continuity in pre-treatment covariates at the school level

	RD estimate	Standard error	<i>p</i> value
rendimento_2005	0.004	0.007	0.555
rendimento_2007	-0.003	0.005	0.554
rendimento_2009	0.000	0.004	0.969
rendimento_2011	0.002	0.003	0.565
nota_2005	0.030	0.034	0.377
nota_2007	-0.012	0.032	0.703
nota_2009	0.026	0.035	0.470
nota_2011	-0.012	0.032	0.701
ideb_2005	0.025	0.051	0.628
ideb_2007	-0.026	0.042	0.533 <sup>a</sup>
ideb_2009	0.025	0.046	0.582
ideb_2011	-0.005	0.040	0.902
rural	0.010	0.013	0.457
log_workers	-0.031	0.019	0.096
in_assentamento	0.004	0.005	0.400
in_indigenous	0.002	0.001	0.087
complexidade	-0.062	0.050	0.208
num_alunos	-5.308	3.105	0.087
inse	-0.236	0.217	0.277
distorcao	-0.292	0.498	0.558

<sup>a</sup>Estimated by applying Equation 3.10 with pre-treatment covariates as the dependent variable

Table F.11: Continuity in pre-treatment covariates at the municipality level

	RD estimate	Standard error	<i>p</i> value
bf_fam_to_pop_ratio	-0.000	0.002	0.941
logpopulation	-0.073	0.066	0.265
household_monthly_pc_income_2010	-0.562	10.321	0.957
share_concursados	-0.000	0.007	0.971
share_enrolment_mun	0.001	0.008	0.932 <sup>a</sup>
radios_2012	-0.008	0.040	0.848
mayor_reelected	-0.018	0.016	0.249
share_funcionarios	0.001	0.001	0.078
ideb_mun	0.044	0.033	0.183
herfindahl	0.012	0.008	0.128

<sup>a</sup>Estimated by applying Equation 3.10 with pre-treatment covariates as the dependent variable

Table F.12: Continuity in pre-treatment covariates at the director level

	RD estimate	Standard error	p value
female	0.002	0.012	0.858
age_below24	-0.002	0.003	0.469
age_25a29	-0.002	0.006	0.699
age_30a39	0.003	0.019	0.868
age_40a49	0.033	0.019	0.076
age_50a54	0.001	0.015	0.938
age_above54	-0.033	0.012	0.005
race_white	-0.014	0.019	0.457
race_black	-0.016	0.019	0.396
race_brown	0.016	0.010	0.131
race_yellow	0.010	0.006	0.078
race_indigenous	0.006	0.004	0.107
race_notinformed	-0.001	0.003	0.851
schooling_less than high school	0.001	0.001	0.606
schooling_magisterio	-0.001	0.008	0.910
schooling_other high school	0.002	0.004	0.628
schooling_tertiary_pedagogy	-0.015	0.021	0.472
schooling_tertiary_normal	0.001	0.009	0.875
schooling_tertiary_licenciatura	0.018	0.021	0.387
schooling_tertiary_other	0.005	0.008	0.508
schooling_noposgraduate	-0.003	0.017	0.856
schooling_atualizacio	-0.005	0.008	0.526
schooling_especializacio	0.004	0.018	0.814
schooling_masters	0.002	0.005	0.741
schooling_doctorate	0.001	0.002	0.586
has_other_job_education	-0.005	0.015	0.723
has_other_job_noeducation	-0.004	0.009	0.619
works_more than 40h	0.036	0.018	0.043 <sup>a</sup>
teacher_experience_less than 1yr	-0.000	0.004	0.931
teacher_experience_1to2yr	0.000	0.006	0.966
teacher_experience_3to5yr	-0.016	0.010	0.126
teacher_experience_6to10yr	-0.009	0.016	0.571
teacher_experience_11to15yr	0.019	0.016	0.236
teacher_experience_16to20yr	0.009	0.014	0.529
teacher_experience_over 20yr	0.005	0.015	0.741
director_experience_1to2yr	-0.006	0.012	0.642
director_experience_3to5yr	-0.006	0.006	0.327
director_experience_6to10yr	0.018	0.013	0.162
director_experience_11to15yr	0.005	0.015	0.718
director_experience_16to20yr	-0.019	0.007	0.007
director_experience_over 20yr	-0.000	0.017	0.987
education_experience_1to2yr	0.003	0.003	0.414
education_experience_6to10yr	0.015	0.013	0.229
education_experience_16to20yr	0.009	0.015	0.550
elected	-0.006	0.017	0.707
appointed	0.021	0.019	0.271
tenured	-0.027	0.012	0.026
selected_and_elected	-0.017	0.010	0.103
selected_and_appointed	0.002	0.008	0.826
other_mode	0.001	0.007	0.865
director_here_less than 1yr	-0.021	0.014	0.127
director_here_1to2yr	-0.016	0.014	0.232
director_here_3to5yr	0.003	0.016	0.825
director_here_6to10yr	0.010	0.012	0.415
director_here_11to15yr	-0.018	0.008	0.020
director_here_16to20yr	-0.004	0.005	0.448
director_here_more than 20yr	-0.004	0.004	0.370

<sup>a</sup>Estimated by applying Equation 3.10 with pre-treatment covariates as the dependent variable

## F.13 Regression discontinuity: Additional RD plots

Figure F-10: Effect of meeting the IDEB target on director turnover: elected directors

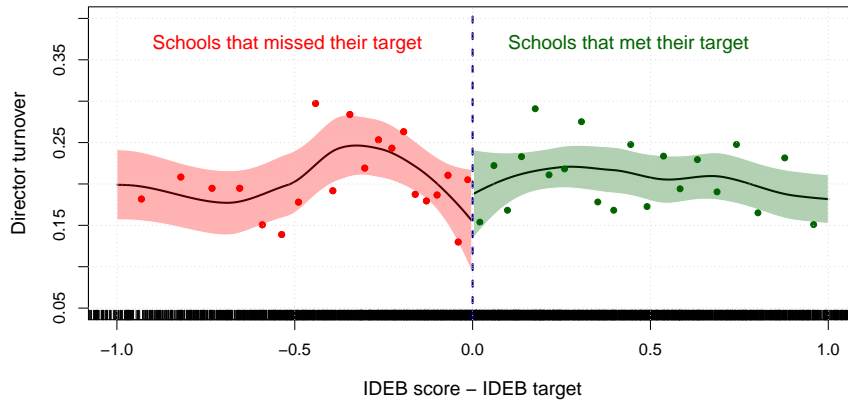
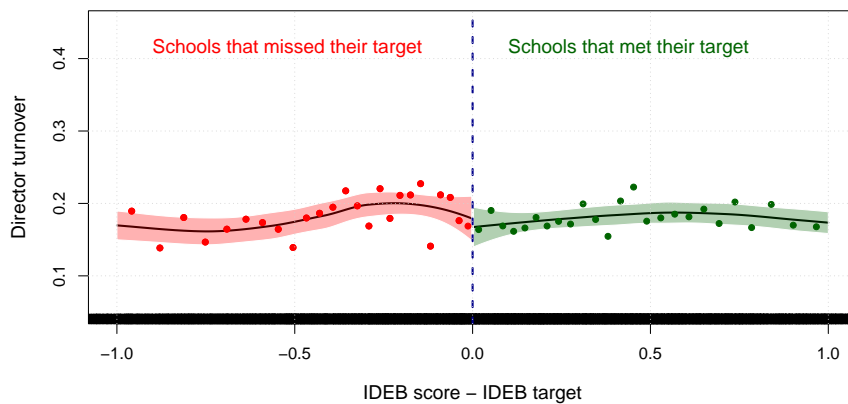


Figure F-11: Effect of meeting the IDEB target on director turnover: tenured directors



Figure F-12: Effect of meeting the IDEB target on director turnover: all appointment modes





## F.14 Regression discontinuity: Alternative specification: Split sample

Table F.13: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, among the set of schools that had an appointed director

	Model 1	Model 2	Model 3	Model 4
IDEB target met	-0.071***	-0.074***	-0.087***	-0.071***
	0.022	0.022	0.028	0.022
State fixed effects		✓		✓
Municipality fixed effects			✓	
Predictors of Appointed				✓
Bandwidth	0.525	0.525	0.491	0.491
N	4687	4687	4687	4332

Table F.14: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, among the set of schools that had an elected director

	Model 1	Model 2	Model 3	Model 4
IDEB target met	0.036	0.040	0.044	0.040
	0.033	0.032	0.033	0.034
State fixed effects		✓		✓
Municipality fixed effects			✓	
Predictors of Elected				✓
Bandwidth	0.491	0.491	0.491	0.491
N	2262	2262	2262	2073

Table F.15: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, among the set of schools that had a tenured director

	Model 1	Model 2	Model 3	Model 4
IDEB target met	-0.057	-0.039	-0.086	-0.001
	0.061	0.063	0.079	0.065
State fixed effects		✓		✓
Municipality fixed effects			✓	
Predictors of Tenured				✓
Bandwidth	0.426	0.426	0.426	0.426
N	536	536	536	470

Predictors of whether the director is tenured come from a regression of an indicator for tenured director on a long set of municipality, school, and director variables, as shown in Appendix E.4. HC1 heteroskedasticity consistent standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

## F.15 Regression discontinuity: Alternative specification: Treatment heterogeneity among elected and among tenured directors

Table F.16: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, by whether the director is elected

	Model 1	Model 2	Model 3	Model 4
IDEB target met	-0.072***	-0.074***	-0.085***	-0.085***
	0.020	0.021	0.028	0.022
IDEB target met × Elected	0.115***	0.116***	0.137***	0.133***
	0.038	0.038	0.047	0.040
State fixed effects		✓		✓
Municipality fixed effects			✓	
Predictors of Elected				✓
IDEB target met + interaction	0.043	0.042	0.052	0.048
	0.032	0.032	0.033	0.033
Bandwidth	0.468	0.468	0.467	0.467
N	7470	7470	7470	6709

Table F.17: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, by whether the director is tenured

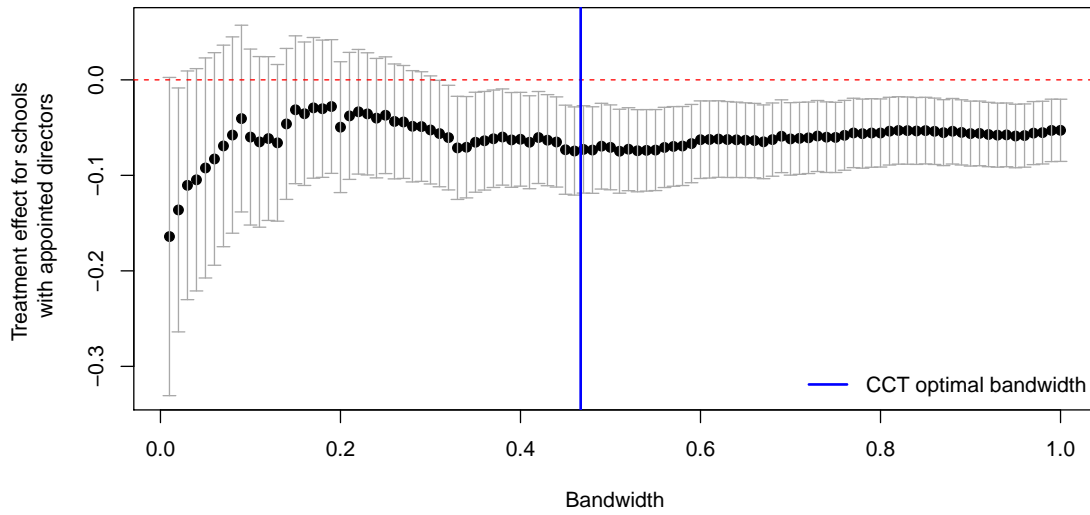
	Model 1	Model 2	Model 3	Model 4
IDEB target met	-0.033*	-0.035*	-0.031	-0.033*
	0.018	0.018	0.024	0.019
IDEB target met × Tenured	-0.059	-0.057	-0.059	-0.060
	0.063	0.063	0.086	0.068
State fixed effects		✓		✓
Municipality fixed effects			✓	
Predictors of Tenured				✓
IDEB target met + interaction	-0.092	-0.092	-0.090	-0.093
	0.064	0.064	0.071	0.069
Bandwidth	0.470	0.470	0.467	0.467
N	7505	7505	7505	6740

Predictors of whether the director is tenured come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. All other terms in Equation 3.11 are omitted from the table.

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

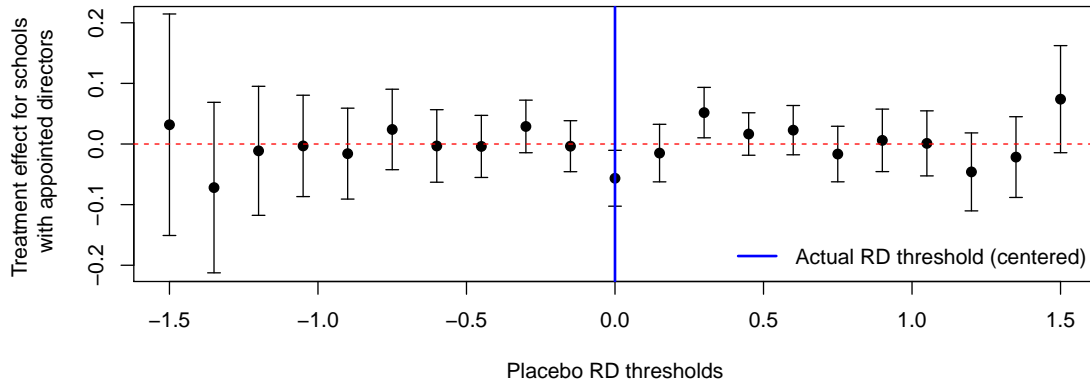
## F.16 Regression discontinuity: Alternative bandwidths

Figure F-13: Sensitivity of model 3 in Table 3.3 to alternative bandwidths



## F.17 Regression discontinuity: Placebo tests varying the RD threshold

Figure F-14: Placebo tests for model 3 in Table 3.3, moving the RD threshold to alternative values of the forcing variable



## F.18 Regression discontinuity: Alternative sample: Municipalities with mayors from programmatic parties

Table F.18: Effect of reaching the primary school IDEB target in 2013 on school director turnover between 2014 and 2015, by whether the director in 2013 was appointed, subsetting to municipalities with a mayor from a large programmatic party (PT or PSDB)

	Model 1	Model 2	Model 3	Model 4	Model 5
IDEB target met	-0.063**	-0.019	-0.021	-0.017	-0.029
	0.029	0.042	0.041	0.047	0.043
IDEB target met × Appointed		-0.078	-0.082	-0.062	-0.065
		0.059	0.059	0.071	0.061
State fixed effects			✓		✓
Municipality fixed effects				✓	
Predictors of Appointed					✓
IDEB target met + interaction		-0.097**	-0.103**	-0.079	-0.094**
		0.043	0.043	0.050	0.045
Bandwidth	0.524	0.523	0.523	0.523	0.523
N	2618	2507	2507	2507	2351

Predictors of whether the director is appointed come from a regression of an indicator for appointed director on a long set of municipality, school, and director variables, as shown in Appendix E.4. HC1 heteroskedasticity consistent standard errors below coefficients.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

## F.19 Survey of bureaucrats: Observational regressions of appointment modes

Table F.19: Observational regressions of street-level managers' appointment mode on political and socioeconomic characteristics

	<i>Dependent variable: Manager is...</i>		
	Politically appointed (1)	Elected by community (2)	Civil service regime (3)
Party member	0.055 (0.039)	-0.009 (0.026)	-0.007 (0.020)
Union member	-0.159*** (0.035)	0.049* (0.023)	0.066*** (0.017)
Experience as manager	-0.006 (0.004)	-0.004 (0.002)	0.008*** (0.002)
Experience as professional	0.001 (0.002)	-0.0001 (0.001)	-0.00004 (0.001)
Lives in the municipality	0.180*** (0.045)	-0.051 (0.029)	-0.111*** (0.022)
Has no other jobs	-0.075 (0.045)	-0.009 (0.029)	0.016 (0.022)
Female	0.008 (0.042)	-0.019 (0.027)	0.020 (0.021)
Age	0.004* (0.002)	0.001 (0.001)	-0.004*** (0.001)
Has more than a college degree	-0.122*** (0.032)	0.049* (0.021)	0.009 (0.016)
Has less than a college degree	0.098 (0.053)	0.029 (0.034)	-0.022 (0.026)
Municipality FE	✓	✓	✓
Social sector FE	✓	✓	✓
Observations	838	838	838
R <sup>2</sup>	0.423	0.498	0.282

HC1 standard errors in brackets. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

## F.20 Survey of bureaucrats: Observational regressions of trust and attitudes

Table F.20: Observational regressions of self-reported number of meetings with stakeholders on street-level managers' appointment mode

	<i>Dependent variable: Self-reported, logged number of meetings with</i>					
	Mayor	Secretary	Technicians	City councilors	Professionals	Clients
	(1)	(2)	(3)	(4)	(5)	(6)
Appointed	0.410** (0.149)	0.972*** (0.181)	0.425** (0.149)	-0.011 (0.097)	0.144 (0.159)	0.316 (0.174)
Elected	0.266 (0.179)	0.889*** (0.217)	0.319 (0.179)	-0.008 (0.117)	0.094 (0.191)	0.327 (0.209)
Controls	✓	✓	✓	✓	✓	✓
Municipality & sector FE	✓	✓	✓	✓	✓	✓
N	754	743	754	754	754	754
R <sup>2</sup>	0.368	0.377	0.334	0.255	0.288	0.364

HC1 standard errors in brackets. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Controls include respondents' sector, age, gender, years of experience as professional in the sector, years of experience as manager, party membership, union membership, whether they have less or more education than a college degree, whether they have other jobs, and whether they live in municipality where the unit (school/clinic/social assistance center) is located.

Baseline category is civil service), as per Equation 3.1.



Table F.21: Observational regressions of attitudes about the mayor and the secretary on street-level managers' appointment mode.

	<i>Dependent variable: Agreement with</i>					
	Trust mayor (1)	Feel close to mayor (2)	Mayor & professionals aligned (3)	Mayor is concerned w/ quality (4)	Trust secretary (5)	Feel close to secretary (6)
Appointed	1.214*** (0.123)	1.237*** (0.164)	0.750*** (0.123)	0.786*** (0.123)	0.655*** (0.136)	0.886*** (0.125)
Elected	0.805*** (0.148)	0.858*** (0.197)	0.507*** (0.148)	0.467** (0.147)	0.468** (0.164)	0.773*** (0.151)
Controls	✓	✓	✓	✓	✓	✓
Municipality & sector FE	✓	✓	✓	✓	✓	✓
N	753	749	754	753	742	742
R <sup>2</sup>	0.479	0.435	0.387	0.387	0.328	0.372

HC1 standard errors in brackets. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Controls include respondents' sector, age, gender, years of experience as professional in the sector, years of experience as manager, party membership, union membership, whether they have less or more education than a college degree, whether they have other jobs, and whether they live in municipality where the unit (school/clinic/social assistance center) is located.

Baseline category is civil service). Estimated as per Equation 3.1.

## F.21 Survey of bureaucrats: Conjoint experiment

The next table details the regression results visualized in Figure 3-3. These correspond to the following choice tasks of the conjoint experiment:

- *Communication*: Which of these [directors/managers/coordinators] do you think would have a better communication with the Secretariat of [education/healthcare/social assistance]?
- *Implementation*: Which of these [directors/managers/coordinators] do you think would have more chances of implementing changes requested by the mayor's office?
- *Resources*: Which of these [directors/managers/coordinators] do you think would obtain a reform for the [school/clinic/social assistance center]?
- *Results*: Which of these [directors/managers/coordinators] do you think would achieve better scores in [student learning/community healthcare/social assistance center indicators]?

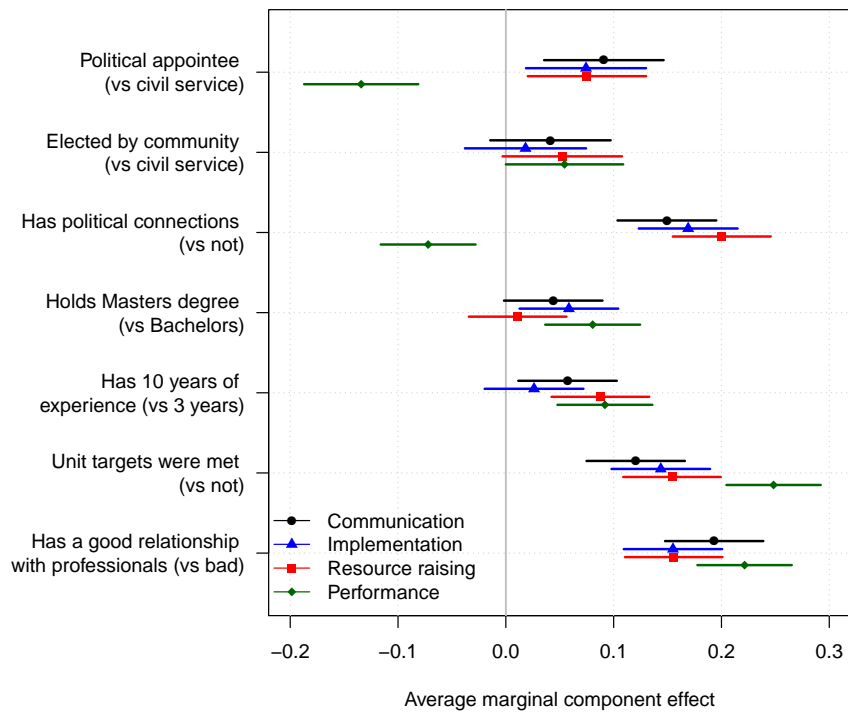
Table F.22: Results of the conjoint experiment with street-level managers

	Communication	Implementation	Resources	Performance
Appointment: Civil service (baseline)				
Appointment: Political	0.106*** 0.014	0.101 *** 0.014	0.087*** 0.014	-0.062*** 0.013
Appointment: Election	-0.002 0.014	0.009*** 0.014	0.020 0.014	0.052 0.014
Political connections: No (baseline)				
Political connections: Yes	0.145*** 0.011	0.168*** 0.011	0.180*** 0.011	-0.038*** 0.011
Education: Bachelors (baseline)				
Education: Masters	0.025* 0.011	0.018*** 0.011	0.022* 0.011	0.063 0.011
Experience: 3 years (baseline)				
Experience: 10 years	0.057*** 0.011	0.039*** 0.011	0.060*** 0.011	0.062*** 0.011
Unit performance: Targets not met (baseline)				
Unit performance: Targets were met	0.136*** 0.011	0.137*** 0.011	0.141*** 0.011	0.233*** 0.011
Relationship to professionals: Bad (baseline)				
Relationship to professionals: Good	0.193*** 0.011	0.157*** 0.011	0.159*** 0.011	0.224*** 0.011
Number of respondents	917	917	917	917
Number of valid profiles	7224	7224	7224	7222

Estimates are average marginal component effects (AMCE). Standard errors clustered at the respondent level below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

## F.22 Survey of bureaucrats: Conjoint results among un-appointed bureaucrats

Figure F-15: Results from the face-to-face conjoint experiment with municipal street-level managers, excluding respondents who are political appointees



## F.23 Survey of bureaucrats: Conjoint results among bureaucrats who perceive politicians as more programmatic

Figure F-16: Results from the face-to-face conjoint experiment with municipal street-level managers, excluding respondents who have lower perceptions of how programmatic politicians are

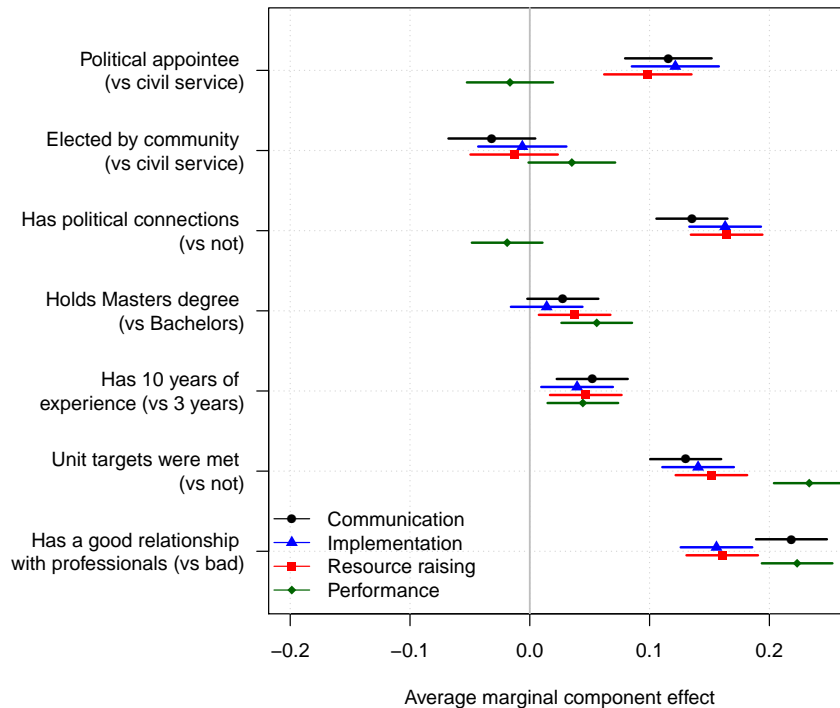


Figure F-16 includes only responses from the 504 bureaucrats (54.4%) who expressed the highest level of agreement with the following statements:

- “The mayor and [education/healthcare/social assistance] professionals have the same priorities for [schools/clinics/social assistance centers].”
- “The mayor is concerned with improving the quality of [schools/clinics/social assistance centers].”
- “The secretariat of [education/healthcare/social assistance] holds this [school/clinic/social assistance center] accountable for its results.”
- “The secretariat of [education/healthcare/social assistance] helps us improve the performance of the [school/clinic/social assistance center].”

## F.24 Survey of politicians: Conjoint experiment results

The next table details the regression results visualized in Figure 3-4. These correspond to the following choice tasks of the conjoint experiment:

- *Communication*: Which of these bureaucrats do you think would have a better communication with the local government?
- *Implementation*: Which of these bureaucrats do you think would have more chances of implementing changes requested by the local government?
- *Effort*: Which of these bureaucrats do you think would work extra hours if necessary?
- *Results*: Which of these bureaucrats do you think would achieve better performance?

Table F.23: Results of the conjoint experiment with politicians

	Communication	Implementation	Effort	Performance
Contract: Civil service (baseline)				
Contract: Temporary	0.081*** 0.015	0.115*** 0.015	0.174*** 0.014	0.049*** 0.014
Political connections: No (baseline)				
Political connections: Yes	0.128*** 0.015	0.069*** 0.015	0.060*** 0.014	-0.012 0.014
Education: Bachelors (baseline)				
Education: Masters	0.022 0.013	0.039** 0.014	-0.005 0.013	0.108*** 0.014
Experience: 3 years (baseline)				
Experience: 10 years	0.050*** 0.014	-0.004 0.014	-0.006 0.014	0.095*** 0.014
Union membership: No (baseline)				
Union membership: Yes	-0.036** 0.013	-0.027* 0.013	-0.053*** 0.013	-0.001 0.013
Gender: Female (baseline)				
Gender: Male	-0.047*** 0.013	-0.064*** 0.013	-0.044*** 0.013	-0.081*** 0.013
Number of respondents	754	754	754	754
Number of valid profiles	6032	6032	6032	6032

Estimates are average marginal component effects (AMCE). Standard errors clustered at the respondent level below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

## F.25 Survey of politicians: Conjoint experiment results excluding city councilors

Figure F-17: Results from the face-to-face conjoint experiment with politicians, excluding all respondents except mayors

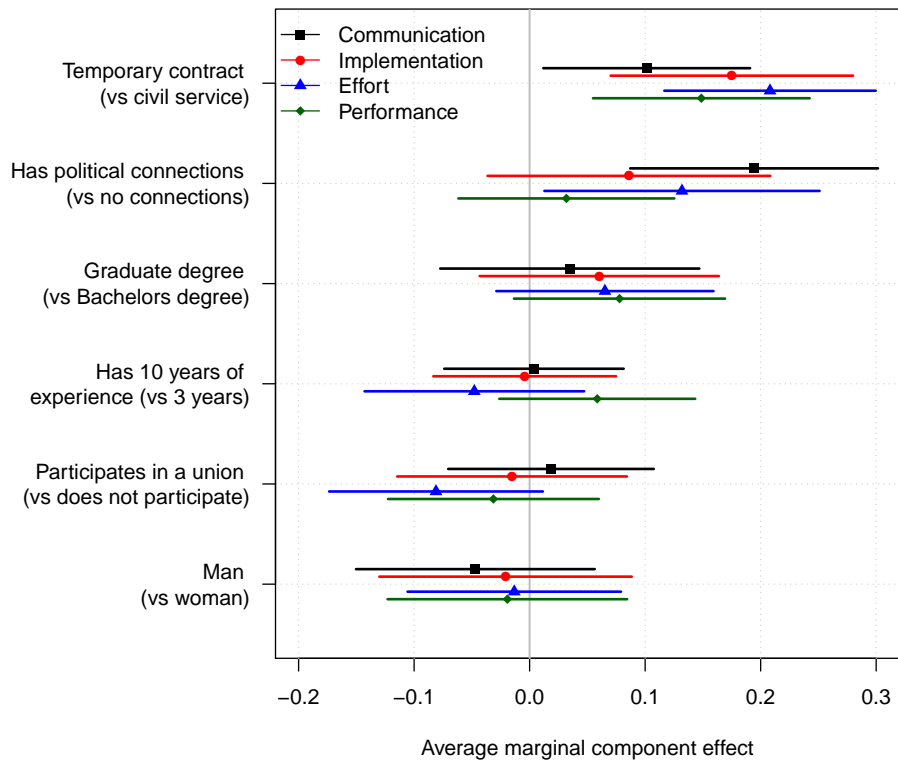
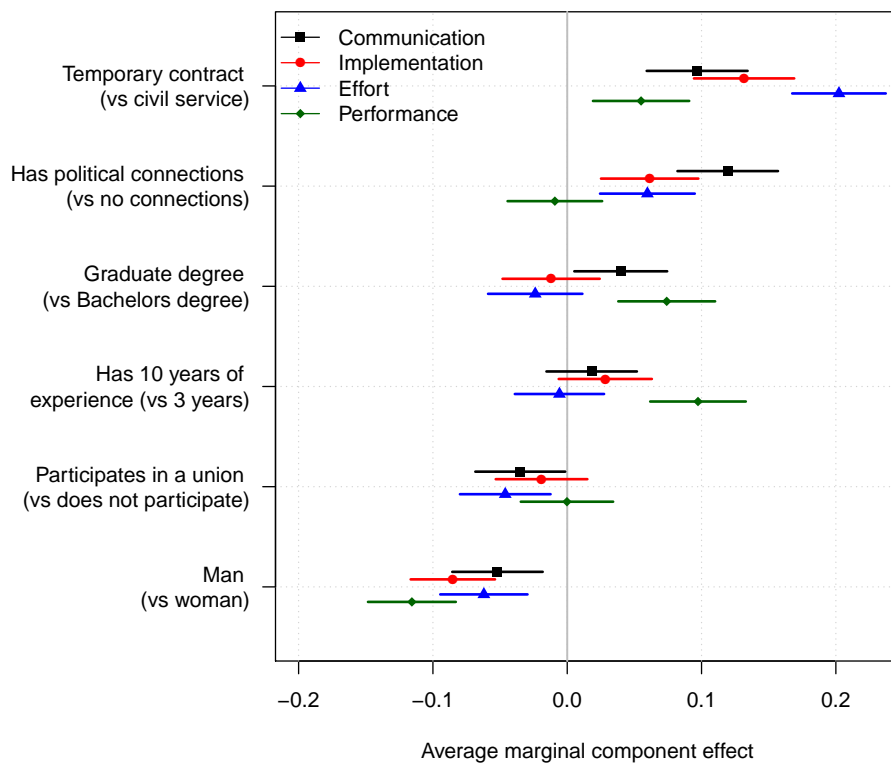


Figure F-18: Results from the face-to-face conjoint experiment with politicians, excluding all respondents except secretaries





## Appendix G

### Additional results for Chapter 4

#### G.1 Regression table for main results

The following table presents regression results plotted in Figure 4-2. Regression tables are not included for other models for brevity, but are available from the author.

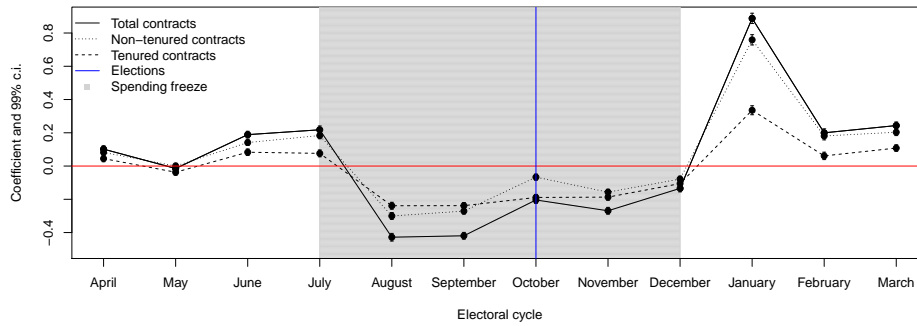
Table G.1: Political bureaucratic cycles in absolute number of contracts, with monthly effects

	<i>Dependent variable: logged number of municipal employees, by contract type</i>								
	Hires			Fires			Stock		
	Total (1)	Temp. (2)	Tenured (3)	Total (4)	Temp. (5)	Tenured (6)	Total (7)	Temp. (8)	Tenured (9)
April EY	0.102*** (0.008)	0.082*** (0.007)	0.045*** (0.007)	0.117*** (0.006)	0.114*** (0.006)	0.040*** (0.005)	0.0004 (0.001)	-0.016*** (0.001)	0.006*** (0.001)
May EY	-0.015 (0.008)	0.001 (0.007)	-0.037*** (0.007)	-0.017* (0.006)	-0.015* (0.006)	-0.009 (0.005)	0.0001 (0.001)	-0.020*** (0.002)	0.007*** (0.001)
June EY	0.189*** (0.008)	0.141*** (0.007)	0.083*** (0.008)	0.103*** (0.007)	0.101*** (0.006)	0.033*** (0.005)	0.003*** (0.001)	-0.020*** (0.002)	0.009*** (0.001)
July EY	0.218*** (0.009)	0.184*** (0.008)	0.076*** (0.008)	0.027*** (0.007)	0.042*** (0.007)	0.004 (0.005)	0.008*** (0.001)	-0.012*** (0.002)	0.013*** (0.001)
Aug. EY	-0.428*** (0.009)	-0.300*** (0.008)	-0.239*** (0.008)	-0.155*** (0.006)	-0.129*** (0.006)	-0.065*** (0.005)	0.003*** (0.001)	-0.024*** (0.002)	0.011*** (0.001)
Sep. EY	-0.419*** (0.008)	-0.271*** (0.007)	-0.238*** (0.007)	-0.130*** (0.007)	-0.103*** (0.006)	-0.070*** (0.005)	-0.001 (0.001)	-0.034*** (0.002)	0.009*** (0.001)
Oct. EY	-0.204*** (0.008)	-0.067*** (0.007)	-0.189*** (0.007)	0.367*** (0.009)	0.336*** (0.008)	0.107*** (0.006)	-0.014*** (0.001)	-0.073*** (0.002)	0.004*** (0.001)
Nov. EY	-0.269*** (0.008)	-0.157*** (0.007)	-0.187*** (0.007)	0.214*** (0.008)	0.187*** (0.008)	0.060*** (0.006)	-0.021*** (0.001)	-0.100*** (0.003)	0.001 (0.001)
Dec. EY	-0.134*** (0.008)	-0.078*** (0.007)	-0.105*** (0.007)	0.646*** (0.012)	0.605*** (0.012)	0.334*** (0.009)	-0.071*** (0.002)	-0.484*** (0.008)	-0.021*** (0.002)
Jan. post-EY	0.888*** (0.012)	0.759*** (0.012)	0.335*** (0.010)	-0.002 (0.010)	-0.018 (0.009)	0.024** (0.006)	-0.036*** (0.001)	-0.115*** (0.004)	-0.015*** (0.002)
Feb. post-EY	0.200*** (0.009)	0.181*** (0.009)	0.061*** (0.009)	-0.093*** (0.007)	-0.112*** (0.006)	-0.010 (0.005)	-0.016*** (0.001)	-0.079*** (0.003)	-0.003* (0.001)
Mar. post-EY	0.243*** (0.008)	0.203*** (0.008)	0.108*** (0.008)	-0.071*** (0.006)	-0.078*** (0.006)	-0.011 (0.005)	-0.005*** (0.001)	-0.031*** (0.002)	0.00000 (0.001)
Observations	878,711	878,711	878,711	878,711	878,711	878,711	878,711	878,711	878,711
R <sup>2</sup>	0.677	0.703	0.618	0.704	0.702	0.685	0.996	0.987	0.999

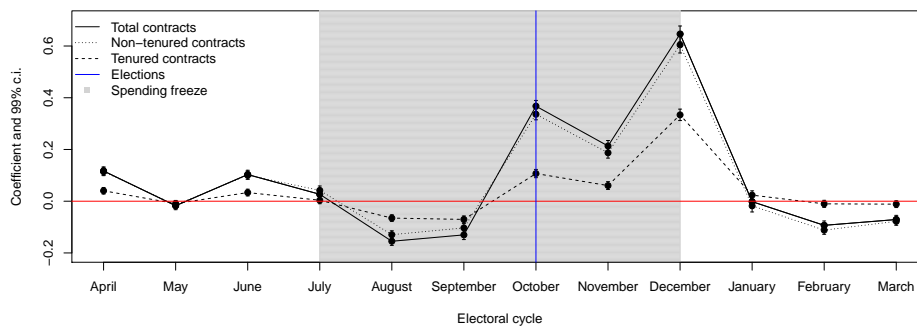
Standard errors clustered at the municipality level; \*p<0.01; \*\*p<0.001; \*\*\*p<0.0001  
 All models include a lagged dependent variable, month fixed effects, and municipality × year fixed effects

## G.2 Political bureaucratic cycles using alternative measures of employment

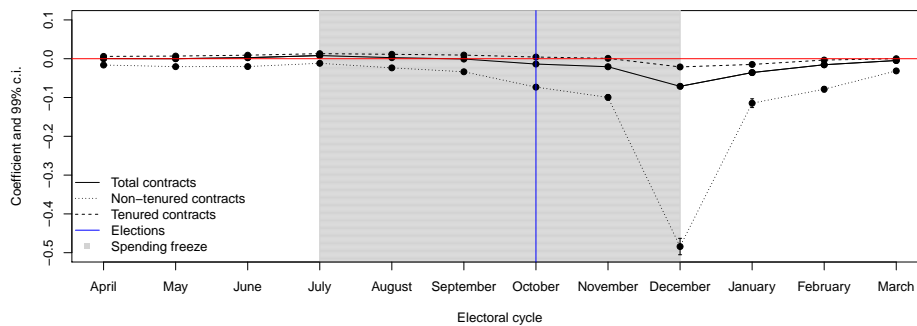
Figure G-1: Monthly election cycle effects on logged absolute number of contracts



(a) Flow of new contracts (reproduced from main text)



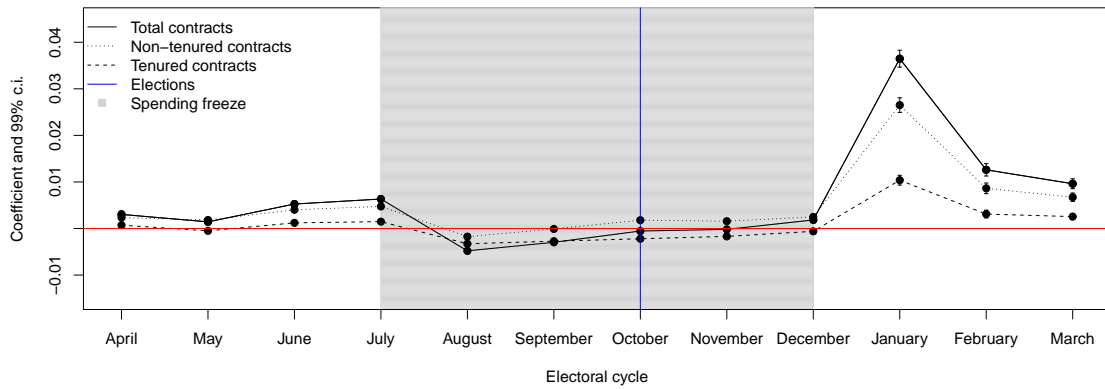
(b) Flow of dismissals (reproduced from main text)



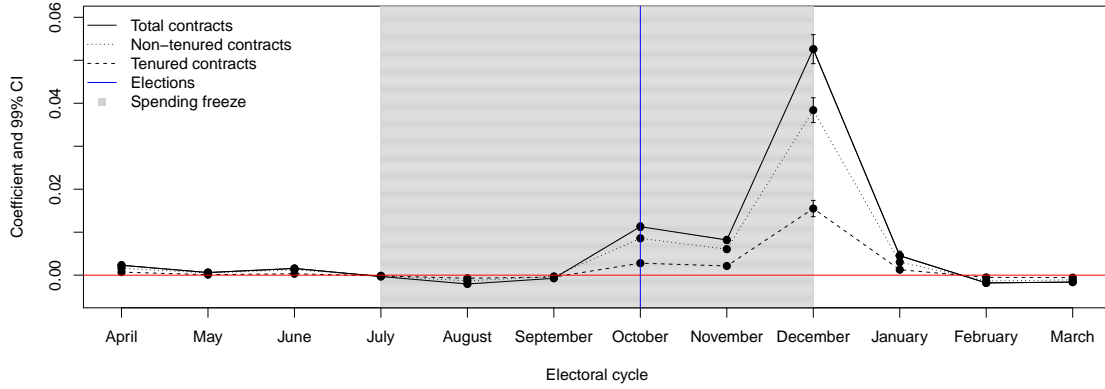
(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

Figure G-2: Monthly election cycle effects on logged relative number of municipal contracts, as a share of stock in that same month



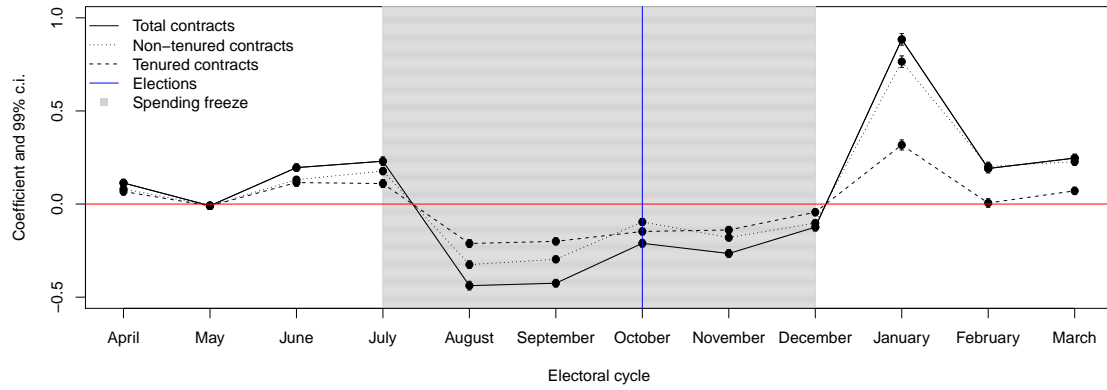
(a) Flow of new contracts (relative to stock)



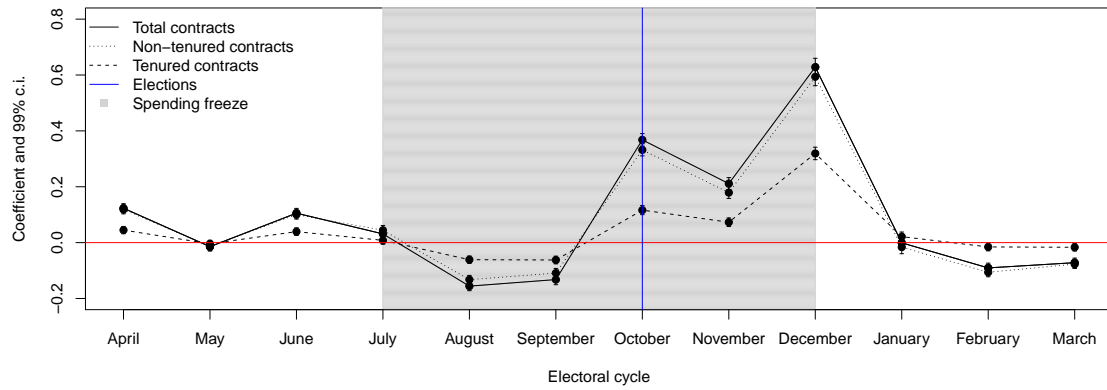
(b) Flow of dismissals (relative to stock)

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

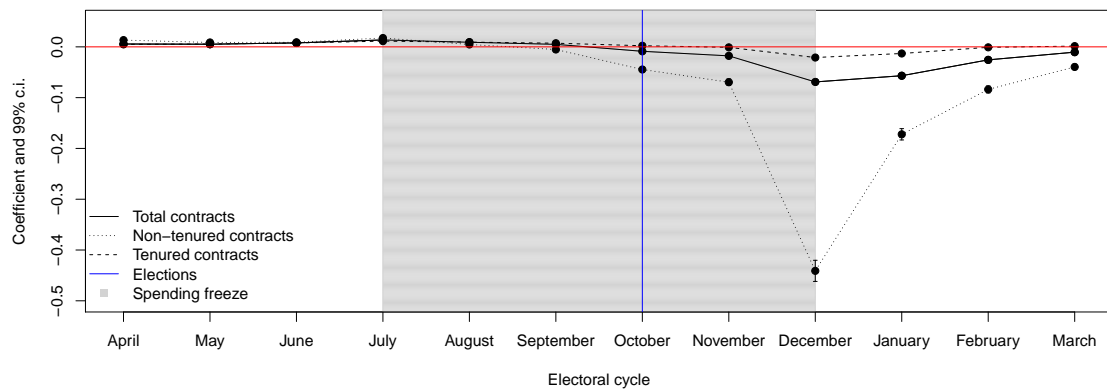
Figure G-3: Monthly election cycle effects on logged absolute number of municipal workers, using unique personal identifiers



(a) Flow of new people hired



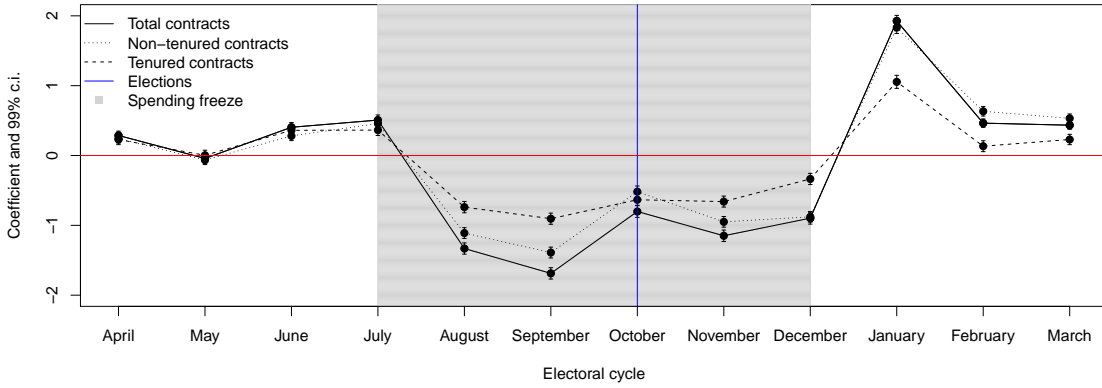
(b) Flow of people dismissed



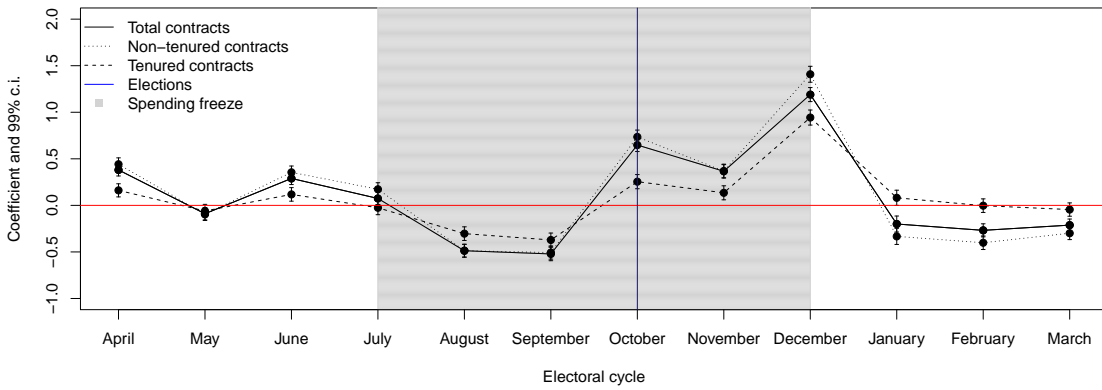
(c) Stock of people hired

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

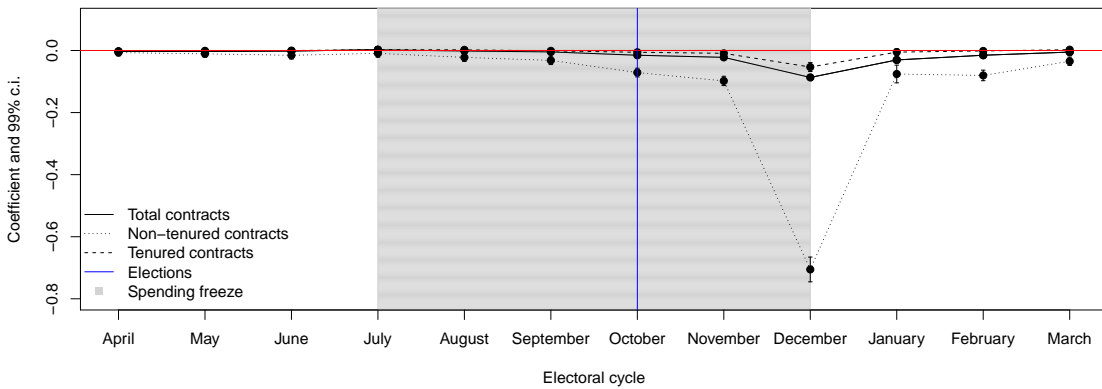
Figure G-4: Monthly election cycle effects on logged absolute number of Brazilian reais corresponding to the sum of municipal workers' average salary



(a) Expenditures on flow of new contracts



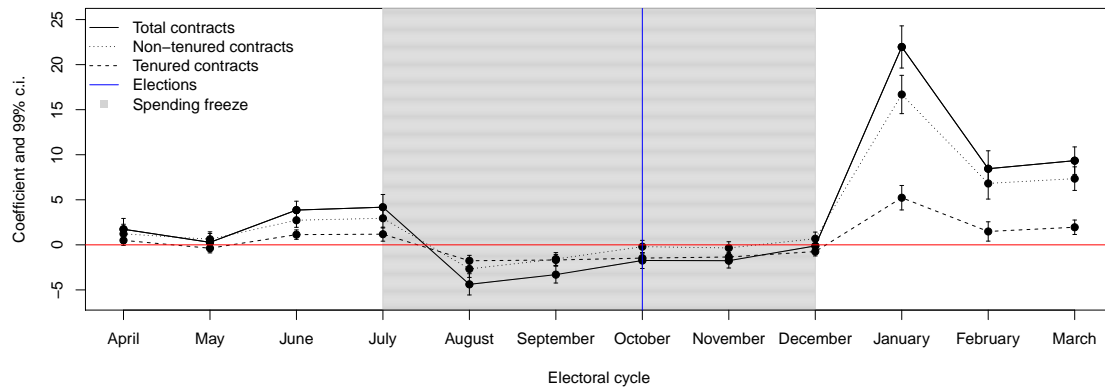
(b) Savings on flow of dismissals



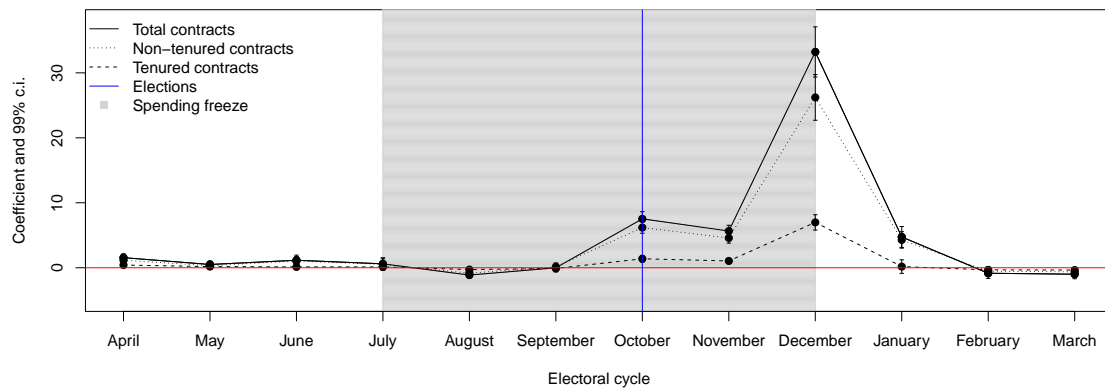
(c) Expenditures on stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

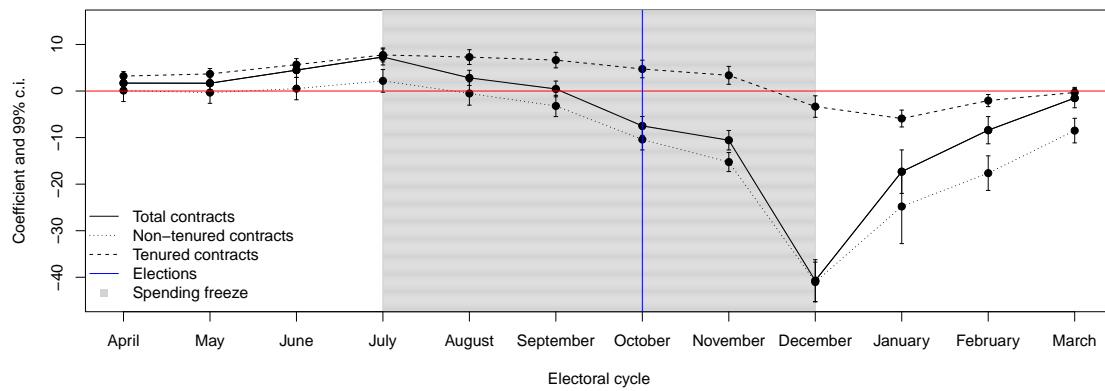
Figure G-5: Monthly election cycle effects on absolute number of contracts (no logging)



(a) Flow of new contracts



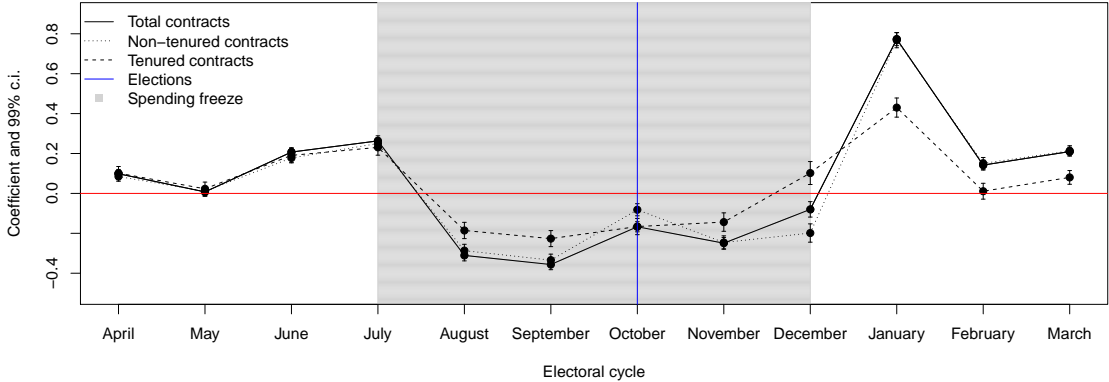
(b) Flow of dismissals



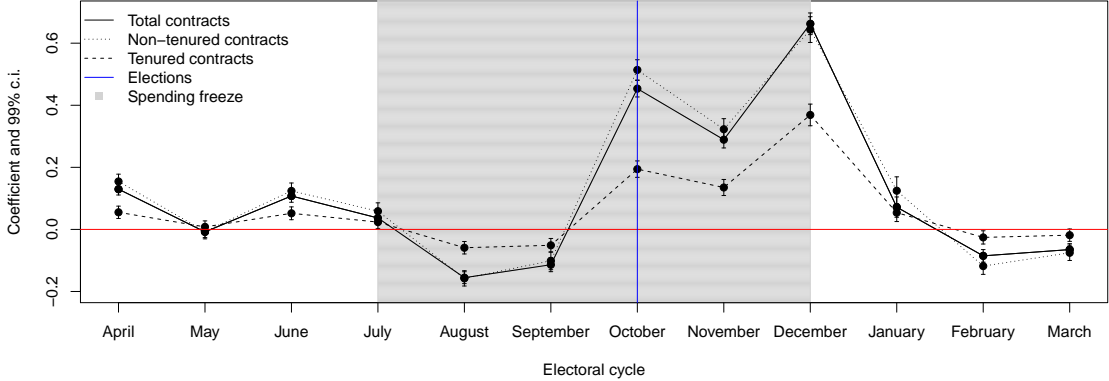
(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

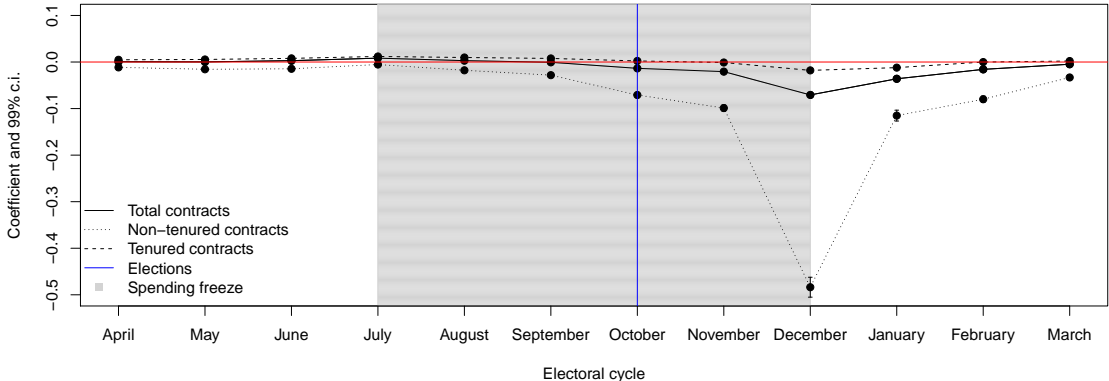
Figure G-6: Monthly election cycle effects on logged absolute number of contracts (without adding 1, omitting observations with 0 in the dependent variable or its lag)



(a) Flow of new contracts



(b) Flow of dismissals



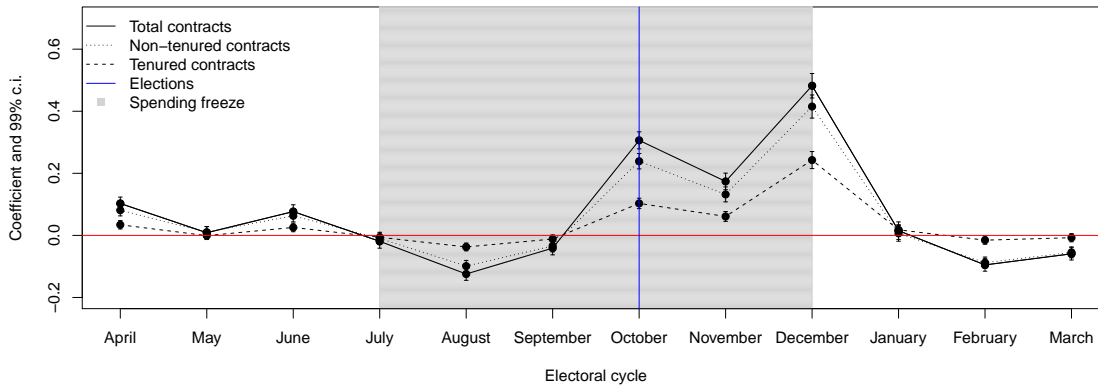
(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)



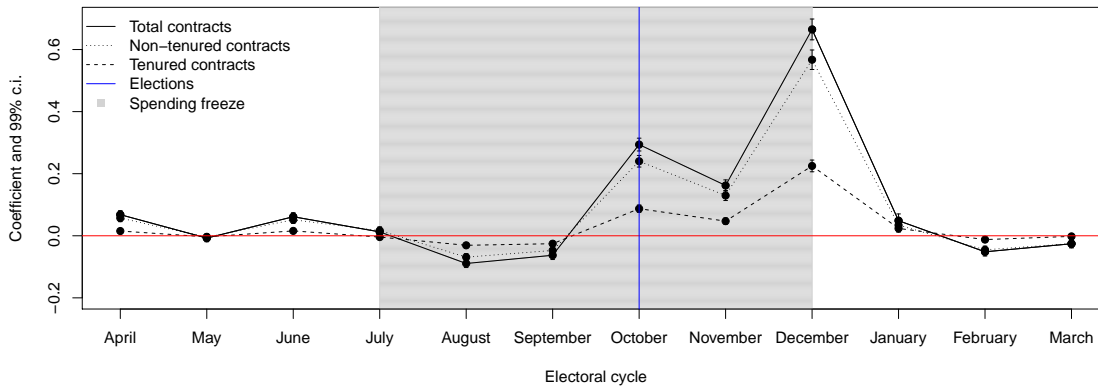
### G.3 Political bureaucratic cycles with alternative measures of outflows

Figure G-7: Monthly election cycle effects on logged absolute number of dismissals, excluding all those that are not done on the initiative of the employer (with or without "fair cause") or due to the end of the contract



Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

Figure G-8: Monthly election cycle effects on logged absolute number of dismissals, excluding all those that are not done on the initiative of the employer (with or without "fair cause")

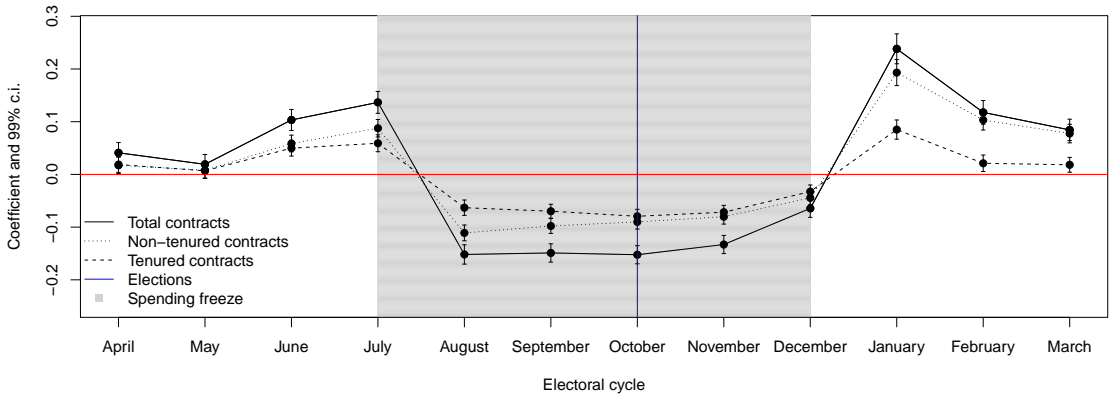


Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

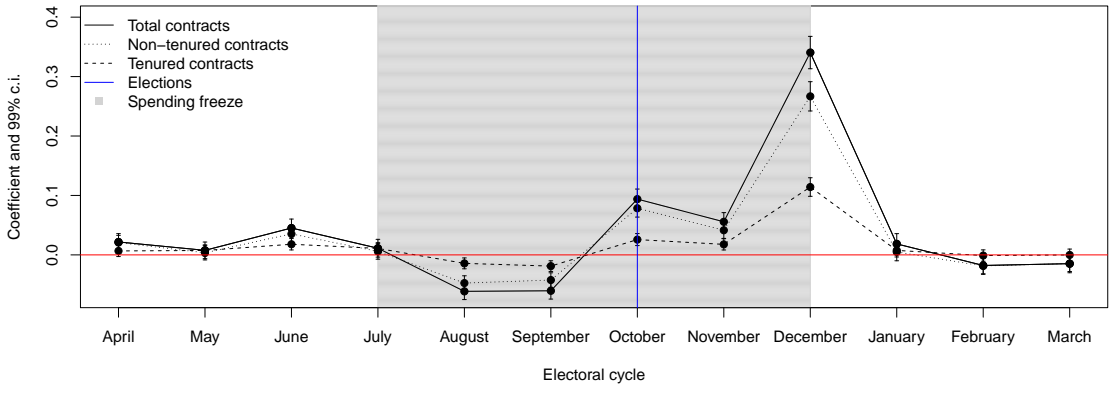
## G.4 Political bureaucratic cycles among healthcare and education professionals

RAIS includes occupation classifications using the federal government's Brazilian classification of occupations, detailed at <http://www.mtecbo.gov.br/cbosite/>. Using this classification, I select those municipal employees with occupational categories that clearly correspond to healthcare workers, such as doctors, nurses and nursing technicians of different specialities, healthcare agents, pharmacists, etc. This classification however does not allow me to select more general workers (such as cleaners or general administrative staff) who also work in the healthcare sector. Results show very similar patterns, although the size of the coefficients is smaller, possibly due to the reduced elasticity of this mid-to high-skill workers. The Figures below show that the patterns uncovered overall hold also for the education and healthcare bureaucracies.

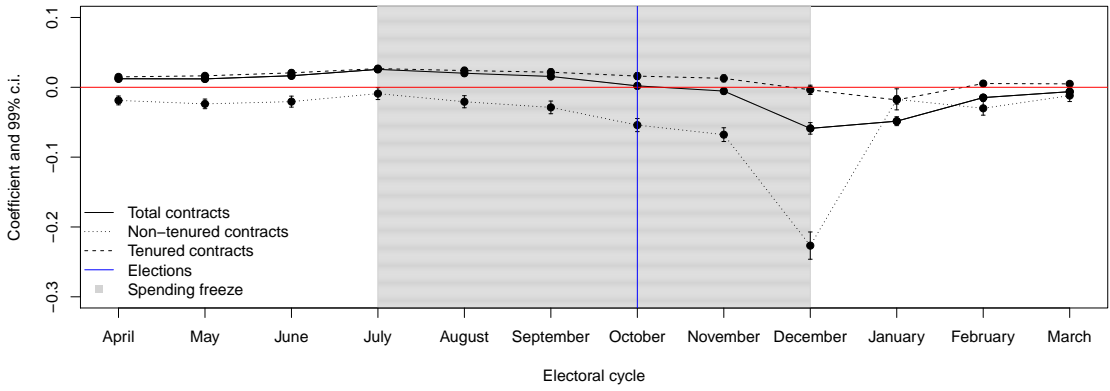
Figure G-9: Monthly election cycle effects on logged absolute number of contracts, healthcare professionals



(a) Flow of new contracts



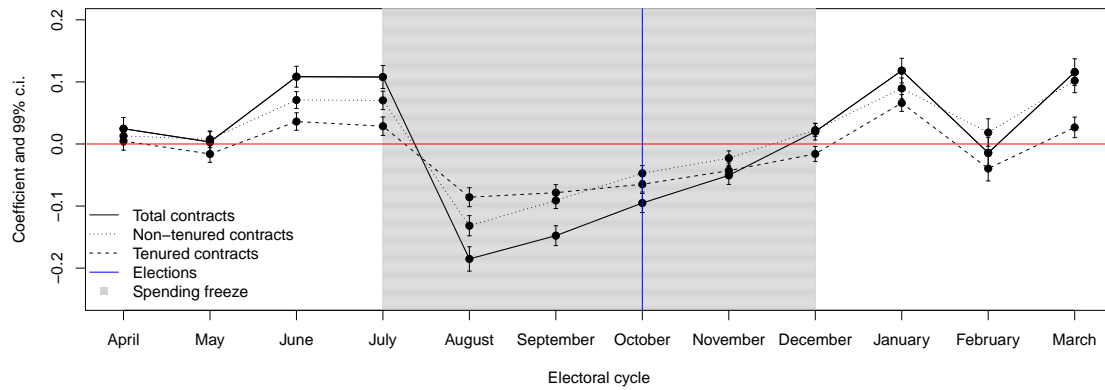
(b) Flow of dismissals



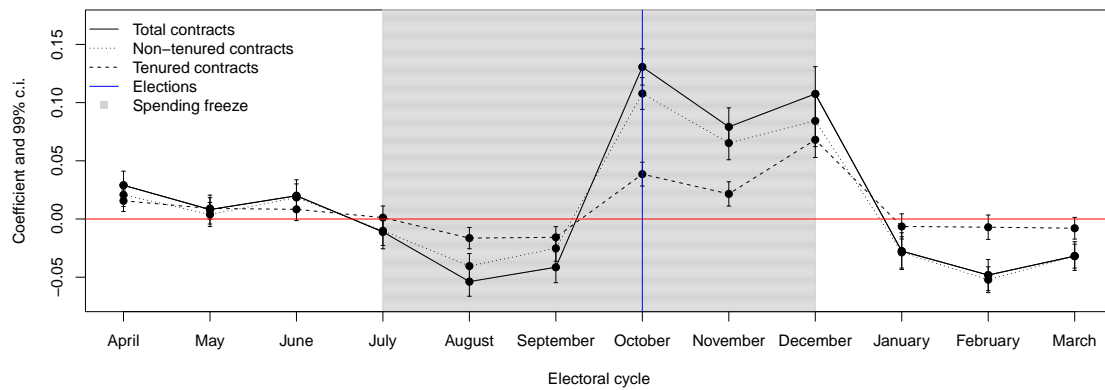
(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

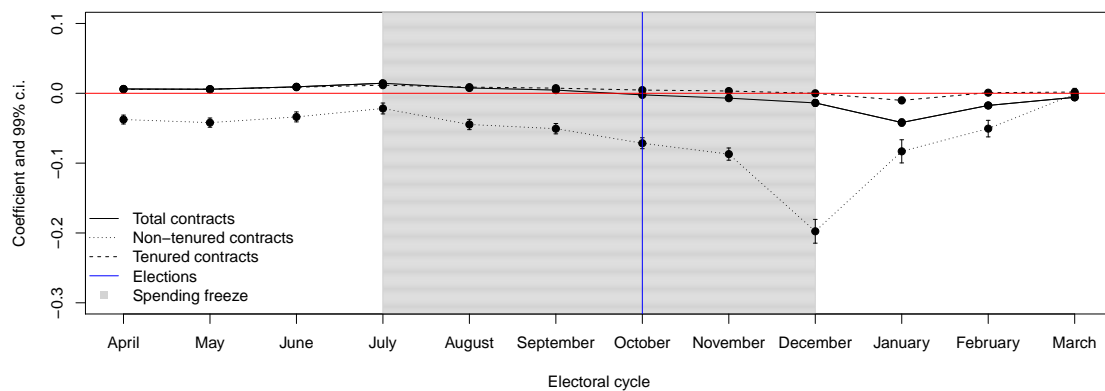
Figure G-10: Monthly election cycle effects on logged absolute number of contracts, education professionals



(a) Flow of new contracts



(b) Flow of dismissals

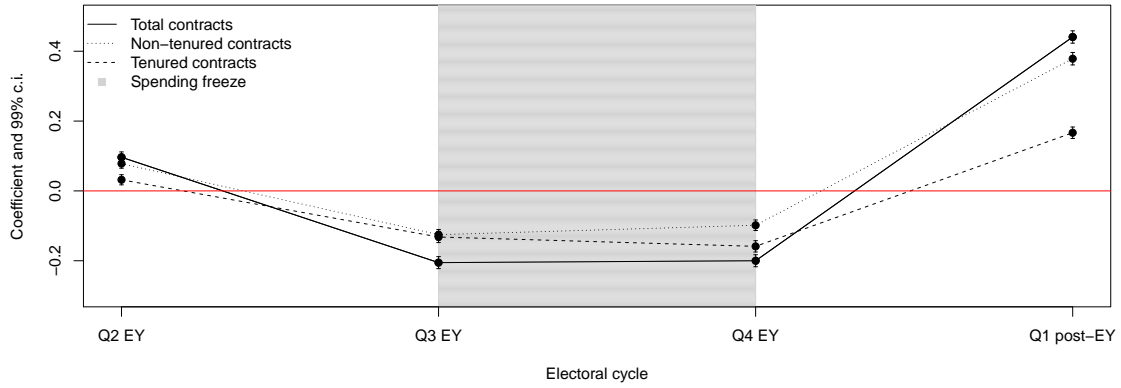


(c) Stock of contracts

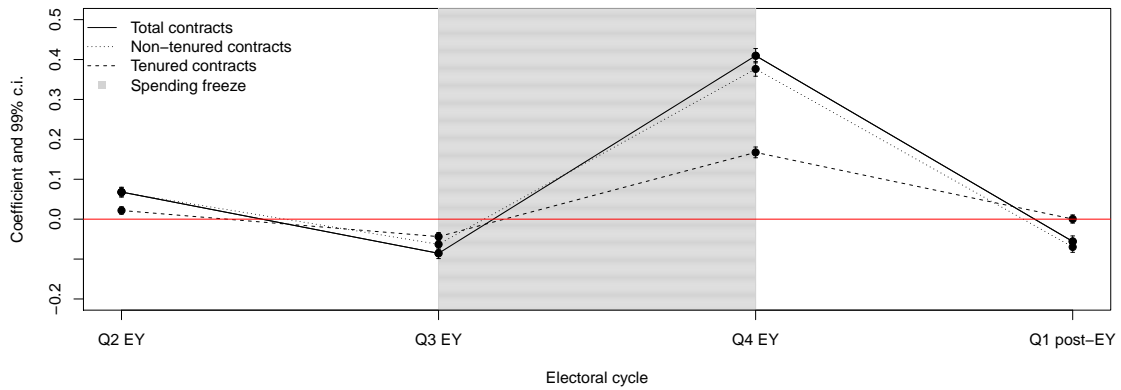
Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

## G.5 Political bureaucratic cycles using quarterly data

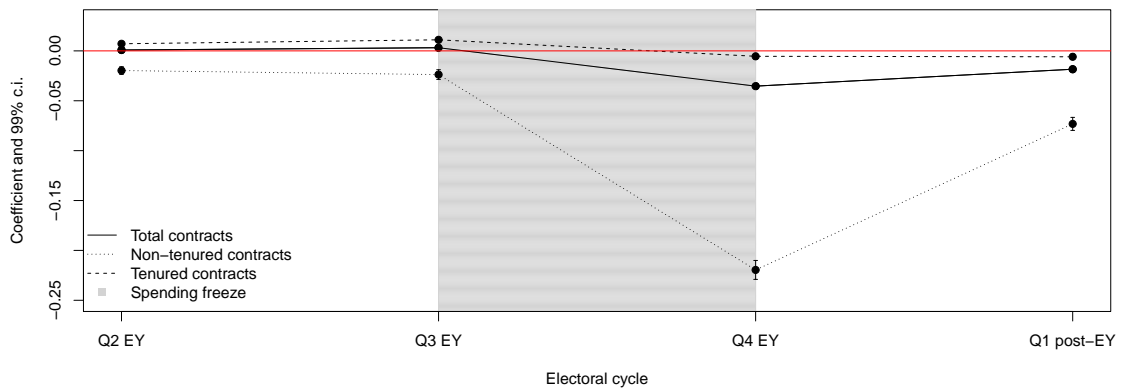
Figure G-11: Quarterly election cycle effects on logged absolute number of contracts



(a) Flow of new contracts



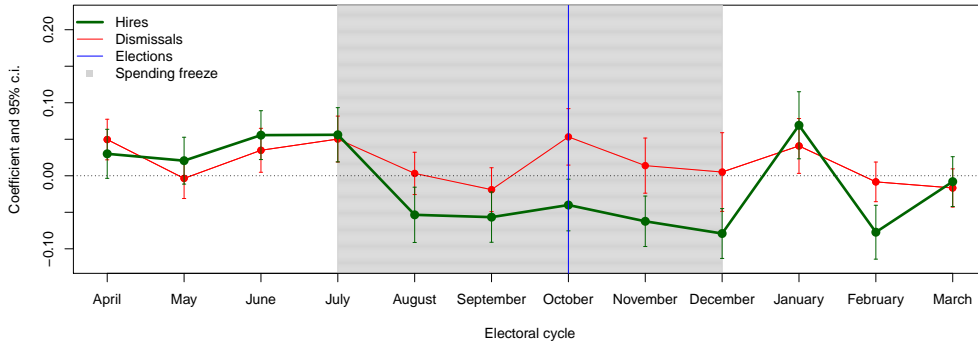
(b) Flow of dismissals



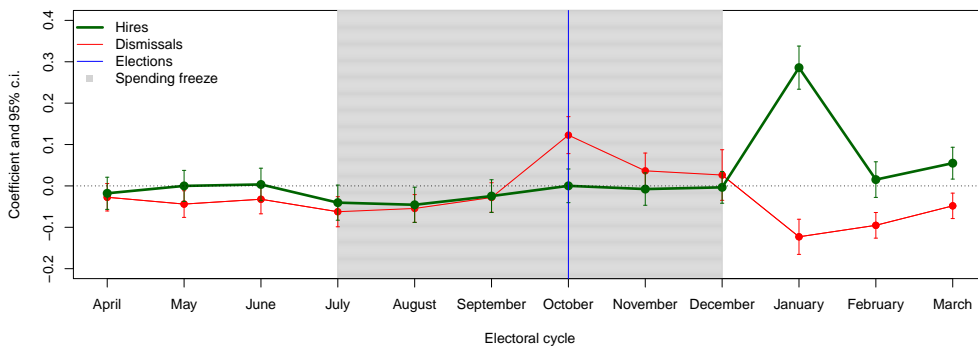
(c) Stock of contracts

## G.6 Conditional political bureaucratic cycles

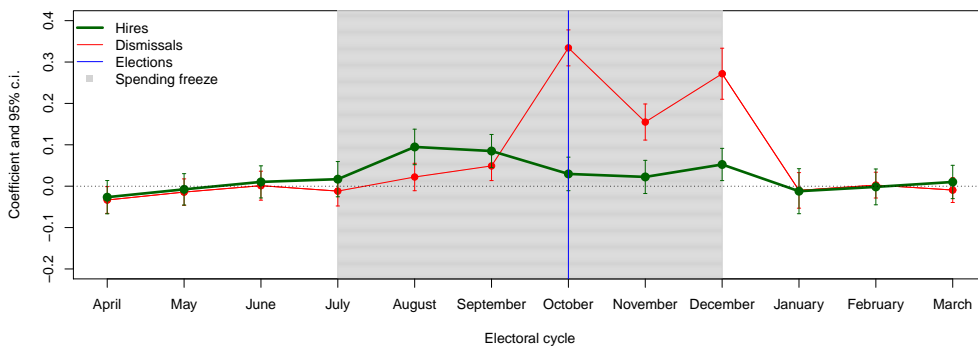
Figure G-12: Conditional monthly election cycle effects on logged absolute number of non-tenured, municipal employees



(a) Monthly election-cycle effects conditional on high electoral competition



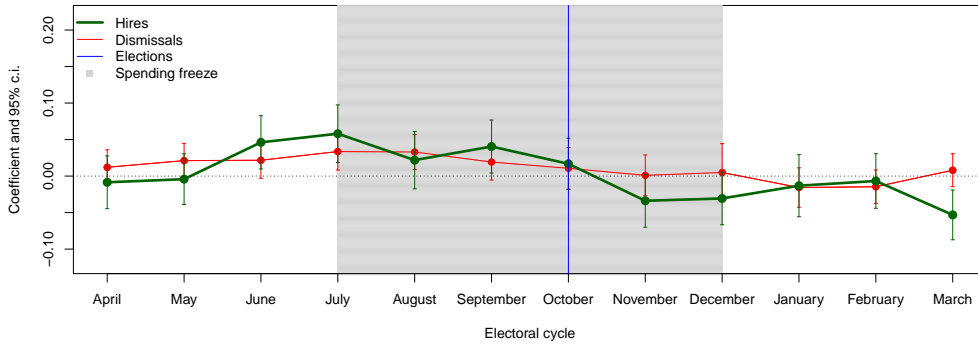
(b) Monthly election-cycle effects conditional on the incumbent mayor being on their first term



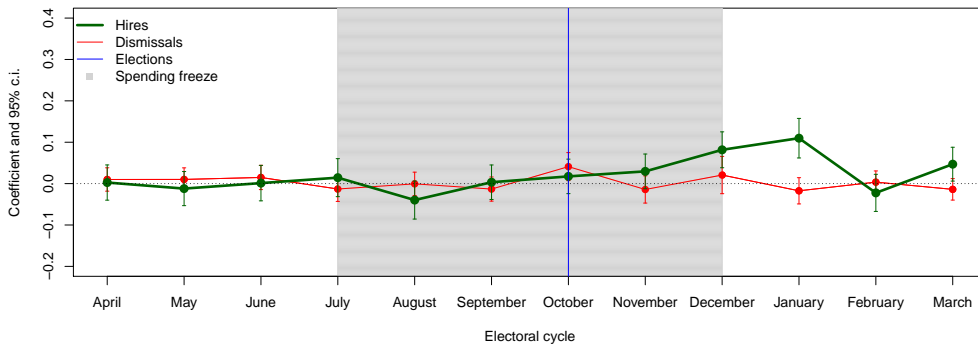
(c) Monthly election-cycle effects conditional on the incumbent losing the October election

Dots correspond to the interaction between election cycle effects and an indicator for heterogeneity ( $\hat{\delta}$  in Equation 4.2)

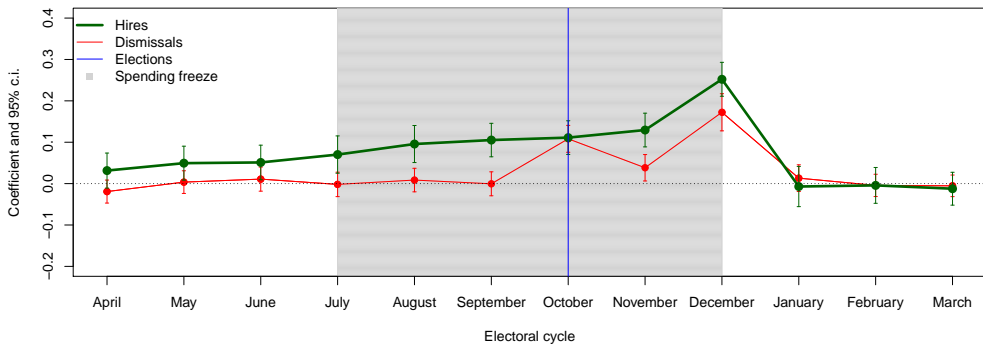
Figure G-13: Conditional monthly election cycle effects on logged absolute number of tenured, municipal employees



(a) Monthly election-cycle effects conditional on high electoral competition



(b) Monthly election-cycle effects conditional on the incumbent mayor being on their first term

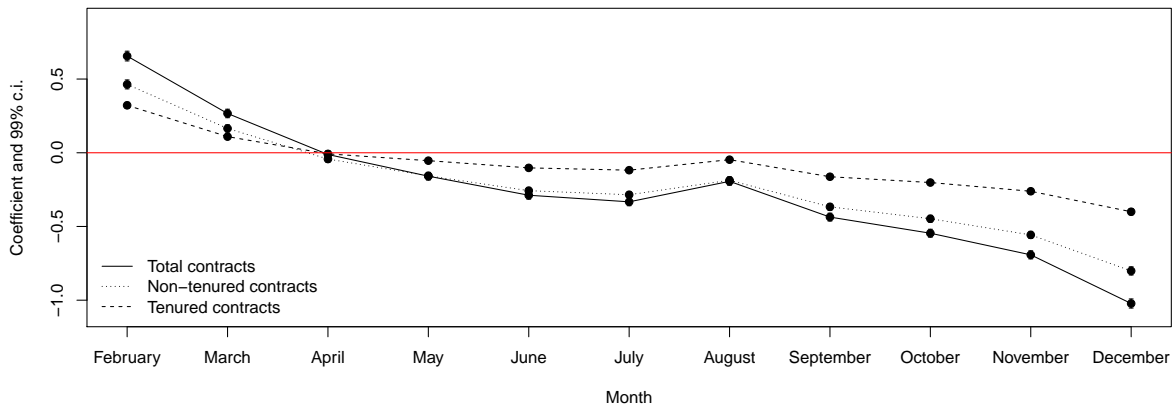


(c) Monthly election-cycle effects conditional on the mayor losing the election in October

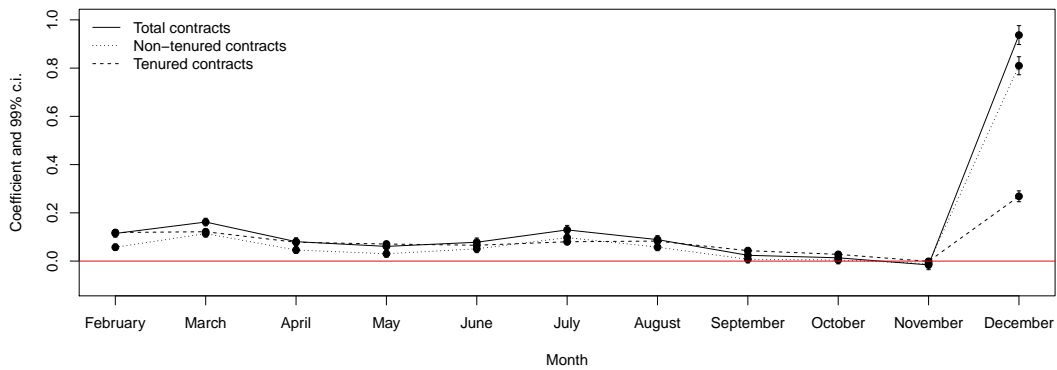
Dots correspond to the interaction between election cycle effects and an indicator for heterogeneity ( $\hat{\delta}$  in Equation 4.2)

## G.7 Seasonality in municipal employment

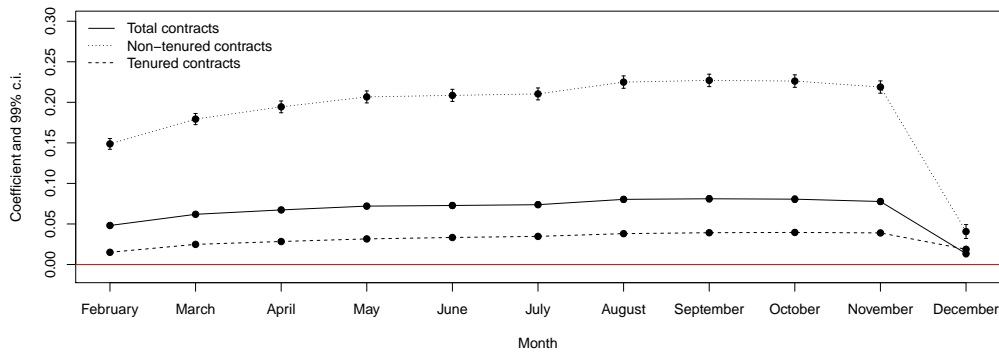
Figure G-14: Month fixed effects on logged absolute number of municipal contracts



(a) Flow of new contracts



(b) Flow of dismissals

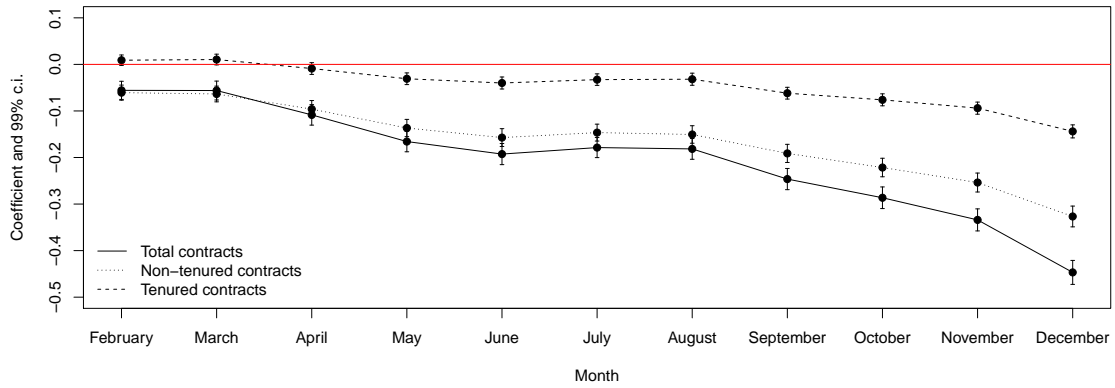


(c) Stock of contracts

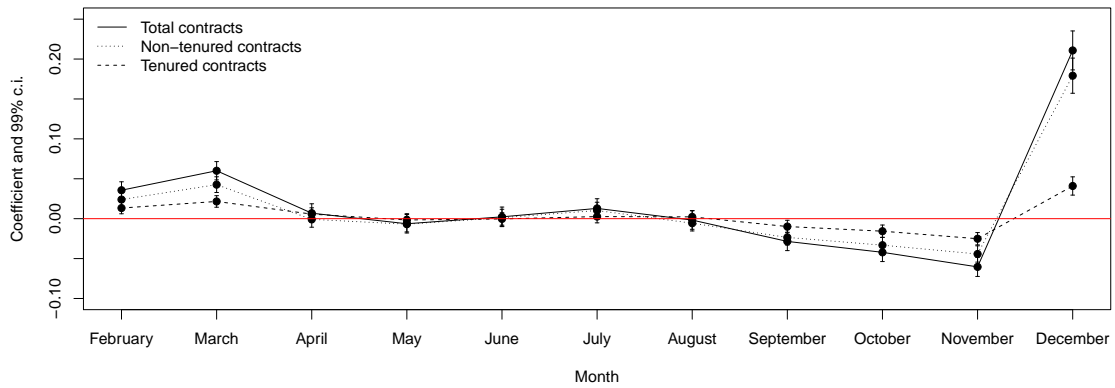
Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)



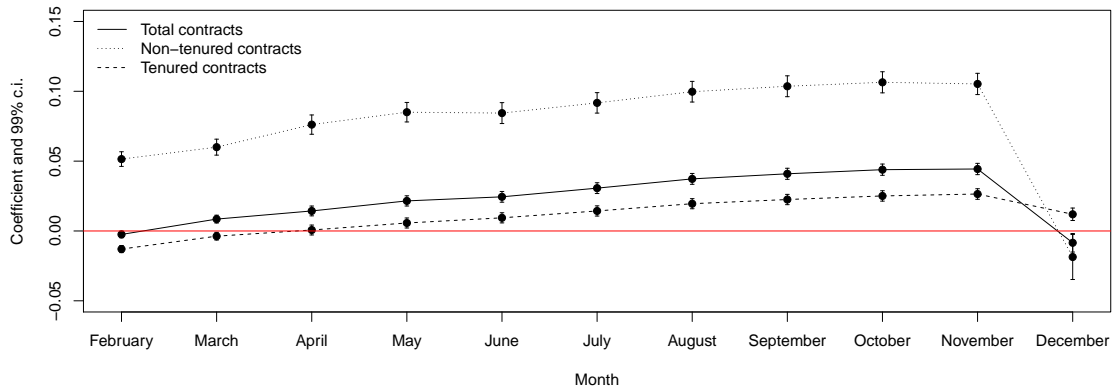
Figure G-15: Month fixed effects on logged absolute number of municipal contracts: Healthcare professionals



(a) Flow of new contracts



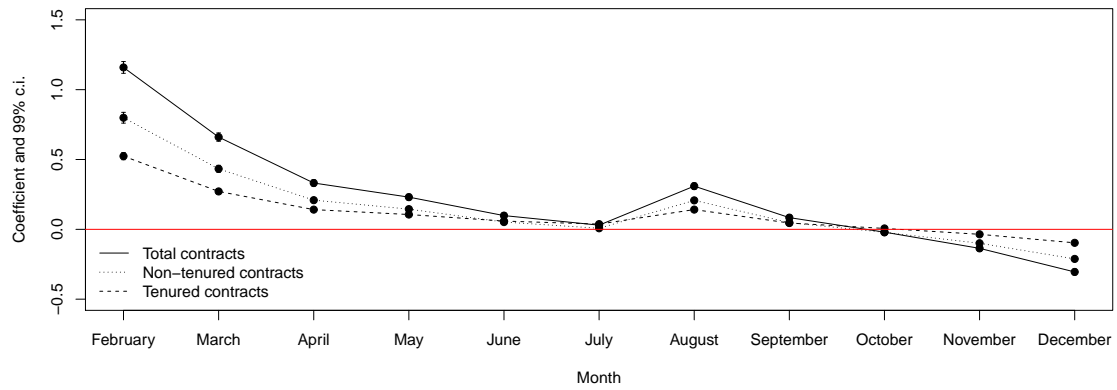
(b) Flow of dismissals



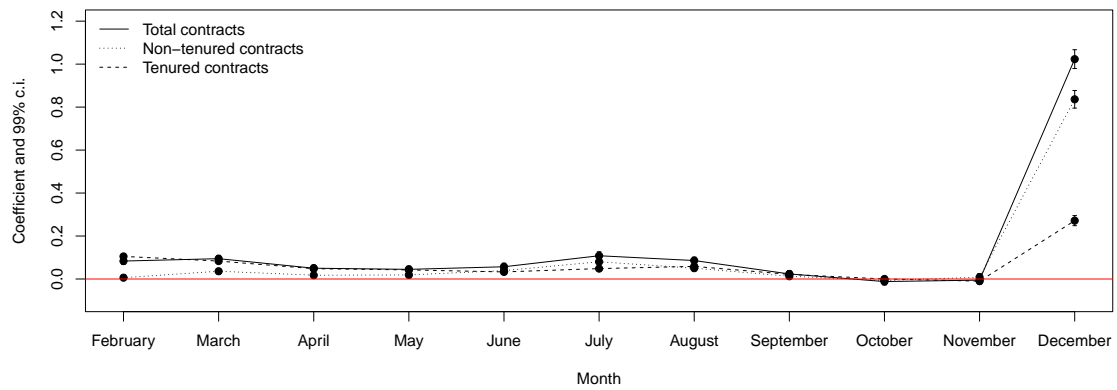
(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

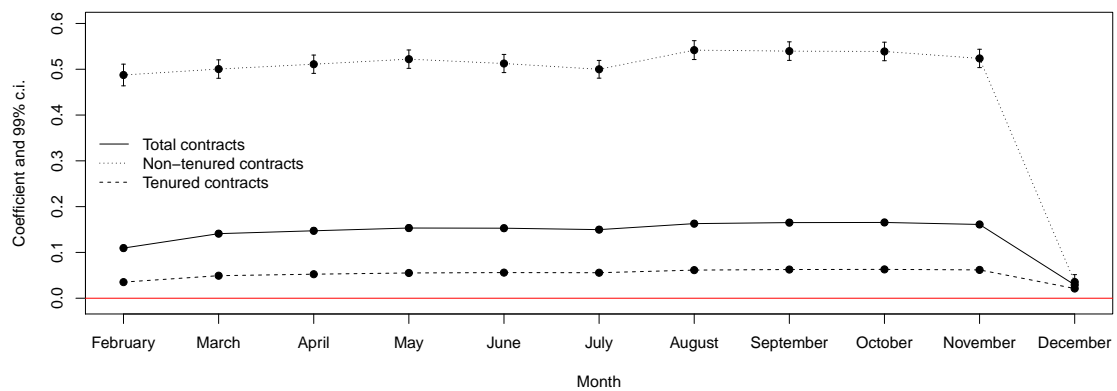
Figure G-16: Month fixed effects on logged absolute number of municipal contracts: Education professionals



(a) Flow of new contracts



(b) Flow of dismissals

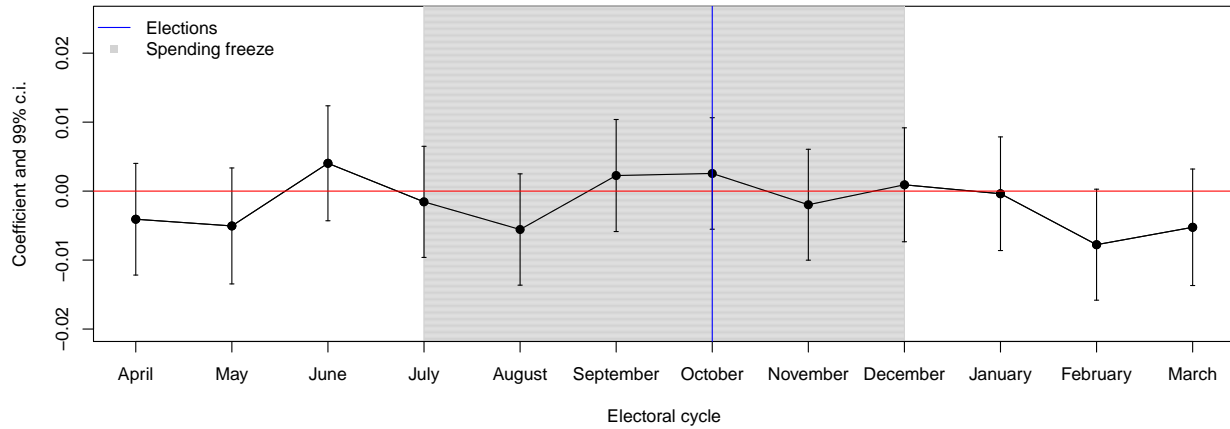


(c) Stock of contracts

Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

## G.8 Test for political bureaucratic cycles in infant deaths

Figure G-17: Monthly election cycle effects on infant deaths



Dots correspond to election cycle effects ( $\hat{\beta}$  in Equation 4.1)

# Appendix H

## Additional results for Chapter 5

### H.1 Continuity of the forcing variable

Figure H-1: Histogram of the forcing variable

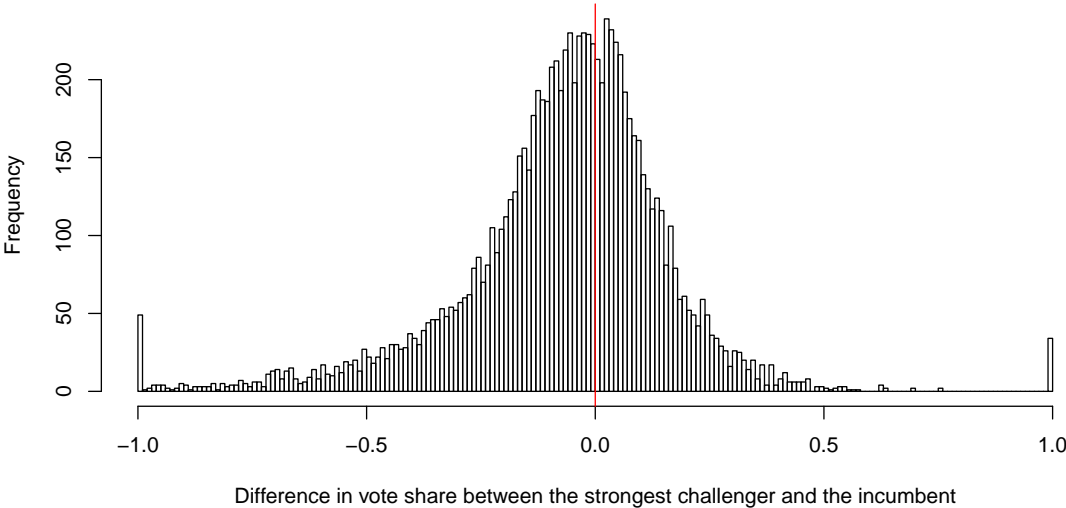
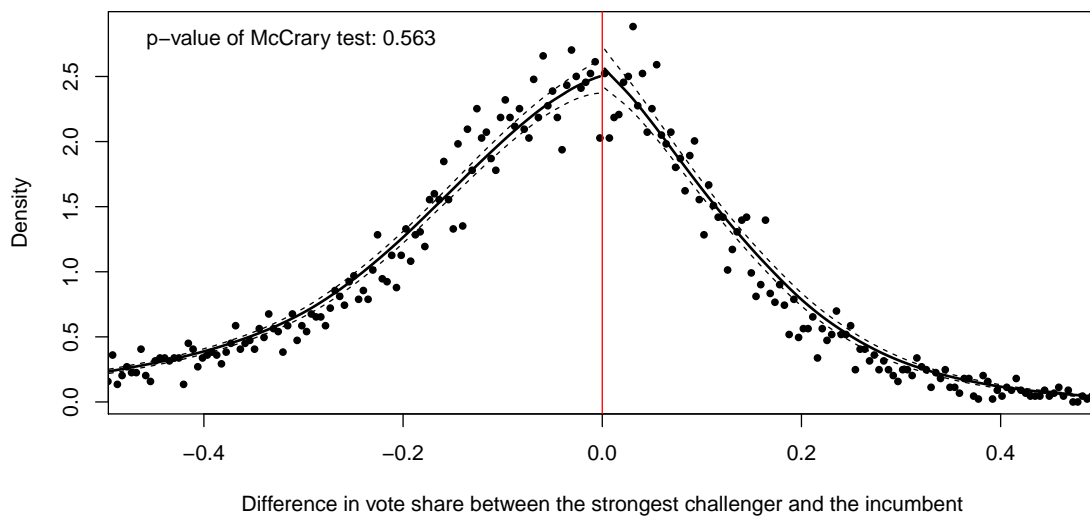


Figure H-2: Density of the forcing variable and discontinuity test



## H.2 Regression tables

Table H.1: Effect of an electoral defeat of the incumbent on the logged number of temporary employees who are dismissed

	October	November	December	January	February	March
Incumbent defeated	0.355***	0.218***	0.440***	0.019	0.004	0.079
	0.057	0.050	0.076	0.048	0.036	0.036
Bandwidth	0.122	0.113	0.144	0.150	0.142	0.200
N	4270	4019	4839	3719	3589	4442

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Table H.2: Effect of an electoral defeat of the incumbent on the logged number of tenured employees who are dismissed

	October	November	December	January	February	March
Incumbent defeated	0.161***	0.048*	0.110*	-0.016	-0.009	-0.035
SE	0.037	0.023	0.042	0.034	0.027	0.027
Bandwidth	0.120	0.306	0.221	0.126	0.118	0.151
N	4218	7025	6200	3283	3124	3730

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Table H.3: Effect of an electoral defeat of the incumbent on the logged number of new hires with temporary contracts

	October	November	December	January	February	March
Incumbent defeated	0.030	-0.011	0.020	0.666***	0.659***	0.514***
	0.041	0.041	0.029	0.097	0.097	0.079
Bandwidth	0.168	0.106	0.133	0.135	0.148	0.212
N	5379	3823	4561	3452	3693	4568

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Table H.4: Effect of an electoral defeat of the incumbent on the logged number of new hires with tenured contracts

	October	November	December	January	February	March
Incumbent defeated	0.025	0.097**	0.245***	-0.051	-0.162	-0.109
	0.032	0.034	0.032	0.081	0.086	0.074
Bandwidth	0.163	0.138	0.155	0.128	0.135	0.148
N	5279	4714	5069	3323	3460	3694

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.5: Effect of an electoral defeat of the incumbent on the logged number of temporary bureaucrats who resign

	October	November	December	January	February	March
Incumbent defeated	0.130***	0.124***	0.233***	-0.047	0.047	0.063
	0.036	0.029	0.037	0.031	0.038	0.040
Bandwidth	0.153	0.198	0.355	0.194	0.138	0.130
N	5036	5889	7331	4380	3514	3364

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.6: Effect of an electoral defeat of the incumbent on the logged number of tenured bureaucrats who resign

	October	November	December	January	February	March
Incumbent defeated	0.042*	0.021	0.114**	-0.045	-0.020	-0.034
	0.021	0.023	0.038	0.031	0.031	0.034
Bandwidth	0.399	0.169	0.100	0.150	0.239	0.143
N	7522	5409	3679	3718	4818	3615

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.7: Effect of an electoral defeat of the incumbent on the logged number of home visits by community health agents

	October	November	December	January	February	March
Incumbent defeated	-0.095	-0.099	-0.339**	-0.213	-0.124	-0.059
	0.080	0.126	0.109	0.117	0.099	0.092
Bandwidth	0.382	0.123	0.207	0.144	0.187	0.243
N	6265	3654	5088	4099	4835	5458

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.8: Effect of an electoral defeat of the incumbent on the logged number of home visits by nurses

	October	November	December	January	February	March
Incumbent defeated	-0.171*	-0.257***	-0.349***	-0.136	0.001	0.021
	0.085	0.070	0.095	0.083	0.087	0.078
Bandwidth	0.161	0.410	0.141	0.194	0.152	0.221
N	4403	6339	4037	4930	4246	5236

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.9: Effect of an electoral defeat of the incumbent on the logged number of home visits by doctors

	October	November	December	January	February	March
Incumbent defeated	-0.223**	-0.404***	-0.491***	-0.069	0.020	-0.014
	0.078	0.091	0.092	0.099	0.084	0.078
Bandwidth	0.218	0.152	0.146	0.124	0.180	0.216
N	5188	4224	4136	3660	4722	5169

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.10: Effect of an electoral defeat of the incumbent on the logged number of prenatal check-ups

	October	November	December	January	February	March
Incumbent defeated	-0.099	-0.057	-0.244*	-0.121	-0.119	-0.076
	0.101	0.082	0.096	0.084	0.098	0.096
Bandwidth	0.117	0.241	0.150	0.213	0.132	0.140
N	3500	5427	4195	5140	3838	4002

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.11: Effect of an electoral defeat of the incumbent on the logged number of infant check-ups

	October	November	December	January	February	March
Incumbent defeated	-0.088	-0.120	-0.258**	0.033	0.080	0.092
	0.072	0.083	0.082	0.086	0.078	0.066
Bandwidth	0.179	0.138	0.145	0.125	0.154	0.267
N	4717	3950	4114	3693	4260	5644

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.



Table H.12: Effect of an electoral defeat of the incumbent on the logged number of child check-ups

	October	November	December	January	February	March
Incumbent defeated	-0.142	-0.209*	-0.369***	-0.020	0.023	0.117
	0.078	0.085	0.079	0.086	0.076	0.078
Bandwidth	0.174	0.157	0.202	0.151	0.194	0.192
N	4631	4307	5020	4208	4917	4881

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Table H.13: Effect of an electoral defeat of the incumbent on the logged number of infant deaths

	October	November	December	January	February	March
Incumbent defeated	0.000	0.014	0.024	-0.004	-0.031	0.041
	0.020	0.020	0.024	0.025	0.025	0.026
Bandwidth	0.151	0.130	0.087	0.138	0.117	0.133
N	5715	5138	3718	4035	3556	3910

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

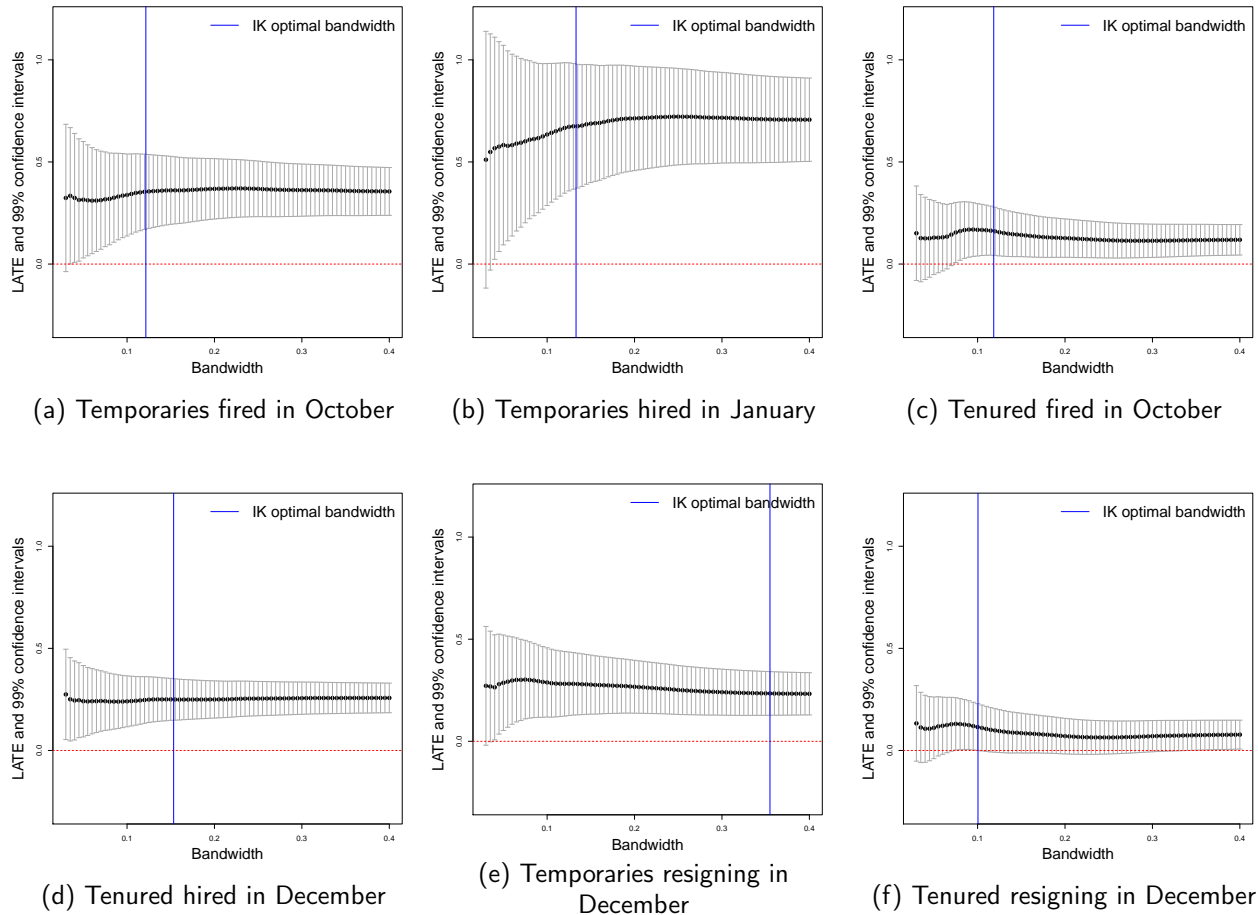
Table H.14: Effect of an electoral defeat of the incumbent on the logged number of child deaths

	October	November	December	January	February	March
Incumbent defeated	0.015	0.012	-0.008	0.010	-0.032	0.040
	0.024	0.026	0.032	0.027	0.025	0.027
Bandwidth	0.186	0.125	0.078	0.134	0.138	0.137
N	4880	3750	2515	3932	4029	3989

HC1 heteroskedasticity consistent standard errors below coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

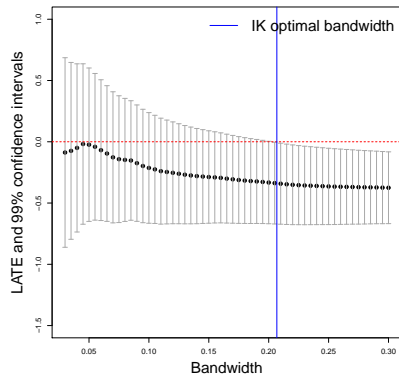
### H.3 Robustness of main results to alternative bandwidths

Figure H-3: Robustness to alternative bandwidths of results on employment outcomes

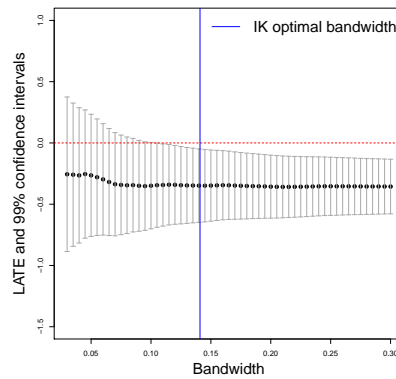


Vertical, blue lines mark the Imbens-Kalyamaraman optimal bandwidth.

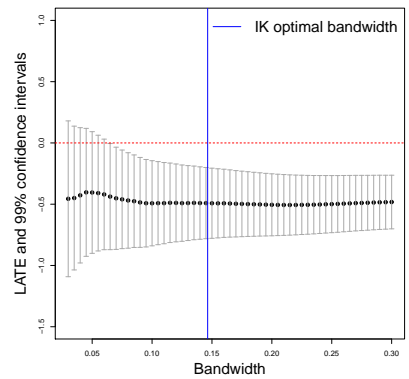
Figure H-4: Robustness to alternative bandwidths of results on healthcare outcomes



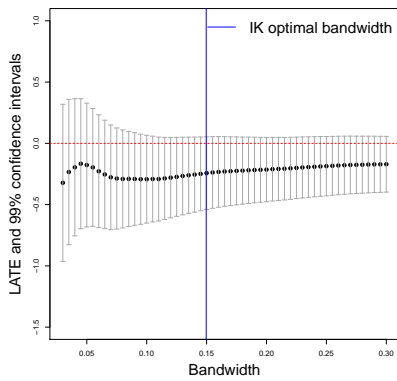
(a) Home visits by community health agents



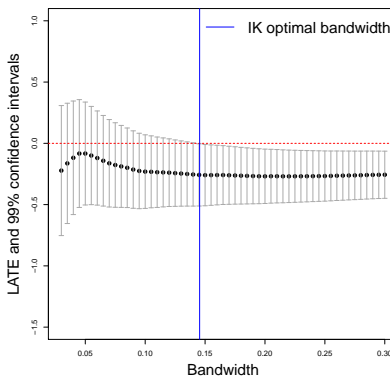
(b) Home visits by nurses



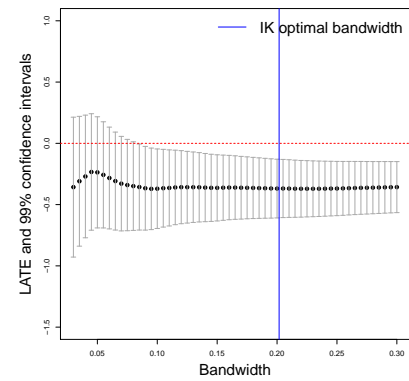
(c) Home visits by doctors



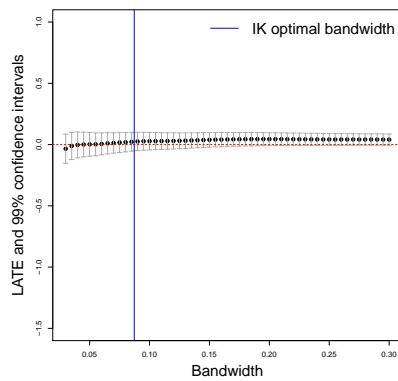
(d) Prenatal check-ups



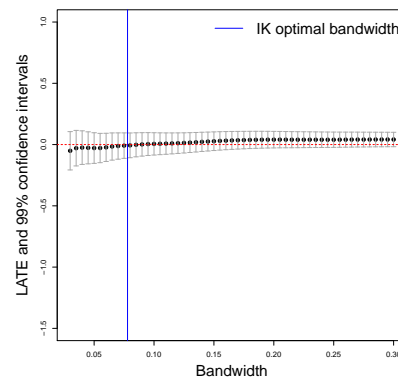
(e) Infant check-ups



(f) Child check-ups



(g) Infant deaths



(h) Child deaths

Vertical, blue lines mark the Imbens-Kalyamaraman optimal bandwidth. All models correspond to outcomes in the month of December

## H.4 Placebo tests

Table H.15: Effect of an electoral defeat of the incumbent on logged employment outcomes in September (i.e., before the election)

	Fires		Hires		Resignations	
	Temporary	Tenured	Temporary	Tenured	Temporary	Tenured
Incumbent defeated	0.042	0.041	0.040	-0.022	0.029	-0.019
	0.034	0.022	0.044	0.029	0.025	0.023
Bandwidth	0.140	0.095	0.110	0.284	0.224	0.162
N	3419	3515	3954	6873	6228	5227

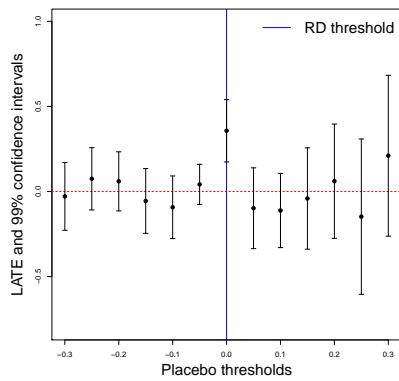
HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Table H.16: Effect of an electoral defeat of the incumbent on logged healthcare outputs in September (i.e., before the election)

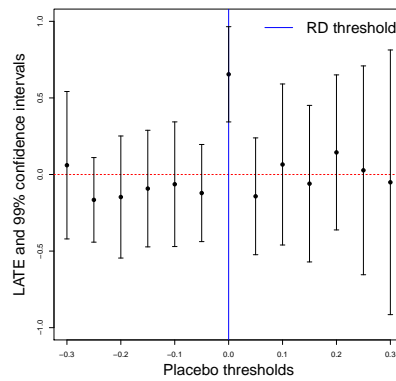
	Home visits by			Check-ups on		
	Community health ags.	Nurses	Doctors	Pregnant women	Infants (< 1 y.o.)	Children (1-4 y.o.)
Incumbent.defeated	-0.061	-0.014	0.010	0.028	0.044	0.010
	0.102	0.091	0.076	0.092	0.076	0.084
Bandwidth	0.159	0.137	0.245	0.151	0.159	0.148
N	4368	3955	5452	4222	4343	4167

HC1 heteroskedasticity consistent standard errors below coefficients. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

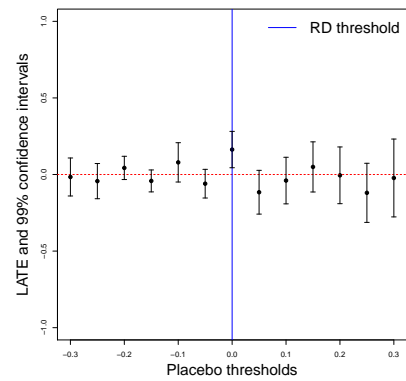
Figure H-5: Placebo tests varying the RD threshold for results on logged employment outcomes



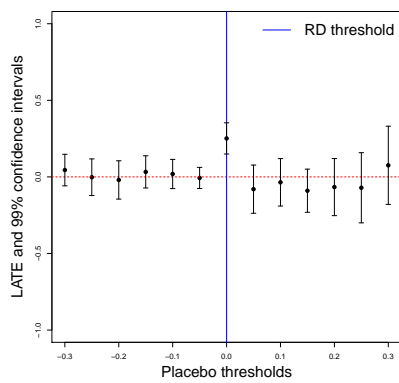
(a) Temporaries fired in October



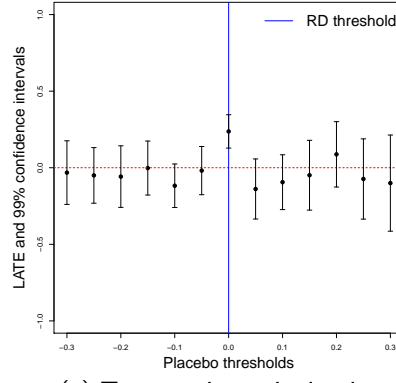
(b) Temporaries hired in January



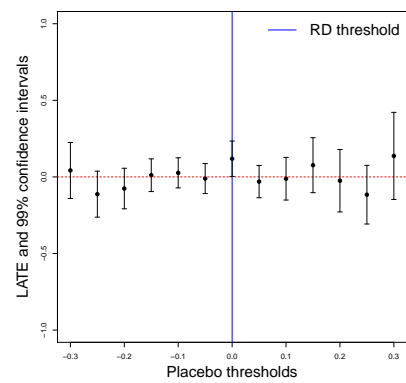
(c) Tenured fired in October



(d) Tenured hired in December



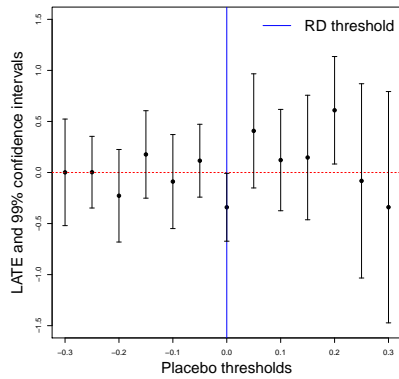
(e) Temporaries resigning in December



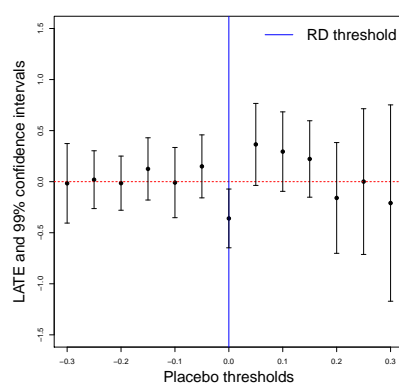
(f) Tenured resigning in December

Vertical, blue lines mark the actual RD threshold.

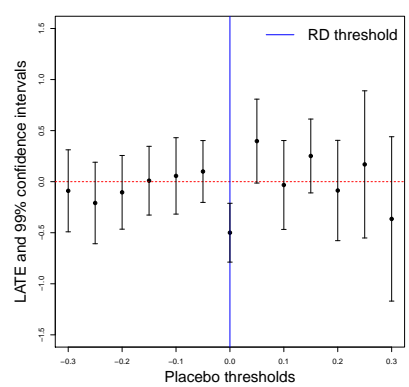
Figure H-6: Robustness to alternative bandwidths of results on logged healthcare outcomes



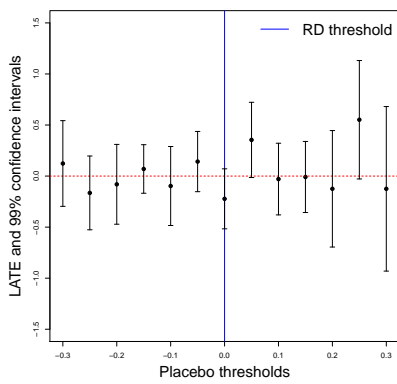
(a) Home visits by community health agents



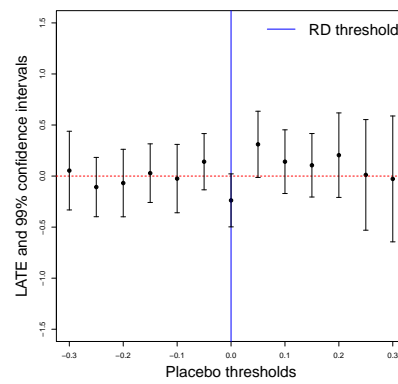
(b) Home visits by nurses



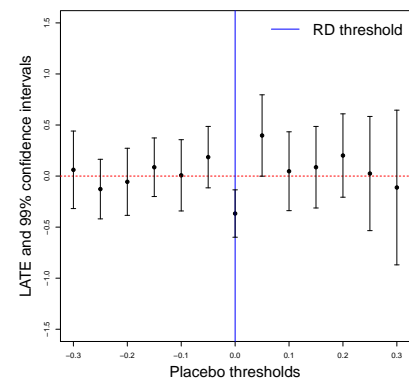
(c) Home visits by doctors



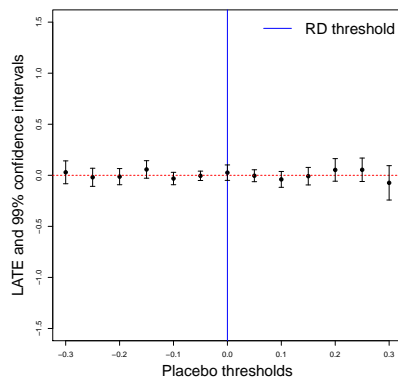
(d) Prenatal check-ups



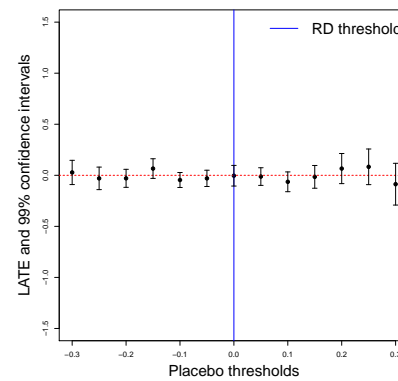
(e) Infant check-ups



(f) Child check-ups



(g) Infant deaths



(h) Child deaths

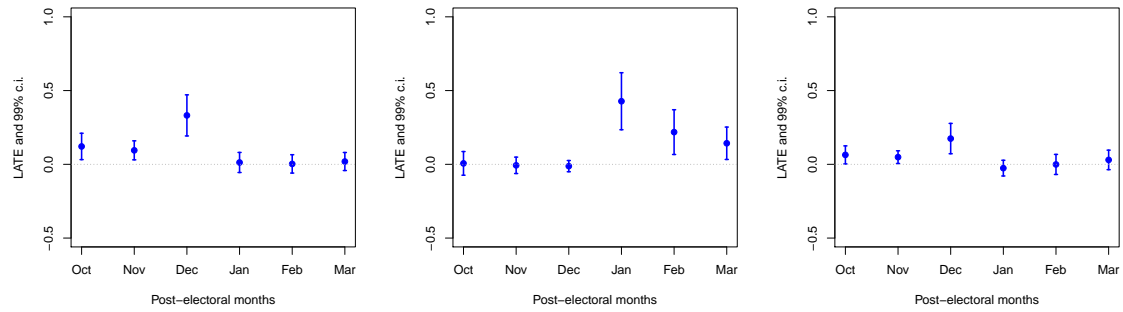
Vertical, blue lines mark the actual RD threshold.

## H.5 Effects of electoral turnover on public employment, including only certain subsets of bureaucrats

The following pages show plots replicating the results in Figure 5-1 considering different subsets of public employees:

- Figure H-7 considers only high-pay bureaucrats, namely employees whose mean salary is in the upper quartile of the distribution for a given year.
- Figure H-8 considers only low-pay bureaucrats, namely employees whose mean salary is in the lower quartile of the distribution for a given year.
- Figure H-9 considers only specialized healthcare professionals, as identified through occupational identifiers. These include occupations like doctors, nurses, or community health agents, but do not include many workers in the healthcare sector that have more generic occupation codes, such as receptionists or drivers.

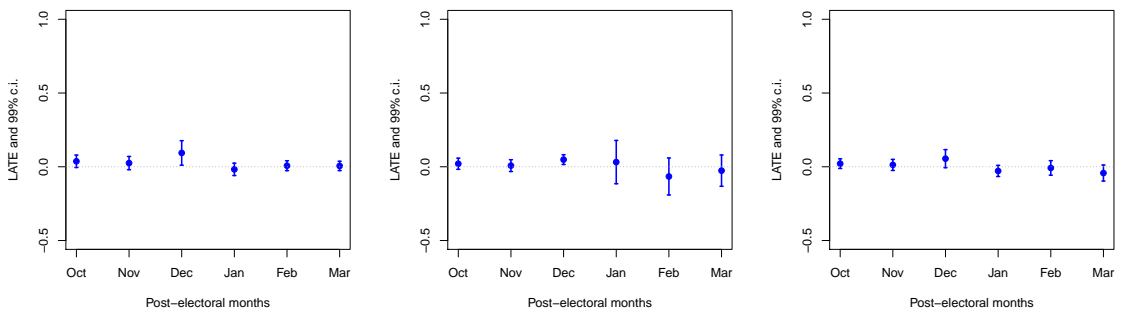
Figure H-7: Effect of an electoral defeat of the incumbent on public employment of high-pay salaries



(a) Dismissals of temporaries

(b) Hiring of temporaries

(c) Resignations of temporaries



(d) Dismissals of civil servants

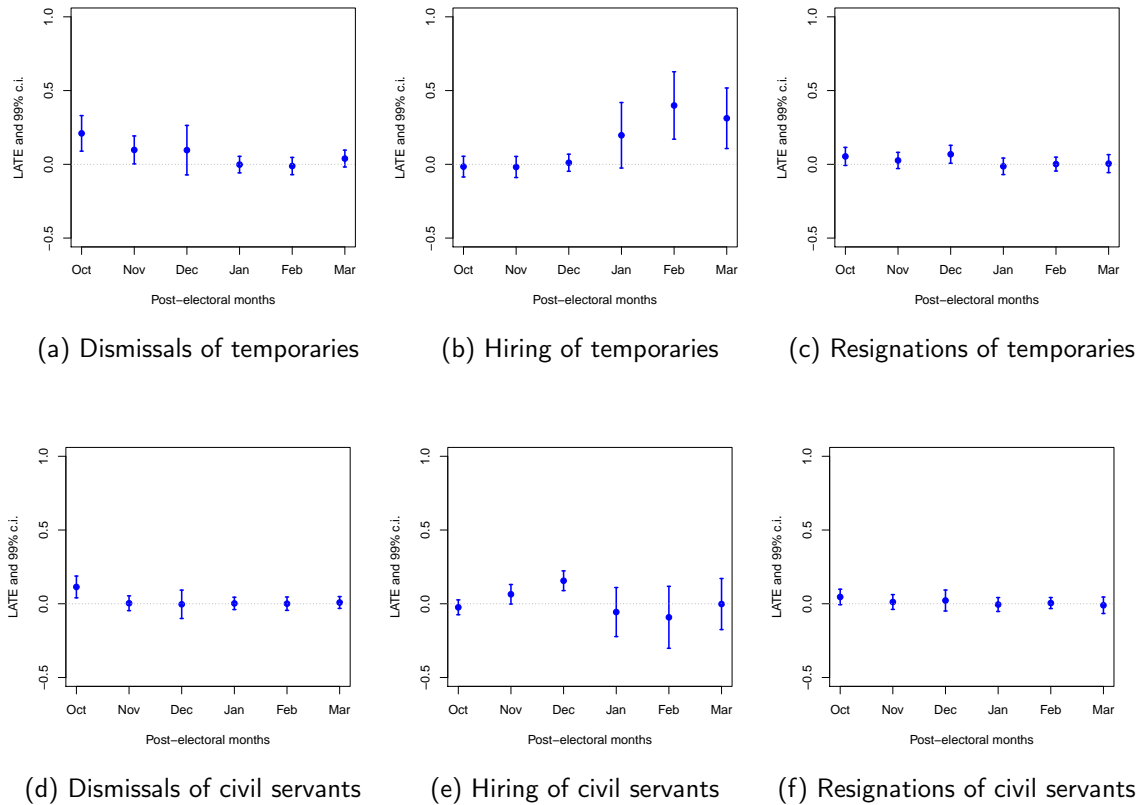
(e) Hiring of civil servants

(f) Resignations of civil servants

Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

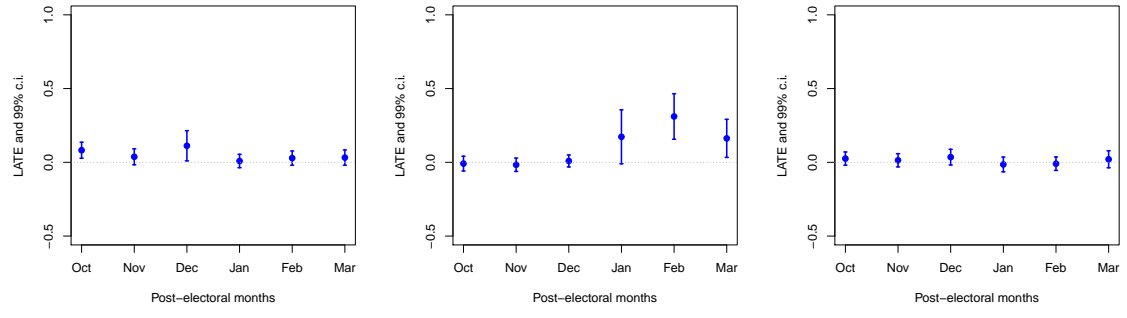


Figure H-8: Effect of an electoral defeat of the incumbent on public employment of low-pay salaries

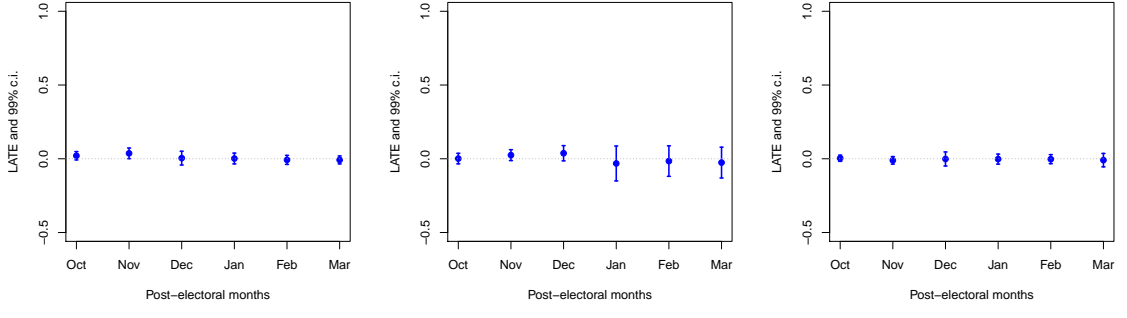


Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

Figure H-9: Effect of an electoral defeat of the incumbent on public employment of healthcare professionals



(a) Dismissals of temporaries      (b) Hiring of temporaries      (c) Resignations of temporaries



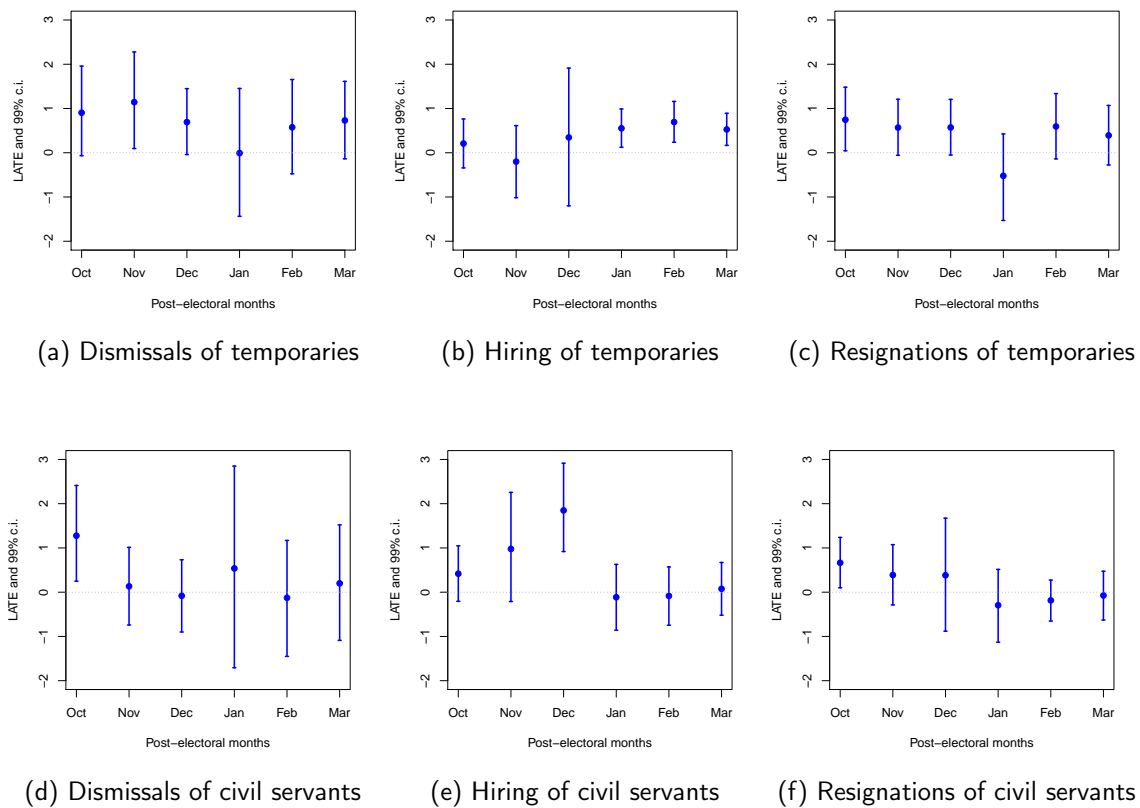
(d) Dismissals of civil servants      (e) Hiring of civil servants      (f) Resignations of civil servants

Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. The dependent variable is in the natural-log scale. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

## H.6 Effects of electoral turnover on public employment using overdispersed Poisson models

Since employment outcome data are counts with many zeroes (since hires, fires, and resignations in a given month are rare in most municipalities, which are quite small), I replicate the analyses reported in Figure 5-1 using an overdispersed Poisson model, within the optimal bandwidth for each dependent variable, following Equation 5.2.

Figure H-10: Effect of an electoral defeat of the incumbent on public employment, using an overdispersed Poisson model



Each point and its confidence interval comes from a separate regression discontinuity model, as per Equation 5.2. Elections take place on the first Sunday of October, and winners are sworn in on January 1.

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