

How Patronage Delivers: Political Appointments, Bureaucratic Accountability, and Service Delivery in Brazil

Guillermo Toral IE University

Abstract: *The political appointment of bureaucrats is typically seen as jeopardizing development by selecting worse types into the bureaucracy or by depressing bureaucratic effort. I argue that political appointments also affect outcomes through a third, less studied channel, namely, by changing how bureaucrats work. Patronage provides connections between bureaucrats and politicians, and thereby grants access to material and nonmaterial resources, enhances monitoring, facilitates the application of sanctions and rewards, aligns priorities and incentives, and increases mutual trust. Political appointments can thus enhance bureaucrats' accountability and effectiveness, not just for rent-seeking purposes but also, in certain conditions, for public service delivery. I test this theory using data on Brazilian municipal governments, leveraging two quasi-experiments, two original surveys of bureaucrats and politicians, and in-depth interviews. The findings highlight the countervailing effects of connections on bureaucratic governance in the developing world.*

Replication Materials: The materials required to verify the computational reproducibility of the results, procedures, and analyses in this article are available on the *American Journal of Political Science* Dataverse within the Harvard Database Network, at: <https://doi.org/10.7910/DVN/GHJ8JL>.

The political appointment of bureaucrats—or patronage, in short¹—is ubiquitous throughout the developing world (Grindle 2012). Patronage is typically seen as jeopardizing development by selecting

worse types into the bureaucracy and by having bureaucrats who (because of their connections) exert less effort on the job. In contrast to this view, I propose a theory of patronage as changing not just who enters the

Guillermo Toral is Assistant Professor of Political Science, School of Politics, Economics & Global Affairs, IE University, Paseo de la Castellana 259, 28046 Madrid, Spain (guillermo.toral@ie.edu).

I am indebted to Ben Ross Schneider, Lily Tsai, and Daniel Hidalgo for invaluable advice and guidance throughout the project. For useful comments I also thank Felipe Barrera-Osorio, Héctor Blanco, Sarah Brierley, Josh Clinton, Loreto Cox, Aditya Dasgupta, Emerich Davies, Belén Fernández Milmanda, Charles Gale, Sandra Gomes, Merilee Grindle, Frances Hagopian, Kosuke Imai, José Incio, Junyan Jiang, Paul Lagunes, Horacio Larreguy, Noam Lupu, Nina McMurry, Virginia Oliveros, Agustina Paglayan, Jan Pierskalla, Ignacio Puente, Pia Raffler, Blair Read, Tesalia Rizzo, Fritz Sager, Christian Schuster, Alberto Simpser, Julia Smith Coyoli, Guadalupe Tuñón, Julie Anne Weaver, and Liz Zechmeister; audiences at MIT, Harvard, UFRN, Vanderbilt, Yale-NUS, TEC, CIDE, Rutgers, NYU Abu Dhabi, ITAM, Northwestern, University of Gothenburg, WZB, IE University, UC3M, Georgetown, Oxford, APSA, MPSA, NEWEPS, PolMeth, and REPAL; and three anonymous reviewers. Special thanks to the following 23 people, who provided excellent research assistance on the survey of bureaucrats: Jenair Alves, Marcos Aurélio Freire da Silva Júnior, Francymonni Yasmim Marques de Melo, Karoline de Oliveira, Raiany Juliete da Silva, 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 Emanuelle Lima da Silva, Ayanne Marília Sousa da Silva, Júlio César Nascimento, Lidiane Freire de Jesús, André Silva, and Pâmela Kaissa Fernandes Lopes. I also thank the State Audit Court of Rio Grande do Norte, and in particular Gilberto Jales, Anne Carvalho, Victor Fernandes, Marcelo Araújo, and Ilueny Santos, for making the survey of politicians possible. The Lemann Foundation, MIT GOV/LAB, MISTI, and CIS provided financial support for fieldwork and surveys. Surveys and interviews were approved by MIT's Committee on the Use of Humans as Experimental Subjects (protocols 170593389, 1806407144, and 1810539206). Any errors are my own. This article was previously circulated under the title “The Benefits of Patronage: How Political Appointments Can Enhance Bureaucratic Accountability and Effectiveness.”

¹I use *patronage* to refer to the political appointment of bureaucrats or, more specifically, the discretionary appointment of bureaucrats by politicians based, at least partly, on political criteria or other non-merit-based factors. The concept of patronage is contested, and the literature contains a variety of definitions—some narrower and others broader than mine.

American Journal of Political Science, Vol. 68, No. 2, April 2024, Pp. 797–815

© 2023 The Authors. *American Journal of Political Science* published by Wiley Periodicals LLC on behalf of Midwest Political Science Association. DOI: 10.1111/ajps.12758

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

bureaucracy or how much they work but also, critically, *how* they work.

Political appointments provide bureaucrats with “upward embeddedness,” that is, social and political connections with politicians, which facilitate bureaucratic accountability and effectiveness.² In particular, I argue that patronage gives bureaucrats access to material and nonmaterial resources, facilitates monitoring by politicians, enables the application of sanctions and rewards, aligns priorities and incentives, and increases mutual trust. Patronage can thus make bureaucrats more accountable and effective, not just for rent-seeking purposes but also, in certain conditions, for the delivery of public services.

My argument is not that patronage is universally good or that it comes without costs. Indeed, the costs of patronage have long been recognized (Pollock 1937), and recent studies have demonstrated how it can distort the allocation of public jobs and disincentivize bureaucratic performance (Colonnelli, Prem, and Teso 2020; Xu 2018). This article complements those established views of patronage by highlighting how political appointments facilitate certain governance resources that have generally been overlooked in the literature. By differentiating the selection from the accountability channels, this study deepens our understanding of patronage and helps explain why it is so central to political machines.

The argument that patronage can be mobilized to improve service delivery builds on insights from political science, public administration, and economics. First, previous comparative politics research has highlighted that patronage can facilitate party building (Huntington 1968), interest aggregation (Scott 1969), and state building (Grindle 2012). Second, the public administration literature often treats the politicization of the bureaucracy in high-income countries as a resource that politicians use to tighten their control over policy and implementation (Peters and Pierre 2004) and to build party networks (Kopecky, Mair, and Spirova 2012). Third, scholars of American politics often view political appointments as helping presidents increase policy control over federal agencies (Lewis 2011). Such studies commonly theorize a trade-off between policy control and bureaucratic performance. Finally, development economists have recently explored the theoretical possibility that patronage may help politicians address agency problems, although no empirical evidence has been uncovered to

support this idea (Colonnelli, Prem, and Teso 2020; Xu 2018).³

I build on these contributions to develop a theory that links patronage to public service delivery and specifies testable mechanisms. Theoretically, this article departs from economic theories of the bureaucracy that assume a loyalty–competence trade-off. I instead argue that in low-capacity settings, connections between bureaucrats and politicians may help not only decrease agency losses but also enhance bureaucrats’ ability to do their jobs. Empirically, the article contributes causal evidence of the benefits of patronage for service delivery in a developing context. Previous research has identified various governance advantages generated by connections among bureaucrats (Schneider 1991), among politicians at different levels of government (Jiang 2018), and between elected and traditional elites (Baldwin 2013).⁴ I contribute to this literature on the advantages of connections for governance by highlighting the value of ties between bureaucrats and politicians.

Empirically, I study patronage and its effects on bureaucratic effectiveness and accountability using three methods: quasi-experiments, surveys, and interviews. I focus on municipal governments in Brazil, a context where scholars have long noted the pervasiveness of patronage and where political appointments coexist with other modes of bureaucratic selection.

First, to test the core claims of the theory, I use two quasi-experimental studies that leverage administrative data on municipal schools throughout the country. The results of a difference-in-discontinuities study (hereafter diff-in-disc, a design that combines a difference-in-differences with a regression discontinuity) demonstrate that when politically appointed school directors⁵ lose their connections to the local government (after the mayor who appointed them is voted out), their schools experience a drop in quality compared to schools with unappointed directors. This finding demonstrates that political connections can be mobilized to increase bureaucratic effectiveness. A separate regression discontinuity design (RDD) shows that politically appointed school directors who meet their target in a highly visible school quality indicator are less likely to be replaced, whereas meeting the target has no effect on the turnover

³Voth and Xu (2022), on the other hand, find that discretion in promotion, especially when combined with the private information of family connections, can improve screening and selection.

⁴This literature emphasizes networks, information, trust, time horizons, and incentives as mechanisms through which connections can improve governance.

⁵I use *school director* to refer to school leaders, also called principals or headmasters.

²I use *accountability* to refer to bureaucrats’ responsiveness to the demands of their principals (politicians and senior officials), and their career paths’ being affected by it. I use *effectiveness* to indicate bureaucrats’ success at delivering services and improving outcomes within their area of responsibility.

of unappointed school directors. This result shows that patronage can enhance bureaucratic accountability.

Second, to test the mechanisms through which patronage can enhance bureaucratic effectiveness and accountability, I administered two original surveys in the Brazilian state of Rio Grande do Norte. The first was a face-to-face survey of 926 bureaucrats (school directors, clinic managers, and social assistance center coordinators), representative of urban areas in 150 municipalities. Observational regressions indicate that appointed bureaucrats have more frequent contact with, higher levels of trust in, and better alignment with politicians than unappointed bureaucrats do. The results of a conjoint experiment embedded in the survey also show that managers expect bureaucrats 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. The findings of a separate online survey of 455 local politicians corroborate these results. Politicians' responses in another conjoint experiment reveal that they perceive bureaucrats with political connections as being more responsive, better at communicating with them, and more likely to exert greater effort.

Third, I used in-depth interviews to investigate the informal institutions of bureaucratic politics in Brazilian local governments, develop hypotheses, and probe mechanisms. During 18 months of fieldwork, I conducted 121 in-depth interviews with bureaucrats, politicians, and anti-corruption actors (e.g., auditors and prosecutors) in 45 municipalities across seven states.⁶ Specific accounts from local actors in widely diverging contexts help illustrate the costs and benefits of patronage.

Theory

Scholars have long studied the critical role of government jobs in clientelistic equilibria (Wilson 1961). From this perspective, patronage is thought to impede development through the misallocation of public jobs and the depression of bureaucratic effort (Colonnelli, Prem, and Teso 2020; Xu 2018).

I advance an alternative view of patronage that emphasizes its potential benefits for bureaucratic accountability and effectiveness. My claim is not that patronage appointments are generally preferable, but rather that they provide some underappreciated advantages that can be mobilized not just to extract rents but

also to provide public services. The net effect of patronage is likely to be negative in most contexts, but this will depend on the balance between costs and benefits (Nye 1967). This article thus complements rather than contradicts the literature on the costs of patronage.

I start by proposing the concept of upward embeddedness to refer to bureaucrats' political and social connections to politicians. Scholars often use the idea of embeddedness (Granovetter 1985) to describe bureaucrats' (downward) relations to local communities and how they can foster government effectiveness (Bhavnani and Lee 2018; Evans 1995; Tsai 2007). Applying the concept of embeddedness upward (i.e., in relation to politicians instead of societal actors) enables a richer view of connections between bureaucrats and politicians than Weberian theories allow. From a Weberian perspective, it is the insulation of bureaucrats from politicians that increases bureaucratic effectiveness (Dahlström and Lapuente 2017). The concept of upward embeddedness also helps integrate different types of connections within bureaucracies into a single framework, including connections based on partisanship, family, and ethnicity.

I argue that political appointments and connections upwardly embed bureaucrats, which provides a set of governance resources. Depending on how these resources are used, patronage can enhance either rent seeking or public service delivery. Upward embeddedness operates through five mechanisms: increasing bureaucrats' access to material and nonmaterial resources, helping politicians monitor bureaucrats, facilitating the application of sanctions and rewards, aligning priorities and incentives, and increasing mutual trust. The advantages of upward embeddedness are not based on distributive favoritism because most of these governance resources are not zero-sum.⁷

First, upward embeddedness increases bureaucrats' access to political leaders and, through them, to material resources for public service delivery (e.g., funds), as well as nonmaterial resources (e.g., legitimacy and authority). Both help mobilize and coordinate other bureaucrats. Prior studies have demonstrated that resources and legitimacy are important drivers of bureaucratic effectiveness (Carpenter 2001; Dasgupta and Kapur 2020).

Second, upward embeddedness facilitates politicians' monitoring of bureaucrats and reduces

⁷A vast literature has found that politicians target resources to politically aligned localities and to aligned actors at lower levels of government (e.g., Brollo and Nannicini 2012). In contrast to my theory, this literature sees connections as leading to zero-sum distributive dynamics driven by reelection, credit-claiming, or party-building considerations.

⁶SI B (pp. 5–6) has additional details on interviews.

information asymmetries through shared political and social networks. Although in high-corruption contexts enhanced monitoring may fuel rent extraction (Brierley 2020), in other development contexts bureaucratic oversight can improve government effectiveness (Gulzar and Pasquale 2017; Raffler 2022).

Third, upward embeddedness enhances bureaucrats' accountability to politicians by facilitating the application of 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 easier to sanction bad performers (through firing) and reward good performers (through promotions). Transfers can be used for both sanctions and rewards (Khan, Khwaja, and Olken 2019), and career incentives and extrinsic rewards can improve bureaucratic effectiveness (Ashraf, Bandiera, and Jack 2014). Shared social and political networks also enhance the application of informal sanctions and rewards.

Fourth, upward embeddedness fosters the alignment of priorities and values between bureaucrats and politicians by virtue of their common political background and shared networks. Bureaucrats often operate in highly complex environments that require them to multitask and to negotiate contradictory priorities (Lipsky 1980). In such challenging environments, the alignment of bureaucrats' and politicians' priorities can improve service delivery. Management scholars have long recognized the importance of alignment for organizations' performance (Biggs, Brough, and Barbour 2014), and political scientists have shown political alignment can improve policy implementation (Williams 2017). Upward embeddedness also synchronizes the incentives of bureaucrats and politicians, given their shared fate. Political appointees are usually fired after a change in government, which ties their incentives to those of the incumbent (Oliveros 2021). As the formal literature on delegation has long recognized through the ally principle, alignment can alleviate principal-agent problems (Bendor, Glazer, and Hammond 2001).

Finally, by reinforcing their shared political and social networks and aligning their priorities and incentives, upward embeddedness fosters mutual trust between bureaucrats and politicians. Abundant evidence from psychology shows that trust improves organizations' performance by lowering transaction costs and increasing compliance (Kramer 1999). Together with the alignment of priorities and incentives, trust may also decrease the need for monitoring.

In summary, political appointments and connections foster bureaucrats' upward embeddedness, which

provides a number of governance resources, namely, access to material and nonmaterial 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 upward embeddedness. On the one hand, it can make political machines more effective at extracting rents. On the other hand, it can help governments deliver public services more effectively because service delivery also depends on the coordination and accountability of bureaucrats.

The advantages of patronage will be more relevant in contexts where there are no easy substitutes for the governance advantages it provides. This is true in developing contexts, and particularly for local governments outside large metropolitan areas, where financial constraints are more dire and human capital is scarcer. This reduces governments' ability to use higher wages or performance pay to improve bureaucratic selection and performance. In these challenging environments, the counterfactual to a political appointee is not necessarily the highly capable, autonomous, and driven bureaucrat that Weberian theories presume. Without adequate human capital and incentives, civil servants may simply lack the capacity and motivation to deliver services. In those contexts, patronage can alleviate some constraints on bureaucratic governance.

Patronage may be particularly beneficial for service delivery when appointing "street-level managers" (Gassner and Gofen 2018), namely, bureaucrats such as school directors or health clinic managers who lead public service delivery units. These managers can significantly improve the quality of public services (Bloom et al. 2015), but their effectiveness depends on their ability to coordinate efforts and align a complex set of tasks to objectives that are often multidimensional and hard to assess, especially in transaction-intensive services like healthcare or education. Upward embeddedness can help street-level managers leverage the necessary trust, legitimacy, and the ability to coordinate efforts and align teams.

For the benefits of patronage to outweigh the costs, politicians must value public service delivery, be it due to intrinsic beliefs and norms, political competition, electoral accountability, or anti-corruption institutions. The availability of regular and credible measures of bureaucratic performance can strengthen politicians' concerns about service delivery through all these mechanisms. Where politicians do not value service delivery, the governance advantages of upward embeddedness are more likely to be mobilized for extracting rents.

All in all, the theory presented here highlights how upward embeddedness can make bureaucrats more accountable and effective—not just for extracting rents but also for delivering services. The advantages of patronage can apply at both the individual and aggregate levels. Yet, at both levels, the net effect of political appointments will depend on the balance between benefits and costs, relative to the costs and benefits of local alternatives for bureaucratic selection. The purpose of this article is not to show that patronage is generally preferable—it often carries important costs, as the literature has long noted. Rather, the article underscores the often underappreciated and countervailing advantages of upward embeddedness. From this perspective emerge two crucial implications for empirical analyses of patronage. First, my theory requires distinguishing the effects of selection and connections. Second, it underscores the importance of paying close attention to context when assessing the balance between costs and benefits.

Institutional Context

Brazil is a federal country with 5,570 municipalities, which together are responsible for providing primary education, healthcare, and social assistance to over 200 million people. Local governments spend on average around 60% of their revenue (which mostly comes from intergovernmental transfers) in these three sectors. Financial constraints are usually dire, and employees' salaries are low. Due to municipalities' prominent role in service provision and to the scarcity of opportunities in the private sector, local governments are typically a very important employer, hiring on average 4.7% of the local population and 42.7% of those who have jobs in the formal sector (Supporting Information [SI] A.1, p. 1). From the perspective of the local government, however, these are small labor markets with low levels of human capital. Most municipalities are small (with a median population of fewer than 12,000 people) and far from state capitals, which makes it hard to attract talent.

Municipal elections are held every 4 years to elect a mayor (through a majoritarian system) and city councilors (through a proportional, open-list system). Mayors, who can run for reelection only once, appoint secretaries to run specific policy areas. Mayors, city councilors, and secretaries are overseen by horizontal accountability institutions (including audit courts, prosecutors' offices, and standard courts) that have been shown to reduce rent extraction (Avis, Ferraz, and Finan

2018; Litschig and Zamboni 2019). Federal and state governments also oversee municipal governments, especially on their use of transfers and on their performance in delivering public services. The federal government regularly measures and publicizes the performance of municipal bureaucracies in several areas.

Municipal governments maintain schools, health clinics, and social assistance centers. While there are strict legal constraints on how frontline providers (e.g., teachers) are hired, laws give politicians considerable discretion for the selection of street-level managers (e.g., school directors). Managers are typically appointed by the mayor, but they can also be elected (by community members or professionals) or deployed through the civil service (tenured for life after passing a competitive examination).⁸ Multiple selection systems often coexist within the same municipality, particularly in the education sector.⁹

Appointed managers and the localities where they work have some systematic differences when compared to unappointed managers. This highlights the importance of causal inference for identifying the effect of political connections and for assessing the relationship between patronage and performance. Among the managers I surveyed, political appointees have significantly lower levels of education, are more likely to live in the municipality where they work, and are more likely to have worked for a local electoral campaign (SI E.3, p. 23).¹⁰ This demonstrates that appointments are based on political criteria rather than merit. Government data on education show that political appointments are more common in smaller and poorer municipalities and in schools serving students of a lower socioeconomic status (SI A.3, p. 2).

Municipal politicians generally value public service delivery, at least partly (Hjort et al. 2021). A large majority of the mayors that I surveyed (76%) declared that they have the highest level of responsibility for improving the quality of public services, out of a list of seven actors. Secretaries of education, healthcare, and social assistance report, on average, about one weekly meeting with street-level managers in their area.

⁸Civil service managers cannot easily be fired, but they can be transferred to a different unit.

⁹SI A.4 (p. 3) has diagrams of accountability relationships under different selection modes.

¹⁰Whereas lower levels of education are negatively correlated to performance, living in the same municipality (and thus being embedded in the local community) could foster bureaucrats' performance.

TABLE 1 Mapping of Theory to Empirics

Theoretical Claims	Test	Data	Evidence
Core arguments: Upward embeddedness facilitates			
Bureaucratic effectiveness in service delivery	Diff-in-disc	Administrative data	Figure 2
Bureaucratic accountability	RDD	Administrative data	Figure 4
Mechanisms: Upwardly embedded bureaucrats			
Have higher levels of trust in, alignment with, and access to politicians	Correlations	Bureaucrat survey	Figure 6
Communicate better with and are more responsive to the government	Conjoint	Bureaucrat and politician surveys	Figures 7 and 8
Have more access to material resources	Conjoint	Bureaucrat survey	Figure 7
Exert more effort	Conjoint	Politician survey	Figure 8

Empirical Evidence

I leverage three types of data and methods to test whether upward embeddedness enhances the accountability and effectiveness of street-level managers. First, I use a diff-in-disc to show that an electoral defeat of the mayor causes a drop in the quality of schools with appointed directors, relative to schools with unappointed directors. This shows that upward embeddedness helps bureaucrats deliver public services. Second, I use an RDD to show that appointed directors (but not unappointed ones) are less likely to be replaced if they meet their school quality target. This is consistent with upward embeddedness enhancing bureaucratic accountability, and with politicians caring about public service delivery. Third, I leverage original surveys of bureaucrats and politicians, including conjoint experiments, to show that upwardly embedded bureaucrats have more access to, trust in, and alignment with politicians. They are also 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, together with the interviews, demonstrate that bureaucrats' upward embeddedness can enhance their account-

ability and effectiveness. Table 1 synthesizes the links between the theory and the empirical tests presented below.

Losing Political Connections Makes Appointed Bureaucrats Less Effective: Difference-in-Discontinuities Evidence

If upward embeddedness helps politically appointed bureaucrats deliver public services, political turnover should differentially impact the effectiveness of appointed and unappointed bureaucrats. For appointed bureaucrats, mayoral turnover means a decrease in upward embeddedness, and therefore a reduction in the governance resources that help them deliver public services. However, mayoral turnover does not change the upward embeddedness of unappointed bureaucrats. Both types of bureaucrats are exposed to the general effects of political turnover, including the organizational costs of transition, the benefits of renewed leadership, and other shocks to the bureaucracy (Akhtari, Moreira, and Trucco 2022; Toral 2022). If my theory is correct, appointed bureaucrats' performance should

worsen as a result of political turnover compared to their unappointed counterparts.

To exploit the differential impact of political turnover on upward embeddedness, I use a diff-in-disc (Grembi, Nannicini, and Troiano 2016). In essence, this design combines a difference-in-differences (comparing the performance of appointed and unappointed bureaucrats, before and after the election) with a close-races regression discontinuity (comparing the performance of bureaucrats in municipalities where the mayor lost their bid for reelection to those in municipalities where the mayor was reelected).¹¹ I use data for municipal school directors, for whom the federal government releases a performance metric (based on student test scores and passing rates) every 2 years as well as an administrative survey that includes data on their mode of selection. The results show that an electoral defeat of the mayor causes a 0.25 standard deviation drop in the quality score of schools with appointed directors compared to those with unappointed directors ($p < .05$).

The ideal experiment this design seeks to approximate is one varying whether appointees have or lack political connections, rather than one varying the appointment mode (which would carry changes in both selection and connections). This is in line with the theory outlined above, which posits not that patronage is generally preferable but rather that upward embeddedness provides certain governance advantages that can be mobilized for service delivery.

Design. The design exploits two treatments: whether a municipality m experiences political turnover (P_m), and whether a school s experiences a decrease in upward embeddedness after the election (U_{sm}). The political turnover treatment is assigned by the difference between the vote share of the strongest challenger and that of the incumbent: $D_m = V_m^c - V_m^i$. If this forcing variable is above 0, the municipality experiences political turnover; otherwise, the mayor is reelected. The upward embeddedness treatment is assigned by whether the municipality experiences political turnover and the school director had been politically appointed (A_{sm}):

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

$$U_{sm} = \begin{cases} 1 & \text{if } D_m > 0 \text{ and } A_{sm} = 1 \text{ (mayor loses} \\ & \text{reelection, director was appointed)} \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

¹¹I focus on the electoral performance of the mayor rather than their political party because this setting has pervasive party switching by politicians (Klašnja and Titunić, 2017).

To separate the effect of a decrease in upward embeddedness from that of political turnover, I exploit the difference between appointed directors (who lose upward embeddedness when the mayor loses reelection) and unappointed directors (whose upward embeddedness is not affected by political turnover). Figure 1 illustrates the logic of the design.

Potential outcomes are 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 as follows:

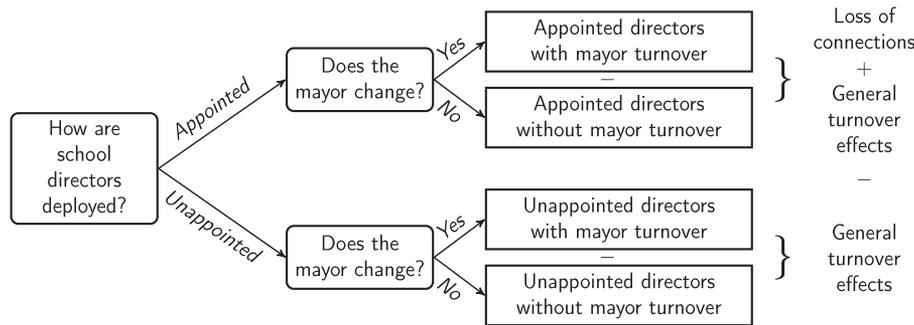
$$\tau_{disc} = \mathbb{E}[Y_{sm}(1, 1) - Y_{sm}(0, 0) | D_m = 0, A_{sm} = 1] - \mathbb{E}[Y_{sm}(1, 0) - Y_{sm}(0, 0) | D_m = 0, A_{sm} = 0]. \quad (3)$$

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

$$\hat{\tau}_{disc} = \left(\lim_{D_m \downarrow 0} \mathbb{E}[Y_{sm} | D_m = 0, A_{sm} = 1] - \lim_{D_m \uparrow 0} \mathbb{E}[Y_{sm} | D_m = 0, A_{sm} = 1] \right) - \left(\lim_{D_m \downarrow 0} \mathbb{E}[Y_{sm} | D_m = 0, A_{sm} = 0] - \lim_{D_m \uparrow 0} \mathbb{E}[Y_{sm} | D_m = 0, A_{sm} = 0] \right). \quad (4)$$

This design relies on three assumptions (Grembi et al. 2016). First, potential outcomes should be continuous in the forcing variable around the threshold. Pretreatment covariates are continuous around the cutoff (SI C.1, p. 7). On the other hand, the McCrary test for continuity in the forcing variable has a p-value of .043. SI C.1 (pp. 7–8) further discusses this issue and presents the results of a sensitivity analysis excluding units immediately around the threshold. Second, the effect of political appointment when there is no change to upward embeddedness should be constant over time, such that schools with appointed and unappointed directors follow parallel trends. Schools with appointed and unappointed directors, as well as schools in municipalities with and without political turnover, follow parallel trends in performance before the election (SI C.2, p. 9). With these two assumptions, the diff-in-disc estimates the causal effect of a decrease in upward embeddedness, close to the threshold, and for appointed directors. If we make a third homogeneity assumption that the effects of the decrease in upward embeddedness and of political turnover do not interact, then we can recover the LATE

FIGURE 1 Diagram of the Difference-in-Discontinuities Design



Notes: The design exploits three sources of variation in performance: within-bureaucrat changes from before to after the election, between appointed and unappointed bureaucrats, and between localities with and without political turnover.

of a decrease in upward embeddedness for schools in municipalities around the threshold.

The design focuses on within-director changes in performance, from before to after the election. I conduct this analysis on the subset of schools for which the director was assigned in the 3 years before the election and was still in their post 1 year after the election. Schools that experience director turnover in this period are excluded from the sample because their changes in performance cannot be associated to changes in the director's upward embeddedness. However, since director turnover increases after the election, this may introduce sample selection bias. Below, I discuss this issue more fully and show that it is likely to bias my results toward 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 remain fully below zero.

The design focuses on the relatively short-term effects of a decrease in upward embeddedness. Elections took place in October 2016, winners took office on January 1, 2017, and the next student tests were done in October and November 2017. Improving student learning is a complex task that requires long-term efforts. Still, actions taken in the months before the tests can lead to better results, including offering special remedial classes, doing practice tests, and raising awareness among teachers and students of the importance of student evaluations. All these actions depend critically on directors' management efforts and their coordination with both school staff and the local government.¹²

¹²Civil society organizations and governments regularly produce materials to help directors prepare schools for the tests in the months immediately before (SI A.6, p. 4).

Estimation and Inference. I use local linear regression with a triangular kernel, as recommended by Cattaneo, Idrobo, and Titiunik (2020), within the bandwidth selected by the Calonico, Cattaneo, and Farrell (2020) algorithm, applied to the following estimating equation:

$$Y_{sm} = \alpha + \beta_1 P_m + \beta_2 D_m + \beta_3 P_m D_m + A_{sm}(\gamma_1 + \gamma_2 P_m + \gamma_3 D_m + \gamma_4 P_m D_m) + \sum_{k=1}^K \eta_k X_{sm}^k + \varepsilon_{sm}. \quad (5)$$

Y_{sm} is the change in the quality score of school s in municipality m from 2015 to 2017. $\sum_{k=1}^K \eta_k X_{sm}^k$ is a set of state fixed effects and director-, school-, and municipality-level pretreatment covariates that significantly predict whether the director is politically appointed,¹³ which I include in some specifications to partially address the endogeneity of appointment modes.¹⁴ ε_{sm} is the error term. Standard errors are clustered at the municipality level, where political turnover is determined. If the diff-in-disc assumptions hold, γ_2 identifies the LATE, around the threshold, of a decrease in upward embeddedness.

Data. I leverage regular, valid, and well-established measurements of school performance conducted by the federal government every 2 years through the National Assessment of School Performance (ANRESC, *Avaliação Nacional do Rendimento Escolar*). This system tests students at the end of primary and middle school in public schools across the country. Exams are based on

¹³SI A.3 (p. 2) reports the results of the correlational regressions of appointment modes on covariates.

¹⁴Following the guidance of Calonico et al. (2019), I include controls additively. Results are similar when interacting them with treatment (SI C.8, p. 16).

TABLE 2 Difference-in-Discontinuity Estimates of the Differential Impact of Political Turnover on School Quality

	(1)	(2)	(3)	(4)
$\hat{\beta}_1$: Political Turnover	-.161* (.069)	-.000 (.097)	-.007 (.095)	.003 (.094)
$\hat{\gamma}_2$: Political Turnover \times Appointed		-.283* (.128)	-.316* (.124)	-.377** (.125)
State fixed effects			✓	✓
Predictors of Appointed				✓
Bandwidth	.204	.206	.206	.206
N	1,628	1,623	1,623	1,569

Notes: Predictors of whether the director is appointed come from a regression detailed in SI A.3 (p. 2). Municipality-clustered standard errors are in parentheses.

* $p < .05$, ** $p < .01$.

item response theory, which ensures that its measures of learning outcomes are valid and comparable over time. ANRESC also surveys school directors and teachers, collecting data about their appointment, experience, demographics, and perceptions of the school. The federal government uses the test results and administrative data on student passing rates to calculate for each school a score in the Basic Education Development Index (IDEB, *Índice de Desenvolvimento da Educação Básica*). IDEB scores are normalized to range from 0 to 10. The system is managed by INEP (a high-autonomy, high-capacity federal agency) and is often praised by international organizations for the quality and reliability of the data it produces.¹⁵

I use IDEB data for all municipal primary schools in the years immediately before and after the 2016 elections.¹⁶ I use the government's survey of directors to identify schools where the director was deployed in the years leading to the election and remained in their post 1 year after, and to identify their mode of selection. I merge the school-level data with data on municipal election candidates and their performance, obtained from Brazil's Supreme Electoral Court.

Results. Table 2 reports the diff-in-disc results. A decrease in upward embeddedness (identified by the differential effect of political turnover on appointed versus unappointed directors) damages school performance. In particular, as shown in Model 2, it reduces the school quality score by 0.28 points or 0.25 standard deviations

($p < .05$). Figure 2 illustrates the two discontinuities on which the design is based. The results are robust to the inclusion of state fixed effects and covariates predictive of appointment (Models 3–4) and to alternative bandwidths (Figure 3).¹⁷

A potential concern with this design is that it may suffer from sample selection bias because, in order to examine within-director changes in performance, schools for which the director changed after the election are excluded from the sample. Director turnover, however, is directly affected by mayor turnover (SI C.3, pp. 9–10). This generates groups of schools (under mayor reelection and mayor turnover) that are not necessarily comparable. I address this issue through three complementary strategies. First, when the mayor is not reelected, directors with better performance at baseline or who have a number of characteristics associated with performance are significantly more likely to stay in their post (SI C.4, p. 10). This implies that including in the analysis schools without mayor turnover that would have changed directors if there had been mayor turnover biases the results toward zero. Second, diff-in-disc estimates are larger and significant when preprocessing the data with matching on the covariates that predict directors to be replaced after mayor turnover (SI C.5, p. 11). Third, sharp bounds adapted from Lee (2009) to this diff-in-disc setting remain fully below zero (SI C.6, pp. 11–14). This suggests that even in the worst-case scenario of sample selection bias, the diff-in-disc estimate would be negative.

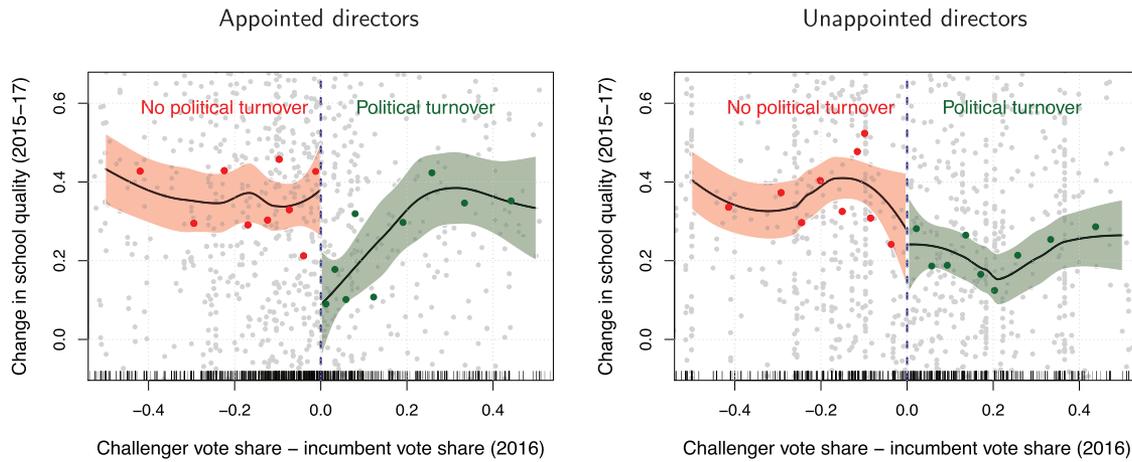
To explore potential mechanisms behind the results in Table 2, I use the ANRESC director survey, and in

¹⁵SI A.5 (pp. 3–4) has additional details on ANRESC.

¹⁶I focus on the 2016 election because before 2013, the questions on director turnover and on director appointment mode have different response options and higher levels of nonresponse.

¹⁷Figures 3 and 5 use bandwidths from half to twice the optimal bandwidth. If estimates are sometimes insignificant with smaller bandwidths, coefficients remain large and negative.

FIGURE 2 Effect of Political Turnover on School Quality, by Director Appointment Mode



Notes: 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 denote 95% confidence intervals.

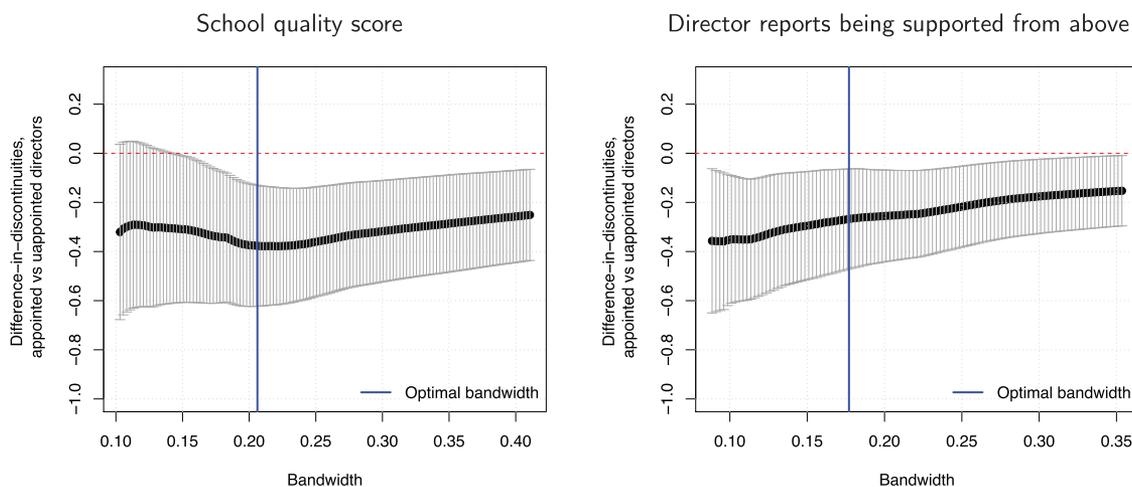
particular survey items about obstacles directors find while managing the school. Consistent with the theory of upward embeddedness, political turnover differentially depresses appointed directors' responses to a binary question about whether their work is supported by higher instances (Table 3).¹⁸ As noted earlier, lower levels of upward embeddedness can depress directors' ability to

prepare the school for the test, for instance, by mobilizing school personnel and organizing remedial classes.

On the other hand, I find no evidence in favor of alternative mechanisms that would not support the theory. There are no significant, differential changes in directors' reports of problems with financial resources, the supply of teachers, or teacher turnover (SI C.7, pp. 14–16). The null results on financial resources and the supply of teachers, which are controlled by the local government, counter a potential alternative explana-

¹⁸SI C.7 (pp. 14–16) illustrates this effect, and Figure 3 shows its robustness to alternative bandwidths.

FIGURE 3 Robustness of the Difference-in-Discontinuity Results to Alternative Bandwidths



Notes: Dots are diff-in-disc estimates of the LATE ($\hat{\gamma}_2$) for model 4 in Tables 2 and 3 using a wide range of alternative bandwidths. Bars denote 95% confidence intervals.

TABLE 3 Difference-in-Discontinuity Estimates of the Differential Impact of Political Turnover on Directors Reporting Their Work Is Supported by Higher Instances

	(1)	(2)	(3)	(4)
$\hat{\beta}_1$: Political Turnover	-.059 (.049)	.089 (.083)	.070 (.080)	.069 (.081)
$\hat{\gamma}_2$: Political Turnover \times Appointed		-.239* (.110)	-.229* (.110)	-.267* (.104)
State fixed effects			✓	✓
Predictors of Appointed				✓
Bandwidth	.178	.177	.177	.177
N	1,587	1,583	1,583	1,528

Notes: Predictors of whether the director is appointed come from a regression detailed in SI A.3 (p. 2). Municipality-clustered standard errors are in parentheses.

* $p < .05$, ** $p < .01$.

tion of the results in Table 2 centered on distributive favoritism. Another alternative mechanism might be that appointed directors who remain in their post after mayor turnover anticipate being replaced later. Yet, most directors who are not replaced in the first year of a new administration continue in their post 3 years after the election.

In sum, I find that a mayor's lost bid for reelection hurts the quality of schools with directors who had been appointed by them compared to schools with unappointed directors. This demonstrates that a drop in upward embeddedness jeopardizes bureaucratic effectiveness. The results therefore suggest that patronage can be leveraged to improve public service delivery.

Appointed Bureaucrats Are Held Accountable for Their Performance in a Service Delivery Indicator: Regression Discontinuity Evidence

To test whether the political appointment of bureaucrats enhances accountability, I leverage an RDD in which I study the effect of schools meeting their quality target on the probability that the director is replaced. Among schools with appointed directors, meeting the quality target reduces director turnover by 0.19 standard deviations ($p < .01$). For schools with elected or civil service directors, the rate of director turnover is not affected by whether they meet their target. These results support the hypothesis that political appointments enhance accountability.

Design. Along with establishing IDEB as a system for measuring the quality of public schools, the federal

government defined targets for the period 2007 to 2021 using an algorithm that projected schools' progress along logistic trajectories. Thus, every 2 years, schools receive a quality score for their performance, which can be compared to their predefined target. If the difference between the score and the target is zero (or above), the school met (or surpassed) its target. I exploit this discontinuity to measure the causal effect of a school meeting its target in the 2013 test (the results of which were published in 2014) on its director being replaced between 2014 and 2015, and to explore heterogeneity by the director's appointment type.¹⁹ IDEB scores are widely disseminated, and the emphasis is usually on whether targets were met (Boas, Hidalgo, and Toral 2021). Although local actors have other sources of information about the quality of schools, IDEB scores serve as simple, reliable metrics and thus facilitate common knowledge and accountability.

More formally, treatment for school s (meeting the school quality target), T_s , is assigned by the difference between its quality score and target ($D_s = score_s - target_s$):²⁰

$$T_s = \begin{cases} 1 & \text{if } D_s \geq 0 \text{ (quality score } \geq \text{ quality target)} \\ 0 & \text{if } D_s < 0 \text{ (quality score } < \text{ quality target)} \end{cases} \quad (6)$$

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 and under control. We can identify the LATE around the

¹⁹I focus on 2013–15 to avoid years with municipal elections.

²⁰While the government uses figures with one decimal only, I use a continuous measure to increase statistical power and avoid issues associated with discrete forcing variables in RDDs. Since -0.05 in the continuous measure is equivalent to zero with the rounding applied by the government, I recenter the forcing variable by adding 0.05.

cutoff by taking the difference in means from above and below the threshold:

$$\hat{\tau}_{rdd} = \lim_{D_s \downarrow 0} \mathbb{E}[Y_s(1)|D_s = 0] - \lim_{D_s \uparrow 0} \mathbb{E}[Y_s(0)|D_s = 0] \quad (7)$$

The key assumption of this design is that potential outcomes are continuous around the threshold. Reassuringly, the forcing variable and pretreatment covariates are continuous around the cutoff (SI D.1, p. 17).

Estimation and Inference. I use local linear regression with a triangular kernel (Cattaneo, Idrobo, and Titiunik 2020) within the optimal bandwidth (Calonico, Cattaneo, and Farrell 2020), applied to the following estimating equation:

$$Y_s = \alpha + \beta_1 T_s + \beta_2 D_s + \beta_3 T_s D_s + \varepsilon_s. \quad (8)$$

Y_s indicates whether school s experienced director turnover between 2014 and 2015. ε_s is the error term. If the RDD assumptions hold, β_1 identifies the LATE in Equation (7). For inference, I use the HC1 heteroskedasticity-consistent estimator.

To examine whether appointed directors are held accountable for their performance, I examine the heterogeneous local average treatment effect or HLATE (Becker, Egger, and Von Ehrlich 2013). To estimate it, I allow for separate slopes for appointed and unappointed directors:

$$\begin{aligned} Y_s = & \alpha + \beta_1 T_s + \beta_2 D_s + \beta_3 T_s D_s \\ & + A_s(\gamma_1 + \gamma_2 T_s + \gamma_3 D_s + \gamma_4 T_s D_s) \\ & + \sum_{k=1}^K \eta_k X_s^k + \varepsilon_s. \end{aligned} \quad (9)$$

A_s indicates whether the school's director was appointed. $\beta_1 + \gamma_2$ identifies the HLATE for appointed directors, under two additional assumptions. First, the subgroup indicator A_s must be continuous around the threshold, as shown in SI D.1 (p. 17). Second, the subgroup indicator must be conditionally ignorable, such that around the threshold and conditional on their distance to it, schools with appointed and unappointed directors do not differ systematically in a way that affects their turnover. To relax this assumption, I include $\sum_{k=1}^K \eta_k X_s^k$: state fixed effects and a vector of director-, school-, and municipality-level pretreatment covariates that predict whether the school has an appointed director (SI A.3, p. 2).

Data. I use ANRESC data on primary education quality scores and on directors' mode of selection and turnover. I code a school as having director turnover when the di-

rector in 2015 reports they have been in their post for 1 year or less.

Results. Table 4 presents the RDD results. Model 2 demonstrates that among schools with an appointed director, 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 ($p < .01$). Figure 4 visualizes this effect. Among elected or civil service directors, however, meeting the target does not significantly change in the probability of turnover (SI D.2, pp. 18–19).²¹ The results are robust to the inclusion of state fixed effects and covariates that predict whether directors were appointed (Models 3–4). Additional robustness checks lend further support to these results. Alternative bandwidths lead to similar estimates (Figure 5). Placebo tests changing the RD threshold generally return insignificant results (SI D.4, p. 20). The results are larger in municipalities with a large, programmatic party in office (SI D.5, pp. 20–21), which is consistent with directors being held accountable for their performance in service delivery.

In summary, these results demonstrate that appointed directors are held accountable for school quality, whereas elected and civil service ones are not. This suggests that upward embeddedness facilitates bureaucratic accountability, and that politicians consider public service delivery when making political appointments. Multiple interviewees made statements consistent with this. For example, a secretary of education said, “the school's IDEB is a factor to decide if the director continues or not.”²²

Local Actors Perceive Political Appointments and Connections as Making Bureaucrats More Responsive: Survey Evidence

To explore how upward embeddedness fosters bureaucratic effectiveness and accountability, I leverage a face-to-face, representative survey of 926 street-level managers and an online survey of 455 local politicians. The results from conjoint experiments in these surveys suggest that upwardly embedded bureaucrats communicate better with—and are more responsive to—the lo-

²¹SI D.3 (pp. 19–20) discusses how low competition, capture, and low participation limit the ability of director elections to promote accountability. Although tenured directors generally cannot be fired, they can be transferred to a different school.

²²Secretary of education interviewed in Paraíba in August 2018.

TABLE 4 Regression Discontinuity Estimates of the Effect of Reaching the Performance Target on the Turnover of Appointed Directors

	(1)	(2)	(3)	(4)
$\hat{\beta}_1$: Quality Target Met	-.033 (.018)	.016 (.027)	.015 (.027)	.005 (.028)
$\hat{\gamma}_2$: Quality Target Met \times Appointed		-.089* (.036)	-.088* (.036)	-.082* (.037)
$\hat{\beta}_1 + \hat{\gamma}_2$		-.073** (.023)	-.073** (.023)	-.077** (.024)
State fixed effects			✓	✓
Predictors of Appointed				✓
Bandwidth	.518	.516	.516	.516
N	8,458	8,387	8,387	7,734

Note: Predictors of whether the director is appointed come from a regression detailed in SI A.3 (p. 2). HC1 standard errors are in parentheses.

* $p < .05$, ** $p < .01$.

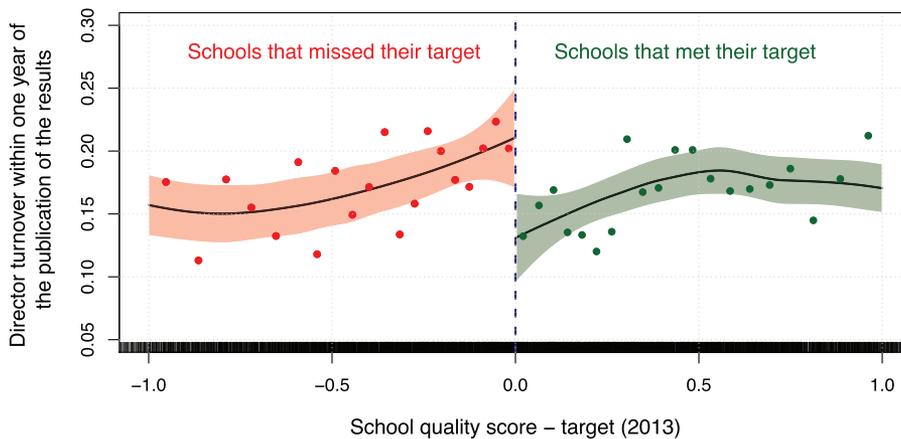
cal government, obtain more resources, and exert more effort.

Face-to-Face Survey of Street-Level Managers. Based on my in-depth interviews with bureaucrats and politicians, I designed and implemented (with 23 research assistants whom I hired, trained, and coordinated) a face-to-face, representative survey of municipal street-level managers (school directors, health clinic managers, and social assistance center coordinators) in late 2018. This is, to my knowledge, the first representative survey of street-

level managers to collect data about their political connections and attitudes.

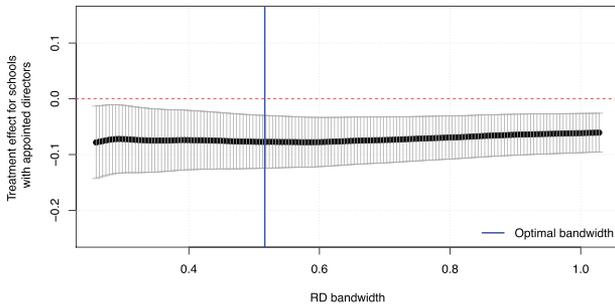
The survey was administered in Rio Grande do Norte, a state in the heart of Brazil’s northeastern region. The Brazilian Northeast has historically been characterized by inferior development outcomes, corruption, and clientelism, especially in the municipalities of the interior (Nichter 2018). The survey focused on the urban areas of 150 small and medium-size municipalities—all but the largest 17 municipalities in the state, which were excluded for security concerns. We surveyed the managers

FIGURE 4 Effect of Meeting the Performance Target on Director Turnover, for Schools Whose Director Was Politically Appointed



Notes: 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 denote 95% confidence intervals.

FIGURE 5 Robustness of the Regression Discontinuity Design Result to Alternative Bandwidths



Notes: Dots are RDD estimates of the HLATE ($\hat{\beta}_1 + \hat{\gamma}_2$) for model 4 in Table 4 using a wide range of alternative bandwidths. Bars denote 95% confidence intervals.

of 926 out of 1,027 units (over 90%) in the urban areas of those municipalities, with a median number of five respondents per municipality.²³

First, I present observational data suggesting that appointed managers have more access to, trust in, and alignment with politicians. I leverage survey questions on the number of meetings street-level managers held, over the previous 3 months, with the mayor and the secretary in their area, among other stakeholders; and questions on

²³SI E.1 (pp. 21–22) reports details on respondent recruitment. SI E.2 (p. 22) reports descriptive statistics.

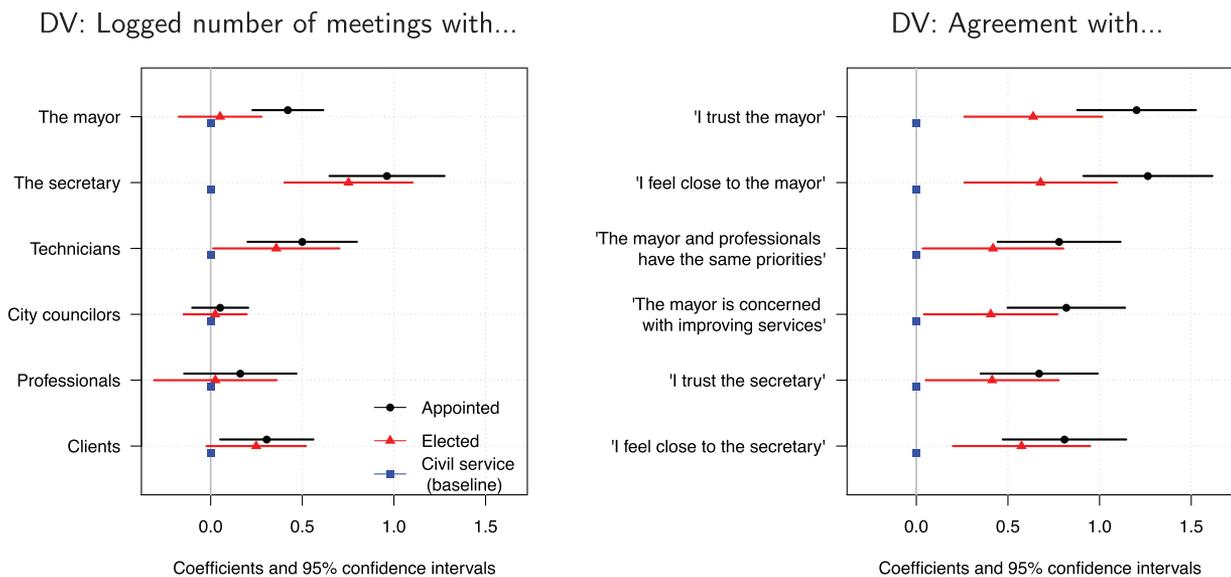
their level of agreement (on a 4-point scale) with statements about the mayor and the secretary. To determine whether there are robust correlations between these outcomes and political appointments, I regress respondents' answers on indicators for appointment modes and controls:

$$Y_i = \alpha + \beta_1 A_i + \beta_2 E_i + \sum_{k=1}^K \gamma_k X_i^k + \varepsilon_i. \quad (10)$$

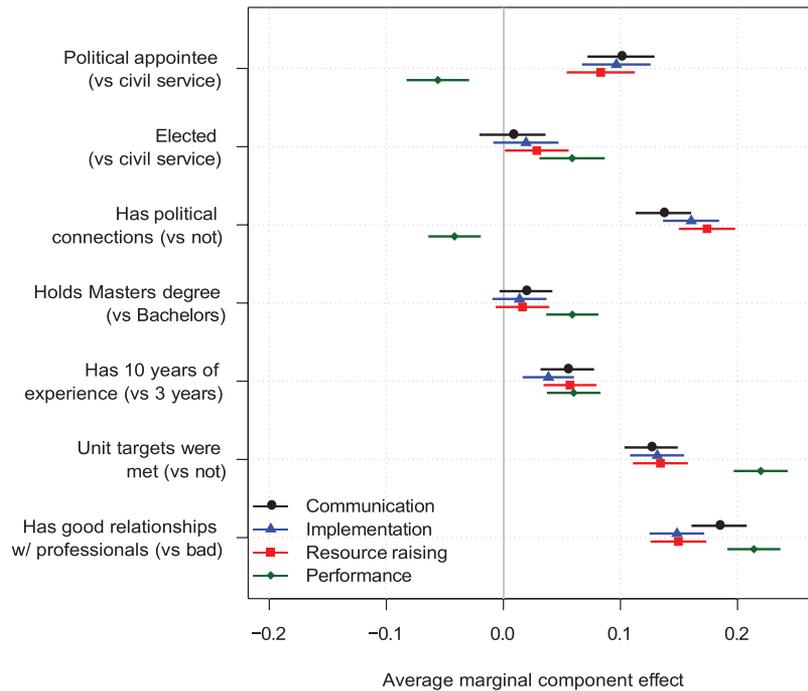
Y_i is the response given by manager i (namely, the logged number of reported meetings with a given stakeholder +1, or the level of agreement with a given statement). A_i and E_i indicate whether that manager is appointed or elected (leaving civil service as the baseline). $\sum_{k=1}^K \gamma_k X_i^k$ are all the demographic, professional, and political covariates I collected.²⁴ To facilitate comparisons between appointment modes, I exclude from these regressions the 11% of respondents who reported having been appointed through more than one method. For inference, I use HC1 heteroskedasticity-consistent standard errors.

²⁴The controls include respondents' sector, age, gender, years of experience as a professional, years of experience as a manager, party membership, union membership, whether they have worked for a local electoral campaign, whether they have more than a college degree, whether they have other jobs, and whether they live in the municipality where they work.

FIGURE 6 Relationship between Bureaucrats' Selection Mode and their Number of Meetings with and Attitudes about Politicians



Notes: Points are the regression coefficient corresponding to each appointment mode (as per Equation 10). Bars denote 95% confidence intervals.

FIGURE 7 Results from the Conjoint Experiment with Bureaucrats

Notes: Points are the AMCE (estimated for each choice task separately, as per Equation 11). Bars denote 95% confidence intervals.

Figure 6 presents the results.²⁵ Compared to civil service managers, political appointees report, on average, more meetings with the mayor, the secretary, technical staff in the secretariat (“technicians”), and social service users (“clients”). They also report higher levels of trust in the mayor and the secretary, more proximity to them, and stronger beliefs that the mayor cares about improving public services and has the same priorities as bureaucrats. If we restrict the comparison to appointed versus elected managers, appointed ones report more meetings with the mayor and the secretary, and warmer attitudes on all items about them (SI E.4, pp. 23–24). While not causal, these associations are strong and aligned with the theory’s predictions.

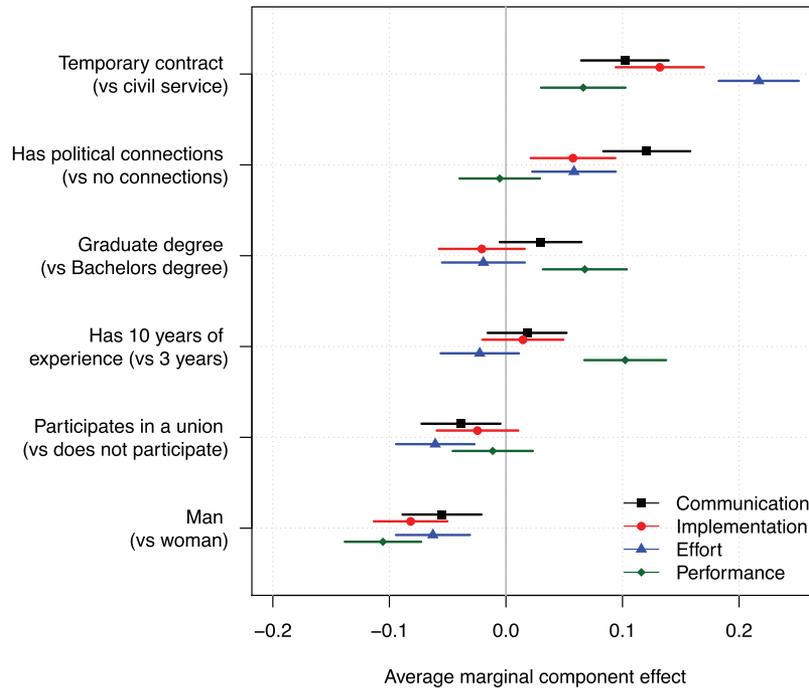
To more directly test the mechanisms of upward embeddedness, I use a conjoint experiment I included in the survey. Conjoint experiments allow researchers to nonparametrically identify and estimate the causal effect of several variables simultaneously while limiting social desirability bias (Hainmueller, Hopkins, and Yamamoto 2014).

Respondents saw four sets of two hypothetical profiles of managers, with randomly assigned attributes in six dimensions (appointment mode, political connections, education, experience, relationship to professionals in their unit, and whether the unit had met performance targets).²⁶ To avoid primacy and recency effects, the order of the attributes was randomized across respondents. For each pair, respondents were asked to choose which manager they believed would be more likely to (a) maintain better communication with the secretariat, (b) implement school changes requested by the municipal government, (c) raise more material resources to reform the school / clinic / social assistance center, and (d) increase the unit’s performance in indicators of learning / healthcare / social assistance. These four choice tasks measure the relative impact of different characteristics on perceptions of bureaucrats’ ability to perform in key areas of management that my theory predicts upward embeddedness should facilitate.

²⁵Regression details are in SI E.4 (pp. 23–24).

²⁶Details are in SI E.5 (p. 25).

FIGURE 8 Results from the Conjoint Experiment with Politicians



Notes: Points are the AMCE (estimated for each choice task separately, as per Equation 11). Bars denote 95% confidence intervals.

I estimate the average marginal component effect (AMCE) for each attribute's value using the following linear regression (Hainmueller et al. 2014):

$$Y_{ijk} = \alpha + \beta W_{ijkl} + \varepsilon_{ijk}. \quad (11)$$

Y_{ijk} is the choice expressed by respondent i for profile j in the choice task k (i.e., whether that 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). ε_{ijk} is the error term. I cluster standard errors at the respondent level to account for the dependencies between their choices. β nonparametrically 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 7,²⁷ demonstrate that street-level managers see upward embeddedness as facilitating bureaucrats' communication with and responsiveness to the local government, as well as access to resources. Profiles of managers with political connections, or who are political appointees, are seen as significantly more likely than civil service managers to have better communication with the secretariat of their area, to implement changes

requested by the local government, or to raise resources for reforming their unit.²⁸

However, managers who are politically appointed or have political connections are seen as less likely to improve the performance of the unit. This suggests that patronage, in the net (considering both the selection and the accountability mechanism), may hinder public service delivery. Three factors may explain this result. First, managers may be simply expressing that politically appointed bureaucrats are worse types (e.g., less educated, as shown in SI E.3, p. 23). Second, respondents may be underestimating the impact of indirect channels through which upward embeddedness can aid public service delivery. Third, the result may be driven by street-level managers who work in the highly clientelistic environments typical of the Northeast, where political appointments are more likely to be leveraged to extract rents. In line with this interpretation, the negative result for

²⁸One potential concern could be that the results are driven by political appointees' trying to project a good image of themselves. Yet, the results are similar when examining only responses from unappointed managers (SI E.6, pp. 25–26). These results are also similar when examining only municipalities where all respondents are politically appointed (SI E.6, pp. 25–26), which suggests that they are not driven by appointees' benefiting from distributive favoritism.

²⁷Regression details are in SI E.5 (p. 25).

performance disappears (without substantively altering other results) when examining the responses of managers who perceive politicians as more programmatic (SI E.6, pp. 25–26). In any case, this result draws attention to the costs of patronage, illustrating empirically a trade-off between responsiveness and performance in localities with more clientelistic politicians.

Online Survey of Politicians. Local politicians also perceive upwardly embedded bureaucrats as more accountable. In partnership with the state audit court of Rio Grande do Norte, I implemented an online survey of local politicians. The survey was sent by the court to the mayor and the secretaries of education, healthcare, social assistance, finance, and administration of all 167 municipalities in the state. A total of 455 politicians completed the survey, for a response rate of 45% (a high value for a survey of elites) and a median number of three responses per municipality.²⁹

In this conjoint experiment, respondents saw four pairs of hypothetical bureaucrats (without specifying their rank or sector), with randomly assigned attributes in six dimensions (i.e., contract type, political connections, education, experience, union membership, and gender).³⁰ I used contract type (temporary versus civil service) instead of appointment mode because political appointment and election are not legal selection methods for most bureaucrats. Like political appointments, temporary hires are at will and often based on political connections (Colonnelli, Prem, and Teso 2020).³¹ For each pair, we asked respondents which one they believed would be more likely to (a) maintain better communication with the local government, (b) implement changes requested by the local government, (c) work extra hours when necessary, and (d) achieve better performance.

The results, shown in Figure 8,³² suggest that politicians view upwardly embedded bureaucrats (i.e., those who had political connections or were hired under a temporary contract) as more responsive and exerting more effort. They also perceive bureaucrats working under temporary contracts as likely to perform better than those hired under the civil service regime. As a secretary of education explained, “almost all civil service bureau-

crats are from other towns. They don’t work with the true grit we need.[...] Temporary hires dedicate themselves more.”³³

To summarize, the results of the conjoint experiments with bureaucrats and politicians generally support the key mechanisms of the theory. Both managers and politicians perceive upwardly embedded bureaucrats as more likely to communicate well with the local government and to respond to its demands. Managers also perceive upwardly embedded bureaucrats as more likely to raise funds from the government, and politicians believe they are more likely to work extra hours when needed. Together, these results show that actors in the field perceive upward embeddedness as benefiting bureaucratic accountability. Perceptions of the impact of upward embeddedness on effectiveness are more mixed, in line with the high prevalence of clientelism in this region of Brazil.

Conclusion

Patronage, or the political appointment of bureaucrats, is typically seen as a clientelistic exchange that jeopardizes development by selecting worse types into the bureaucracy and by depressing bureaucratic effort. This article offers an alternative view of patronage as a system that works by changing not only who enters the bureaucracy or how much they work, but also *how* they work. I argue that patronage provides bureaucrats with upward embeddedness (political and social ties to politicians), which can make them more accountable and effective. Upward embeddedness works by giving bureaucrats access to material and nonmaterial resources, providing politicians with monitoring technology, facilitating the application of sanctions and rewards, aligning their priorities and incentives, and increasing mutual trust. These governance resources can be leveraged to extract rents, deliver public services, or both.

The article’s main empirical contribution is to provide causally identified evidence of the benefits of patronage for bureaucrats’ effectiveness and accountability. It does so by leveraging administrative and survey data on municipal bureaucracies in Brazil, a setting in which multiple selection systems coexist. The findings demonstrate that political appointments and connections provide useful governance resources, that these resources can strengthen bureaucratic effectiveness, and that politicians hold political appointees accountable for their performance in service delivery.

²⁹SI E.1 (pp. 26–27) has details on recruitment and nonresponse. SI E.2 (p. 27) reports descriptive statistics.

³⁰Details are in SI F.3 (p. 27).

³¹Fifty-eight percent of the street-level managers surveyed said political appointments influence the hiring of street-level bureaucrats “a lot.” Only 16% responded “not at all” or “a little.”

³²Regression details are in SI F.3 (p. 27).

³³Secretary of education interviewed in Paraíba in August 2018.

These often overlooked benefits of patronage suggest that politics in the developing world can be a source not only of corruption and misallocations, but also of governance resources that can help overcome development challenges. The advantages of patronage may be particularly useful in contexts where other, more impartial sources of bureaucratic effectiveness (e.g., high levels of human capital and strong bureaucratic norms) are not yet developed.

However, the theory and findings presented here suggest two important weaknesses related to the use of patronage for service delivery, which complement more established views of the costs of patronage. The first weakness is that the same system can be mobilized to *actively* extract rents (e.g., by rigging procurement processes or targeting public services to core supporters). By changing how bureaucrats work (e.g., by making them more aligned and more easily monitored and sanctioned) upward embeddedness makes it easier for corrupt politicians to use the bureaucracy to their advantage. This helps explain why patronage is so central to political machines and why it has proven to be so resilient throughout history (Grindle 2012).

The second weakness is that even when patronage is used for public service delivery, its benefits are particularly vulnerable to political turnover. While a change in government can make civil service bureaucrats less effective (Torral 2022), political appointees are especially likely to see their capacity diminished after such a turnover. If political appointees and civil servants rely on different sources of effectiveness (upward embeddedness versus a combination of human capital and strong bureaucratic norms, respectively), unaligned political appointees count on none of them. Patronage without alignment may therefore be the worst of both worlds.

References

- Akhtari, Mitra, Diana Moreira, and Laura Trucco. 2022. "Political Turnover, Bureaucratic Turnover, and the Quality of Public Services." *American Economic Review* 112(2): 442–93.
- Ashraf, Nava, Oriana Bandiera, and B. Kelsey Jack. 2014. "No Margin, No Mission? A Field Experiment on Incentives for Public Service Delivery." *Journal of Public Economics* 120: 1–17.
- Avis, Eric, Claudio Ferraz, and Frederico Finan. 2018. "Do Government Audits Reduce Corruption? Estimating the Impacts of Exposing Corrupt Politicians." *Journal of Political Economy* 126(5): 1912–1964.
- Baldwin, Kate. 2013. "Why vote With The Chief? Political Connections and Public Goods Provision in Zambia." *American Journal of Political Science* 57(4): 794–809.
- Becker, Sascha O., Peter H. Egger, and Maximilian Von Ehrlich (2013). "Absorptive Capacity and the Growth and Investment Effects of Regional Transfers: A Regression Discontinuity Design with Heterogeneous Treatment Effects." *American Economic Journal: Economic Policy* 5(4): 29–77.
- Bendor, Jonathan, Amihai Glazer, and Thomas Hammond. 2001. "Theories of Delegation." *Annual Review of Political Science* 4(1): 235–269.
- Bhavnani, Rikhil R., and Alexander Lee. 2018. "Local Embeddedness and Bureaucratic Performance: Evidence from India." *The Journal of Politics* 80(1): 71–87.
- Biggs, Amanda, Paula Brough, and Jennifer P Barbour. 2014. "Strategic Alignment with Organizational Priorities and Work Engagement: A Multi-Wave Analysis." *Journal of Organizational Behavior* 35(3): 301–317.
- Bloom, Nicholas, Renata Lemos, Raffaella Sadun, and John Van Reenen. 2015. "Does Management Matter in Schools?" *The Economic Journal* 125(584): 647–674.
- Boas, Taylor C., F. Daniel Hidalgo, and Guillermo Toral (2021). "Competence versus Priorities: Negative Electoral Responses to Education Quality in Brazil." *Journal of Politics* 83(4): 1417–1431.
- Brierley, Sarah. 2020. "Unprincipled Principals: Co-Opted Bureaucrats and Corruption in Ghana." *American Journal of Political Science* 64(2): 209–222.
- Brollo, Fernanda and Tommaso Nannicini. 2012. "Tying Your Enemy's Hands in Close Races: The Politics of Federal Transfers in Brazil." *American Political Science Review* 106(4): 742–761.
- Calonico, Sebastian, Matias D Cattaneo, and Max H Farrell. 2020. "Optimal Bandwidth Choice for Robust Bias-Corrected Inference in Regression Discontinuity Designs." *The Econometrics Journal* 23(2): 192–210.
- Calonico, Sebastian, Matias D Cattaneo, Max H Farrell, and Rocio Titiunik. 2019. "Regression Discontinuity Designs Using Covariates." *Review of Economics and Statistics* 101(3): 442–451.
- Carpenter, Daniel P. 2001. *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862–1928*. Princeton: Princeton University Press.
- Cattaneo, Matias D., Nicolás Idrobo, and Rocio Titiunik. 2020. *A Practical Introduction to Regression Discontinuity Designs: Foundations*. Cambridge: Cambridge University Press.
- Colonnelli, Emanuele, Mounu Prem, and Edoardo Teso . 2020. "Patronage and Selection in Public Sector Organizations." *American Economic Review* 110(10): 3071–99.
- Dahlström, Carl and Victor Lapuente. 2017. *Organizing Leviathan: Politicians, Bureaucrats, and the Making of Good Government*. Cambridge: Cambridge University Press.
- Dasgupta, Aditya and Devesh Kapur. 2020. "The Political Economy of Bureaucratic Overload: Evidence from Rural Development Officials in India." *American Political Science Review* 114(4): 1316–1334.
- Evans, Peter B. 1995. *Embedded Autonomy: States and Industrial Transformation*. Cambridge: Cambridge University Press.
- Gassner, Drorit and Anat Gofen. 2018. "Street-Level Management: A Clientele-Agent Perspective on Implementation." *Journal of Public Administration Research and Theory* 28(4): 551–568.

- Granovetter, Mark. 1985 “Economic Action and Social Structure: The Problem of Embeddedness.” *American Journal of Sociology* 91(3): 481–510.
- Grembi, Veronica, Tommaso Nannicini, and Ugo Troiano. “Do Fiscal Rules Matter?” *American Economic Journal: Applied Economics* 2016:1–30.
- Grindle, Merilee S. 2012. *Jobs for the Boys: Patronage and the State in Comparative Perspective*. Cambridge: Harvard University Press.
- Gulzar, Saad and Benjamin J Pasquale (2017). “Politicians, Bureaucrats, and Development: Evidence from India.” *American Political Science Review* 111(1): 162–183.
- Hainmueller, Jens, Daniel J Hopkins, and Teppei Yamamoto. 2014. “Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments.” *Political Analysis* 22(1): 1–30.
- Hjort, Jonas, Diana Moreira, Gautam Rao, and Juan Francisco Santini. 2021. “How Research Affects Policy: Experimental Evidence from 2,150 Brazilian Municipalities.” *American Economic Review* 11(5): 1442–80.
- Huntington, Samuel P. 1968. *Political Order in Changing Societies*. New Haven: Yale University Press.
- Jiang, Junyan. 2018. “Making Bureaucracy Work: Patronage Networks, Performance Incentives, and Economic Development in China.” *American Journal of Political Science* 62(4): 982–999.
- Khan, Adnan Q, Asim Ijaz Khwaja, and Benjamin A Olken. 2019. “Making Moves Matter: Experimental Evidence on Incentivizing Bureaucrats through Performance-Based Postings.” *American Economic Review* 109(1): 237–70.
- Klašnja, Marko and Rocio Titiunik. 2017. “The Incumbency Curse: Weak Parties, Term Limits, and Unfulfilled Accountability.” *American Political Science Review* 111(1): 129–148.
- Kopecky, Petr, Peter Mair, and Maria Spirova. 2012. *Party Patronage and Party Government in European Democracies*. Oxford: Oxford University Press.
- Kramer, Roderick M. 1999. “Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions.” *Annual Review of Psychology* 50(1): 569–598.
- Lee, David S. 2009. “Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects.” *The Review of Economic Studies* 76(3): 1071–1102.
- Lewis, David E. 2011. “Presidential Appointments and Personnel.” *Annual Review of Political Science* 14: 47–66.
- Lipsky, Michael. 1980. *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York: Russell Sage Foundation.
- Litschig, Stephan and Yves Zamboni. 2019. Judicial presence and rent extraction. Working Paper. <https://ideas.repec.org/p/ngi/dpaper/19-20.html>.
- Nichter, Simeon. 2018. *Votes for Survival: Relational Clientelism in Latin America*. Cambridge: Cambridge University Press.
- Nye, Joseph S. 1967. “Corruption and Political Development: A Cost-Benefit Analysis.” *American Political Science Review* 61(2): 417–427.
- Oliveros, Virginia. 2021. *Patronage at Work: Public Jobs and Political Services in Argentina*. Cambridge: Cambridge University Press.
- Peters, B Guy and Jon Pierre. 2004. *The Politicization of the Civil Service in Comparative Perspective: A Quest for Control*. Oxford: Routledge.
- Pollock, James Kerr. 1937. “The Cost of the Patronage System.” *The Annals of the American Academy of Political and Social Science* 189(1): 29–34.
- Raffler, Pia J. 2022. “Does Political Oversight of the Bureaucracy Increase Accountability? Field Experimental Evidence from a Dominant Party Regime.” *American Political Science Review, First View* 116(4): 1443–1459.
- Schneider, Ben Ross. 1991. *Politics within the State: Elite Bureaucrats and Industrial Policy in Authoritarian Brazil*. Pittsburgh: University of Pittsburgh Press.
- Scott, James C. 1969. “Corruption, Machine Politics, and Political Change.” *American Political Science Review* 63(4): 1142–1158.
- Toral, Guillermo. 2022. Turnover: How lame-duck governments disrupt the bureaucracy and service delivery before leaving office. Working paper. <https://www.guillermotoral.com>.
- Tsai, Lily L. 2007. *Accountability without Democracy: Solidary Groups and Public Goods Provision in Rural China*. Cambridge: Cambridge University Press.
- Voth, Joachim, and Guo Xu. 2022. Discretion and destruction: Promotions, performance, and patronage in the Royal Navy. *Working Paper*. <http://www.guoxu.org>.
- Williams, Martin J. 2017. “The Political Economy of Unfinished Development Projects: Corruption, Clientelism, or Collective Choice?” *American Political Science Review* 111(4): 705–723.
- Wilson, James Q. 1961. “The Economy of Patronage.” *Journal of Political Economy* 69(4): 369–380.
- Xu, Guo. 2018. “The Costs of Patronage: Evidence from the British Empire.” *American Economic Review* 108(11): 3170–98.

Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Additional details of the institutional context

Appendix B: Additional details of in-depth interviews

Appendix C: Additional details of the difference-in-discontinuities

Appendix D: Additional details of the regression discontinuity

Appendix E: Additional details of the face-to-face survey of bureaucrats

Appendix F: Additional details of the online survey of politicians