Paper Title: “The impact of political appointments on basic public services: a tale from Brazilian local governments”

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Abstract:
Despite the gains made in the last 30 years, Brazil is still an unequal country, with high levels of deprivation. The government plays a key role in the provision of essential services, which a large share of the population cannot afford privately. Brazil is a highly decentralized federation where municipal governments have responsibilities in the design and implementation of public policy and enjoy considerable administrative autonomy. We study the determinants of the municipal governments’ efficiency in the provision of key services, using primary school outcomes at municipal level as a proxy for government performance. We control for a wide range of local characteristics and public sector inputs using yearly data for over 5,000 municipalities between 2006 and 2014, and focus specifically on the impact of the structure of local bureaucracy (i.e. the share of appointed vs. career bureaucrats) on performance. This is not well understood in Brazil, where similar studies have exclusively focused on the federal level, even though political appointments are known to be used as a clientelistic tool. Our preliminary results suggest that the structure of the municipal bureaucracy is a significant determinant of performance.

Keywords

Latin America, Brazil, public administration, local government, political appointments, primary education

1. INTRODUCTION

No matter which nation in the world, every country must face the challenge of continuously building state capacity. This would be impossible without a professional civil service. In the developed world, reforms in the XIX century were essential to catalyze the emergence of a meritocratic bureaucracy. The British Northcote–Trevelyan Report, in 1854, and the American Pendleton Civil Service Reform Act, in 1883, are early examples of deeper reforms that set the steps to erect a modern civil service. In the less developed world, however, the wave of modernization has risen much later, especially after the Second World War.

For large parts of the world, the end of clientelism and patronage must come together with creating a more managerial civil service, ready to meet the needs of Society. One of the most interesting countries under this twofold process is Brazil. A middle-income economy with an unprecedented inequality, Brazilian society ranges from an almost sub-Saharan level of poverty to high-income neighborhoods in São Paulo and Rio de Janeiro that shares the same living standards of the developed world. Moreover, Brazil is a highly decentralized Federation, where municipal governments play a major role in the provision of essential goods and services, such as basic health care or primary education, which a significant share of the population cannot afford privately.

Within this context, the singular design of the Brazilian Federation opens a unique opportunity to explore variation among a large number of similar local governments. Contrary to other large federative countries, such as Germany, the USA, among others, where there is large variation from state to state, the so-called municipalities in Brazil must follow a single framework regarding civil service closely.

At the same time, however, there is a menu of options with respect to civil service admission and tenure, which local governments must choose, that can be explored to understand what factors lie behind and can contribute to better government performance in the provision of essential public services.

In this paper, we look at how the composition of the municipal bureaucracy – namely, the split or ratio between careerist civil servants and politically appointed bureaucrats – affects the municipal performance in a key socio-economic perspective: education.

We use data from over 5,000 municipal governments in Brazil between 2006 and 2014 to investigate whether and how differences in the share of politically appointments in the municipal civil service have an impact on the municipal primary schools' performance, as measured by (i) the score in national standardised exams, (ii) approval and (iii) drop out rates in the municipal primary school system. Our focus on primary education is justified not only for its fundamental role in development but also and more practically, because within the public sphere its provision falls almost entirely within the municipal governments' responsibility. According to the last Brazilian educational census, eight out of ten students are in public schools (INEP 2015).

Although school curricula are set nationally, at the federal level, the actual management and delivery of primary education are highly decentralized with municipal governments having the final say on both infrastructure (school equipment and location) and personnel (including teaching staff). Moreover, in Brazil, local governments have considerable funding for education since the establishment of formula-based grants, which ensure a lower bound to per capita spending. All these

resources are directly managed locally. On the other hand, municipal governments also have considerable room for choosing different labor hiring and contractual rules, offering a unique opportunity to test the differences in performance of careerist civil servants and politically appointed bureaucrats.

We assembled a longitudinal dataset that provides a wide range of social, economic and political indicators for all municipalities in Brazil between 2006 and 2014, including changes in the number and composition of the municipal civil service, our key explanatory variable of interest, and in educational attainment in primary schools, our outcome variable of choice. Our analysis uncovers a number of interesting findings. First, regarding the actual number of appointed bureaucrats within the municipal administration in Brazil. We show that for the vast majority (approximately 80%) of Brazilian municipal governments the proportion of appointed bureaucrats is and has remained quite low at approximately 10% of the total civil service during the period under analysis. We do observe municipal governments with a much more “politicized bureaucracy” – there are in our sample municipalities where 50% or more of the bureaucracy, up to a maximum of approximately 80% of the bureaucracy, has been appointed by the executive – but these are the odd exceptions (that often get high media coverage) rather than the norm. Within municipalities, we observe a (typically) small variation in this figure, which we exploit in our estimation strategy, but the proportion of appointees remains highly concentrated within a range of 5-15% of the municipal employees for most our sample and most of the period.

Second, regarding the relation between the composition of the municipal bureaucracy and educational attainment. The longitudinal structure of our data allows us to estimate the effect of the former on the latter variable from their within

the municipality, across time, variation. This offers a significant advantage vis a vis a cross-sectional estimation strategy, for instance, as it allows us to control for municipal time-invariant characteristics, such as geography or institutional history, that might affect both our dependent and independent variables of interest and would, if omitted, bias our estimates. Our findings suggest that an increase in the proportion of appointed bureaucrats in the municipal administration is on average associated with a statistically significant improvement in primary school performance. More precisely, our models estimate that one standard deviation increase in the share of appointees is associated with a 2% increase in the mean municipal score in the national primary school examination, a 0.4% increase in primary school pass rates and a 3% decrease dropouts. The estimated magnitude of this effect appears small but it is, in fact, comparable to that that would arise from a 50% increase in per capita municipal spending in education, or from a large increase in municipal schools' infrastructure (e.g. from increasing the availability of a computer lab from 10%, as of 2007, to 100% of the municipal primary schools). We test the robustness of our method and data by adding a variety of municipal-level demographic, budgetary, political and school infrastructure variables, and by using, for a subsample of municipalities for which we compiled annual audit reports from the Regional Accounts Tribunal, audited administrative and budgetary data. Our results are on the overall consistent throughout the different specifications and data sources. All in all, we present strong evidence that giving municipal governments the flexibility to vary hiring and contractual rules for civil servants through appointments can lead to positive results in key dimensions of the public service. It is important to stress that these effects are estimated from relatively small within municipality variations in the share of appointments in the municipal bureaucracy (8-15% of total

employees). Our analysis does not suggest that municipalities where the majority of civil servants are appointed, as opposed to career employees, do better. Quite the opposite – our pooled sample analysis shows that high shares of appointees are associated with worse performance in primary education indicators. The "trick" (for success) appears to be in the "details," i.e. arising from small within municipality changes in the share of appointed employees in the bureaucracy.

Our work contributes to the large body of literature that discusses and analyses the relation between bureaucracy and quality and governance. In particular, it contributes to the branch of that literature that focuses on the role and rationale for political appointments within the bureaucracy and provides a quantitative assessment of their performance. This literature is very much dominated by the analysis of political appointments within the U.S. federal government (e.g. Krause and Douglas 2005; Krause, Lewis and Douglas 2006; Lewis 2007; Miller 2015) and generally offers mixed evidence regarding the performance of politically appointed in comparison to that of career bureaucrats. In Brazil, the discussion of the role of political appointments in the bureaucracy has been vastly theoretical, or at most based on a limited number of case studies. These studies generally support a prevailing view of political appointments as a clientelistic tool, historically inherited from a patronage-based bureaucratic system (e.g. Evans 1995; Geddes 1996). More recently, in depth quantitative studies of the federal bureaucracy have offered contrasting evidence to this view, refuting that politically appointments within the federal bureaucracy are only used for patronage ends and showing that political appointees tend to have high levels of expertise in the field they operate (Praça, Freitas, Hoepers 2011). To the best of our knowledge, we provide the first large sample, quantitative analysis of the impact of appointments within the municipal

administration in Brazil in public service delivery, thus filling an important gap in the literature. Given their ample responsibilities and powers in both public service delivery and public sector employment, municipal governments in Brazil can be compared to mini-states. We thus trust that the relevance of our findings extends beyond federative systems, such Brazil or the United States.

The remaining of this paper is organised as follows. In section 2 we provide a revision of the related literature, and in section 3 we describe the Brazilian institutional background, providing details on its civil service and local government rules. At the end of this section, we also set out our key hypotheses. In section 4 we describe our data and methodology, and in section 5 we present and discuss our findings. Section 6 concludes.

2. LITERATURE REVIEW

The importance of the public bureaucracy within the state and for its capacity to develop and implement welfare and growth-enhancing policies has been vastly asserted in the social sciences literature (Huntington 1968; Evans 1992, 1995; Rauch 1995; Geddes 1996; Evans and Rauch 1999; Gerber and Gibson 2009; Cingolani et al 2015). In much of this literature, the bureaucracy is conceptualized from a Weberian ideal of a politically neutral, autonomous, and professional entity. Meritocratic recruitment, political independence and stable, long tenures allow for the formation of an impersonal, objective and ultimately indispensable bureaucracy (Weber 1968). This is, a group of technically able and expert servants working for the public interest, as opposed to a group of partisans serving their patron, the

elected politician, and her immediate electoral needs (Pollock 1937; Maranto and Johnson 2006; Folke, Hirano and Snyder 2011).

In practice, however, there are reasons why having the flexibility to vary appointment rules and tenures might be beneficial for the overall performance of the bureaucracy. The work from Moe (1985), Wood and Waterman (1991) and Johnson and Libecap (1994), for example, offer a rationale for a (more) politicized bureaucracy. In this context, politically appointments can be more than a way to reward political loyalty. They can also be an import mean of control of bureaucracy, aligning bureaucrats' actions with elected politicians' interests and diminishing agency problems (Krause, Lewis and Douglas 2006).

As noted by several scholars, the relation between elected politicians and bureaucrats can be framed as a principal-agent relationship. As such it suffers from the typical agency problems of information asymmetry, where bureaucrats' objectives and incentives may not be aligned with those of the elected politician. Within the public management sphere the design of an optimal contract between agent and principal is complicated by the fact that the observable outcomes often result from the actions of not one but multiple individuals. Furthermore, unlike private organizations whose performance can be assessed by financial indicators, public managers face multiple targets (e.g. service coverage vs. cost vs. user satisfaction) in the provision of goods where they are often a monopoly and thus lack adequate comparators (Prezeworski 1999).

These problems are further exacerbated by the fact that civil service careers are often highly protected, and frequently value seniority over merit, thus lacking on incentives for optimal (bureaucratic) performance (Johnson and Libecap 1994).

As noted above, there is a considerable amount of literature on the virtues of the civil service “careerist” (i.e. the “Weberian bureaucrat”). As compared to a politically appointed bureaucrat, the careerist is more likely to have specialized public policy competence, public management skills and established relationships with key stakeholders because of training and longer tenures (Suleiman 2003; Krause, Lewis and Douglas 2006). The careerist is the “honest broker” in a world of partisan divisions”, with the “neutral competence” necessary for a good performance in the public sector (Heclo 1975). In contrast, a politically appointed bureaucrat (“appointee”) is seen as not only likely to be more responsive to the politician, but also has someone able to bring an influx of new ideas and practices to the public sector that the often “aloof, uncaring, unresponsive” careerist lacks (Johnson and Libecap 1994; Bok 2003). Appointees have the "responsive competence" necessary to make the public sector more productive (Moe 1985).

Empirically, the evidence on whether a more politicized bureaucracy should be preferred to a professional bureaucracy for public sector performance is more limited and unable to offer a clear-cut answer to the question. This stems in part from the difficulty in finding a common definition of "good performance" that can be applied in a setting (e.g. a group of government agencies) that provides varying compositions of the bureaucracy and a sufficiently large sample for statistical analysis.

Most of the empirical evidence in this field is based on data for the USA.

Krause and Douglas (2005), for instance, look at the performance of macroeconomic forecasting agencies at the federal level and show that there is no significant association between accuracy of forecasts and the agency design regarding the mix between appointees and careerists. A similar approach is followed by Krause, Lewis and Douglas (2006) using State level data. They look at the accuracy of State

government agency forecasts between 1987 and 2002 as a measure of performance and show that agencies with a mix of politically appointees and careerists produced the most accurate forecasts. This result underlines the potential benefits of combining politicized and independent forms of personnel selection for the bureaucracy.

At the federal level, Gilmour and Lewis (2006) compare the performance of federal programs run by Senate-confirmed appointees vs. programs run by managers from the Senior Executive Service (both appointed and careerist) using a numerical measure of federal program performance (PART) introduced by the Bush administration. They find that programs administered by Senate-confirmed appointees had on average lower performance. Using the PART scores, Lewis (2007) additionally shows that USA federal programs run by appointees perform systematically worse than programs ran by careerists, whose superior performance is partly due to their larger experience and longer tenure in the job. He proposes reducing the number of appointees or making their selection more rigorous based on certain background characteristics as performance enhancing measures for the federal bureaucracy.

Miller (2014) uses the same measure of bureaucratic performance but focuses on the special case of recess appointments, where the President can make a unilateral temporary appointment to a vacant position if the Senate is in recess (under normal circumstances President and Senate share the power to make political appointments). Her analysis shows that recess appointees are associated with lower program performance compared to their non-recess appointee and careerist counterparts. This result is of interest not only for the US federal government but also for other administrations where there is a context of unchecked executive

authority. In particular, this is relevant to the case under study, given that Brazilian Mayors have total leeway to independently appoint the bureaucracy.

Empirical evidence on the links between managerial capacity, political appointments, and government performance in Brazil is very scarce. As noted by Praça, Freitas and Hoepers (2011), this evidence is almost exclusively limited to case studies or anecdotal evidence, which have historically focused on "pockets of efficiency" arising in the absence of patronage appointments in the public administration (Evans 1995, Geddes 1994). Despite being the subject of much debate in the general media and interest by the public, very little is in fact known about the politically appointed bureaucrats in any tier of the Brazilian public administration. D'Araujo (2009) provided the first detailed description of the high-level bureaucrats in President Lula's executive (i.e. within the Federal bureaucracy). She shows that appointed bureaucrats in the so-called "trust positions" in the federal executive were on average more educated, had greater gender, ethnic and regional diversity; and more links to unions and social movements than the average Brazilian civil servant. Praça, Freitas and Hoepers (2011) also focused on the federal bureaucracy to investigate how/whether political appointments are used by the President in the negotiations with the coalition parties. Their results show that partisan political appointees vary greatly across and within ministries and that political appointments are not used exclusively for patronage ends. A large percentage of political appointments are filled out by career civil servants, which independently of the party affiliation, tend to be above all policy experts. Moreover, it appears the higher the level of the appointment, the more rigorous is the selection based on expertise and

party policy domain. These findings are in contrast with the view of a patronage-ridden, and thus mostly unqualified bureaucracy prevailing in Brazil.

In this paper, we focus on the municipal bureaucracy and, to the best of our knowledge, provide the first large-scale quantitatively analysis linking the composition of the municipal bureaucracy to performance in public good provision.

3. INSTITUTIONAL BACKGROUND

3.1 Brazilian Federative Design

Brazil is a federal republic. However, different from most federative countries, the Brazilian federation is composed of two layers of members: state and municipal governments. Similar cases of two levels of subnational government are also found in Belgium and India (Anderson 2009; Burgess 1993).

Contrary to most federative countries, the structure of the 5570 local governments is established in the Brazilian Federal constitution and cannot be changed without a qualified majority of votes by both chambers of the Congress. Federal constitution dictates details that go from the basic design, the number of members of the councils, to the kind of taxes that can be administered.

Moreover, municipalities are geographically defined in Brazil. In the country, there aren't local governments created with a specific purpose, such as the American special districts. Similar to a mini-state government, regardless of the number of inhabitants, every municipality has a government with two branches: the Executive, which is called "Prefeitura Municipal", and the Legislative, which is known as "Camara Municipal". The latter is an elected council that is responsible for the local legislation, which encompasses discussing the annual budget as well as holding the

mayor accountable. The Executive, which is managed by an elected official, the mayor, and has a permanent bureaucracy, is the one in charge of the main services such as public works and education (Abreu and Araujo 2009).

As pointed out by Graham and Rowland (2008), strong local governments have characterized Brazil since colonial times. Beginning with the “capitanias hereditarias”, which were private companies authorized by the Portuguese Crown to manage large areas of territory and to organize the first settlements, municipalities have evolved simultaneously with the central power. They have been important from the first days of the Brazilian colony.

This process was deepened during democratization in the 1980´s. Opposition groups to the military government achieved higher levels of votes especially in local governments, where elections were kept running during dictatorial times. Therefore, decentralization was taken as a way of democratization. Not surprisingly, according to the national Constitution, what is not attributed to the federal or the local level ends up at the hands of the state government, which is a kind of residual power (Abrucio 2005; Krey 2012).

In this way, state governors and the federal government have less room for interference in local administration than in other federations. Any change in public policy stimulated from the state or federal capital must be done through complex legal changes or the use of voluntary transfers, which are much less abundant than resources from involuntary transfers such as the “Fundo de Participação dos Municípios” (FPM), and involuntary state grants. For instance, the so-called FPM was established by the military government in 1967, sending 23.5% of all income tax and national sales tax collected in the country to local governments. If added up with

the mandatory devolution of state sale tax, involuntary transfers account for almost 40% of all resources of municipal governments (Ribeiro 2016).

The singular design of the Brazilian Federation opens up a unique opportunity to explore variation among a large number of similar governments. In the country, a strong tradition of local power, combined with high levels of funding, unseen in other emerging economies, has led to a relative well established local bureaucracy.

No matter in which part of Brazil, every “Prefeitura Municipal” must follow formal rules regarding its civil service. However, contrary to state and federal level, the menu of choices is larger. Norms on employee admission process and on the type of labor contract offered for the civil service can vary from the standard civil service contract that applies to other levels of government, to the contractual regime that prevails in the private sector. Within this range, every municipality decided after the 1988 Constitution, which set of norms was going to use.

3.2 Local Government Services

Local governments are very important for the delivery of public services. In general, they are the closest, most immediate supplier of public goods for the entire population. In continental countries where the central government may be thousands of miles away, they become even more important. That is precisely the Brazilian case. According to with a survey conducted by FGV (O Pacto Federativo, 2016), the municipal civil service is the largest one in the country, with more than 4.87 million employees. State governments account for a further 3.04 million employees, while federal government employees amount to “only” 1.06 million. Besides that, municipal civil service had the most important growth rate over the last two decades (local civil personnel was only 1.85 million of employees in 1998).

As expected, in Brazil municipalities play a relevant role in the delivery of key education and health services. However, differences in how these two services are delivered are remarkable. In the former, every local government must organize its own educational system while in the latter; there is just one unique national system, the "Sistema Unico de Saude," SUS (Abreu and Araujo 2009).

The SUS is based on the idea of shared responsibility. Every level of government takes part in a unified system which different attributions. As a rule of thumb, primary aid is concentrated in "Prefeituras Municipais." More complex health care, involving hospitals, tends to be in the hands of state governments, but exceptions can be found mainly in the major cities, where municipal hospitals may exist. The federal action focuses on the coordination of the whole system. It is not rare that local civil service employees work together with state or federal level agents. Disentangling the impact of each member of the federation is a complicated if not impossible task. Some of them get together in associations as if part of their civil service dedicated to health were just one single organization (Abrucio, Sano and Sydow 2010; Frutuoso 2010; Fernandes, Teixeira and Leite 2017).

Public education, on the other side, is supplied simultaneously by independent public systems. Basic schooling is provided by municipal schools, which are organized in 5570 local public systems, managed by the local Executive. Public procurement, civil services rules are all run from the “Prefeitura Municipal.” The state government usually supplies secondary schooling while state and federal governments manage public universities. After 2005, Brazil developed a very complex system of quantitative assessments of education, making extensive use of statistical information and tests, to assess students' performance every two years. The so-called IDEB also established long-term targets to every municipal system, although it

has no power to enforce changes when negative results are found (Fernandes 2007; Schwartzman 2013).

Interestingly, while in the SUS there are many subnational committees for sharing decision and responsibility, in education, despite some directives stated by federal law and the existence of the IDEB, there are no loci of a joint decision. Each municipality manages its public educational system independently and must rely on its bureaucracy. Local civil service is the only responsible (Abrucio 2010; Francese and Abrucio 2010). That's the main reason why to assess the production of public goods by the local government; this study focuses on educational outcomes.

3.3 Civil Services Rules

The state is an essential institution for the creation of prosperity. It usually involves a complex production function whose inputs can be divided into three broad inputs: personnel, resources, and procedures. Regarding personnel, there are two types of categories: politicians and bureaucrats.

In Brazil, elections are held every four years for the top position of the municipal Executive on the second Sunday of October. A federal branch of the Judiciary, the Electoral Justice, which was created in 1932, organizes all elections in the country. Electronic ballots are used widely in the country, and they are considered safe from cheating. Bureaucrats, on the other hand, are appointed rather than elected and often develop a career progressing along some formal rules. Selection procedures and incentives are one of the key aspects to understanding the impact of civil service in the supply of public goods (Dal Bó, Finan 2016).

Concerning municipal civil service in Brazil, personnel can be hired through three types of contracts: *"estatutarios," "celetistas*" and "*comissionados*." The first group

comprises those who are admitted via civil service recruitment exams and are offered long-term stable tenure. These contests are usually very competitive and are organized by private companies with an excellent reputation. They can be hardly made redundant so, given the neutral selection process, they can be considered the closest in Brazil to the definition of a Weberian bureaucracy (Nunberg and Pacheco, 2016). Besides, ″estatutarios" are the predominant form of civil service in the country. In 2006, when the first national survey was organized, they were 61.07% of all municipal personnel, while in 2014, they were 60.74% of all local government civil service.

Long-term contracts can also be offered for those who enter civil service through exams, exactly as "estatutarios", but must follow private sector rules, the ″Consolidacao Regras do Trabalho", CLT, established during the Estado Novo, in the 1930's (Fausto, 2014). "Celetistas," as they are known, or CLT-employees, can be fired more easily than "estatutarios", although, by tradition, that hardly happens. However, their pension system is the same of the private sector, which is less generous than the public sector pension system. They represented 9.12% of the local government civil service in 2006 and 12.36% in 2014. Both categories are considered to be the "stable bureaucracy" in the municipal government.

Finally, ″comissionados" or appointees are those who are appointed by the mayor directly, or indirectly by a superior also politically appointed by the chief of the local Executive. They do not have to sit a recruitment exam, and they are untenured, regardless of long they remain in the government. According to the Brazilian Constitution, they must always work as advisors or to be in "chief" positions. Broadly speaking, that means they are supposed to be the channel through elected politicians can implement their agenda. They are considered to be the hands and

eyes of the elected politicians. Consequently, in most cases, they are the ones in charge of guiding the actions of the local bureaucracy. On average, in 2006 they represented 10.91% of all municipal service while in 2014, they were 10.39% of all personnel.

The remaining employees have temporary contracts, which usually last less than one year, and they must be hired after being approved in civil service exams.

Regarding incentives, long-term contracts in public service tend to reward seniority rather than productivity. Despite some rare exceptions, incentive schemes for ″estatutarios" and CLT-employees are not related to any dimension of production of public policy. If there is some compensation, it is usually concentrated on just one single issue; the length of service is an almost universal criterion in local government to career progress.

Nevertheless, meritocratic recruitment based on exams and stable tenures can be seen as main characteristics of ″estatutarios" and CLT-employees, leading to, if not an entirely neutral group of employees, at least, to a less politically influenced one. In a country where clientelism and pork politics has been a major concern, the sophistication of the Brazilian municipal civil service seems to be more tuned to the positive findings of social programs, such as Bolsa Familia, whose allocation criteria is found to be more technical than political (Fried 2012). Finally, for *comissionados*, the rules that apply to *estatutarios* regarding to salary increase are the same; however, they can be dismissed at any moment and without any formal justification. As a result, performance may be more important to them than for the previous groups.

3.4 Our hypotheses

As pointed out by Dal Bó and Finan (2016), empirical evidence bears out aspects of principal–agent theories: agents respond to incentives and the way agents are selected carefully pays off. As it has been described in the last sections, Brazil has a flexible structure in a unified institutional framework. More Weberian forms of bureaucracy coexist with a more flexible civil service in a universe of 5570 different local governments which gives a unique opportunity to address a paramount question for public administration: how different civil service rules impacts the quality of public policy? How can an established bureaucracy work better? Are there more efficient ways to prevent the state from deviating from public demands?

To put it more formally using Dahl's concept of polyarchy, the state is democratic when it is responsive to social needs (Dahl 1971). The more direct way that happens is through free and universal elections. Voted politicians are the agents of the people and are the ones in charge of making public policy face the needs that were uncovered in the ballots. The agent-principal problem in public administration, however, is twofold. Elected politicians are also the principals of the stable bureaucracy. They must do whatever is legally accepted to make civil service work so as to delivery demanded public policy.

As the permanent staff has a limited threat of punishment because of generous tenure conditions, despite meritocratic methods of selection, moral hazard can reduce public sector efficiency. Moreover, given the focus on seniority rather productivity in rewarding schemes, there may be limited incentives for innovation. Consequently, one important tool for managing "estatutarios" is having a selected group of civil servants, who are directly appointed by those elected politicians: the

"comissionados" following the Brazilian nomenclature, or appointees. To sum it up, the latter may impact positively public policy because of the reduction of agency problems, the ability to bring external specific expertise to public sector, as well as the incentives for good performance given non-permanent nature of their position (Moe, 1985, Wood and Waterman, 1991, Johnson and Libecap, 1994 Krause, Lewis and Douglas 2006).

On the other hand, if democracy fails to work properly, political appointed civil service might work to meet the private benefits of those elected instead of pursuing the public interest. This is the traditional scenario of patronage and clientelism, which is often seen in emerging economies bureaucracy and less frequently in advanced economies (Hagopian 1996; Santos 1997; Maxfield & Schneider 1997). In this alternative view, rather than positive to the supply of public goods, *appointees* would weaken state capacity. Thus, Weberian forms of bureaucracy, "estatutarios" and CLT-employees, would be a defense against clientelism. The role played by political appointments in the reduction of agency problems would be offset by problems associated with clientelism and patronage. Our main hypothesis now can be stated:

H1 – Personnel organization of the public sector affects the production of public goods.

More interestingly, H1 can be disentangled in order to capture the effect of the different groups that exist in civil service, namely, the permanent Weberian bureaucracy and politically appointed staff. As it was discussed:

H2a – Politically appointed employees affect positively the production of public goods – the reduction of agency problems is more important than clientelism and patronage.

Alternatively, the opposite may also be tested:

H2b – Politically appointed employees affect negatively the production of public goods – clientelism and patronage are more important than the reduction of agency problems.

To the best of our knowledge, all these questions can be hardly answered in a comparative perspective. Panel data among countries lacks enough information to handle different institutional designs, which can lead to severe bias. On the other hand, local governments within countries usually do not have a steady framework. In unitary governments, as France and the United Kingdom, despite all devolution efforts, civil service is still profoundly influenced by the center if not entirely ruled from there. Although undeniably important, variation inside civil service is less pronounced. In other federations, such as the U.S. or Germany, local governments are ruled by state government legislation (Chandler, 2008).

In all those cases, differences are so large that they became barely comparable. Therefore, the Brazilian structure with 5570 municipalities is a unique case in which remarkable general results can be inferred from data of just one country. Besides that, the civil service of emerging economies has been scarcely studied. This paper can be a first attempt to shed light to local professional bureaucracies in countries that amount to the largest part of the population of the planet.

4. DATA AND METHODS

4.1 Sources and Identification

In this paper, we investigate empirically the relationship between the composition of the municipal bureaucracy and the efficiency of the municipal administration in the provision of public goods using a (unbalanced) panel of Brazilian municipalities between 2006 and 2014. As explained above, we focus on educational outcomes for the latter measure. More precisely, the dependent variables used in this paper measure the performance of the primary schools administered by the municipal government, and come from the National Institute of Educational Studies and Research (INEP). Our preferred dependent variable is the municipal IDEB score (IDEB stands for Index of Basic Education Development), which consists of the municipal's schools average score in Prova Brasil (a standardised national exam taken by Brazilian students in selected years) in year 5, i.e. at the end of their primary education, weighted by the respective approval rate in the municipality's school system. This score, which ranges from a minimum of 0 to a maximum of 10, is available for every municipality and type of school administration (municipal, state or federal), every two years since 2005, and in our view, provides the most comparable measure of educational performance across Brazil. In addition to the IDEB score, we test the robustness of our results by using as alternative dependent variables (i) approval, (ii) fail, and (iii) dropout rates in primary school (years 1-5) for the schools managed by the municipal administration. These variables are available from INEP, for every municipality in Brazil and by type of administration on a yearly basis.

The main explanatory variable of interest is the number of civil servants by type of contract and model of access to the civil service (i.e. via public examination or

political appointment) comes from the Brazilian Institute of Statistics and Geography (IBGE) MUNIC survey. This variable is available for every municipal government in Brazil on a yearly basis except for 2007 and 2010, when the survey was not conducted.

For the 645 municipalities in the State of São Paulo, in addition to the MUNIC-IBGE data, we also collected annual audit reports of the municipal accounts from the Tribunal of Auditors the State of São Paulo (TCE - SP) between 2006 and 2013. These reports cover a range of indicators regarding each municipality's budgetary and policy implementation, as well as on the composition of its bureaucracy. This audited data is used as part of our robustness checks, discussed in section 4.3.

The rest of our data comes from a variety of sources. To account for municipal educational inputs, we compiled detailed information on every municipality's school infrastructure using INEP's School Census, which is available yearly for every school in Brazil. This allowed us to control for information such as the proportion of primary schools with a library, science or computer lab, kitchen, or connection to the water/electricity/ sewerage network, or the average number of classrooms and computers within the municipal school system.

More generally, we account for municipal size and wealth generation capacity using annual population projections and GDP figures available from the IBGE.

Municipal fiscal health and expenditure allocation is controlled by using municipal budgetary data from the Brazilian Treasury. This includes information such as municipal tax revenues, the amount of transfers from state or federal government, or spending on education for every Brazilian municipality, yearly, in the period under analysis. Municipal political landscape and preferences are also considered using electoral data (size of the electorate, candidates, parties and results) at municipal for

every contest between 2004 and 2012 from the Superior Electoral Tribunal (TSE). Lastly, we used annual municipal infant mortality data (total number of infant deaths by total residents up to 1 year of age in the municipality) and basic health coverage (% of households in the municipality) from the information centre of the Brazilian health system (DATASUS), and the municipal GDP from the IBGE, for an additional insight into the municipalities' socio-economic background.

Summary descriptive statistics for our key variables are provided below in **Table *1*** for the cross section of Brazilian municipalities in 2006. As it can be seen, there is a considerable variation across municipalities in Brazil, both in the dependent and independent variables. The sample mean share of appointees in the municipal administration, our core explanatory variable of interest, stood at just below 11% with a standard deviation of 8.7 percentage points in 2006. Interestingly, a closer inspection of this variable's distribution shows that the number of appointees remained below 1/5 of the whole municipal bureaucracy for a vast majority (90%) of the Brazilian municipalities in the period under analysis (see **Figure *1***and **Table *2***). **Table *4*** displays overall, between and within statistics for the whole period under analysis 2006-2014 for our key dependent and independent variables. As expected, there is considerable variation in all these variables across our sample of municipalities during this period. Importantly, they also vary within municipalities across time. This is crucial for our estimation strategy because it will allow us to estimate the effects associated with the composition of the municipal bureaucracy on the educational outcomes both from the cross-section of over 5,500 municipalities and from the time-variation that occurs within each municipality during the period under analysis.

Lastly, **Error! Reference source not found.** displays linear pairwise correlations between a subset of our variables for the whole period 2006-2014. In this pooled sample a larger share of appointments in the municipal bureaucracy appears significantly associated with smaller municipalities (population size) and smaller bureaucracies (number of civil servants), richer municipalities (GDP per capita), with better school infrastructure,[1] left-wing mayors and mayors with a smaller margin of victory (difference in vote-share with respect to runner up candidate). Critically, larger shares of appointments in the municipal bureaucracy also appear significantly associated with worse performances in primary school outcomes (IDEB scores, pass rates and dropout rates in municipal primary schools). This does not surprise us entirely, as municipalities with a poor performance in the major primary education indicators often suffer from a range of problems, among which (patronage) appointments of a larger number of partisans and/or inadequate employees to the public service may be one of many symptoms of poor administration.

4.2 Baseline Specification

Our econometric analysis is based on panel data regressions of the form:

$$\boldsymbol{Y_{it+1} = \alpha_i + \gamma_t + \beta A_{it} + \theta X_{it} + \varepsilon_{it}} \qquad \textbf{(1)}$$

where $\boldsymbol{Y_{it+1}}$ is the outcome variable of interest in municipality i at time t+1. Our preferred outcome variable is the average municipal IDEB score for the primary schools administered by the municipal government. This score is based on the students' performance in national standardized examinations of Portuguese

[1] For a matter of simplicity out of the several indicators of school infrastructure considered, only the proportion of schools with regular waste collection is displayed in the correlations table. All other infrastructure variables exhibit similar direction and significance in their associations with the remaining variables.

language and mathematics which has taken place every 2 years since 2005, and ranges from 0 to a maximum of 10. We opt for using 1-year lead for our outcome variable to better match educational performance outcomes to the respective period's municipal inputs.

$\boldsymbol{A_{it}}$ is our key explanatory variable of interest and measures the proportion of appointees in the municipal bureaucracy in year t (i.e. the ratio between the total number of appointees and the total number of civil servants in the municipal administration, including both direct and indirect administration)[2]. $\boldsymbol{X_{it}}$ is a vector of municipality-level characteristics including, depending on the specification, (i) the size of the municipal bureaucracy (measured by total number of civil servants), (ii) the size of the municipality (measured by its population), (iii) the expenditure in education per capita, (iv) net current revenues per capita, (v) a set of political variables including the mayor's party (classified in 3 categories: left, right or centre leaning party), whether the mayor is in her first or second term, and the margin of victory in mayoral elections vis a vis runner-up candidate; and (vi) a vector of primary school characteristics regarding infrastructure and services availability (including average access to water, electricity and sewerage network, availability of computers, library, school canteen/kitchen, number of available and used classrooms, students per teacher within the municipality).

Lastly, $\boldsymbol{\alpha_i}$ is a municipal fixed effect to account for municipality time-invariant factors, such as culture or geography, that might affect the outcome of interest, and $\boldsymbol{\gamma_t}$ is a

[2] Direct administration comprises all entities directly linked to the municipal executive such as the municipal secretaries, while the indirect administration includes the municipal foundations**,** agencies (health, hygiene, social assistance), public enterprises and semi-public companies whose management and budget is independent of the municipal executive. Only approximately 25-30% of the municipalities have some form of indirect administration in the period under analysis.

year fixed effect, that captures time-specific but municipality-invariant shocks, such as country-wide educational policies, or the varying level of difficulty of the national exam across years. We use robust standard errors clustered by municipality to deal with problems of serial correlation (Bertrand, Duflo and Mullainathan 2004).

4.2 Alternative Specifications

As a robustness test to our model (1) above we use alternative dependent variables to capture the effect of the composition of the municipal bureaucracy on primary education outcomes. These variables include the annual average (i) approval, and (ii) dropout rates in years 1-5 (the so-called “first stage of the fundamental education” in Brazil) within the respective primary municipal school system as dependent variables. As before we opt for using a 1-year leads for our dependent variables. Besides providing an alternative test to our model, these 3 variables, which are based on information reported by the schools, have the additional advantage of being available on a yearly basis, which allows us to increase the dataset available for estimation (note that the ideb-scored used in specification (1) is available every 2 years and based on a national standardised test).

4.3 Audited Data - São Paulo municipalities

Lastly, as a robustness check on our data, we perform the analysis described above on a subsample of municipalities for which we have audited data by the Regional Audit Tribunal on budgetary information, and on the composition of the municipal bureaucracy. This subsample consists of the 645 municipalities in state of São Paulo, for which we collected and analysed annual audit reports for the years between 2006 and 2013. This exercise obviously reduces substantially the number of observations available for analysis (first and foremost because we focus only on 1

of the 26 states in Brazil), and thus the number of municipal administrations under analysis, but provides a necessary check to the reliability of our dataset regarding the composition of the municipal bureaucracy and municipal budgetary information. Moreover, from this narrower focus we can get a further insight into the links between the composition of the bureaucracy and education performance since the state of São Paulo, on average, is an outlier in Brazil in many aspects that could, on their own, influence our outcome variables, as well as on the preference /need for appointments within the municipal bureaucracy. For instance, São Paulo municipalities are on average richer, have larger GDP per capita, larger population, and population densities than the average Brazilian municipality.

5. RESULTS AND DISCUSSION

5.1 Baseline Specification

Table 5 links the municipal IDEB scores in primary school, available every 2 years, to the composition of the municipal bureaucracy. In column (1) we estimate model (1) above without municipal or time fixed effects for the whole sample period 2006-2014. In line with the correlation results displayed in **Error! Reference source not found.**, the pooled sample results suggest a statistically significant negative association between the share of appointees among the municipal civil servants and the IDEB score. The direction of this association is reversed, however, when we control for municipal fixed effects – i.e. when we estimate the impact of appointments on the IDEB score from the within municipality variation (columns (2) to (5)). In specifications (2) to (5) we test the robustness of this association to the inclusion of an increasing number of municipal level controls, including time-varying data on the

municipality's size, expenditure allocation and budgetary revenue, political orientation and characteristics of the executive (3) and a full range of municipal school infrastructure controls (model (4)).[3] The estimated impact of the share of appointees on the primary school IDEB score remains statistically significant and stable in magnitude across models (2) to (4) at 0.001, suggesting that 1 standard deviation increase in the share of appointees in the municipal administration is on average associated with a 0.09 points increase in the respective primary school IDEB score (i.e. approximately 2% of the sample mean IDEB score in 2006). This is a small effect in magnitude, but very robust considering that we are subjecting the estimation not only to a wide range of municipal controls but also estimating the effect from within the municipality relatively small variation in appointments between 2006-2014. To put this effect in perspective, model (4) estimates it to be comparable to that of having all municipal primary schools equipped with a computer lab (in 2006, on average, only 10% of the municipal primary schools had one).

In model (5) we additionally control for the share of appointments within the direct municipal administration. Interestingly, the results suggest that the positive association between appointments and IDEB score appears to be driven by the appointments made in the indirect municipal administration, which is present in approximately ¼ of the larger municipalities, rather than the direct administration. The overall net effect associated with the appointments remains positive, though.

[3] The estimation results are also robust to the inclusion of additional and/or alternative budgetary control variables (e.g. spending on health, administration, or revenues), and socioeconomic control variables (e.g. infant mortality rate; GPD per capita). We opted for the models displayed as they (i) include variables that are theoretically more likely to have an impact on the outcome variable, and (ii) imply we keep a considerable large sample of years and municipalities in our analysis (the infant mortality and GPD data is not available for the whole period and suffers from several missing observations).

5.2 Alternative Specifications

Table 6 contains the estimation results of model (1) using the pass rates (columns (6) and (8)) and the dropout rates (columns (7) and (9) in the municipal primary school system as dependent variables. As both these variables are available on a yearly basis since 2007, these specifications allow us to increase of the sample available for analysis from approximately 23,000 to over 40,000 observations for the period 2007-2014. The estimated results in what concerns the effect of appointees on primary school performance are highly consistent with those discussed earlier for Table 5. The share of appointees in the municipal bureaucracy appears to be positively and significantly associated with the pass rate in the municipal primary system (column (6)) in the way that 1 standard deviation increase in the former is associated with a 0.34 percentage points increase in the latter. Analogously, it is negatively and significantly associated with the dropout rates, such that the model (7) estimates that 1 standard deviation increase in the share of municipal appointees is associated with a 0.10 percentage points decrease in the dropout rate. These effects, which are estimated with considerable precision, appear small in magnitude. However, according to our estimations they are comparable to those that would be associated would significant changes in school infrastructure or in municipal spending in education. For instance, model (6) suggests that a 1 standard deviation in the share of appointees would have an effect comparable to that of over 1 standard deviation increase in per capita budgetary municipal expenditures in education (BRL145 as of 2006, or almost 50% of the sample mean per capita spending in education in that year). Similar to the models discussed in the previous section, when we control for the share of appointments within the direct administration (columns (8) and (9)), the net global effect associated with an

increase in the share of appointments in the municipal administration remains significant and positive. As before, this appears to be driven by the appointments made within the indirect administration.

5.3 Audited Data - São Paulo municipalities

Table 7 replicates the analysis performed in sections 5.1 and 5.2 for a subsample of approximately 600 municipalities in the state of São Paulo for which we have audited personnel and budgetary data between 2006 and 2014.[4] Columns (10) to (13) display the estimated results for the models using the municipal mean IDEB score as dependent variable. In all 3 fixed effects specifications shown the effect associated with the share of appointees in the municipal administration remains positive and statistically significant (the estimated magnitude of this effect is even larger than in Table 5). Columns (14) and (15) display the estimated results for the models using the pass and dropout rates in the municipal primary school system as dependent variables, respectively. Here the estimated effect associated with changes in the share of appointees is no longer statistically significant. This is because within the state of São Paulo and during the period under analysis we observe a limited amount of variation in these variables (contrary to the IDEB score, which still varies considerably across time and municipalities in São Paulo in this period). A similar pattern affects the school infrastructure variables in this Table, which were highly significant in the previous, full-sample models. When we restrict the analysis to the municipalities of São Paulo, which are on average richer and uniformly better equipped in terms of school infrastructure than the municipalities in the rest of the

[4] Note that in the audited data we do not observe the allocation of appointed civil servants between the direct and indirect administration.

country, the impact of the school infrastructure variables on student's performance is no longer statistically significant.

6. CONCLUSION

A professional civil service is a requirement to a modern society. In this paper, we look at how the composition of the municipal bureaucracy affects local public policy. For that, we explore the singular design of the Brazilian Federation, where municipalities have a menu of options with respect to civil service admission and tenure.

Using educational data from over 5,000 municipal governments in Brazil between 2006 and 2014, we found that the vast majority of Brazilian local governments have low levels of appointed bureaucrats. Most municipalities have a share of appointed within a range of 5-15% of the municipal employees while those that have a more "politicized bureaucracy" are exceptions. This outcome is also confirmed using audited data by subnational oversight institutions.

To some extend, this result shows that Brazilian civil service can be considered closer to the Weberian concept of bureaucracy than tales of clientelism and patronage may indicate. Furthermore, our findings suggest that an increase in the proportion of appointed bureaucrats in the municipal administration is on average associated with a statistically significant improvement in primary school performance, the main public service supplied by local governments. Consequently, given the rigid contractual world of the Brazilian civil service, our empirical analysis shows the moderate share of political appointed plays a important role on the reduction of agency problems, which is clearly more important than clientelism and patronage.

TABLES AND FIGURES

Table 1 : Summary Statistics (2006)

Variables	Obs	Mean	Std.Dev.	Min	Max
IDEB score	4,985	3.92	0.91	1.60	8.10
Pass rate (2007)	5,475	84.50	10.41	36.90	100.00
Dropout rate (2007)	5,475	3.05	3.94	0.00	30.10
Students per classroom (2007)	3,962	25.51	7.38	1.00	91.00
Appointees (% out of total civil servants)	5,554	10.89	8.73	0.00	80.70
Appointees in direct administration (%)	5,554	10.50	8.45	0.00	80.70
Number of municipal civil servants	5,561	862.34	2916.88	1.00	132243.00
Municipal population	5,564	33567.69	199103.20	826.00	11016708.00
Municipal expenditure in education per capita (BLR)	5,536	312.83	144.90	0.00	2464.49
Municipal net current revenue per capita (BRL)	5,536	1168.13	641.47	295.84	9973.13
Leftist Mayor (% of municipalities)[1]	5,501	30.79	.	.	.
Centrist Mayor (% of municipalities)	5,501	33.58	.	.	.
Mayoral margin of victory (difference runnerup)	5,439	0.15	0.14	0.00	0.98
Infrastructure of municipal primary schools (2007)					
Connection to public water network (% schools)	5,560	0.57	0.33	0.00	1.00
Connection to electricity network (%)	5,560	0.90	0.20	0.00	1.00
Connection to sewerage network (%)	5,560	0.28	0.35	0.00	1.00
Regular waste collection (%)	5,560	0.57	0.36	0.00	1.00
Availability of computer lab (%)	5,560	0.10	0.19	0.00	1.00
Availability of science lab (%)	5,560	0.02	0.08	0.00	1.00
Availability of kitchen (%)	5,560	0.85	0.25	0.00	1.00
Availability of library (%)	5,560	0.20	0.26	0.00	1.00
Availability of playground (%)	5,560	0.22	0.29	0.00	1.00
Availability of school meals (%)	5,560	0.99	0.04	0.00	1.00
Number iof classrooms available (average)	5,560	5.11	2.92	1.00	32.00
Number of classrooms used (average)	5,560	4.83	2.72	1.00	27.00
Infant mortality rate (2009; infant deaths/residents)	5,565	0.01	0.01	0.00	0.10
Coverage of basic health care (2009; % municipal popul	5,565	85.99	21.52	0.00	100.00
GDP per capita (2009, BRL)	5,565	10977.95	12150.48	1929.97	360815.80

Notes: All statistics are for 2006 unless indicated otherwise.

[1] We classified as leftist parties: PAN, PCB, PDT, PPS, PSB, PT, PTB, PTN, PV; and as centre: PMDB, PMN, PSDB.

Figure 1:Histogram - Share of Appointees (whole period)

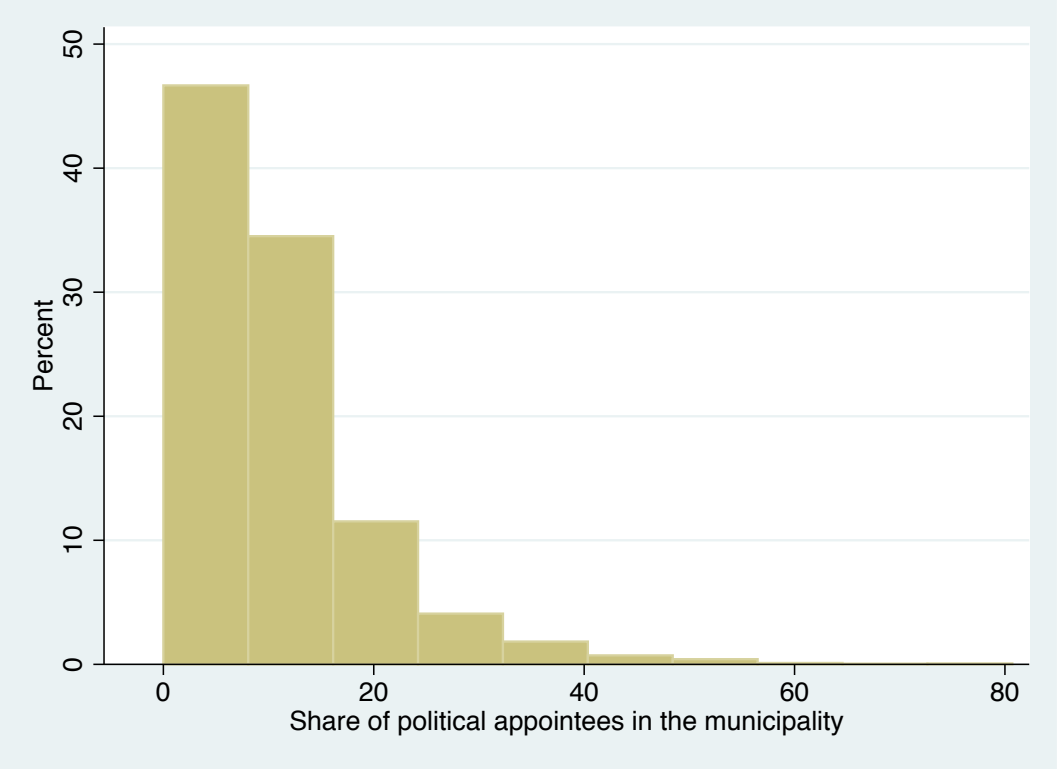

Table 2: Share of appointees - summary statistics by year

Year	Mean	Std. Dev	p50	p75	p90	Max
2006	10.89	8.73	8.59	13.76	21.48	80.70
2007	10.48	7.65	8.49	13.30	20.00	74.03
2008	10.16	8.11	7.99	13.00	19.90	72.31
2009	10.15	7.77	8.21	12.71	18.97	90.32
2010	10.21	7.17	8.48	12.70	19.14	78.63
2011	10.33	7.73	8.47	13.09	19.77	77.51
2012	10.20	7.86	8.15	12.96	19.72	76.63
2013	10.23	7.74	8.25	12.95	19.34	76.63
2014	10.39	7.71	8.29	13.17	20.00	61.60
Total	10.34	7.84	8.33	13.09	19.82	90.32

Note: Statistics based on whole sample of municipalities.

Table 3: Pairwise Correlations (whole sample)

Correlations matrix	IDEB score	Pass rate	Dropout rate	Appointees (% of total civil servants)	Appointees in direct administration	Total civil servants	Municipal population	Expenditure in education per capita	Net current revenues per capita	Leftist Mayor	Centrist Mayor	Mayoral margin of victory	Regular waste collection	Infant mortality rate	Municipal GDP per capita
IDEB score	1														
Pass rate	0.713***	1													
Dropout rate	-0.611***	-0.745***	1												
Appointees (% of total civil servants)	-0.120***	-0.063***	0.030***	1											
Appointees in direct administration	-0.122***	-0.063***	0.030***	0.989***	1										
Total civil servants	0.017***	-0.003	0.011**	-0.054***	-0.065***	1									
Municipal population	0.007***	0.009*	-0.001	-0.037***	-0.051***	0.937***	1								
Expenditure in education per capita	0.244***	0.010***	-0.093***	0.050***	0.055***	-0.025***	-0.037***	1							
Net current revenue per capita	0.413***	0.256***	-0.237***	0.0933***	0.097***	-0.012***	-0.020***	0.824***	1						
Leftist Mayor	0.046***	-0.006	0.014***	0.001***	0.003	-0.009**	-0.013***	0.025***	0.003	1					
Centrist Mayor	-0.023***	-0.023***	0.029***	-0.008*	-0.008*	-0.002	-0.002	-0.010**	-0.015***	0	1				
Mayoral margin of victory	0.0746***	0.034***	-0.032***	-0.022***	-0.028***	0.189***	0.162***	0.033***	0.045***	0.014***	-0.011***	1			
Primary schools with regular waste collection	0.583***	0.451***	-0.467***	0.020***	0.014***	0.077***	0.077***	0.073***	0.291***	-0.046***	-0.023***	0.073***	1		
Infant mortality rate	-0.080***	-0.076***	0.073***	-0.017***	-0.016***	0.015***	0.010*	-0.003	-0.037***	0.009	-0.001	0.016***	-0.083***	1	
Municipal GDP per capita	0.277***	0.204***	-0.223***	0.012**	0.011*	0.115***	0.080***	0.186***	0.425***	-0.026***	n.a.	0.072***	0.338***	-0.041***	1

Notes: All sample pairwise correlations for the whole period (2006-2014). *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Descriptive Statistics for key variables (whole period)

Variable		Mean	Std. Dev.	Min	Max	Observations
IDEB score	overall	4.498	1.158	0.700	8.80	N = 29,382
	between		0.934	2.100	7.20	n = 5338
	within		0.697	0.964	7.98	T bar = 5.504
Pass rate	overall	89.647	8.407	0.000	100.00	N = 49,806
	between		6.865	58.467	100.00	n = 5557
	within		4.863	3.310	116.60	T bar = 8.963
Dropout rate	overall	1.724	2.655	0.000	48.20	N = 49,806
	between		2.130	0.000	15.17	n = 5557
	within		1.583	-8.398	42.21	T bar = 8.963
Appointees	overall	10.338	7.841	0.000	90.32	N = 49,875
(% out of total civil	between		6.641	0.644	69.93	n = 5570
servants)	within		4.196	-25.793	80.02	T = 8.954

Notes: Statisitcs for 2006-2014 period (data is biannual for the IDEB score and annual for all other variables).

Table 5: Regression Analysis I - IDEB score

	(1)	(2)	(3)	(4)	(5)
Variables	IDEB score	IDEB score	IDEB score	IDEB score	IDEB score
Appointees (% out of total civil servants)	-0.016	0.001	0.001	0.001	0.005
	(0.001)***	(0.001)**	(0.001)**	(0.001)*	(0.002)***
Appointees in direct administration (%)					-0.004
					(0.002)*
Number of municipal civil servants (log)			-0.021	-0.013	-0.010
			(0.021)	(0.021)	(0.023)
Municipal population			0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)
Municipal expenditure in education per capita			-0.000	-0.000	-0.000
			(0.000)***	(0.000)**	(0.000)**
Municipal net current revenue per capita (BRL)			0.000	0.000	0.000
			(0.000)***	(0.000)***	(0.000)***
Leftist Mayor (dummy, 1 = left wing party)			-0.004	-0.002	-0.003
			(0.014)	(0.014)	(0.014)
Centrist Mayor (dummy, 1 = centre party)			0.092	0.084	0.085
			-0.151	(0.144)	(0.144)
Mayoral margin of victory (%, difference runne			0.041	0.045	0.044
			(0.026)	(0.026)*	(0.026)*
Infrastructure of municipal primary schools					
Connection to public water network (%)				-0.002	-0.001
				(0.043)	(0.043)
Connection to electricity network (%)				-0.200	-0.201
				(0.056)***	(0.056)***
Connection to sewerage network (%)				0.116	0.116
				(0.044)***	(0.044)***
Regular waste collection (%)				0.216	0.214
				(0.048)***	(0.048)***
Availability of computer lab (%)				0.076	0.075
				(0.024)***	(0.024)***
Availability of science lab (%)				-0.067	-0.067
				(0.082)	(0.082)
Availability of kitchen (%)				0.145	0.144
				(0.036)***	(0.036)***
Availability of library (%)				0.100	0.100
				(0.027)***	(0.027)***
Availability of playground (%)				0.075	0.075
				(0.028)***	(0.028)***
Availability of school meals (%)				-0.251	-0.248
				(0.165)	(0.165)
Number of classrooms used (average)				0.002	0.002
				(0.001)*	(0.001)*
Municipality fixed effects	NO	YES	YES	YES	YES
Year fixed effects	NO	YES	YES	YES	YES
Constant	YES	YES	YES	YES	YES
Observations	24,897	24,897	23,568	22,905	22,904
R-squared (within)	0.000	0.605	0.605	0.609	0.609
Number of municipalities	5,336	5,336	5,309	5,309	5,309

Notes: Robust standard errors clustered at municipality level in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Regression Analysis II: Pass and Dropout Rates

	(6)	(7)	(8)	(9)
Variables	Pass rate	*Dropout rate*	Pass rate	*Dropout rate*
Appointees (% out of total civil servants)	0.039	-0.012	0.185	-0.045
	(0.007)***	(0.003)***	(0.031)***	(0.009)***
Appointees in direct administration (%)			-0.147	0.033
			(0.031)***	(0.009)***
Number of municipal civil servants (log)	0.068	-0.040	0.071	-0.041
	(0.221)	(0.080)	(0.221)	(0.080)
Municipal population	-0.000	-0.000	-0.000	-0.000
	(0.000)*	(0.000)	(0.000)*	(0.000)
Municipal expenditure in education per capita (BLR)	0.002	-0.001	0.002	-0.001
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Municipal net current revenue per capita (BRL)	-0.001	0.000	-0.001	0.000
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Leftist Mayor (dummy, 1 = left wing party)	0.142	0.002	0.139	0.002
	(0.130)	(0.046)	(0.130)	(0.046)
Centrist Mayor (dummy, 1 = centre party)	-2.593	1.632	-2.582	1.630
	(2.050)	(0.646)**	(2.049)	(0.646)**
Mayoral margin of victory (%, difference runnerup)	-0.001	0.075	-0.005	0.076
	(0.216)	(0.079)	(0.216)	(0.079)
Mayor's term (dummy, 1 = first term)	-0.183	0.089	-0.185	0.089
	(0.096)*	(0.031)***	(0.096)*	(0.031)***
Infrastructure of municipal primary schools				
Connection to public water network (%)	0.136	0.108	0.138	0.108
	(0.367)	(0.120)	(0.367)	(0.120)
Connection to electricity network (%)	6.787	-3.000	6.765	-2.995
	(0.838)***	(0.378)***	(0.838)***	(0.378)***
Connection to sewerage network (%)	-0.228	0.123	-0.220	0.122
	(0.378)	(0.106)	(0.378)	(0.106)
Regular waste collection (%)	2.431	-0.639	2.411	-0.634
	(0.405)***	(0.138)***	(0.404)***	(0.138)***
Availability of computer lab (%)	-0.616	0.163	-0.613	0.163
	(0.199)***	(0.065)**	(0.199)***	(0.065)**
Availability of science lab (%)	-0.116	0.045	-0.109	0.043
	(0.688)	(0.142)	(0.688)	(0.142)
Availability of kitchen (%)	2.439	-1.352	2.438	-1.351
	(0.545)***	(0.227)***	(0.545)***	(0.227)***
Availability of library (%)	1.700	-0.480	1.685	-0.476
	(0.200)***	(0.064)***	(0.200)***	(0.064)***
Availability of playground (%)	-1.828	0.669	-1.822	0.667
	(0.253)***	(0.067)***	(0.253)***	(0.067)***
Number of classrooms used (average)	-0.012	0.001	-0.012	0.001
	(0.008)	(0.003)	(0.008)	(0.003)
Availability of school meals (%)	1.495	-0.546	1.497	-0.546
	(0.773)*	(0.315)*	(0.773)*	(0.315)*
Municipality fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Constant	YES	YES	YES	YES
Observations	40,730	40,730	40,730	40,730
R-squared	0.372	0.220	0.372	0.220
Number of municipalities	5,547	5,547	5,547	5,547

Notes: Robust standard errors clustered at municipality level in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Regression Analysis III: São Paulo audited data

	(10)	(11)	(12)	(13)	(14)	(15)
Variables	IDEB score	IDEB score	IDEB score	IDEB score	Pass rate	Dropout rate
Appointees (% out of total civil servants)	-0.010	0.007	0.007	0.006	-0.001	-0.003
	(0.002)***	(0.003)**	(0.003)***	(0.003)**	(0.018)	(0.004)
Number of municipal civil servants (log)			0.069	0.041	0.551	0.076
			(0.059)	(0.056)	(0.282)*	(0.074)
Municipal population			0.000	0.000	0.000	0.000
			(0.000)*	(0.000)*	(0.000)	(0.000)
Municipal expenditure in education per capita (BLR)			0.000	0.000	-0.000	-0.000
			(0.000)*	(0.000)*	(0.000)	(0.000)
Municipal net current revenue per capita (BRL)			-0.000	-0.000	0.000	0.000
			(0.000)*	(0.000)	(0.000)	(0.000)
Leftist Mayor (dummy, 1 = left wing party)			-0.124	-0.131	0.268	0.030
			(0.053)**	(0.057)**	(0.408)	(0.025)
Mayoral margin of victory (%, difference runnerup)				-0.014	0.428	-0.007
				(0.083)	(0.550)	(0.048)
Infrastructure of municipal primary schools						
Connection to public water network (%)				0.110	-1.991	-0.437
				(0.191)	(1.773)	(0.487)
Connection to electricity network (%)				-0.221	2.239	-0.453
				(0.436)	(3.114)	(0.607)
Connection to sewerage network (%)				-0.026	-0.175	-0.139
				(0.139)	(1.784)	(0.099)
Regular waste collection (%)				0.070	3.315	0.123
				(0.202)	(2.867)	(0.084)
Availability of computer lab (%)				-0.028	0.551	-0.058
				(0.079)	(0.594)	(0.044)
Availability of science lab (%)				-0.168	1.683	0.050
				(0.236)	(1.780)	(0.134)
Availability of kitchen (%)				0.020	0.693	-0.015
				(0.117)	(0.751)	(0.108)
Availability of library (%)				0.150	0.555	-0.021
				(0.071)**	(0.423)	(0.042)
Availability of playground (%)				-0.035	-0.992	-0.058
				(0.066)	(0.846)	(0.069)
Availability of school meals (%)				-0.086	0.523	-0.120
				(0.299)	(1.901)	(0.191)
Number of classrooms used (average)				0.008	0.052	0.008
				(0.010)	(0.075)	(0.015)
Municipality fixed effects	NO	YES	YES	YES	YES	YES
Year fixed effects	NO	YES	YES	YES	YES	YES
Constant	YES	YES	YES	YES	YES	YES
Observations	2,358	2,358	2,358	2,276	3,564	3,564
R-squared (within)	0.009	0.393	0.397	0.405	0.111	0.007
Number of municipalities		610	610	608	636	636

Notes: Robust standard errors clustered at municipality level in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

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