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How Politicians React to Anti-Corruption Investigations and Enforcement. Evidence from
Brazilian Municipalities

A dissertation submitted in partial satisfaction
of the requirements for the degree
Doctor of Philosophy in Political Science

by

Manoel Gehrke Ryff Moreira

2019

ABSTRACT OF THE DISSERTATION

How Politicians React to Anti-Corruption Investigations and Enforcement. Evidence from Brazilian Municipalities

by

Manoel Gehrke Ryff Moreira

Doctor of Philosophy in Political Science

University of California, Los Angeles, 2019

Professor Miriam Golden, Chair

This dissertation examines how reactions by political elites moderate the efficacy of anti-corruption policies. The focus is on how their reactions explain the resilience of corruption and the limit the functioning of different tools of democratic systems: electoral accountability, legislative oversight of the executive branch and the sanctioning of corruption by judicial authorities. I study these in the context of the policies to curb corruption in Brazilian municipal governments that have been implemented since the beginning of the 2000s.

Audits of Brazilian municipalities are good examples of highly independent and professional anti-corruption interventions suggested by experts and recommended by international organizations and prominent non-governmental organizations. Professional and independent audits uncovered substantial evidence of corruption in most municipal governments but did not lead to substantial electoral consequences. By providing an explanation for why such anti-corruption intervention do not have substantial political consequences, these findings highlight the capacity of elected officials to re-optimize their political strategies. Political elites use their ability to exchange favors and transfer rents in return for political survival and to avoid the consequences of a corruption crackdown. Elected officials are interdependent and strategic about the political alliances and exchange of favors and resources necessary to keep their coalitions together. This suggests that short-term gains targeted at specific individuals might come at the expense of long-run transformations in municipal governments.

In addition, mayors and potential participants in corrupt transactions respond to the removal from office of neighboring mayors, a visible form of punishment for corruption, by engaging less in activities that might latter result in their own conviction. My findings corroborate the resilience of the political elites to interventions that might undermine the status quo as well as their ability to adapt their behavior to new circumstances.

The dissertation of Manoel Gehrke Ryff Moreira is approved.

William Summerhill

Barbara Geddes

Miriam Golden, Committee Chair

University of California, Los Angeles

2019

To Camilla, Carmen and to the memory of my aunt Clara

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ACKNOWLEDGMENTS

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CHAPTER 1

Introduction

Political corruption has been in the forefront of policy and scholarly debates about politics and economic development in developing countries, especially since the second half of the 1990s. Since then, many countries have implemented ambitious reforms to tackle corruption. Many legislatures enacted laws to promote transparency in governments, create specialized investigatory bodies to uncover official graft and developed sophisticated tools against money laundering (Recanatini 2017). Other examples of reforms include the increase in the penalties for those who are found guilty, the extension of the liability to corporations participating in corrupt transactions, the possibility of plea bargaining, and protections for whistle-blowers who report corruption (Hough 2017). Despite consensus on the importance of fighting political corruption and its negative consequences on societal welfare and on government responsiveness to citizens' demands, the record of anti-corruption reforms throughout the world is not sound (Rotberg 2017, Johnston 2018). In most countries, corruption has been remarkably persistent despite substantial innovations in anti-corruption policies.

One important reason put forward by scholars as well as by non-governmental institutions such as Transparency International to explain such persistence of corruption is that citizens lack information about elected officials' malfeasance because of the secrecy of their actions. More information about politicians' acts is, therefore, expected to raise voters' awareness and to change their voting preferences (Ashworth 2012, Przeworski et al 1999, Besley 2006). Because most citizens are negatively affected by corruption, in environments where high-level of corruption is a salient topic, they would use their vote to punish those whose corruption is revealed. Responding to such changing incentives, politicians are expected to adjust their behavior in government to the potential risk of getting substantial penalties, spending time in

prison or ruining their future political careers. However, most empirical research on the topic shows that even when corruption is discovered and publicly announced, politicians who are charged of malfeasance often manage to escape prosecution and frequently win subsequent elections (De Vries and Solaz 2016, Dunning et al. 2018). Most existing explanations to this puzzle focus on the obstacles to electoral accountability (Kurer 2002).

In addition to the "vertical accountability" that characterizes the relationship between voters and elected officials, democratic institutions include a set of public officials who have the duty to monitor and sanction the actions undertaken by other public officials, something that Guillermo O'Donnell (1998) termed "horizontal accountability". The legislative and judicial branches, as well as prosecutors, police, and other anti-corruption agencies have oversight responsibilities over those in the executive branch of government and their own members. These institutions play a critical role in . The inability, lack of autonomy, reluctance or lack of incentives of these institutions to monitor, investigate, and sanction illegal behavior by public officials is a main reason why corruption persists.

The focus of this dissertation is on political corruption, which is generally defined as the misuse of elected office for personal or partisan gain (Rothstein and Varraich 2017). Political corruption is organized to benefit electoral officials and/or their political parties, directly or indirectly. Differently from bureaucratic corruption, political corruption often includes the participation of both civil servants and elected officials (Gans-Morse et al. 2018). Political corruption is sometimes referred to as 'grand' corruption rather than 'petit' corruption, which commonly applies to bureaucratic corruption. Examples of political corruption include the diversion of public resources for political campaigns, schemes such as illegal bid practices that benefit elected officials through kickbacks from contractors, and illegal use of public resources to buy political support (Gingerich 2015). Political corruption also includes electoral malfeasance such as vote buying, the use of illegal campaign resources or other illegal campaign strategies. Diversion of public resources accrues from deals made for infrastructure projects, procurement or service delivery as a result of the collusion of elected officials, civil servants, intermediaries and contractors (Della Porta and Vannucci 1999). Besides the direct consequences from the misappropriated resources, corruption usually shifts resources from

the most efficient programs from the point of view of citizens' welfare to those that are more lucrative for contractors and politicians.

Systemic corruption makes it difficult for there to be a group of actors (voters, political parties, prosecutors, or the judiciary) that has enough tools to monitor and enforce anti-corruption behavior (Manow 2003, Fisman and Golden 2017). Societies face stiff obstacles in the transition from a high corruption equilibrium to a less corrupt one because the equilibrium that emerges depends on shared expectations about others' behavior. The result is that only a limited number of countries managed to escape from this "trap" of systemic corruption (Mungiu-Pippidi 2016). Mushtaq Khan (2006) argues that corruption is hard to combat because it serves to satisfy the demands of the most powerful factions that determine whether a politician has enough political stability to govern.

Democratic systems throughout Latin America (with a few authoritarian exceptions) for the least three decades, as in other developing countries, have not been able to prevent a level of corruption that substantially decreases the welfare of the vast majority of citizens. High levels of political corruption still pervade the functioning of governments in most countries of the region, except perhaps for Chile, Costa Rica and Uruguay. Political corruption in Brazil, the world's fourth largest democracy, remains rampant despite successive corruption scandals. Research on Brazil shows that firms that donate to electoral campaigns of federal deputies are more likely to receive government contracts and that after the their victory federal deputies use infrastructure projects to foster their relationship with firms (Samuels 2002, Boas et al. 2014). The association between campaign financing and public procurement is lucrative both for politicians and politically connected contractors.

Investigations revealed that a cartel formed by the Brazil's main construction companies (including Odebrecht, OAS, Camargo Correa) in contact with three directors of Brazil's petroleum company Petrobrás and other state-owned enterprises had built an enormous bid-rigging and bribery scheme. Resources were being distributed to the coalition members that appointed the directors in exchange for Congressional support. The Car Wash operation have embroiled many of Brazil's largest corporations, a significant share of its political class, leading to the conviction and imprisonment of former Presidents Lula da Silva and Michel

Temer. The controversial impeachment of President Dilma Rousseff in 2016, which itself was not due to revelations of corruption, happened in a context in which members of her own party, the Workers' Party, as well as a large share of legislators who voted to remove her from office were themselves closely implicated in the corruption scandal. The President of the Chamber of Deputies, Eduardo Cunha, who played a crucial role in the impeachment proceedings, as well as Michel Temer, who replaced President Rousseff, would be later convicted for corruption.

The ramifications of the Car Wash operation have extended well beyond Brazil, causing the resignation of Pedro Pablo Kuczynski (2016-2018), president of Peru, as well as of the runner-up Keiko Fujimori. That same investigations demonstrated that Brazilian authorities as well as in other Latin American countries were capable of incriminating and convicting some of the wealthiest and most powerful citizens in the country. In Colombia and in Ecuador, despite substantial corruption that was unveiled, have not led to punishment in the same pace (Americas Quarterly 2019). The variation in the outcomes of anti-corruption operation also demonstrates politicians' ability to protect themselves, block investigations as well as the level of politicization of the judiciary and other investigative authorities such as prosecutorial bodies.

Examining how anti-corruption initiatives shape politicians' behavior and whether they change the status quo systematically is challenging for many reasons. Due to the secret nature of corrupt deals and the costs of investigating them, detailed and reliable information about political corruption is scarce (Della Porta and Vannucci 2016). Politicians and others involved in corruption have great incentives to hide corruption from auditors, prosecutors and judges, as well as from the public. Politicians might accuse their political adversaries of malfeasance without presenting clear or reliable evidence. In many contexts, anti-corruption campaigns are highly politicized, used to purge rivals and started for political reasons (Pei 2018, Gillespie and Okruhlik 1991). What is found in anti-corruption investigations often depends on politicians' ability to hide their wrongdoings (Pande and Olken 2013). In addition, the political context can also determine the incentives other agents have to help uncovering and to sanction other public officials for corruption (Grossman and Michelitch 2018).

For these reasons, I address these questions and overcome the limitations raised in the paragraph above through the use of a natural experiment and observational data based on anti-corruption initiatives that took place in thousands of municipal governments in Brazil since the beginning of the 21st century. I examine the efficacy of two main components of anti-corruption policies that were implemented to tackle corruption in Brazilian municipal governments since the beginning of the 2000s: investigation and revelation of corruption through the use of randomized audits, and removals of mayors from office because of political corruption by judicial authorities.

Independent audits of governments are considered to be one of the most effective tools against corruption because they generate novel and credible evidence of corruption that otherwise would probably have remained unknown (Khemani et al. 2016, Olken 2007). Since 2003, the Office of the Comptroller General (*Controladoria Geral da União*, CGU), created with the specific mission of combating graft in governments, started a program that uses lottery to select which municipal governments in each Brazilian state are going audited. This allows me to create a reliable counter-factual group with which to compare to the municipal governments that are investigated by auditors for more that a decade. The use of this natural experiment also allows me to account for informal institutions and other unobserved characteristics that are likely to be balanced across the audited and non-audited municipalities but are very difficult to measure and to account for on most empirical studies on corruption. In addition to randomized audits, I analyze the effects of removals of mayors from governments by the judiciary.

I focus on how revelations of corruption and penalties interact with core elements of democratic systems: electoral accountability and legislative oversight of the executive branch. Specifically, I examine four main questions: (i) Do revelations of corruption lead to the electoral sanctioning of incriminated politicians and their political parties? (ii) How do incriminated elected officials avoid legislative scrutiny from other officials whose responsibility is to monitor and sanction them? (iii) How do incriminated officials gather support from other politicians to run subsequent elections? and (iv) Do removals of mayors from office by the judiciary, a visible punishment of corruption, affect the level of malfeasance?

To answer these questions, I leverage micro-data from thousands of audit reports, judicial cases, trials from state and federal courts of accounts, detailed data based on politicians' assets and campaign revenue declarations, as well as the geographical configuration of local television markets. In the next section, I provide reasons why Brazilian municipalities provide us an important setting where to test hypotheses about the efficacy and consequences of corruption crackdowns.

1.1 Why Brazilian Municipalities?

Examining the effects of anti-corruption policies in Brazilian municipalities has five main substantive and methodological advantages. First, it allows me to account for many aspects that previous research has found to be important in determining the level of corruption (Kunicová and Rose-Ackerman 2005). Formal political institutions, including the electoral system and the laws governing corruption, are constant throughout the country's municipalities (Da Ros 2014). Brazilian municipalities are "miniatures" of presidential systems present at the state and federal level as well as in many other parts of the world. Brazilian municipalities are a good setting where to test the role of top-down interventions because institutions are relatively constant across the country: (i) mayors operate under the same laws that regulate wrongdoing in the local administration, (ii) mayors are elected under the same electoral rules, (iii) their mandates have the same duration. In addition to that, all elected officials can appeal to the same superior courts (Superior Tribunal de Justiça or Tribunal Superior Eleitoral) and the same Constitutional Court (*Supremo Tribunal Federal*) to contest a decision based on a corruption case (Ingram 2016). This helps to make the burden of proof for corruption trials more comparable across the territory. [1]

Second, Brazilian municipalities are a good laboratory for testing the effects of anti-corruption interventions because there has historically been a substantial amount of corruption, clientelism and patronage (Nichter 2018). Traditional politicians in most parts of the country were able to withstand substantial changes in political regimes during the 20th

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[1] A high proportion of the judicial cases indeed go all the way to *Supremo Tribunal Federal*.

century (Hagopian 1996). This is true also for the military dictatorship that lasted 21 years, which had as one of its expressed goals to change the way politics was done in the country.

The initiatives of curbing corruption in municipal governments during the last two decades, analyzed in this dissertation, are arguably the most comprehensive and systematic in Brazil's history. In addition to the substantial increase in the investigations and revelations of corruption in municipal governments brought by the audits program, there have been unprecedented increases in the punishment of corruption committed by Brazilian mayors by the judiciary since the mid 2000s (Figure 1.1) [2]. Approximately 50% and 60% of these convictions entailed the payment of a fine and the reimbursement of the resources that were misappropriated (Figure 1.3). In more than 70% of the cases, a conviction entailed the mayor's ineligibility for any type of public office for the subsequent 8 years.
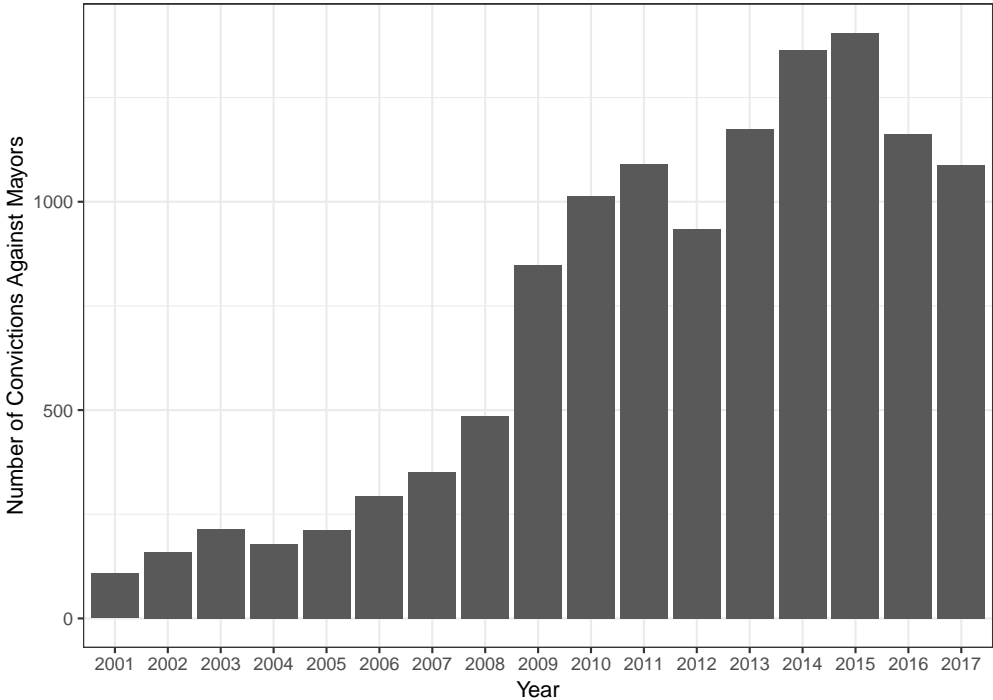
Figure 1.1: Number of Convictions against Former and Incumbent Mayors for Corruption Overtime

Note: Own calculations based on judicial records. An individual mayor can be convicted more than once.

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[2]For the details of these convictions, see section 5.3.
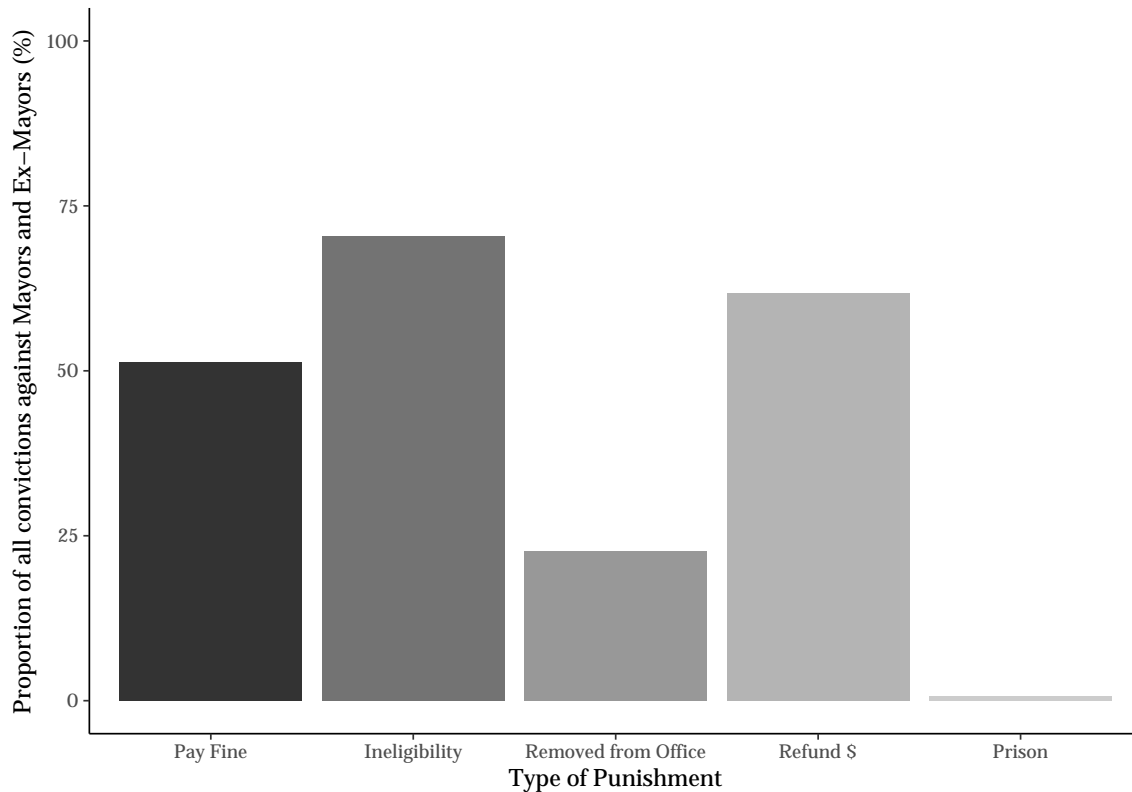
Figure 1.2: Type of Punishment Entailed by the Conviction against Former and Incumbent Mayors

Note: Own calculations based on judicial records. Mayors can be convicted more than once.

These convictions had an consequential effects throughout the country. They reached at least one former or incumbent mayor in more than 2,500 Brazilian municipalities (Figure 1.3). Depending on the conviction, a mayor might be removed from office by a judicial decision. From 2000 to 2014, 542 mayors were removed because of corrupt acts that they committed during their campaigns or while in office, and did not go back to mayorship until the end of their terms.

Third, there is a substantial variation in levels of development, educational levels, inequality and access to the mass media across Brazilian municipalities, what makes the findings here more likely to hold true for other parts of the world (externally valid). Brazilian municipalities cover a broad spectrum of human development across countries. The median level of development in a Brazilian municipality is roughly similar to the unweighted average across
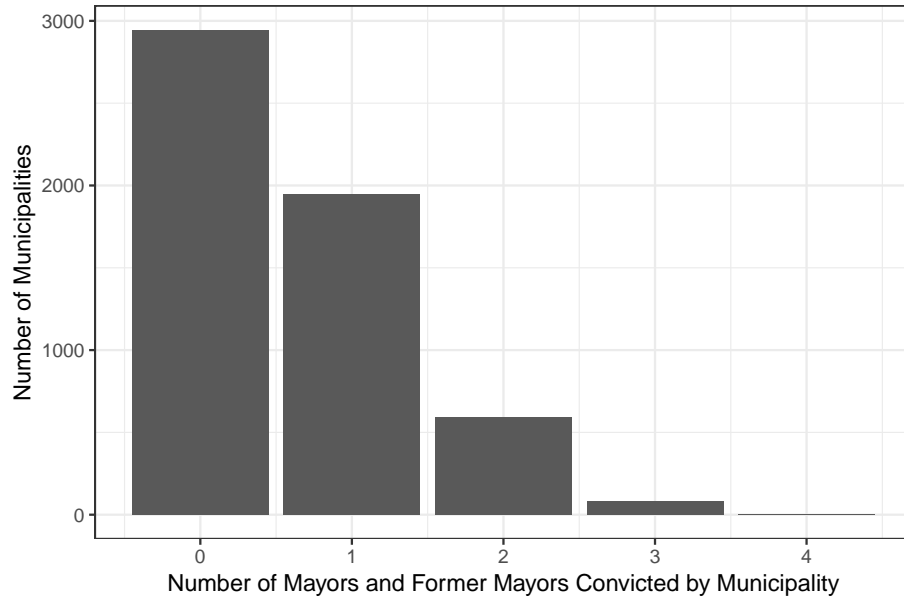
Figure 1.3: Number of Convictions of Mayors and Former Mayors by Municipality

Note: Own calculations based on data from judicial records.

all countries in the world (see figure below). Some Brazilian municipalities have a similar level of development to that of Pakistan and India, while others have a similar level that of Russia and Argentina.
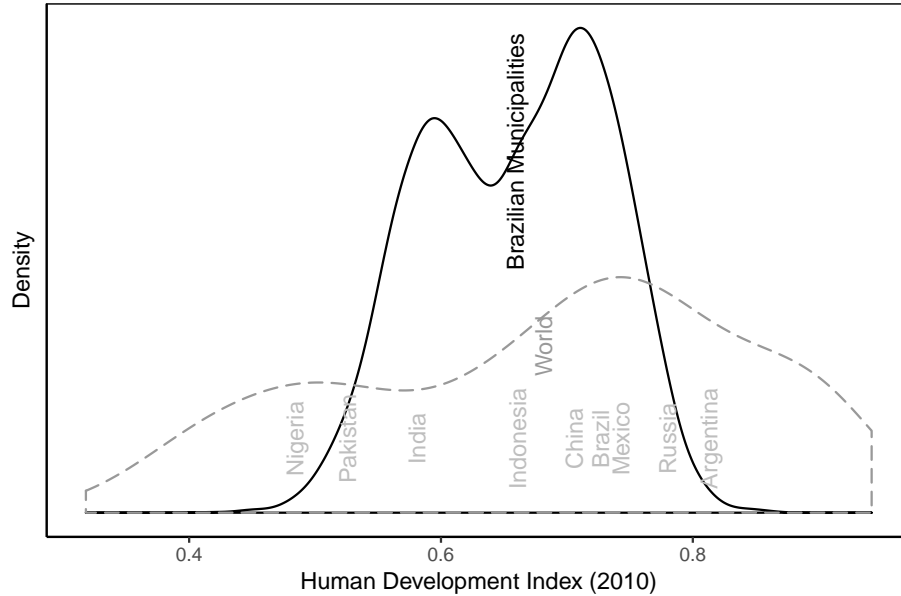
Figure 1.4: Human Development Index - Brazilian Municipalities and Country Averages

Note: Own calculations based on data from IBGE (Brazilian municipalities) and the Human Development Report 2012 (country averages). The black line plots the probability density function for all Brazilian municipalities and the black line plots the probability density function for all countries in the world. Densities are not weighted by the population size of the individual observations. Country names are ploted at the respective level of Human Development Index.

Fourth, policies implemented by municipal governments in Brazil substantially affect the lives of 210 million inhabitants. Brazilian municipal governments play a crucial role in the provision of public services, such as basic health (health clinics, vaccines, doctor's visits, etc.), sanitation, early childhood education and primary education to more than two thirds of all Brazilian children, as well as for the provision of local infrastructure such as paved streets, garbage collection, and public transportation. In 2017, the total revenue of municipal governments was equivalent to 7% of Brazil's GDP (227 billion U.S. dollars). These resources on one hand, can make a difference in the life of Brazilians but are at the same time a potential source of funds that can potentially be channeled for illegal purposes. The visibility of the post and the resources controlled by mayors are very attractive for politicians' careers.

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Fifth, I examine some of the most prominent and high-quality anti-corruption policies currently present in developing democracies. Audits of municipal governments in Brazil, for instance, have been used as an example by international organizations of the kinds of policies that can be introduced in other countries (Khemani et al. 2016).

1.2   Main Findings

My findings indicate that even in light of substantial increases in the monitoring and in the punishment of corruption and despite the context of high political competition and frequent turnover present in most Brazilian municipalities, political actors reorganize and adapt to the new conditions to resist changes to the status quo. In general, corruption persists because the general institutional system of incentives and opportunities still make it a profitable enterprise. Elected officials, however, are not indifferent to changes in the anti-corruption framework and react by adapting their strategies according to the new scenario they face and to specific political incentives such as their re-electoral ambitions, keeping a majority in the local council to prevent further investigations and their interactions with other politicians.

My work stresses that the ability of elected officials to react to corruption revelations is an important determinant of the efficacy of anti-corruption strategies. It suggests that political incentives and the interactions among officials in different branches of government. In addition to that, I provide concrete ingredients to the rather abstract debate about the difficulties political systems face in the transition from a high-level to a lower-level of corruption. Local political systems moderate the effects of anti-corruption initiatives by readjusting their rent-seeking as a result of revelations and punishment of corruption.

Audits of municipal governments are an important tool used by Brazilian authorities at the federal level to monitor the use of public resources in municipal governments. By providing information about corrupt transactions, audits are expected to increase the likelihood that participants in these transactions are exposed and punished. Even though most anti-corruption audits indeed reveal evidence of corruption, on average, incumbent mayors' and parties' ability to remain in office is not affected by these revelations. Their ability to

remain in government is independent of the magnitude of corruption that is uncovered. My results that voters do not sanction incriminated mayors in Brazilian municipalities corroborate that the null findings of the substantial literature on electoral accountability. I test for various electoral strategies that can be used by incumbent parties in a multiparty settings. The incumbent party can nominate another of its members rather than the mayor, back a candidate from another political party that was previously allied, or endorse a candidate from a party that was not previously allied. Audits did not have a negative effect on the probability that the incumbent party or its allied parties win the mayoral race, irrespective of the strategy.

Political parties in some contexts are considered key players in enforcing behavior among its members. In context of Brazilian municipalities, however, after corruption in their administration is revealed, mayors are as likely to get endorsed by their own political parties and to be supported by other parties as mayors in non-audited municipalities. In context of high party fragmentation, weak party labels and high levels of party switching, parties do not have strong incentives to hold their members accountable. Audits did not caused substantial effects in terms of the replacement of mayors from a particular ideology with politicians from the other side of the ideological spectrum.

I provide an explanation for why revelations of malfeasance do not hamper mayors' political careers. I find that, even after audits reveal corruption in municipal governments, incriminated politicians in Brazil manage to avoid further investigations and impeachment. In municipalities where the mayor needs to attract the support of politicians from other parties to reach the majority audits leads to a higher wealth accumulation for council members than in municipalities where the mayors' party is stronger.

The effects of audits on wealth accumulation depend on the political incentives of mayors. When incriminated politicians are eligible for reelection, council members in the mayor's (previous) electoral coalition who belong to other political parties experience an increase in their assets in return for the mayors' political survival. This allows incriminated mayors to survive in office and to remain competitive for the subsequent electoral cycle by preventing defections that might weaken their electoral coalitions. Mayors' previous coalition partners

are protected from reductions in campaign revenues when the municipality is audited and the mayor is eligible for reelection. I interpret this as evidence that campaign donors and mayor himself will engage in actions that ensure their allies get enough funds to finance their campaigns.

To reduce uncertainties and seek their support in future elections, incriminated mayors share more spoils of office with councilors who were their coalition partners in the previous election. I show that coalition membership has a positive effect on councilors' personal wealth in audited municipalities. When mayors are term limited, councilors in their own party are those who on average, observe a higher increase in their personal wealth. Mayors' ability to change their rent-sharing strategy and redistribute material rewards makes councilors less likely to enforce anti-corruption behavior and fulfill their constitutional duty of overseeing the executive branch. Council members, who do not take further action investigating the executive branch, do not on average, suffer any electoral loss for not acting. These results raise serious concerns about the ability of democracies to create incentives for politicians not to engage in malfeasance.

I demonstrate that changes in rent-sharing strategies allow incriminated politicians to survive in government until the subsequent elections, and to be in a strong position to run for reelection. Members of the city council can bargain over the continuation of their support to protect the mayor and prevent further investigations about the wrongdoing revealed by the audits. Short-term gains for council members including personal enrichment and campaign revenue come at the expense of long-run transformations in local governments.

I also address whether the judicial punishment of corrupt politicians deter political corruption. Surprisingly, little systematic evidence to this fundamental question exists, especially for developing democracies. Since investigating corruption is costly, enforcement of the rule law needs to be cost-effective. Therefore, whether the punishment of a set of actors alters the behavior of others is an important test to anti-corruption initiatives. Spillover effects are commonly articulated as part of anti-corruption strategies. I argue that the behavior of politicians depends on their perception of what is the probability of remaining immune from punishment if illegal behavior is discovered. Analyzing a period of substantial change in the

enforcement of corruption cases, I find that there are spillovers of judicial sanctioning in the context of Brazilian municipalities. The removal of corrupt mayors from office, a visible punishment, causes the deterrence of corruption in neighboring municipalities. Mayors in Brazil, however, seem to be responsive to their surroundings and to changes in law enforcement of corruption cases.

1.3   Structure of the Dissertation

In chapter 2, I provide an overview of the anti-corruption crackdowns in Brazil in the last decades. Many of the dynamics of political corruption at the federal and state level in Brazil are similar to those encountered at the municipal level. In the second part of the chapter, I present the about context of my locally grounded empirical analysis presented in subsequent chapters. I describe of the formal structure and the functioning of municipal governments in Brazil, including the importance of executive-legislative relationship and politicians' personal wealth in municipal politics as well structural factors that correlate with how much is uncovered by an anti-corruption audit.

In chapter 3, I start by presenting the arguments for why we should expect electoral punishment of corruption and reasons why electoral sanctioning might be hampered. I then present the empirical strategy and conduct a complete analysis about different channels through which electoral sanctioning might take place. I demonstrate that audits have a limited political consequences in terms of incumbent mayors and political parties reelection rates. I also show that these results are irrespective of the presence of local radio station and the electoral competition in previous mayoral elections. Audits do not lead to the substitution of mayors by politicians from a different side of the ideological spectrum either.

In chapter 4, I propose an explanation for the null findings in chapter 3. I show that politicians' capacity to change their rent-sharing strategies influence their ability to prevent defections and to block further investigations of malfeasance through potential hearings, parliamentary commissions of inquiry, etc. I demonstrate that the effects of audits on councilors' wealth accumulation is conditioned by their political affiliation, the strength of the

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mayor's party in the local council as well as mayors' re-electoral incentives.

In chapter 5, I provide a background of mayors' judicial convictions for corruption and removals of mayors from office. I test the effects of this visible form of punishment of mayoral corruption in municipalities in the same media market. My results show that mayors in municipalities that are more likely to have received ample television coverage of a mayor who was removed from office for corruption is less likely to be found guilty of wrongdoing.

CHAPTER 2

Crackdowns on Corruption in Brazil

This chapter starts with a description of some of the main corruption scandals at the federal level in Brazil in the last decades. There are similar reasons why corruption is so established and persists in the different levels of governments. In section 2.2, I transition to the specific context of my empirical analyses and the provide a description of the main features of municipal governments and local politics. I then present some stylized facts about party fragmentation, income inequality and reelection rates as well as a summary about the personal wealth held by local elected officials. Section 2.3 contains an overview of policies to reduce corruption in municipal governments, a description of the state variations of municipal corruption and judicial convictions, as well as some facts about the electoral fortunes of convicted politicians.

2.1 Grand Corruption at the Federal Level

In 1992, the Brazilian Congress voted to impeach Brazil's first directly-elected President after more than 20 years of military dictatorship. Fernando Collor de Mello had won the 1989 presidential elections running as an anti-establishment and anti-corruption candidate. Collor's political career started after the military dictatorship appointed him as the mayor of Maceió, capital of the state of Alagoas, in 1979. He successfully ran for governor of Alagoas in 1986 as a member of the incumbent Brazilian Democratic Movement (PMDB), same party as the then president and Collor's predecessor, José Sarney. Collor's 1989 presidential campaign was based on critiques to Sarney's administration and general criticisms of the Brazilian political class. Less than 3 years later, President Fernando Collor de Mello renounced just

before the Senate vote that would still convict him for having his personal expenses payed by an influence peddling scheme organized by his campaign treasurer, Pedro Cesar Farias. Of the 81 senators, 76 voted to convict Collor and only 3 to acquit him. An optimistic perspective of this historical episode is that Brazilian democracy seemed to be consolidating as one branch of government was acting based on information revealed by press coverage and by a special Parliamentary Inquiry Commission. The political scandal also revealed how the extensive use of illicit tactics to finance Collor's electoral campaign as well as the attempts by his administration to "buy" votes of legislators using government contracts and state-owned enterprises, including to prevent impeachment (Geddes and Ribeiro Neto 1992).

In 1994, two years after Collor's impeachment, the *Supremo Tribunal Federal*, Brazil's superior court, which had jurisdiction over the corruption case committed by the president during his term in office, decided to acquit him. The decision was based on illegalities committed by the Federal Police, who inspected Farias' personal computer without a search warrant. After his political rights were restored, Collor went back to federal-level politics as a Senator: in 2006, Collor was elected to represent Alagoas and in 2014 reelected for another 8-year term. For many years, he acted the chairman of the Infrastructure Commission and the Foreign Relations Commission. Starting in 2015, he has been charged by the Public Ministry for many episodes of fraud and embezzlement in connection to the major Car Wash investigations. Collor's political career is an example of politicians withstanding revelations and punishment of corruption.

One of the greatest corruption scandals in history started to be uncovered in Brazil in 2014. What began as an investigation by the Brazilian Federal Police of a money-laundering scheme in a gas station in the capital city of Brasília, ended up embroiling some of biggest companies and a dozen former and current heads of state in Latin America. In Brazil, investigations revealed that a cartel formed by the country's main construction companies (Odebrecht, OAS, Camargo Correa, etc.) in association with three directors of Brazil's petroleum company Petrobrás had built an enormous bid-rigging and bribery scheme. Each company had a pre-defined set of infrastructure contracts to win. Between 1% to 5% of the contract would go towards bribes to the Petrobrás directors and to fund kickbacks to political

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parties and some of the most influential politicians in the Federal Congress. When the CEOs of the companies started negotiating plea bargain deals with prosecutors, it was expected that the Brazilian political system would "collapse" as a result of the direct involvement of dozens of the country's most important politicians in the corrupt deals with these firms.

One single company, Odebrecht, a global construction conglomerate based in Brazil, admitted having payed more than $780 million U.S. dollars in bribes to politicians, government officials and to fund the campaigns of political parties across Latin America (ICIJ 2019). Odebrecht often donated to the campaigns of winners and to runner-ups, securing the odds it would be able to have contacts and be able to benefit from a close relationship with governments irrespective of the final result. The company used a sophisticated offshore accounts, purchased a bank to conduct the transactions, and had in its organization chart an internal "Department of Bribery". Odebrecht and a co-owned subsidiary Braskem, a large petrochemical company, plead guilty to Brazilian and Swiss authorities, and to the Department of Justice in the United States in 2016 and agreed to pay $ 3.5 billion U.S. dollars in fines for their illegal activities.

Corruption scandals during the 1990s, 2000s and 2010s, including scandals involving Collor and the Car Wash operation, have shed light on different facets of corrupt schemes and on their extension (Power and Taylor 2011). A party that had long denounced corruption, clientelism and other forms of traditional politics in Brazil, the Workers' Party (PT), held the Presidency for 13 consecutive years: from 2003 to 2016. Despite being considered Brazil's most programmatic political party, corruption scandals surfaced early in the Workers' Party (PT) tenure (Anderson 2019). The *Mensalão* ("Big Monthly" Payment) scandal in 2005 revealed that a group of financial institutions and marketing firms that had overpriced contracts with state enterprises were giving kickbacks to Congressman in order to boost President Lula's legislative support. The schemes involved politicians from different political parties that had backed Lula's contenders in the election and the party of the vice-president. Among those convicted for receiving kickbacks were two presidents of two right-wing parties (Partido Progressista and Partido Liberal) and congressmen from 9 different parties. Lula's own chief of staff, José Dirceu (PT), was convicted for overseeing

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the bribery scheme.

The highest share of seats the PT while holding the presidency was 17% in both the Chamber of Deputies and in the Senate in the 2011-2014 legislature. PT's "coalition presidentialism" demanded the support of more parties than its closer allies, small parties on the left of the ideological spectrum, held another 10% of the seats *The term coalition presidentialism was coined by Brazilian political scientist Sérgio Abranches to describe presidents' strategies to co-opt supporters in the Federal Congress with cabinet positions, "pork" and corruption..* To withstand investigations and to pass reforms, the Workers' Party engaged in coalition building with conservative parties, many of them who had always been supportive of the all previous administrations since redemocratization, independently of the political party that held the Presidency. This strategy was reinforced after the "Big Monthly" Payment scandal, when the PT coalition incorporated the *Partido do Movimento Democrático Brasileiro* (Party of the Brazilian Democratic Movement, PMDB) and the *Partido Progressista* (Progressive Party, PP), two parties that had substantial representation in the Federal Congress and little ideological affinity with the Workers Party (Nobre 2016).

At the same time, during the tenure of the two presidents affiliated to the Workers' Party, Lula and Rousseff, many policies to combat graft of public resources were created and consolidated. This included strengthening the independence and budgets of the Public Ministry, the Federal Police, anti-money laundering units of the Central Bank and the *Receita Federal*, Brazil's tax authority. Legislation such as a law against organized crime that includes the possibility of plea bargaining, and the establishment of corporate liability for firms involved in corruption were proposed by the executive branch and approved by Congress. To combat corruption in local governments, authorities at the federal level innovated by creating tools to investigate municipal governments' use of federal transfers through randomized audits (see section 2.3). In 2016, President Rousseff was herself impeached and removed from office by the Brazilian Congress in the mist of a major corruption scandal even though Rousseff's direct involvement in corrupt deals was not proven. A large share of federal legislators that convicted Rousseff were themselves embroiled in the Car Wash investigations. In 2018, former President Lula, who achieved the highest levels of popularity of any president since

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re-democratization was himself convicted for corruption and spent more than a year and a half in prison.

2.2 Municipal Governments and Politics

2.2.1 Institutional Characteristics

Municipal governments have a long-standing history in Brazil. Starting in the colonial period, there were elections for city councils in which only the wealthy and literate male citizens were the only ones who could vote and be elected. The city council would report to the Governor-General and to the representatives of the Empire and have substantial discretion in running local affairs. It accumulated judicial, legislative and executive power. In comparison, elections for the post of mayor in Brazilian municipalities have a shorter history. In addition to some restricted antecedents in specific parts of the country, municipal executives were created by the 1891 constitution, right after Brazil transitioned from being an Monarchy to a Republic (Nunes Leal 1977). The 1934 Constitution, despite extending the vote to literate females, restricted the direct elections of mayors, later reestablished by the 1946 constitution. Direct elections for mayors and city councilors continued to happen in the vast majority of municipalities since then. The military dictatorship which lasted from 1964 to 1985, restricted electoral competition and limited the representation but elections continued to happen in most municipalities but in state capitals. Only after the end of the dictatorship was universal suffrage achieved, including the extension of the right of vote to illiterate Brazilians, a substantial proportion of the Brazilian adult population throughout the 20th century.

Municipalities in Brazil are autonomous entities under the 1988 Constitution. Differently from other federal countries, municipalities in Brazil cannot be abolished or merged by the decision of state governments. Municipal governments collect their own taxes and receive billions of dollars in transfers from state and federal governments each year. Municipal governments are responsible for providing basic health services (health clinics, doctors),

pre-primary and primary education, garbage collection, sewage disposal, paved roads and public transportation to their citizens. In 2017, municipal budgets accounted for roughly 227 billion U.S. dollars, approximately 7% of the country's GDP, making Brazil one of the most decentralized countries in the world. Despite these resources, municipalities face stiff budget constrains. There are rigid rules on limits to municipal debt and the specific percentage of revenues that need to be spent in education and health. Municipal governments stand out in their importance for citizens' welfare and for politics, including national politics (Ames 1990). The political importance of the mayoral office in Brazil is manifest when we observe that every four years, approximately 20% of the federal deputies run for mayor. Winning local office is far from being guaranteed for federal deputies, who often face stiff competition. Out of the 87 federal deputies who ran for mayor in 2012, for instance, only 26 elected. Municipal elections are midterm elections to state and national elections, i.e. happen exactly 2 years after. [1] In 2016, more than 117 million Brazilians (of the 146 million eligible voters) turned out to vote in the local elections.

The structure of municipal governments is the same throughout Brazil. Each of the 5,570 Brazilian municipalities is governed by an executive, *Prefeitura* (City Hall), and an unicameral legislative body: the *Câmara de Vereadores* (Municipal Chamber). Every 4 years, citizens cast two separate votes: one for a mayor and another for a councilor. The executive branch is lead by a mayor, elected based on plurality rule together with a vice-mayor on the same ticket. The vice-mayor has no constitutional role other than that of replacing the mayor in case of death, impeachment or removal from office by the judiciary. The municipal chamber has typical legislative duties: councilors vote on bills proposed by its members or the executive; approve/amend the municipal budget; override mayor's vetoes and, most importantly for this study, oversee the executive. Between 2000 and 2016, in 83% of all municipalities-term combinations, mayors and vice-mayors belonged to different political parties. The mayor appoints the cabinet and other temporary positions in the executive branch. Councilors are elected through open-list proportional representation. The number

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[1]Differently from deputies and council members, mayors who want to run for state or federal offices have to resign by the middle of the second year in office.

of seats in each Municipal Chamber is determined by the population size of the municipality. It varies from 9 in municipalities whose population is less than 15,000 inhabitants to 55 in municipalities whose population is larger than 8 million inhabitants, the case of São Paulo. Because the population of most municipalities is below 22,000, most councils are composed by 9 to 11 members. Mayors can be elected for at most two consecutive terms while council members face no term limits. Elections for mayor are, in general, highly competitive. Half of all elections between 2000 and 2016 were decided by less than a 12% difference. A fourth of all elections were decided by less than 5% of the votes.

The open-list proportional representation and the absence of electoral thresholds favor the election of legislators from many different parties. Because of the high incentives for coordination generated by the plurality rule, most local political parties support a mayoral candidate from another party, expecting to be compensated if that coalition is elected to office. Parties tend to support mayoral candidates that will maximize their chances of electing their own candidates to the Municipal Chamber. Parties are allowed to form coalitions also for legislative elections. Small political parties benefit from joining larger parties in proportional elections because this increases the probability to surpass the electoral threshold since the votes for all parties in the coalition are pooled together and candidates who get the most personal votes, irrespective of their political party, secure the seats. Bigger parties usually accept to join the legislative coalitions in exchange for support to their mayoral or vice-mayoral candidate. The candidate for vice-mayor usually belongs to the second largest party in the coalition, and helps the executive in legislative negotiations after the elections. The electoral coalition formation stage ends 4 months prior to the actual election date, before the campaign officially starts. On this date, parties submit and announce their candidate lists and the composition of their electoral coalitions. During this period, candidates can withdraw their candidacies but cannot change their party affiliation or coalition. Municipal elections are always held in the first Sunday of October every four years in all municipalities. Mayors are sworn in on January 1ŝt. and council members on February 1ŝt..

The consequences of this electoral system are divided governments and fragmented party representation in the municipal chambers. In elections held from 2000 to 2016, in less than

10% of the municipalities did the mayor's party obtain a majority in the Municipal Chamber. For executives to pass legislation, approve the annual budget or avoid that the mayor's vetoes are overturned, the executives needs to attract support from legislators in other political parties. Mayors' vetoes can be overturned by a majority of the legislature. In the median municipality, the mayor's party holds approximately 25% of the seats. In a quarter of all municipalities, the mayor needs to attract the support of a large proportion of the votes from councilors from other parties since the party of the mayor holds less than 12.5% of the seats. As in other levels of government in Brazil, mayors use legal (cabinet appointments and policy concessions) and/or illegal means (bribes or illegal funds for campaign finance) to attract the support from legislators from other political parties. The existence of "parties for hire", parties which do not have a clear ideological stance and are composed by politicians who perceive politics as business, can allow the executive to surpass political "hurdles" created by the fragmentation of the party system (Kellam 2015). Fragmented political systems like the one in Brazilian municipalities have the advantage of providing coalition flexibility. Mainwairing (2003) describes most Brazilian parties as "decentralized, undisciplined and individualistic" catch-all parties. An example of ideological opportunism is the PSD, a party formed in 2012 that quickly became Brazil's fifth largest party in the National Congress. In 2012, its founder Gilberto Kassab, former mayor of São Paulo, stated that his newly formed party was "nor of the left, nor the right, neither of the center".

There has been a gradual replacement of a more concentrated geography in the party composition of municipal governments to a much more fragmented political system in Brazilian municipalities since redemocratization. In the 1982 elections, after the mandatory bipartisan system was extinguished, the heirs of the parties that were allowed to exist during the military dictatorship, the PDS and the PMDB, elected 62% and 36% of all council members respectively, while other parties elected 2% of the remaining council members. That year, the two main parties elected 99% of all mayors (Fleischer 2002). The party fragmentation across Brazilian municipalities has since then grown substantially, especially after the 2000s. In 2016, the partisan configuration of Brazilian municipalities was very different. The PMDB, the party that has been the leader in the number of mayors and council members in all

elections since 1986, only elected 19% of the mayors and 13% of council members. The party that elected the second highest number of council members was the PSDB, which elected 9% [2].
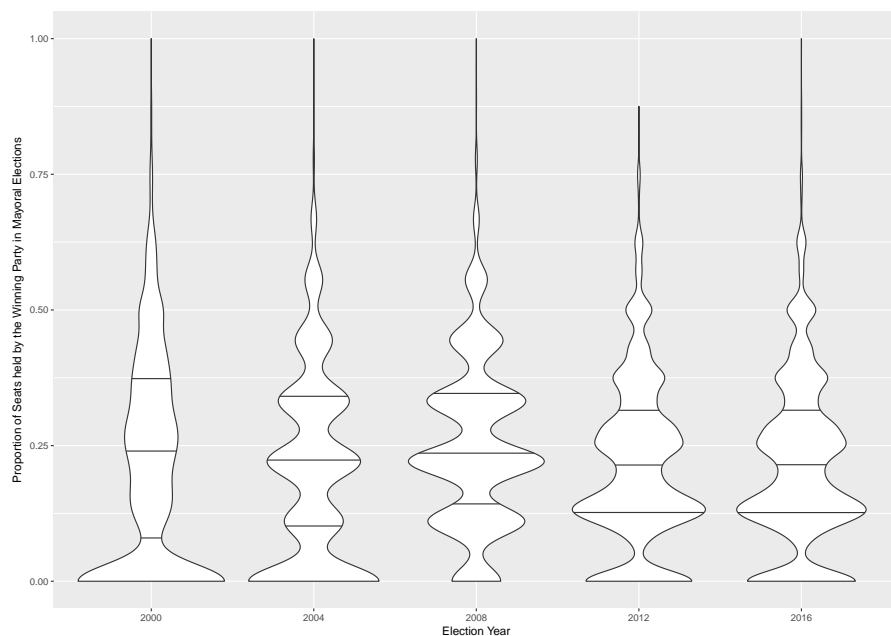
Figure 2.1: Proportion of Seats Held by the Mayor's Party in the Municipal Chamber
Note: From the bottom to the top in each violin plot, horizontal lines represent the minimum, the 25th percentiles, the median and the 75th percentiles, respectively. There figures are for all 5,565 municipalities in Brazil.

A mayor needs to attract the support from members of the municipal chamber, in addition to those in their own political party, each time they need a majority in the local council. Taking into account the electoral coalition, in only half of the municipalities from 2000 to 2016, mayors were elected together with a majority of legislators who belong to a party that was part of the mayors' pre-electoral coalition. These electoral coalitions are not legally binding and, therefore, can be subject to constant reshuffling and re-negotiations. Original members of the coalition might defect from the mayors' coalition either by switching parties or by simply voting against bills in the interest of the executive. Mayors in Brazil have a

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[2]Data from Brazil's Superior Electoral Court, TSE.

greater ability to punish defections from legislators from their own parties because opportunities for patronage are concentrated in the executive and because they usually control the party structure at the local level. This means that they can withdraw their support for future appointments within the party and nominations. Support in the local council is important to govern and for future elections. The share of seats held by co-partisans of the mayors in the city council is positively correlated with the ability of that political party to be reelected. This is true irrespective of whether the mayor is eligible for reelection [3]
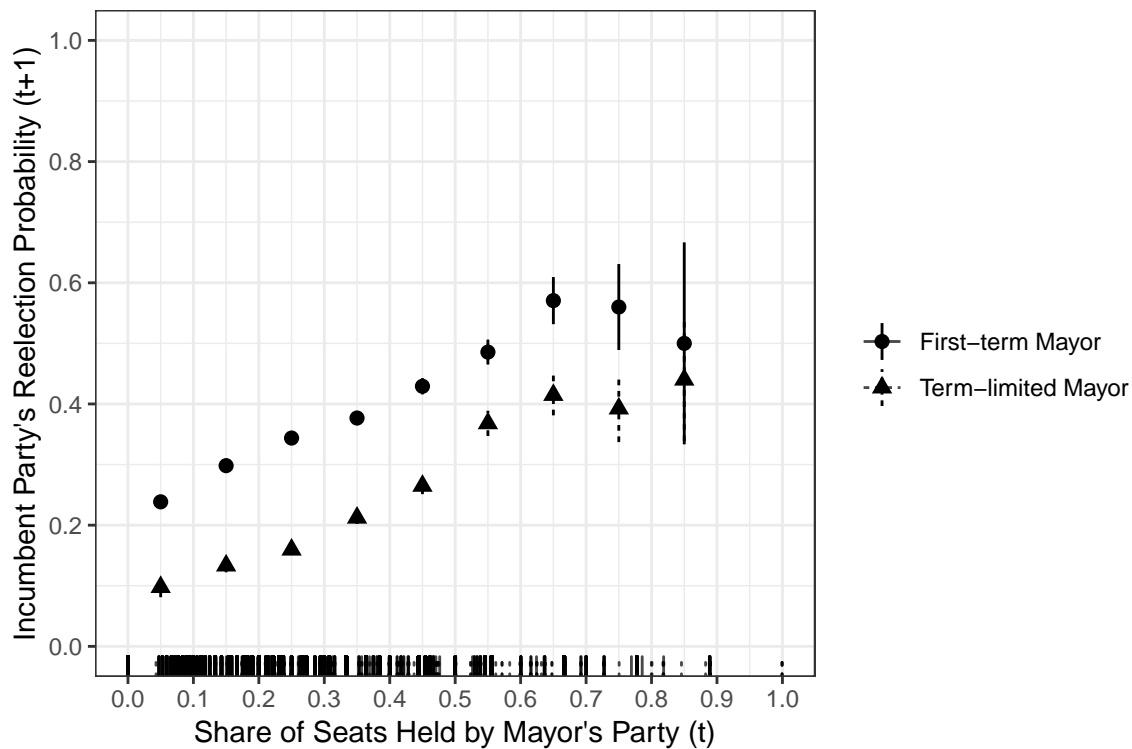
Figure 2.2: Proportion of Seats Held by the Mayor's Party in the Local Council and Unconditional Reelection Probability of the Incumbent Political Party

Note: Average and standard errors are calculated in each bin. Each bin corresponds to 10% of the seats.

The support or opposition to the mayor often serves as an organizing device for the local political system (Hagopian 1996). Many legislators themselves become members of the

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[3]For a complete description of mayors' and political parties' reelection rates, see chapter 3.

cabinet. The condition is that they temporarily renounce their seats and that are substituted by the most voted non-elected candidate from the same electoral coalition. They can come back to the municipal chamber if they resign from cabinet or they are fired by the mayor. Having a cabinet position can benefit the legislator both in terms of visibility of the programs their run and the budget they control.

2.2.2 The Role of Income Inequality and Politicians' Wealth in Municipal Politics

Brazil has consistently been one of the most unequal countries in the world. Over the 20th century, Brazil's top 1% income owners held one quarter of the country's total income (Souza 2018a, Souza 2018b). Income differences across its citizens affect many domains of the country's politics. One of the consequences is that elected officials are usually a lot wealthier than the average Brazilian citizen and that money plays a substantial role in politics. In this section I show the relationship between municipal income inequality and important factors of municipal politics.

2.2.2.1 Income Inequality, Party Fragmentation and Reelection Rates

Besides the very high level of income inequality at the national level, there is a substantial amount of variation in income inequality across municipalities. The share of seats held by the mayor's party and the fragmentation of party system in the municipality is strongly associated with that municipal characteristic (figures 2.3). In municipalities were income was distributed more unequally in 2000, the mayor's party was more likely to have a lower share of the seats in the city council in the elections from 2004 to 2016. In more egalitarian municipalities, the mayor's party representation in the local council is considerably stronger. These relationships require further investigation, including in their relationship to corruption because of the reasons why in highly fragmented party systems there is less clarity of responsibility and severe collective action problems for politicians and voters to monitor and sanction corruption (Kunicova and Rose-Ackerman 2005, Tavits 2007).
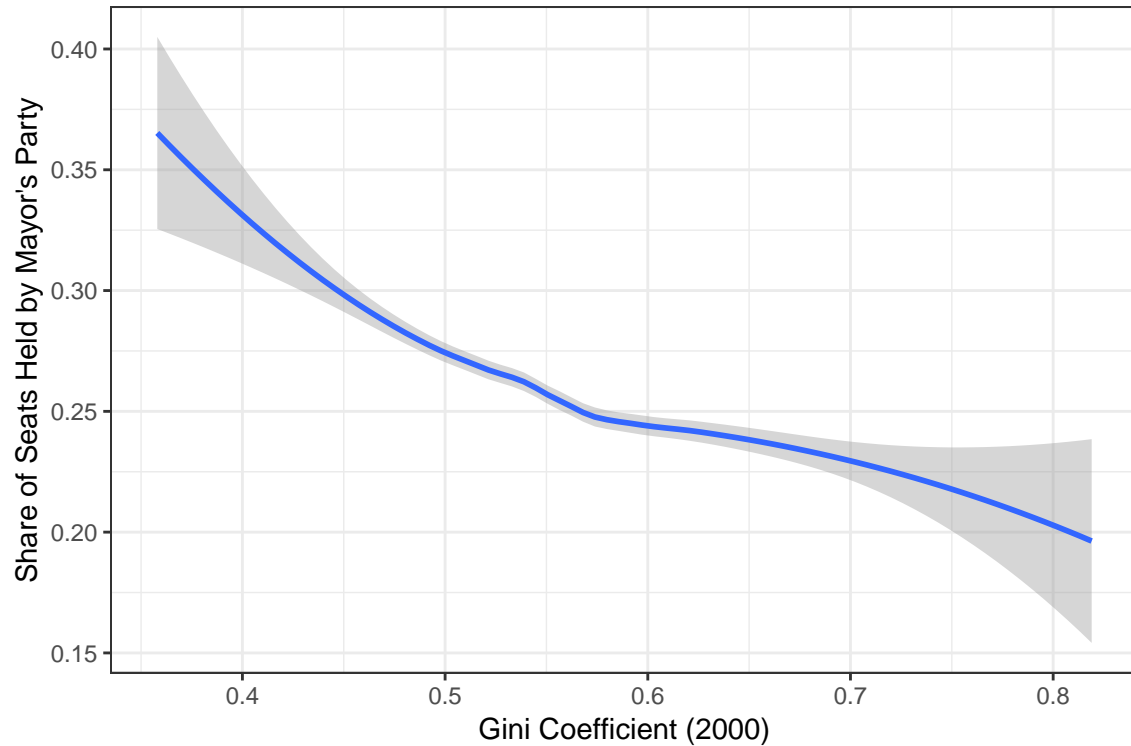
Figure 2.3: Proportion of Seats Held by the Mayor's Party in the City Council and Municipal Income Inequality

Note: Non-parametric regression.

As seen previously, reelection is positively related with the share of the seats held by the mayor's party in the local council, while the former is negatively associated to the level of income inequality. There also is a strong correlation between income inequality and reelection rates of the incumbent party and the incumbent coalition (Figure 2.4). In more egalitarian municipalities, reelection rates are considerably higher. The relationship with the level of development is not as direct (see figure in the appendix to this chapter).
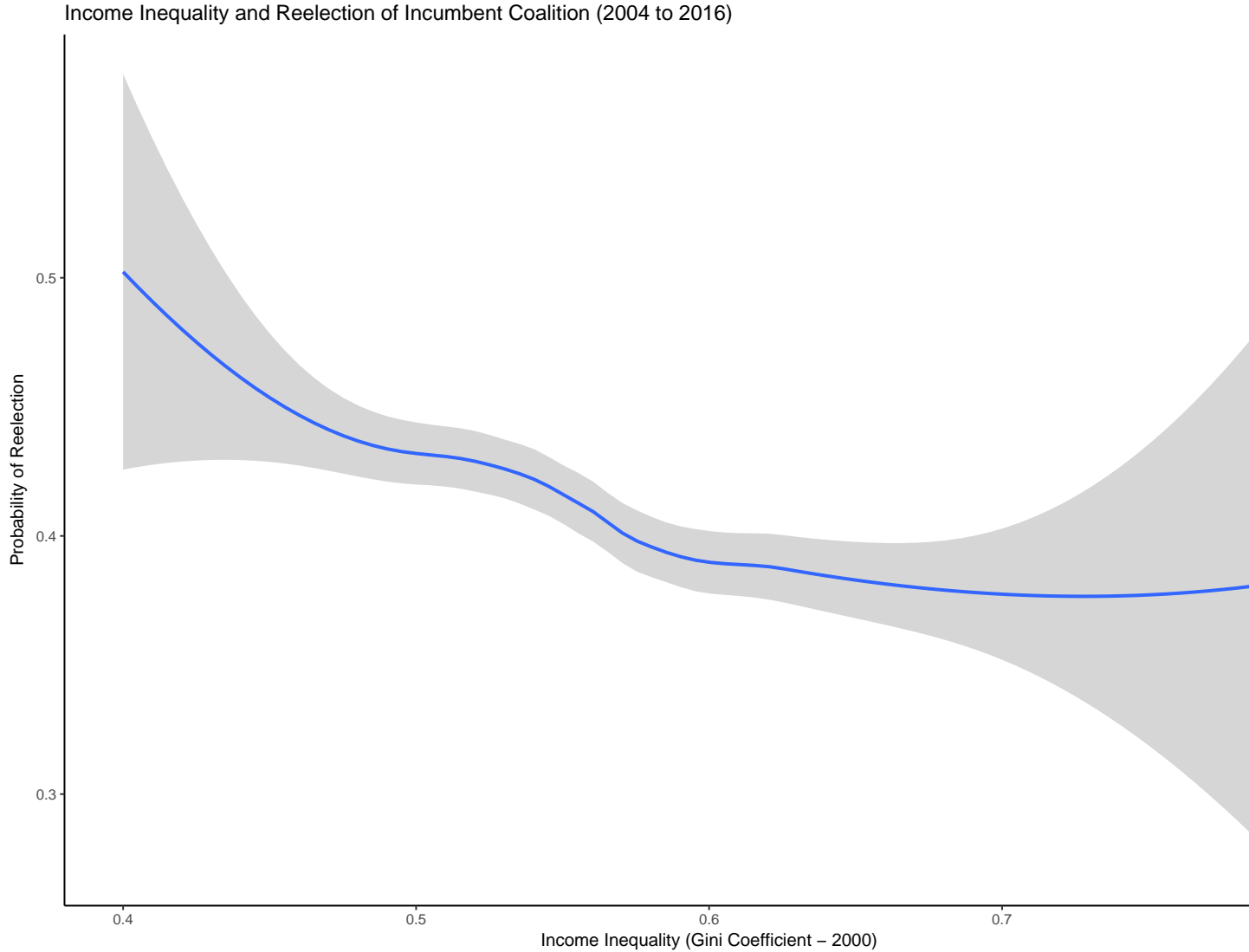
Figure 2.4: Municipal Income Inequality and Incumbent Coalition Reelection Rates

Note: Local polynomial regressions on unconditional reelection rates and income inequality. Incumbent coalition refers to any coalition that contains the incumbent party.

2.2.3 Personal Wealth of Municipal Politicians

Besides the average level of income inequality at the municipal level, another important characteristic of politics in Brazilian municipalities is that elected officials are much much wealthier than the majority of Brazilians. This has substantial consequences in candidate-centric system and organizationally weak political parties. In 2008, the median personal wealth

accumulated by an elected mayors was 109,000 U.S. dollars (199,000 Brazilian Reais), that of elected vice-mayors was 53,000 dollars (97,000 Reais), and that of elected city councilors was 25,000 dollars (46 ,000 Reais). That same year, the median annual wage in Brazil was 3,672 U.S. dollars (6,719 reais). [4] More than a third of all councilors did not hold a high school diploma (37% in 2012 and 36% in 2016) and only 24% of them held a college degree. Nevertheless, councilors are more educated than the Brazilian population on average. 65% of all Brazilians did not obtain a high school diploma and only 11% have a college degree. Councilors are also mostly men. Of the approximately 57,700 elected councilors in each election between 2000 and 2016, 88% were male.

The personal wealth of local politicians is highly correlated with their probability of winning a mayoral election. Mayoral candidates whose wealth is higher than 100,000 Reais have a probability of being elected that is, on average, higher than 40%. Wealthy candidates have higher probability of winning mayoral races, especially, when their adversaries are poorer (Figure 2.5). There is positive relationship between the proportion of wealth owned by a candidate vis-a-vis her/his competitors and the probability of being elected for incumbents. The elasticity of this relationship is even higher for those who are not in office, suggesting that wealth makes a bigger difference for challengers. A candidate who is not in office and owns 25% of the wealth among all candidates, for example, has a probability of winning of 30%. A candidate who is not in office is 20 percentage points more likely to win if (s)he holds 90% of the total wealth. Wealthy incumbents are also significantly more likely to get reelected when they face poorer competitors.

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[4]There is, of course, a difference between income and wealth. Figures for median wealth are not available for 2008. I use the average exchange rate for 2008: 1.83 Brazilian real to 1 U.S. dollar. Source: Brazilian Central Bank.
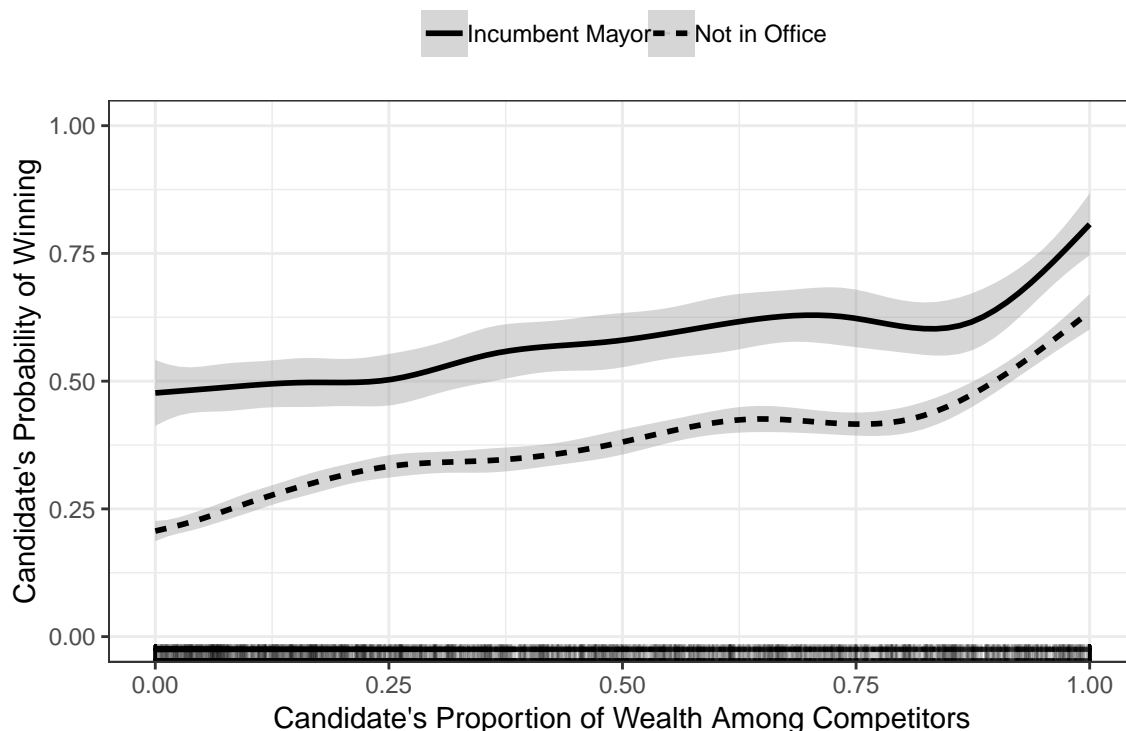
Figure 2.5: Wealth and Mayoral Candidates' Winning Probabilities (2008 and 2012)

Note: This figure plots local polynomial regressions and includes all mayoral candidates. Wealth is in 2008 Brazilian Reais.

Illustrative examples indicate that wealthy candidates invest a disproportional amount of money in their own political campaigns. João Doria, a successful candidate for mayor of São Paulo in 2016, donated 2.4 million reais to his own campaign, more than half of all the funds his campaign received. Vittorio Medioli, a candidate for mayor in Betim in 2016, a municipality in the state of Minas Gerais, donated 1.7 million reais (more than 500 thousand U.S. dollars) to his own campaign for mayor and 1.3 million reais to the campaign of city council members in 10 allied parties. Medioli's assets declarations in 2016 totaled 352 million. In Barueri (state of São Paulo) the businessman and former mayor Rubens Furlan donated 1.5 million reais, 25% of his total wealth, to his mayoral campaign. The current electoral laws, in place since 2016, established that other citizens cannot donate more than 10% of their yearly income and does not establish any ceiling in the value of the campaign contribution. The ceiling for candidates' contributions to their own electoral campaigns is

significantly milder: candidates can donate up to 50% of their total wealth. Such laws are likely to benefit wealthy donors and wealthy candidates.

There are specific institutional rules that determine councilors' base salary. Current councilors decide the salaries of council members in the following legislature. Legislators' salaries are capped by the municipal population size, state legislators' salaries and the municipal revenue. For instance, in small municipalities of up to 10,000 inhabitants, the salary of a council member cannot exceed 20% of the salary of the state deputy. [5] Salaries in cannot exceed 30% and 40% of the salaries of state deputy in municipalities whose population ranges between 10,000 and 50,000 inhabitants and between 50,000 and 100,000 inhabitants. [6] In addition to these limitations, the sum of the salaries of council members cannot account for more than 5% of the total municipal revenue.[7] Councilors' salaries are often complemented by additional perks such as 1 or 2 extra monthly salaries per year, paid holidays, extra stipends to cover travel costs, etc.

Between 2008 and 2012, the average growth rate of mayors', vice-mayors' and city council members' total assets in municipalities was 77%, 81% and 110%, respectively [8]. These are equivalent to 15%, 16% and 20% average annual increases [9]. As a comparison, Vaishnav (2016) reports that in India the average wealth of a sitting legislator at the state and national level increased by 222% during one term in office.

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[5]Constitutional Amendment 25 (2000). Salaries of state deputies are themselves capped at 75% of the salary of the justices in Brazil's Constitutional Court (*Supremo Tribunal Federal*).

[6]In large municipalities, whose population is larger than 500,000 inhabitants, the salary of city council members is capped at 75% of that of state deputies.

[7]Federal Constitution, article 19, paragraph VII. Included by the Constitutional Amendment 1 (1992).

[8]These figures refer to the non-audited municipalities. For more information on audited and non-audited municipalities, see chapters 3 and 4

[9]These estimates are based on assets' growth of 2,568 mayors, 3,471 vice-mayors and 42,271 members of the city council who ran both the 2008 and 2012 municipal elections in Brazil.

2.3 Overview of Anti-Corruption Crackdown in Brazilian Municipalities

Most local governments around the world operate in opaque environments. Elements that are deemed as crucial for democratic functioning are largely absent: an independent press and active presence of state institutions such as judicial authorities. In most Brazilian municipalities, local newspapers do not exist. The vast majority of citizens do not read any newspaper nor and have limited access to municipal news through the television. The radio, a main source of news about local politics in Brazil, has a limited geographic reach and is often controlled by politicians themselves or captured by the municipal government or local economic elites [10]. Investigative journalism is limited or non-existent. In a vast and highly decentralized country, state presence in most municipalities is limited to a dozen elected officials, municipal government employees and a small number of policemen. The physical presence of state or federal employees is also limited, and so is their capacity to monitor or report wrongdoing.

2.3.1 Audits of Municipal Governments

The Monitoring Program through Public Lotteries (*Programa de Fiscalização por Sorteios Públicos*) is the official name of an audit program started in 2003 by the then recently created Office of the Comptroller General (*Controladoria Geral da União*, CGU). The CGU is an independent body of the Brazilian federal government and has the explicit goal of corruption prevention and the reduction of waste in all levels of government. Audits by the CGU are widely regarded as non-partisan, technical and impartial by scholars and by Brazilian citizens as well (Avis, Ferraz and Finan 2018, Bersch, Praça, and Taylor 2017, Weitz-Shapiro and Winters 2017). The auditing program selects a group of municipalities through a lottery that is open to Brazilian civil society and other organizations, what prevents the politicization in the choice of municipalities. Shortly after municipalities are selected, a team of 10-15

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[10]See chapter 5 for more details on the local media environment in Brazil.

highly qualified auditors is then sent to each municipality to diagnose fraud in delivery of public services, public construction works, to examine documents that regulate bidding and procurement procedures, and receipts and contracts of expenditures made by the municipal government. Overtime, the program has audited over 22 billion U.S. dollars of public funds in separate 2,348 audits. The following map shows number of times each municipality was audited since 2003.

Number of Audits, 2003–2016
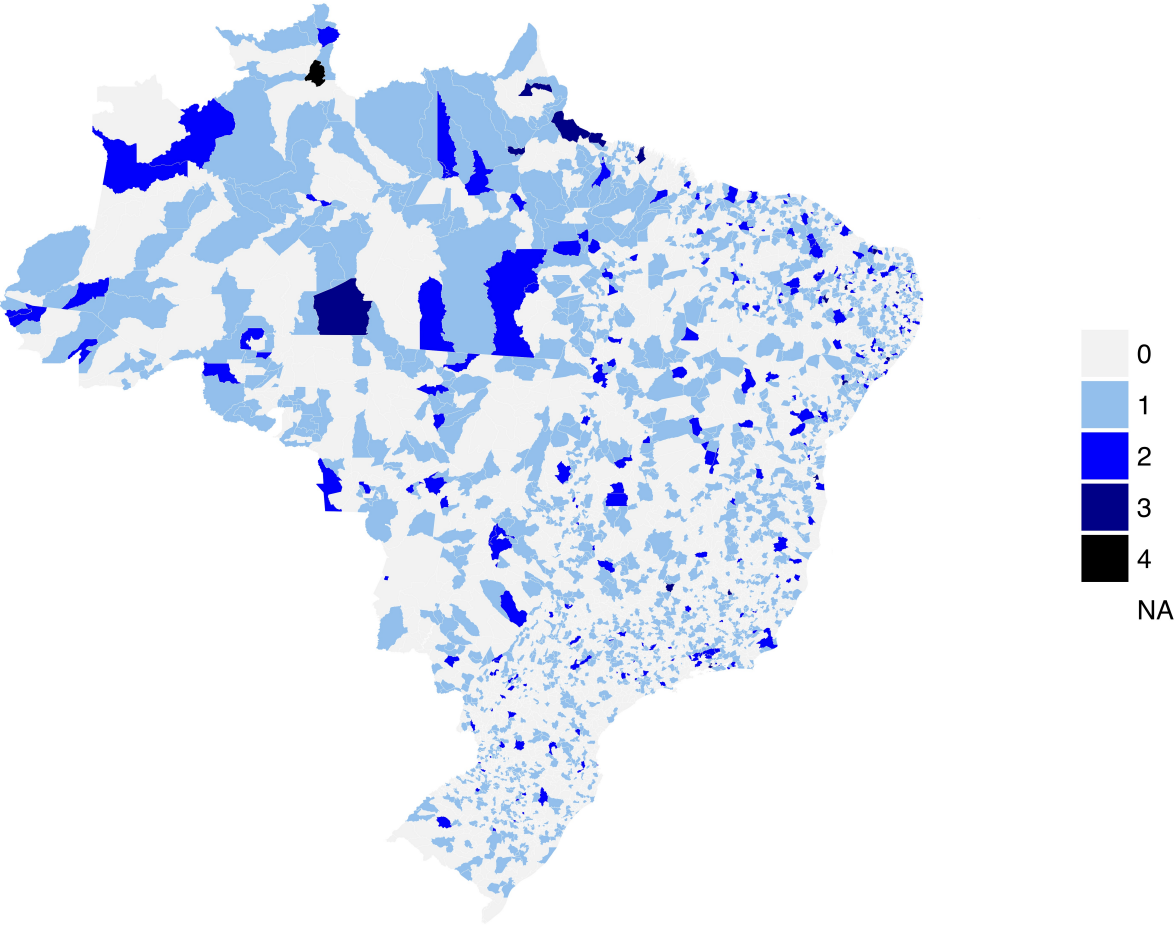
Figure 2.6: Audits of Municipal Governments in Brazil (2003-2016): Geographical distribution of the audits and the number of times each municipality has been audited

Since 2003, 1,993 municipalities, more than a third of all municipalities, were audited at least once. 282 municipalities were audited twice, 35 municipalities were audited three

times and 1 municipality was audited four times. Of all 2,348 audit reports, in 68% there was at least one serious incidence of corruption, such as unjustified over-invoicing, illegal biding practices, fraud in procurement process [11] In Japaratinga, a municipality in the state of Alagoas, for instance, the audit discovered illegalities in the bidding procedure to pave streets of the municipality. The mayor was accused of procurement fraud in the bidding process because the owners of the construction company that made the losing proposal were all employees of the company that had won the bid and was contracted by the municipal government. Procurement fraud is a typified criminal offense and its punishment includes jail time up to 6 years and fines. In addition to bidding procedures and contracting, auditors inspect public works, local health and educational facilities in search for fraud, unfinished and substandard construction, missing personnel and equipment following strict protocols. Auditors may request additional documents and demand justification by the executive branch before the results of the audit are published. Auditors do not have discretion to choose programs to be inspected (Avis, Ferraz and Finan 2018). As a result of their visit, the CGU publishes a report containing all the illegalities and wrongdoings discovered, together with the justifications given by the municipal governments, a reply and final decisions by auditors. The reports are then published in the CGU's website, sent to the Federal Courts of Accounts (TCU), Federal Prosecutors' Office (MPF), Federal Police, the media, the local branch of the judiciary and to the municipal chamber. Aranha (2017) finds that revelations in audits are not very likely to be followed through by more investigations by the federal police, the Courts of Accounts at the federal and state levels and by prosecutors. Another clear symptom is that, despite many revelations of corruption, impeachment of mayors by city councils is extremely rare phenomenon. In chapter 4, I provide an explanation for the lack of legislative oversight.

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[11]This figure was calculated based on the original CGU audit reports through data made available by Brollo et al. (2013) for audits up to the 30th round combined with data provided by CGU up to the 40th round in 2015.

2.3.2 State Variation in Corruption Levels and Judicial Sanctioning

In section 1.3, I demonstrated the dramatic changes in terms of the number of mayors who were sanctioned for malfeasance in last two decades and how these affected almost half of all municipalities in Brazil. Besides these temporal changes and substantial increases in the punishment, including when mayors are still in office, something that will be analyzed in detail in chapter 5, there are substantial state variations both in the level of corruption and how likely a mayor is to be convicted by a judicial decision.

Prosecutors have the responsibility of using the content of the revelations to present the case in a criminal trial against the individuals responsible for the illegal acts.[12] Prosecutors can request investigative authorities (e.g. in the case of corruption in local governments the federal or the state police) to collect more evidence about the episodes of corruption uncovered by the audits and these often depend on the authorization of the judiciary. Further investigations using the content uncovered by the audits, however, has usually been limited because of the lack of capacity of the Public Ministry or due to inter-institutional disputes between the Public Ministry, the police and branches of the judiciary. Judicial punishment for corruption in the context of Brazilian municipalities usually takes a long time because of the loopholes and the possibility of many appeals that are part of the system.

The following maps display the variation in the level of corruption and actual judicial punishment in municipal governments across Brazilian states. Based on the audit reports, I construct a measure of corruption for each audited municipality based on the share of resources that were diverted to corruption and construct state averages. The states of Bahia, Alagoas and Rio Grande do Norte in the Northeast and Mato Grosso in the Center-West stand out as those where higher levels of municipal corruption were discovered.

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[12] All criminal cases in Brazil need to be brought by the Public Ministry (Public Prosecutorial Service).

Average Proportion of Audited Municipal Funds – Corruption
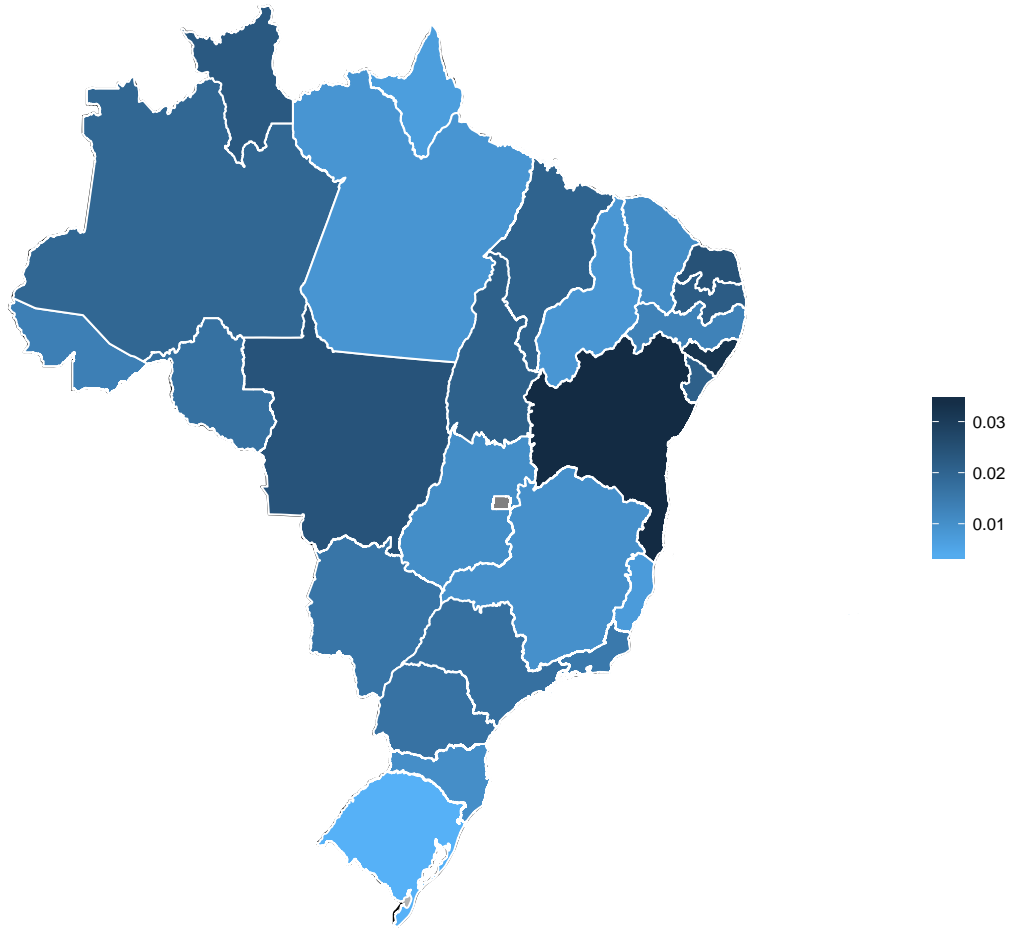
Figure 2.7: Average Corruption Levels Uncovered in Audited Municipalities in Each State (2005-2012)

Note: Own estimates based on audit reports data systematized by Brollo et al. (2013). Corruption levels refer to the (unweighted) average level of municipal funds that were connected to a serious incidence of corruption with respect to the total amount of funds analysed.

Proportion of Mayors Convicted
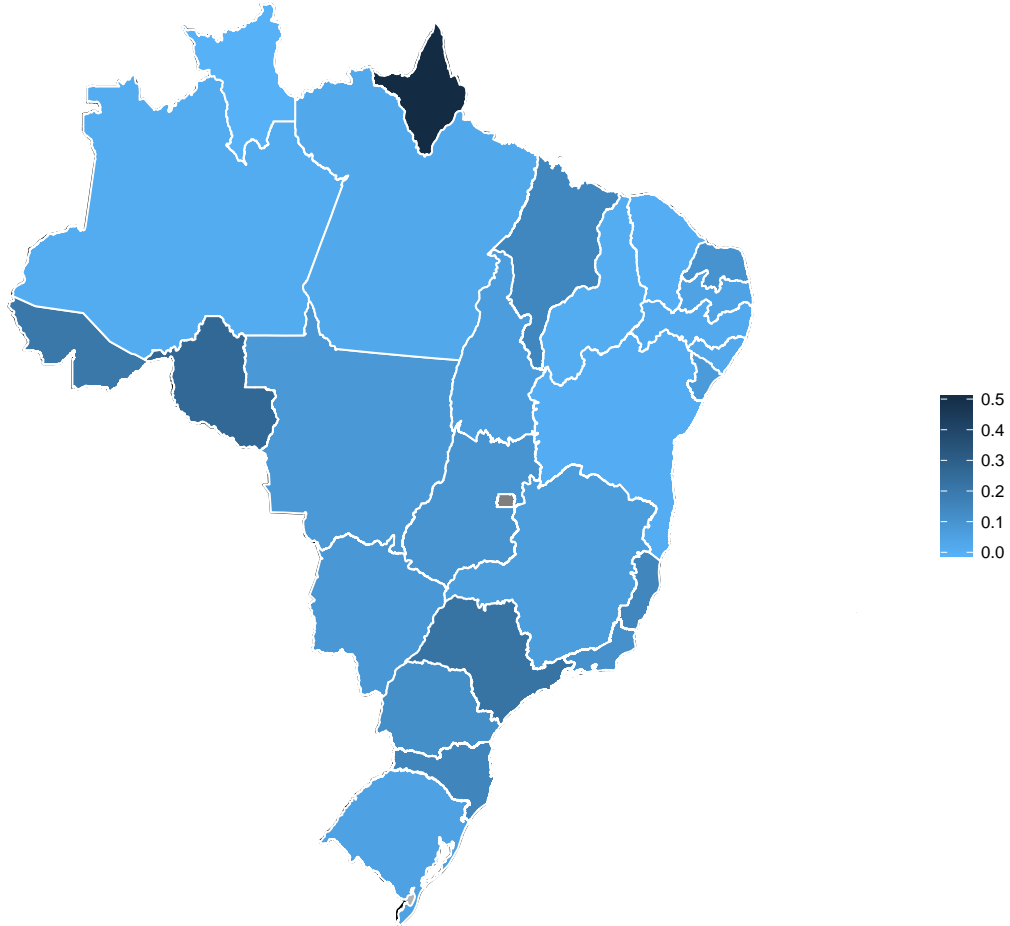
Figure 2.8: Proportion of Mayors Convicted by State (2001-2015)

Note: Own estimates based on data from original data collection judicial archives. See details in section 5.3.

The following figure puts together the proxy for the level of corruption in each state and the proportion of mayors who were convicted for administrative improbity and displays their relationship. The regression line indicates a slight inverse-U-shape relationship between the two variables. Mayors in where states where corruption is more common are less likely to be convicted that their counterparts where corruption is at medium levels. Da Ros (2014) suggests that the level of political pluralism in state politics determines the institutional autonomy of auditing, prosecutorial and judicial systems. Monopolistic political systems make

the institutions of legal accountability much less likely to investigate and convict politicians for corruption. This suggests that the lack of judicial punishment might be one of the reasons for high levels of corruption in some Brazilian municipalities. A related question of the effect of judicial punishment on mayors' malfeasance is addressed in chapter 5.
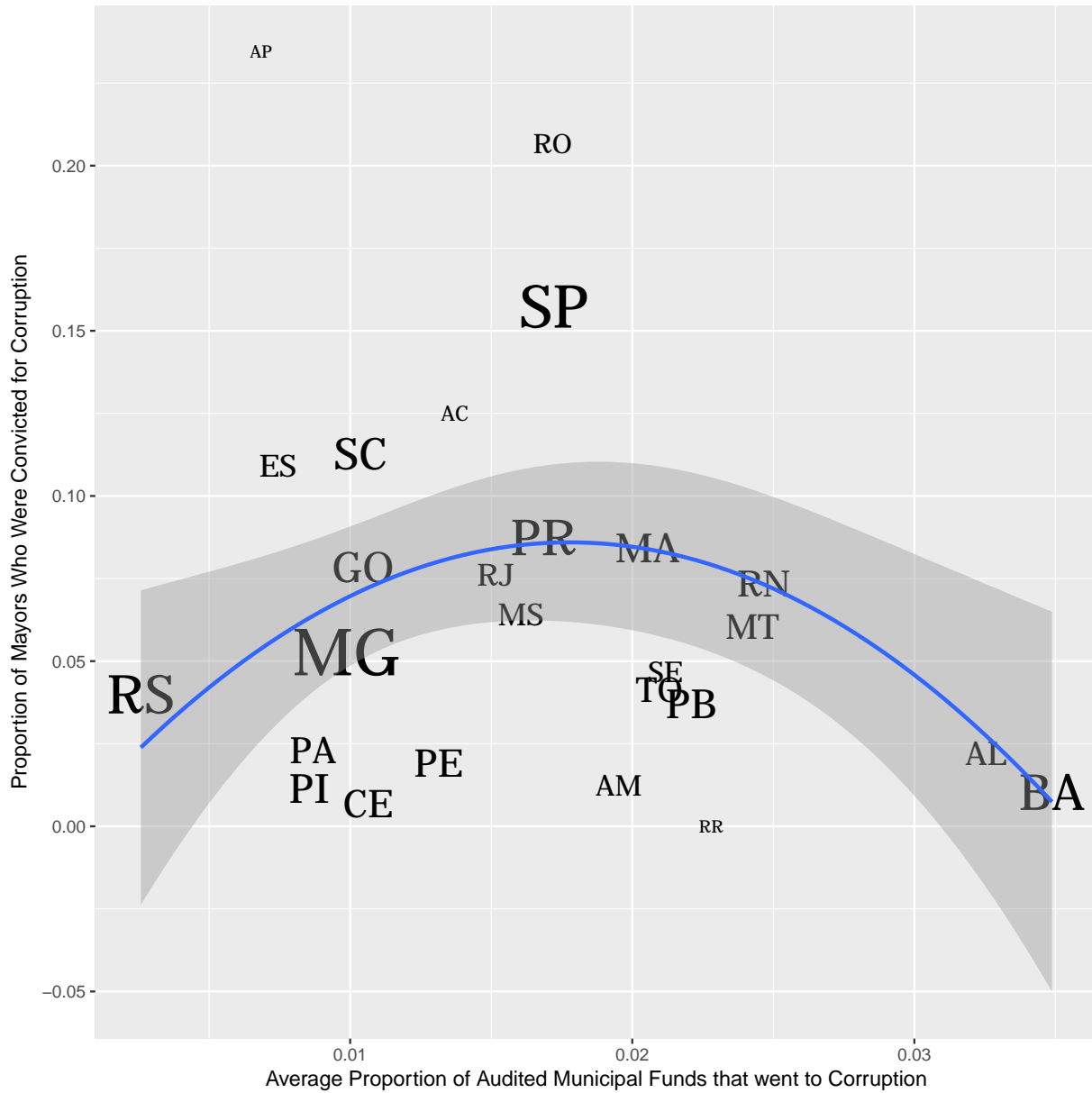
Figure 2.9: Corruption Levels and Convictions Levels by State

Note: Own estimates based on data from judicial archives. The proportion of convicted mayors (y-axis) includes mayors who were convicted after leaving office. The non-parametric regression line take into account the number of municipalities in each state. Font size takes into account the number of municipalities in each state but is not a 1 to 1 representation.

2.3.3 Convicted Politicians and Election Results

Many politicians who had a previous conviction for administrative improbity managed to get nominated by their political parties to run a subsequent mayoral election (Figure 2.10). This shows that a conviction for corruption does not equate the end of a political career. The total number of convicted mayors who tried to run for mayor after a conviction increased from approximately 300 in the 2000 to 400 in 2004 and 565 in 2008 elections. Most convicted mayors, however, were not successful in their intent to hold the highest elected office in the municipalities. The electoral authorities were increasingly stringent with the conditions in the 2008 elections. Voters elected approximately half of the candidates with a corruption conviction. In the 2008 electoral cycles almost almost half of those who tried to run had their candidacies invalidated. In 2010, as a result of popular pressure, the Brazilian Congress passed "Clean Records Law" to consolidate the conditions under which previously convicted candidates can run for elected office. The Clean Slate Law was the result of public outcry against political corruption: it started as a petition signed by 2 million Brazilians. The law, sanctioned in June 2010, prohibits convicted individuals to serve in public office for eight years after their conviction. The Brazilian judiciary, because of the slow speed of the judicial process and appeals, is likely to convict politicians only after they have already left elected office. The law has had very consequential effects. For instance, 1,803 former mayors, who had been convicted and could have been potential candidates, were not allow to run for public office in the 2012 local elections. The law forbids individuals who were convicted by a court of second instance, removed from office or impeached to hold any public office for 8 years after the conviction. In the 2016 local elections, when all 60 thousand local elected offices (mayorships and local council seats) were up for competition, 4,849 former or incumbent mayors, were not allowed to run for elected office because of the "Clean Records Law".
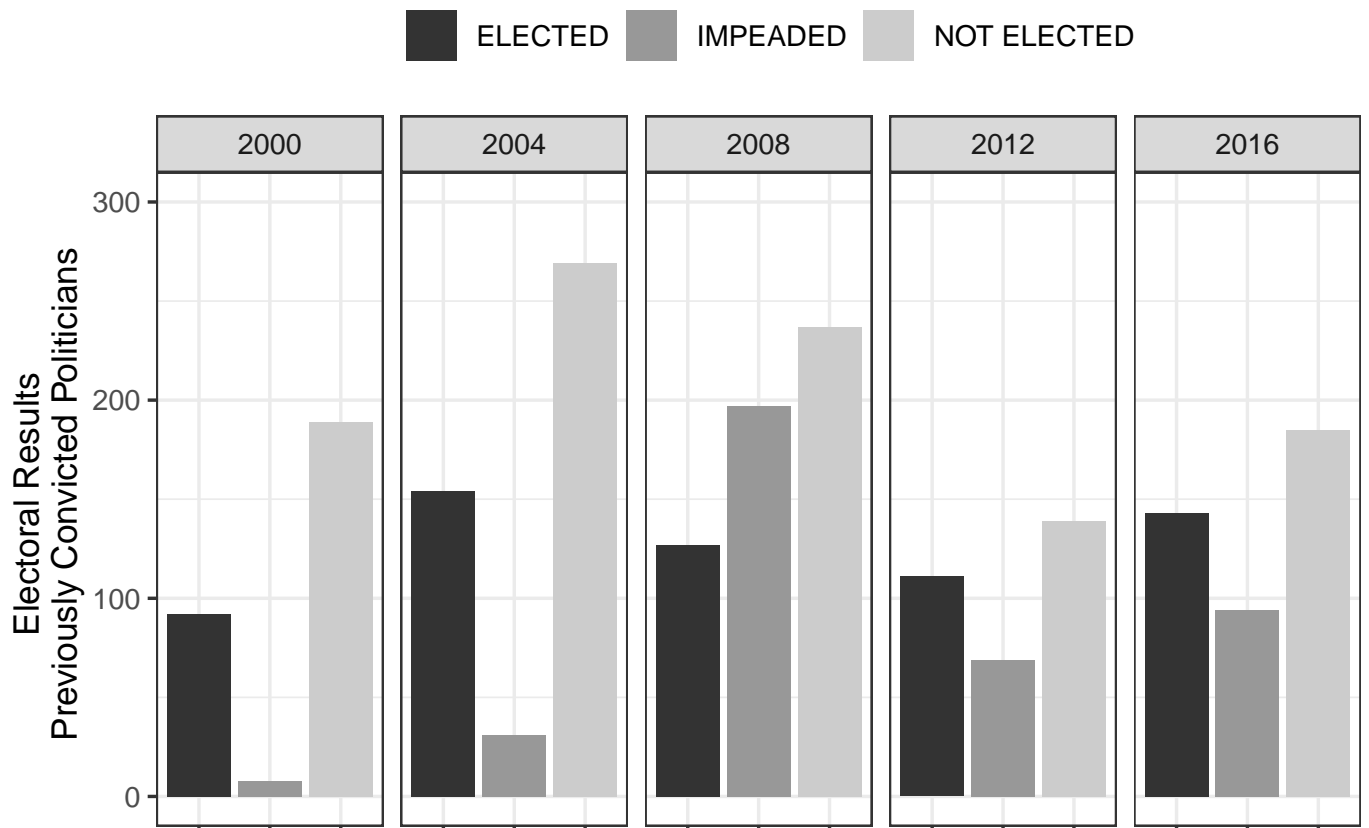
Figure 2.10: Electoral Outcomes for Candidates Who Had a Previous Conviction for Corruption by Election

Note: Own calculations based on data from judicial record and electoral results by the TSE.

2.4 Discussion

In this chapter, I provide concrete examples of corruption scandals at the national level, some stylized facts about the functioning of municipal governments and local politics as well and an overview of the main anti-corruption initiatives. In addition, there are substantial variation across municipalities and Brazilian states when we examine corruption levels and conviction rates. The states where audits uncovered higher levels of corruption are not the states where the investigative authorities and the judiciary effectively punished mayors overtime. This relationship suggests problems in the enforcement of the rule of law even

after corruption is uncovered and the audit reports publicized. In the chapter that follows, I address vertical accountability, whether the evidence of those reports lead to the sanctioning of those that are incriminated either by their political parties or political allies, who can decide to endorse other candidates, and by citizens, who can use their votes.

2.5 Appendix

Per Capita Income and Reelection of Incumbent Political Parties in Brazilian Municipalities (2004 to 2016)
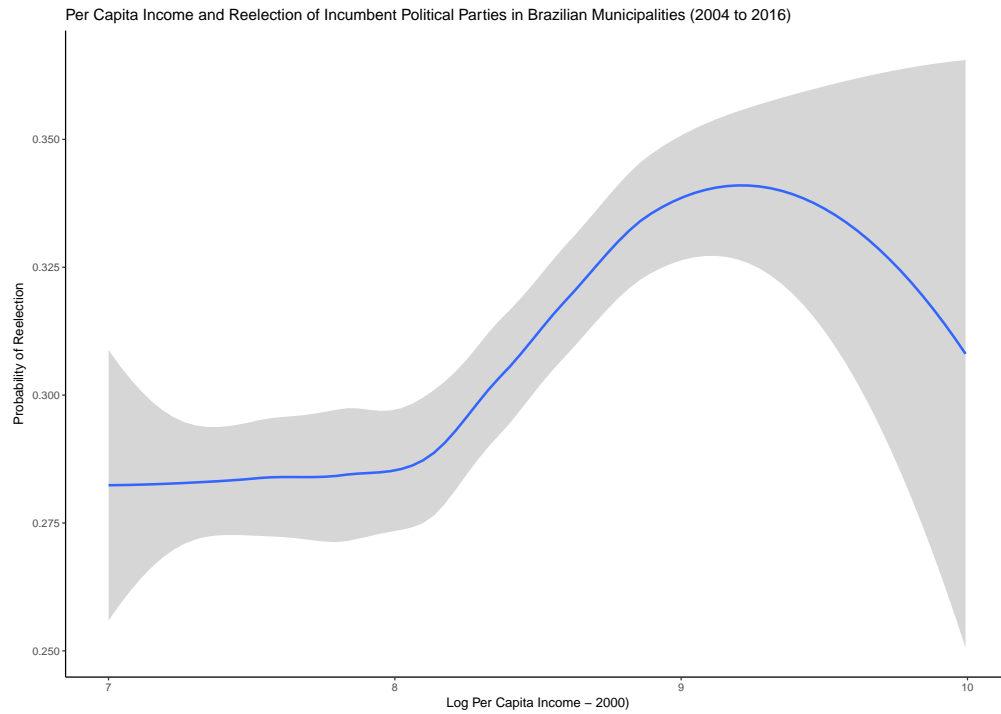
Figure 2.11: Incumbent Party Reelection Rates and Municipal Income Per Capita

Note: Local polynomial regression on the unconditional reelection rates of incumbent parties from 2004 to 2016 and the logarithm of municipal income per capita in 2000 (in Brazilian Reais of 2000).

CHAPTER 3

Major Anti-Corruption Policy, Little Electoral Consequences

Electoral sanctioning is considered one of the main mechanisms through which revelations of malfeasance can result in the reduction of corruption. In this chapter, I examine whether anti-corruption audits of municipal governments had electoral consequences in Brazilian municipalities in the period between 2004 and 2016. I start by exposing the main arguments why corruption revelations are expected to have negative electoral consequences for incriminated politicians. Secondly, I present explanations for why incriminated politicians often manage to escape electoral sanctioning. I then provide an overview of the time horizons faced by politicians and political parties in Brazilian municipalities that builds on the description of local politics presented in chapter 2. Fourthly, I explain the estimation strategy and the data sources used in this chapter.

In section 3.4, I test whether uncovering corruption leads to electoral sanctioning in Brazilian municipalities. I corroborate the null findings of the literature on electoral sanctioning by showing that audits of municipal governments, despite revealing substantial information about malfeasance in most administrations, do not prompt the electoral sanctioning of incumbent politicians and political parties. Most audits take place when the incumbent is up for reelection and, despite high levels of electoral competition, elections did not make voters more likely to sanction those whose corruption had been revealed by audits. I also show that the electoral effects of the audits are independent of how much corruption was revealed by the audit reports and does not depend on the existence of local mass media outlets. To corroborate the limited political effects of the audit program, I demonstrate that audits did not promote changes in the ideological orientation of municipal executives.

3.1 Revelations of Corruption and Electoral Sanctioning

An influential explanation for why political corruption remains prevalent even in contexts in which there are repeated democratic elections is that voters lack information about elected officials' behavior in office. This interpretation is connected to the prominent view that, for a democracy to function properly, voters need to be well informed about politics and politicians' actions. Citizens delegate power to elected officials for them to make governing decisions on their behalf. Principle-agent models, influential in both Political Science and Economics, highlight that more transparency and information about politicians' acts in government help voters to hold politicians accountable (Ferejohn 1986, Przeworski, Stokes, and Manin 1999, Ashworth 2012, Olken and Pande 2013). Voters' ability to discipline officials is conditional on how much they can observe of elected officials' hidden actions (Persson and Tabellini 2000). Information helps voters to infer officeholders' characteristics such as honesty, competence and effort, crucial for their decision of whether to reelect or not an incumbent (Besley 2006). Because of information asymmetries, revelations about corruption, therefore, are expected to prompt voters to sanction those responsible for malfeasance (Olken 2007)[1]. As the probability of electoral sanctioning increases, "corruptible" politicians would have more incentives to resist temptations to steal and would moderate their appetite for rents in order to remain in office. Once electoral punishment begins to affect political careers, politicians are expected to change their behavior in anticipation of a likely electoral defeat. If politicians resist to change their behavior, the release of information about corrupt deals is expected to expose the "coalitions that could not survive the light of day", potentially leading to substantial political change (Scott 1972: 16).

A large number of empirical studies since the mid-2000s, including sophisticated and expensive field experiments, tested the effects of information on electoral accountability. Many of these studies focused specifically on how voters react to information about malfeasance. Two influential studies corroborate the effectiveness of electoral sanctioning after corruption

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[1] Punishment of corruption, of course, can also take the form of impeachment, convictions, monetary penalties, and imprisonment. For more on impeachment in the context of Brazilian municipalities, see chapter 5. For more on judicial sanctioning, see chapter 7.

is revealed. Ferraz and Finan (2008) provide evidence that voters reward politicians who have not been found guilty of corruption and punish mayors whose corruption has been revealed by audits in Brazilian municipalities, the same setting of my study. Comparing municipalities that were audited prior to and after an election, they find that voters react to revelations only in municipalities that have at least one radio station, an important vehicle of information about local politics in this context. Similarly, Larreguy et al. (2014) find that having an additional local media outlet leads to a small electoral loss for incumbent parties in Mexico after corruption is revealed by the Federal Auditor's Office. Most studies, however, found that the revelations about corrupt practices frequently do not lead to the electoral punishment of incriminated politicians in both developed and developing democracies (Peters and Welch 1980, Chong et al 2015, Boas et al 2019, Chang et al 2010). These include the Metakeda Initiative on Information and Accountability, conducted across six developing democracies (Dunning et al 2018). The meta-analysis of these studies establishes a clear null result, i.e. on average, voters do not reward nor punish politicians for malfeasance. Limitations in electoral accountability are not a problem that concerns only developing democracies (Achen and Bartels 2016).

Examining the effects of anti-corruption audits in Brazilian municipalities over the last 4 electoral cycles, I corroborate the null results of the literature on electoral sanctioning of corruption. There are many important explanations for why voters do not punish incriminated politicians at the ballot box. These explanations range from macro-level characteristics of the political system to micro-level explanations about voter behavior (Kurer 2002, De Vries and Solaz 2017). One explanation is derived from the literature on clientelism and patronage politics. Because of their immediate material needs and risk aversion, voters react to particularistic inducements. In these circumstances, citizens tend to reelect corrupt politicians even if that reduces their own welfare in the long run. Corruption and clientelism go hand-in-hand: politicians divert public resources to their clientelistic networks and distort public policies to retain political support (Fernández-Vázquez et al. 2016, Kitschelt and Wilkinson 2007, Manzetti and Wilson 2007).

A second explanation for the lack of punishment of corruption is salience of corruption in

determining voting decisions in comparison to the state of the economy or other issues such as identity or partisanship about which voters might be concerned about (Klasnja and Tucker 2013, Chandra 2004, Anduiza et al. 2013, Solaz et al. 2017, Muñoz and Gallego 2016). For this stream of the literature, voters make trade-offs between malfeasance and these other aspects. There is some evidence that voters in Latin America tend to overlook corruption scandals during economic booms (Renno 2007). Boas et al (2019) find that while votes are unlikely to change because of information on mayoral malfeasance, attitudes towards local dynasties and concerns about employment and health services are better predictors of voting behavior in municipalities in the state of Ceará, Northeast of Brazil.

Another possibility is that in a context of systemic corruption, voters might not actually have a credibly less corrupt alternative to choose from (Klasjna, Little and Tucker 2016, Caselli and Morelli 2004, Pavão 2018). Receiving information about corruption in this context is unlikely to change voters' beliefs with respect to their prior beliefs. In this context, politicians, including possible entrants in politics, benefit from citizens' low expectations about their performance. This explanation is related to the collective action problem of making reforms that would curb corruption. Because the incentives of continuing the status quo are too high, politicians do not follow through on their promises. They continue to use public employment and clientelism for political purposes to survive in office (Geddes 1994). In this context, information about corruption might increase voters' apathy and distrust of the existing institutions and the political system (Seligson 2002). Chong et al. (2015) indeed find that instead of increasing votes for parties other than the incumbent, whose corruption was exposed, information about malfeasance led to a lower electoral turnout and more distrust in the Mexican political system.

A related source of limitation in escaping an equilibrium of high-corruption is the difficulty of attracting honest candidates and keeping them honest. In a speech in the Brazilian Senate in 1914, Brazilian statesman Rui Barbosa (1914) expressed this idea in the following way: "From having seen the aggrandizement of power in the hands of the bad, men get

displeased about virtue and become ashamed of being honest"[2]. This suggests that the effect of disclosing corruption on the willingness of honest citizens to participate in politics might have contradictory implications. Either revelations of corruption confirm prior beliefs that corruption is "the only game in town" and make honest citizens to be less willing to join the "dishonest" political class or incentive them to resort to corruption themselves when participating in politics. The motivation of honest citizens to participate in politics or to engage in corruption is conditional on the proportion of corrupt politicians (Andvig 1991). In this case, audits that reveal corrupt transactions might actually raise the proportion of perceived "bad politicians" and affect the relative returns to office-holding (Caselli and Morelli 2004). Empirical studies find that in highly corrupt countries public sector jobs tend to attract more dishonest individuals and that the opposite is true in less corrupt contexts (Hanna and Wang 2017). Revelations of corruption, however, might make honest citizens more willing to engage in politics because they provide them with a window of opportunity to run for office and campaign to denounce wrongdoing.

3.2   Local Elections, Reelection Rates and Time Horizons

Investigating the conditions associated with electoral sanctioning of corruption in Brazilian municipalities requires some preliminary discussion about the time horizons faced by elected officials and their relationship with rent extraction. In this section, I provide some basic information about the electoral competition and other incentives faced by local politicians that complement the more general description about the role of municipal governments in Brazil, presented in chapter 2.

From the perspective of elected officials, a likely electoral defeat might be either a deterrent or a stimulus to corruption in the present, depending on other parameters affecting their decision making such as their anticipated future rents and the role of money (including that coming from illegal sources) in electoral races. Their incentives to participate in corrupt deals depend on the benefits of the corrupt transaction vis-a-vis the probability of getting

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[2]Original translation from Portuguese.

caught and the size of that penalty. Politicians' electoral incentives to avoid resorting to corruption might be reduced when, for instance, they are not allowed to run for a subsequent term. In this case, the role played by the electoral sanctioning of individuals in the short run is reduced and, ceteris paribus, rent extraction might increase (Ferraz and Finan 2011). Agents are also likely to internalize in their decision making what they expect to happen in the future. Agents' rent extraction maximization over the long run, therefore, depend on their expectations about future illicit rents, which in turn are conditional on the expected probability of getting reelected for a subsequent term and on their probability of coming back to government in the future (Niehaus and Sukhtankar 2013) [3]. In many instances, resources from corrupt practices may be instrumental to finance political campaigns, what can increase individuals' or the party's chances of remaining in office (Gingerich 2013). [4]

Such considerations about time horizons, rent extraction and reelectoral chances are the forefront of mayors' decisions. Elections for the post of mayor in Brazil are, on average, characterized by high levels of political competition, electoral volatility and incumbency disadvantage (Klašnja and Titiunik 2017). Between 2000 and 2016, 22% of all mayoral races were decided by less than 5% vote margin and more than two-thirds of the races were decided by less than a 20% margin of victory. Most councilors also face difficulties when trying to keep their offices. Between 2004 and 2016, the average unconditional reelection rates for both councilors and (non-term limited) mayors was 40%. This contrasts with a conventional image of elected officials in developing countries holding on to their posts through patronage and clientelism for a long period of time, and suggests high turnover rates in elected offices in Brazilian municipalities.

The probability of remaining in office overtime is likely to have important consequences for politicians' behavior in office. Many scholars argue that uncertainty and insecurity in

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[3]Rent extraction might also depend on the prestige that an individual attaches to being in office, what in the literature is usually referred to as *ego rents*, and, of course, on the value a politician attaches to having specific policies implemented (Persson and Tabellini 2000).

[4]Revelations from many corruption scandals such as the Car Wash scandal in Brazil reveal, for example, that a high proportion of the money illegally funneled by contractors (e.g. Brazil's main construction firms) that went back to politicians were used to fund the campaigns of elected officials from multiple political parties.
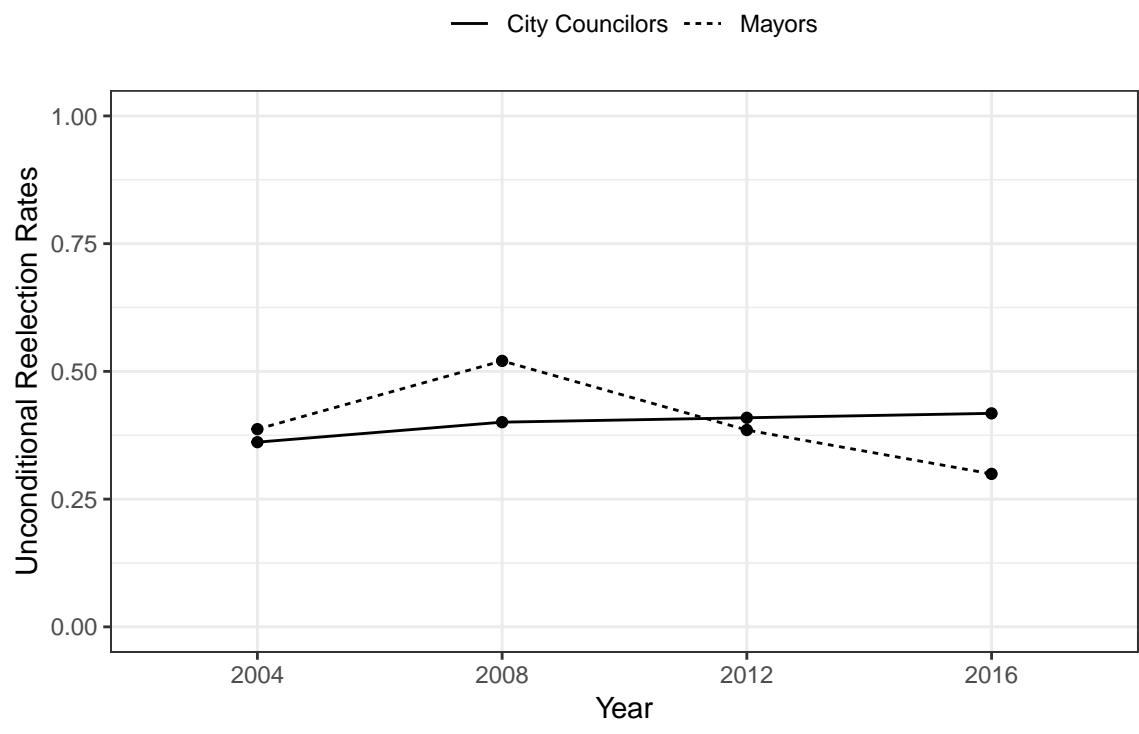
Figure 3.1: Unconditional Reelection Rates for Councilors and Mayors [not facing a term limit] (2004-2016)

office might actually lead to more corruption because of the shorter period over which individuals can maximize rent-seeking (Scott 1972, Ames 2002, Treisman 2000). This view differs from the conception of "entrenched" politicians whose networks, including repeated interactions with private companies, allows them to remain in office for a long period of time, and the continuation of these networks depends on their presence in office. Putting these two explanations together results in a U-shaped relationship between political stability and corruption (Campante et al. 2009, Schleifer and Vishny 1993). Empirical tests for these claims are sparse. Using data on bribes that Mexican firms paid to politicians, Gamboa-Cevazos et al (2007) find higher levels of graft where politicians' time horizons are either long or short, and lower where politicians' time horizons are at an intermediate level.

As presented in chapter 2, mayors' reelection rates in Brazil are strongly related to structural factors. Reelection rates overtime are negatively associated with municipal income inequality and positively associated with the municipal level of development [5]. Councilors' reelection rates varied from 36% in 2004 to 40% in the 2016 elections. In comparison, mayors' reelection rates varied substantially: they reached 52% in 2008, a period when the Brazilian economy was performing well and municipal governments observed a substantial increase in their budgets. The reelection rates then declined in the subsequent elections, reaching 30% in 2016 at the peak of Brazil's political and economic crisis of the mid-2010s.

The relatively low reelection rates reflect a significant level of political turnover in most municipalities. Between 2000 and 2016, for all politicians who were ever elected as a mayor, the average number of terms in office was 1.4. Table 3.1 displays a substantial variation of reelection rates and, therefore, of political turnover across Brazilian municipalities. Between 2000 and 2020, in 67 municipalities the same individual was in office for 16 years out of the 20 years, the maximum allowed by the electoral laws because of term limits, i.e. mayors can serve two consecutive terms at most. 900 municipalities (16% of all municipalities) had the same mayor for 12 out of the last 20 years. 5,820 politicians were successfully elected for two terms while 12,398 politicians only served one term. As a result, a municipality was

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[5]Both income inequality, measured as the Gini Coefficient, and development, using the Human Development Index, are kept at their 2000 levels. This helps to lessen concerns about reverse causality.

Table 3.1: Elected Mayors (2000-2016)

Number of Terms in Office	Number of Mayors
1	12398
2	5820
3	900
4	67
Average Number of Terms in Office	1.4
Standard Deviation	0.6

governed by a mayor who had previous experience as mayor in 55% of the cases. In 45% of the cases, a municipality in Brazil was governed by a newcomer to that elected office.

Being the mayor is attractive for political careers because of the resources mayors control and the visibility of the office. Politicians who managed to get the most prized elected office at the municipal level frequently run subsequent elections to try to take that office back. Of the 15,845 mayors in office between 2000 and 2016, 11,313 (71%) mayors ran again at least once. Former mayors also often try to come back after an electoral loss or because of the term out of office due to term limits. The presence of a former mayor and/or that of a current mayor in the ballot box are a salient way of organizing the political system and have important consequences for political accountability. Elections frequently become a referendum on their performance in office. In 56% of all mayoral races between 2004 and 2016 at least one former or current mayor was one of the candidates voters could choose from. In 15% of the races, two mayors (either a former mayor or an incumbent or two former mayors) faced one another. In many instances, a former mayor may come to challenge a politician with whom they were previously allied with. In Sertãozinho, a town in the State of São Paulo, for instance, Zezinho Gimenez (PSDB) was the mayor from 2000 to 2008. After serving

the two terms, Gimenez endorsed his long-time vice-mayor Nério Costa (PPS). Costa was successfully elected in 2008. Costa's re-electoral ambitions were hampered after his electoral defeat to his former ally Gimenez in 2012. The 2016 elections were contested between the incumbent Gimenez and the incumbent vice-mayor Valter Almussa (PSB) after their political ambitions conflicted. In a final debate prior to the elections, they each accused one another inaction during their term. This exemplifies the malleability of electoral alliances, and the limitations in the electoral choices voters are presented with. Both factors are relevant factors for hampering the sanctioning of corruption at the municipal level.

3.3 Empirical Framework

I leverage the lottery scheme through which municipal governments were selected to be audited by the *Controladoria Geral da União* (CGU, Office of the Comptroller General). I analyze the electoral consequences of these audits from 2003 to 2016. This has several methodological advantages. Firstly, the fact that anti-corruption interventions were actually randomized provides a rare natural experiment. These audits have been sustained overtime and, contrary to most anti-corruption undertakings, there is no evidence that questions their partiality or political use (OECD 2018, Avis et al. 2018). Secondly, rather than using a experiment designed by a researcher, my work relies on a real anti-corruption policy on the ground (Olken 2007). In addition, auditors working for the CGU are highly trained, well-payed and largely protected from pressures of the local political systems which they investigate (Santiso 2009).

In each round of the program, the CGU sets a number of municipalities in each state to be audited based on the total number of municipalities in each state. Depending on the state, the probability that a given municipality is audited in a given 4-year term varies from 7% to 15%. On average, the probability that each municipality is selected within a term is approximately 10%. 99% of Brazil's 5,685 municipalities were eligible. The exceptions were the 38 municipalities whose population exceeds 500,000 inhabitants.

I compare outcomes (e.g. reelection rates) in audited municipalities to that of non-
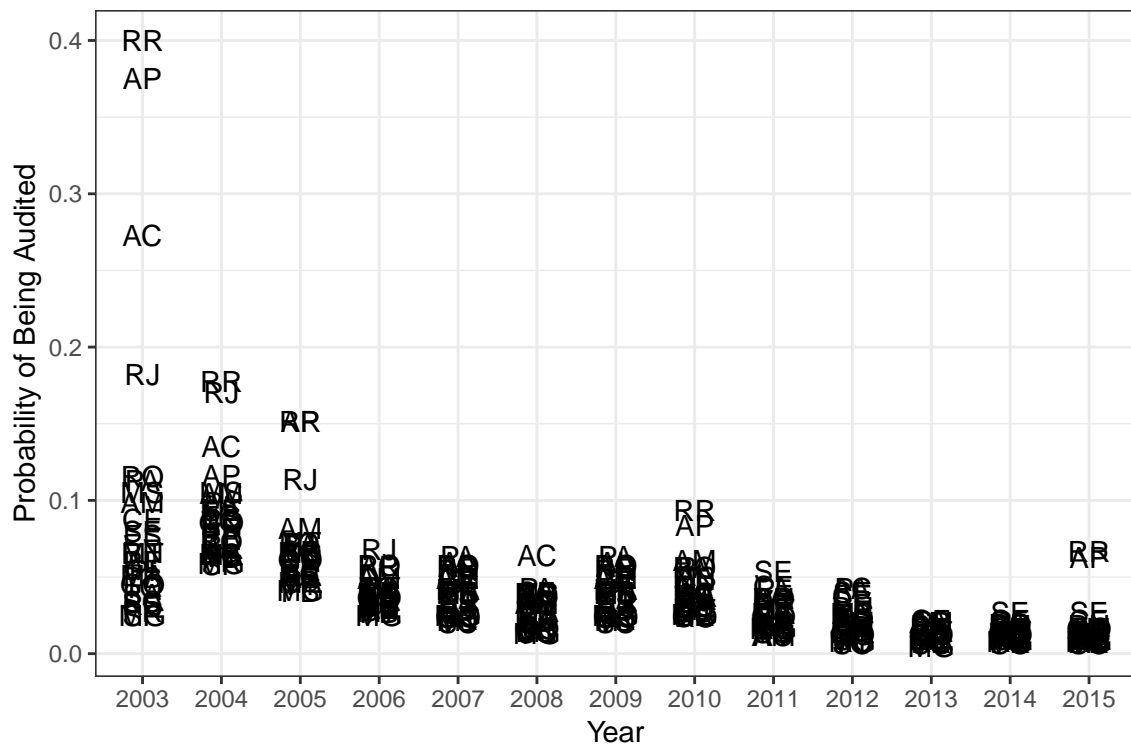
Figure 3.2: Treatment Probabilities across States (2003-2015)

Note: This figure plots the probability that a given municipality is audited in a given year for every state-year combination.

audited municipalities in the same state during the same term. This allows me to take into account the stratification of the original treatment and reduce the effects of different potential outcomes given the existing differences in treatment probability across states and over time (Figure 3.2). Differences in treatment probabilities were substantial in the first years of the program. Taking all of that into account, I estimate the average treatment effects (difference-in-means) and combine them in the following way:

$$\hat{\tau} = \sum_{j=1}^{J} \frac{N_j}{M} \hat{\tau}_j \tag{3.1}$$

where,

$$\hat{\tau}_j = \frac{1}{N_{1,j}} \sum_{i=1}^{N_j} D_{i,j} * Y_{i,j} - \frac{1}{N_{0,j}} \sum_{i=1}^{N_j} (1 - D_{i,j}) * Y_{i,j} \tag{3.2}$$

each block is represented by j=1,.., J, N_j is the number of units in each block j, M is the total number of units, N_{1j} is the number of treated units in each block, $N_{0,j}$ is the number of control units in each block, $\hat{\tau}_j$ is the average treatment effect in each block. $\hat{\tau}$ is the outcome of interest: the average of block-specific difference-in-means, weighted by the proportion of units in each block. Because randomization in each block is independent, the estimated variance takes into consideration the estimated difference-in-means in each block and the size of each block with respect to all observations. As suggested by Gerber and Green (2007), the degrees of freedom are equivalent to the total number of observations minus two times the number of blocks: $N_j - 2 * J$. Confidence intervals are built using a t-distribution and the corresponding degrees of freedom.

My estimates can also be interpreted as analogous to an intent-to-treat effect (ITT) of the revelation of corruption since the majority of audit reports reveal more than one episode of serious corruption (see section 3.7, below). Corruption is much more likely to be reveled when there are audits than otherwise. I use the same specifications to test the randomization procedure across a set of municipal covariates, including pre-treatment political and socio-economic characteristics. Data on the audits comes from the CGU, electoral results comes from Brazil's Electoral Court and data on socio-economic characteristics comes from the

Brazilian Institute of Geography and Statistics (IBGE) and the Brazilian Institute of Applied Economics (IPEA).

After a municipality is audited, a complete report that contains all acts of corruption and bad administration uncovered by auditors is published in the CGU website. This report is sent to local and state authorities, including the city council, the local branches of the judiciary, and the relevant branch of the Public Ministry. My estimates of electoral sanctioning are the reflection of what takes place in a municipality after it is selected to be audited. It is a joint product of the reactions of the local political system, which include the actions taken by incumbents to defend themselves from accusations, members of the mayors' coalition, who might decide to defect or to remain loyal, the actions taken by opposition parties, the local media and, ultimately, voters, who have the final say in the ballot box, depending on the alternatives they are presented with. I also conduct analyses that include heterogenous treatment effects to test whether electoral sanctioning occurs in specific settings. Specifically, I test whether electoral sanctioning is mediated by the level of electoral competitiveness and whether it depends on the availability of local media, two aspects that are frequently emphasized by the literature on electoral sanctioning. I also conduct descriptive analysis to test the relationship between the intensity of corruption that was found and electoral sanctioning (section 3.7). My estimates of the effect of audits on the ideological orientation of the local governments is done using the same estimation strategy suggested by equations 1 and 2 (section 3.3).

I confirm the randomization of the audits by examining the balance of various observable municipal characteristics. Imbalances across these characteristics could bias the estimates of the relationship between the anti-corruption audits and the outcomes of electoral sanctioning analyzed in this chapter. I use the same specification to test for potential imbalances across audited and non-audited municipalities over time. All control variables refer to pre-existing municipal characteristics, i.e. prior to when the lotteries were conducted. Many studies have found that political institutions, including electoral rules might influence voters' ability to sanction incriminated politicians (Tavits 2007, Schwindt-Bayer and Tavits 2016). I compare municipalities where the formal political institutions are exactly the same (e.g. first-past-the-

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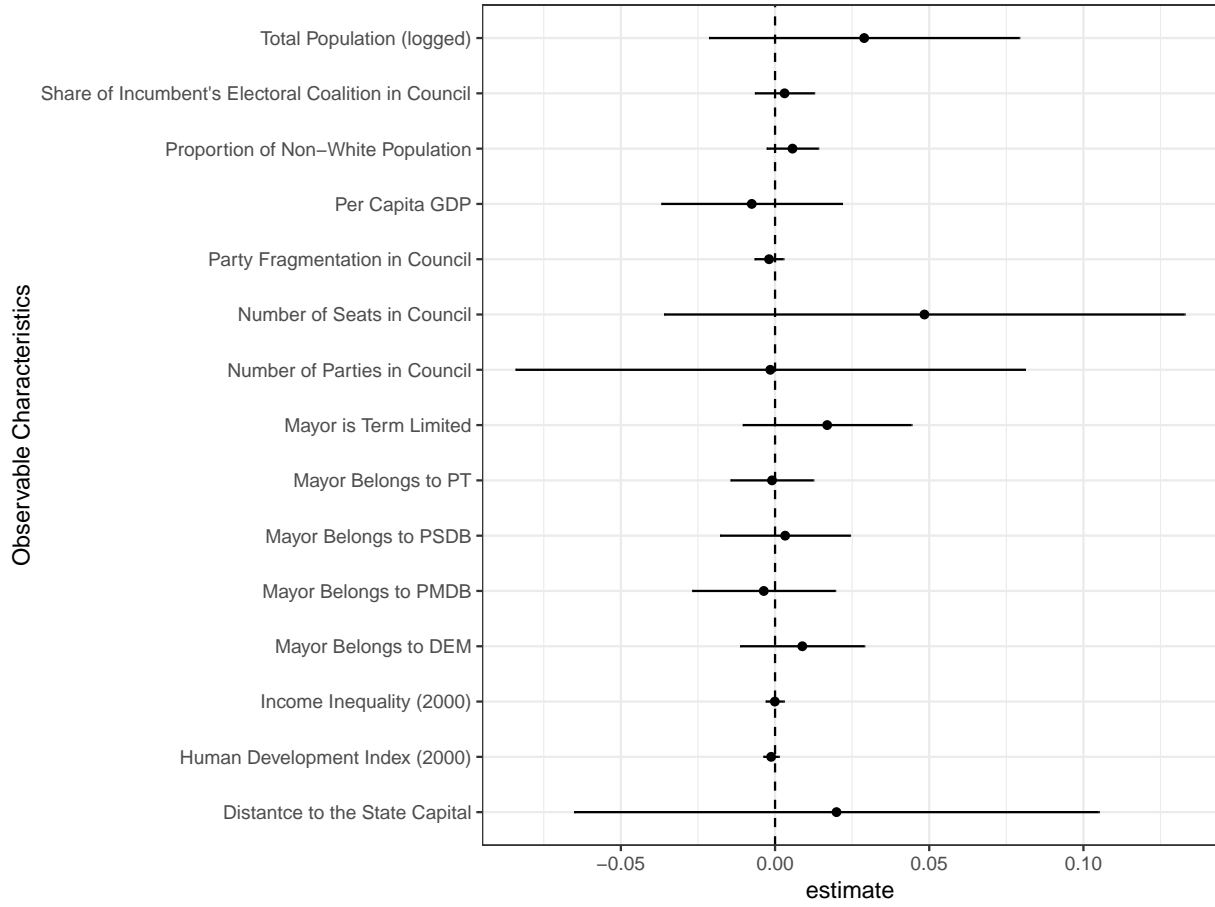
Figure 3.3: Balance Across Audited and Non-Audited Municipalities (2004-2016)

post elections for mayor) and so is the legislation regarding malfeasance. The design of my study also allows me to control characteristics that vary across municipalities in my sample, such as district magnitude, whether the executive holds a majority in the city council, the effective number of parties in the local council, the level of previous electoral competition, the size of the mayors' coalition, etc. It also allows to account for whether the municipality was governed by a mayor from a particular party. Figure 3.3 shows that across a set of economic, geographical and political characteristics, there are no systematic differences between audited and non-audited municipalities.

3.4 Is there a backlash against incumbent mayors and party whose administrations were audited?

Audits in Brazil generate novel and credible evidence about corruption in municipal governments that otherwise would probably have remained unknown. By revealing corrupt transactions, audits are expected to increase the likelihood that participants in these transactions are punished. Because auditors themselves do not have the capacity to punish elected officials, civil servants and other participants in the corrupt transactions, the effectiveness and the type of the punishment depends on the actions taken by other actors. These include the actions taken by investigative authorities (e.g. prosecutors, police), political parties, the judiciary, the local media, the city council (which has oversight responsibilities), local politicians, as well as citizens in general. Punishment is also subject to a reaction by the participants in the transactions that were revealed, including the incriminated mayor, members of the mayors' cabinet, and other allied politician. When accused of wrongdoing, politicians often try to deflect from the revelations, question the intentions of the investigators and for justifiable or unjustifiable reasons blame their political adversaries.

The opposition is expected to play an important role in denouncing wrongdoing in sight of electoral rewards. In two party systems, the expectations would be that the incumbent is hurt and the opposition party would benefit from exposing malfeasance. In the context of complex and malleable electoral alliances like those in most Brazilian municipalities, it

might be more demanding for voters to differentiate those responsible from those who are not being incriminated. Survey experiments show that Brazilian voters have strong anti-corruption norms and that, when confronted with hypothetical scenarios, tend to strictly sanction those whose corruption is revealed (Weitz-Shapiro and Winters 2017, Winters and Weitz-Shapiro 2013, Boas 2019). Instead of providing voters with information directly, I test the effects that audits have in municipal elections. Whether the information about corruption reaches the voters depends on how the information about it gets transmitted in the municipality, i.e. on the role of local politicians interested in spreading the information, whether the local media broadcasts, etc. While the setting of my study takes place in a less controlled environment in comparison to survey experiments, it is more realistic, allowing multiple actors to respond to the intervention.

Olken (2007: 226) argues that anti-corruption audits are most effective in combating corruption among elected officials when these will run for reelection in the short-term. This is the case of most Brazilian mayors: 70% of mayors whose administrations were audited were indeed eligible to run the subsequent election. Of these, two-thirds (67%) did indeed run for reelection. Being audited does not make parties more likely to bar an incumbent mayor from running for office. An incumbent party does not become more likely support another of its own members nor to support a candidate from another party. Political parties are expected to play an important role in disciplining their own members and those in other parties whom they endorse (Daniele et al. 2019, Asquer et al 2019). The party might block those incriminated from running or expel them from the party if it expects its reputation to be tainted by the participation of one of its members in a corruption scandal. If, on the other hand, party labels and party membership is less important, from the electoral point of view as well as governing, and the cost of switching parties is low, a party may not have the same incentives to discipline its members. Most parties in Brazil are precarious organizations and lack a strong party identity. Overtime, incumbent mayors in audited municipalities were as likely as incumbent mayors in non-audited municipalities to run the subsequent elections (Figure 3.4).

Mayors in Brazil have a strong bargaining position vis-a-vis their own political parties.
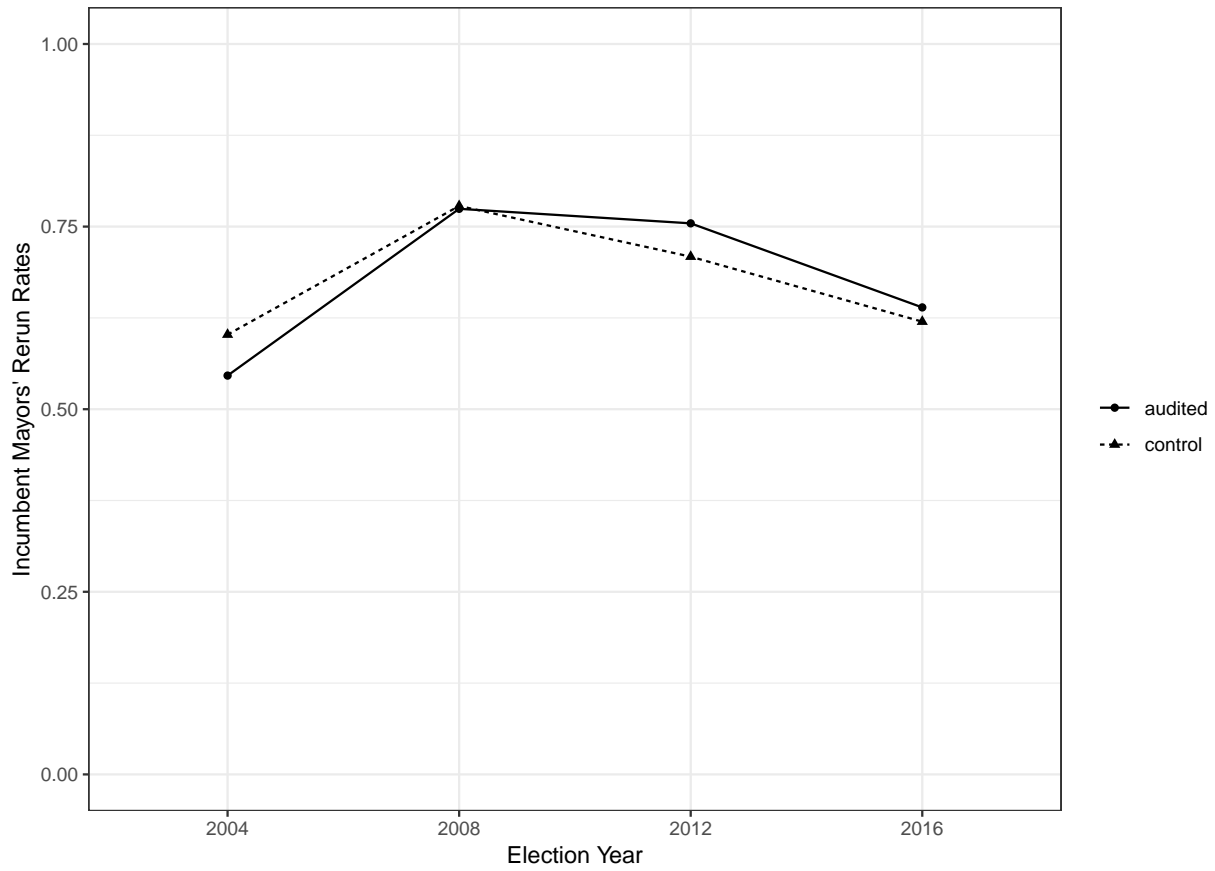
Figure 3.4: Effects of Audits on Mayor's Rerun Rates (2004-2016)

Note: This figure plots the average probability of rerunning for incumbent mayors who are not subject to a term limit.

Most political parties are unlikely to sanction their own members. One of the reasons is that politicians also have the possibility of switching parties up to 6 months prior to the election and do not lose office if they decide to do so (Law 9.504, 1997). For mayors, the costs of not running for office might be more detrimental for their political careers in the long-run after an audit. Participating in an election, even if that results in defeat, might be useful for a politician to reorganize her base. Campaigning might be the best strategy for a mayor to defend her/his legacy in government and diminish the results of unquestioned criticism from political adversaries. Not running for reelection might be seen as a admission of being involved in wrongdoing and for not having done a good job as mayor.

The decision of running for reelection is a joint product of the mayors' decisions and that of political parties. Mayors might withdraw from the competition if their chances are slim, if they prefer to run for other political offices or if securing the nomination from their own political party and forming a competitive electoral coalition is too costly. [6] A party might decide that supporting another of its members or a candidate from another political party is the best strategy. Because of these strategic dimensions, I use measures of electoral sanctioning that are independent of whether the candidate or the party effectively run for office again because these strategic decisions are likely to depend on the audit themselves.

I conduct four different tests to account for different types of direct electoral sanctioning as a result of an audit. I first compare the unconditional (i.e. irrespective of whether a party nominates one of its members to run for office) reelection rates of incumbent parties in municipalities that were audited during the last 4 years and compare them to those of incumbent parties in non-audited municipalities. Differently from what would be expected if the incumbent party was punished for corruption, anti-corruption audits do not lead to a decrease in the probability that the same political party will remain leading the municipal executive over time.

A second test to the electoral sanctioning hypothesis is whether revealing malfeasance causes the incumbent mayor to become more likely lose office in the subsequent elections.

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[6]Mayors might also be banned from running for office because of a judicial conviction. See chapter 2 for more details on the effects of judicial convictions on elections and the effects of the Clean Record Law 2010.
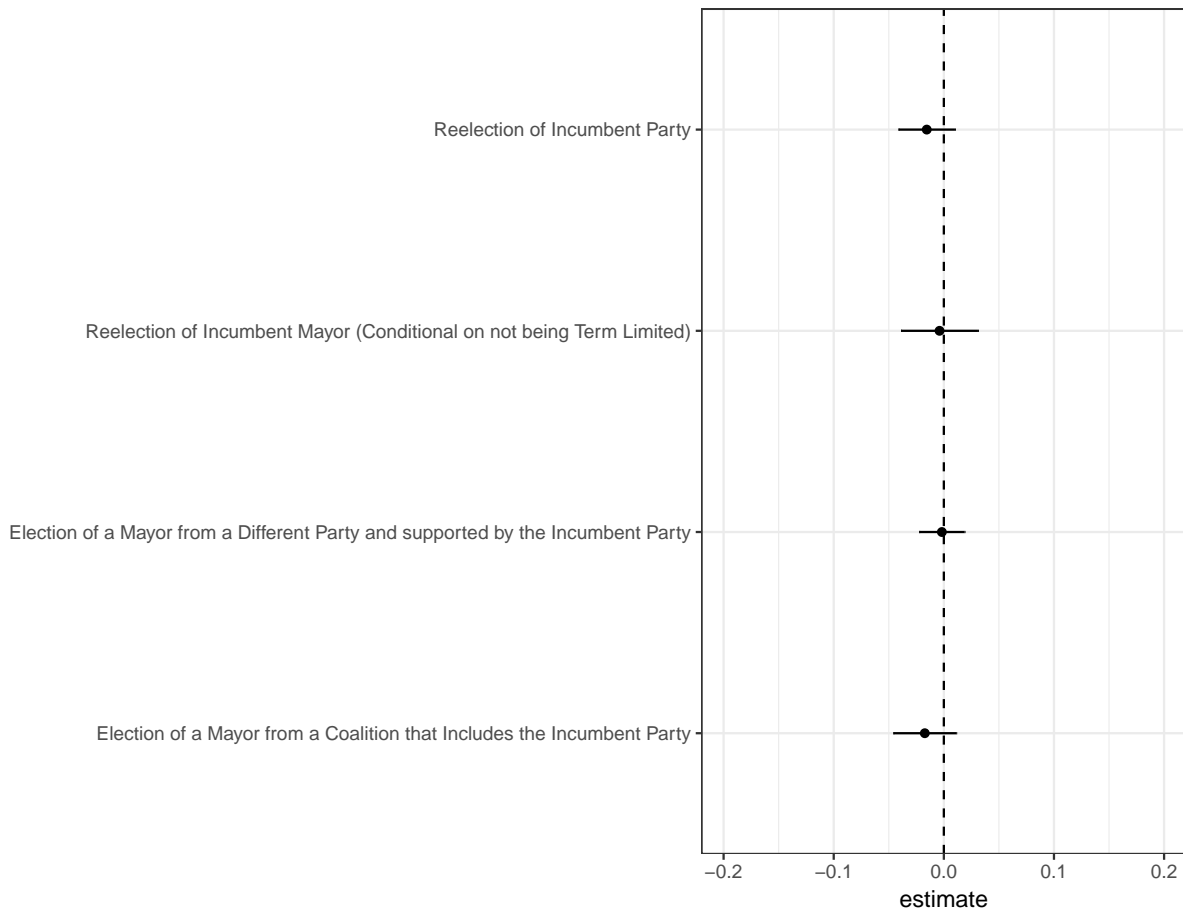
Figure 3.5: Effects of Audits on Reelection Rates (2004-2016)

Note: This figure plots the estimates of audits on four different outcomes: (i) unconditional re-election rates of the incumbent party, (ii) unconditional reelection rates of the incumbent mayor that were not subject to a term limit, (iii) unconditional election probability of the incumbents' coalition when the incumbent party endorses a mayoral candidate from a party that was not in the incumbent's coalition in t-1 (iv) unconditional election probability of the incumbents' coalition when the incumbent party endorses a mayoral candidate from a party that was part of the incumbent's coalition in t-1. All estimates are based on the difference in means specified in equations 1 and 2.

On average, audits had null effects on the reelection rates of incumbent mayors (Figure 3.5). This measure is obtained by comparing audited and non-audited municipalities where the mayor was eligible for another term in office, i.e. not subject to term limits. The reelection probability of incumbent mayors is on average 40% for both audited and non-audited municipalities over the time period 2004 to 2016.

Other possible ways of getting punished electorally include when an incumbent party tries to use a different strategy to circumvent voters' reactions. In the multiparty environments of Brazilian municipalities, the support of the incumbent party to a candidate from another party, something that happens quite often, might allow the incumbent party to try to evade punishment. This is connected to the lack of "clarity of responsibility". If their coalition wins, members of the audited administration can try to remain influential in government. Becoming a junior member in the coalition and supporting a candidate from another party might be the incumbent party's best strategy to reduce the party's visibility after an audit if it expects electoral punishment. The party in government can either support a candidate that belonged to its original coalition prior to the audit or a mayoral candidate from a party with which it was not aligned in the prior election. Potential adversaries might use the evidence of corruption to boost their electoral chances and denounce the incumbent party's participation in an opposing pre-electoral coalition. I compare the effect of audits on the incumbent party's ability to win the subsequent elections when it adopts these different strategies. My analyses find that audits do not have a substantial effect on the probability of a party to win in either strategy (Figure 3.5). This means that the incumbent party is not punished after an audit when it adopts the electoral strategy of not endorsing one of its members for the position of mayor. Audits do not increase the probability that the incumbent party is punished when it participates neither as a junior member nor as a senior member of a coalition. The same can be said about mayors' ability to remain in office. The reelection rates of incumbent mayors are not affected by the release of audits that often contain incriminating evidence against them.

The effect of anti-corruption audits on the reelection rates of incumbent mayors is null in every electoral round (Figure 3.6). The 2016 elections was a period when corruption was

at the center stage of politics and media attention after the revelations about the Car Wash scandal engulfed an important part of the Brazilian business and national political elites. Although millions of people protested against political corruption across the country's cities that year, corruption revelations did not make mayors more likely to be punished electorally. Elected officials and their parties were as likely to remain in office after being investigated as those who were not investigated. Another major change, the growth in communication technologies (e.g. number of people owning cellphones in Brazil went from 46 million in 2003 to 139 million in 2016), during the time period under consideration does not seem to have boost the effect of the audits on electoral sanctioning either.
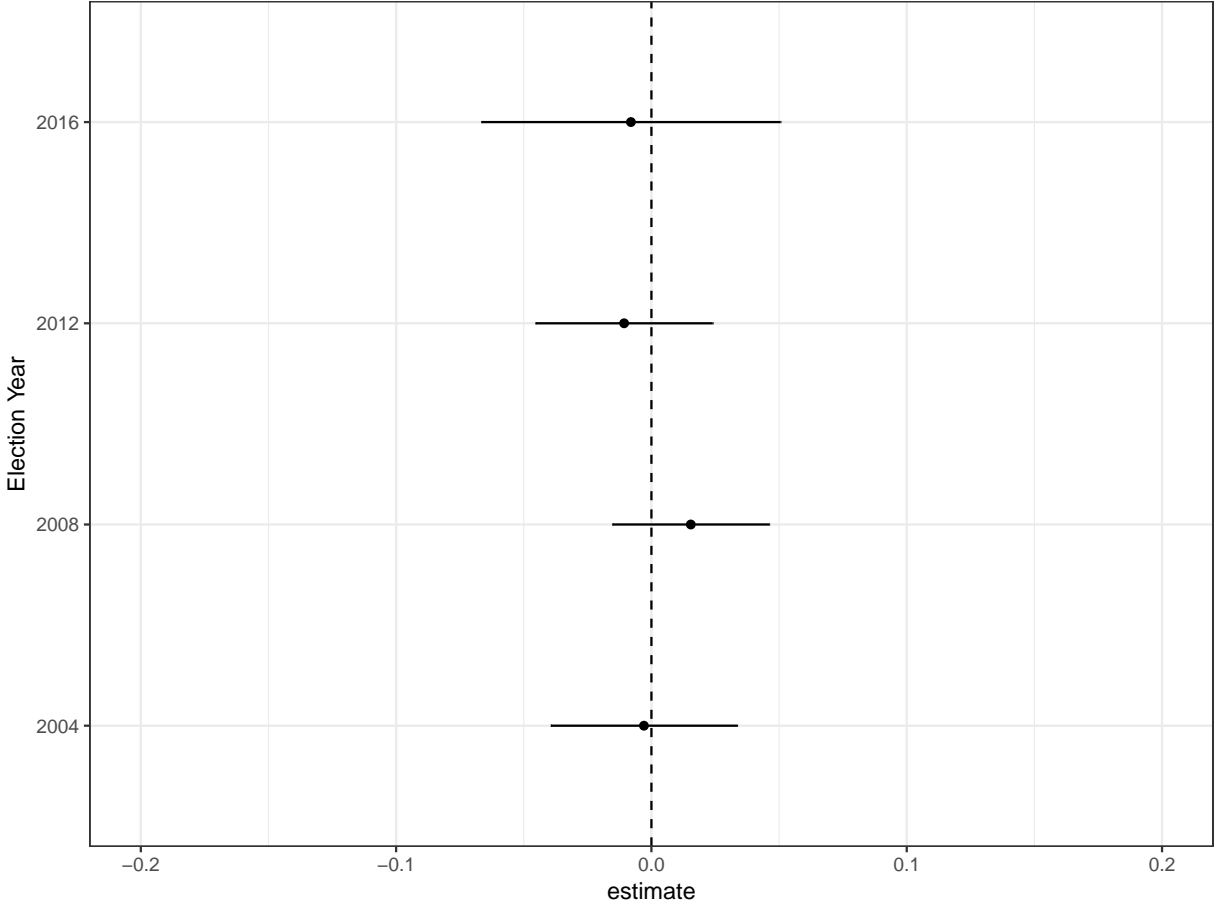
Figure 3.6: Effects of Audits on Mayors' Reelection Rates by Election Year (2004-2016)

Note: This figure plots the estimates of audits on unconditional reelection rates of incumbent mayors who were not subject to a term limit. All estimates are based on the difference in means estimates presented in equations 1 and 2 and explained in section 4.3.

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3.5 Do Audits Have an Effect on Reelection Rates Only in Municipalities Where Elections are Competitive?

Intro! Anti-corruption audits only influence elections in municipalities where elections are competitive enough. Mayors elected by a large margin in the previous election are expected to be able to hold a large proportion of their loyal voters even if an audit reveals malfeasance. In non-competitive areas, most voters might remain loyal to the incumbent mayor (or party) if they value the incumbent for reasons other than corruption, such as their competence, for partisan reasons or because of the strength of the local political dynasty. In competitive places, on the other hand, an opposing candidate only has to convince a small portion of the electorate who favored the incumbent candidate in the previous election. Peters and Welch (1980) find that in the United States in the 1960s and 1970s most candidates who had been charged for corruption were able to secure reelection but that the charge reduced their vote shares by between 6 to 11 percentage points. Because a high percentage of mayoral elections in Brazil are highly competitive, a similar reduction would mean that most candidates implicated in corruption would lose.

To test whether the margin of victory in the previous election moderates the effect of an audit on the reelection rate of the incumbent mayor, I conduct an heterogeneous treatment effect analysis using the method suggested by Heinmuller et al (2019). This is a flexible approach that allows for nonlinear interaction effects and to avoid most problems commonly attributed to this analysis of heterogenous treatment effects, i.e. non linearity and interpolation of the moderator. To check the existence of heterogenous treatment effects, I divide the sample by value of the moderator (margin of victory in the previous election) in three equally sized bins. I then estimate the treatment effects of the audit in each bin. Because of way lotteries where conducted and to account for differences in the treatment probability of each observation, these estimates take into consideration the election year and the state as control variables. The histograms bellow demonstrate that the estimates do not suffer from lack of common support and interpolation. Because most elections are decided by less than 25% of the votes, the estimates of the conditional effect of audits for the most uncompet-

itive races is not as precise as the estimates for the most competitive electoral races. The heterogenours treament effects of audits on the mayors' reelection rates ar not substantially different in highly competitive municipalities and municipalities were the elections were not as competitive (Figure 3.7). Audits are not more likely to make a difference in a context where only a small share of voters changing their voting behavior could make the incumbent candidate more likely to lose.
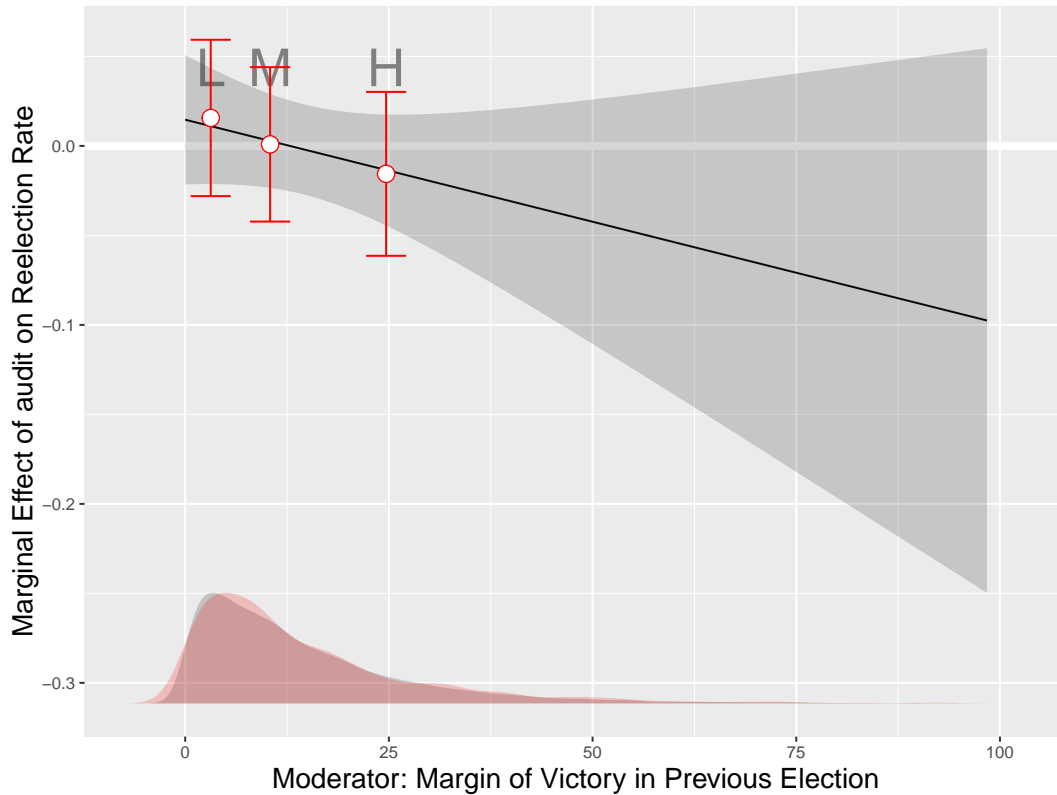
Figure 3.7: Heterogenous Effect by Margin of Victory in Previous Election (2004-2016)

3.6 Does the electoral sanctioning of corruption depend on the existence of local mass media?

The rise of an informative and independent media is considered to be a main historical reason for the reduction of corruption in some parts of the world (Gentzkow et al. 2006). How and whether details about the corruption revelations are transmitted and explained to the larger

public might depend on the media. Local media outlets can further investigate the corruption uncovered by the auditors, follow up with local politicians and investigating authorities, and serve as an arena for potential challengers who might raise concerns about the corruption scandal. In a large country such as Brazil, the availability of the media covering local news varies greatly across municipalities. In 2018, there was no radio station, no television station, no newspaper nor was there a news website in operation in 2,860 municipalities, 51% of all Brazilian municipalities (Figure 3.8). [7] On average, these municipalities tend to be less developed, more rural, and have a smaller population. Despite being mostly concentrated in the North and Northeast of the country, municipalities that lack a local media outlet are present throughout Brazil. [8]

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[7] Data from Atlas da Notícia (2018) .

[8] See chapter 5 for more detailed analyses about the mass media environment in Brazilian municipalities.
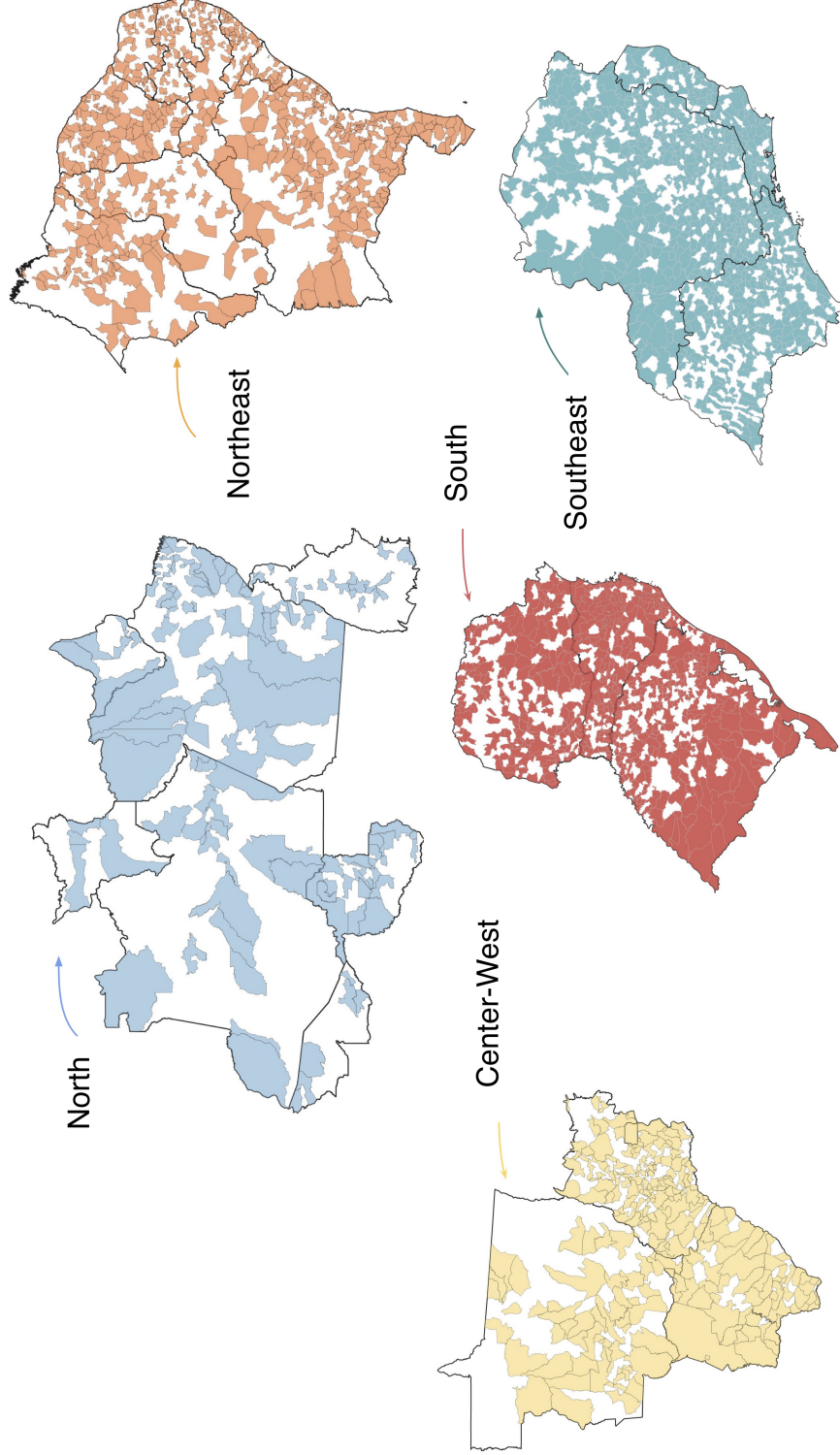
Figure 3.8: Distribution of Mass Media

Note: This figures represents the 5 geographical regions of Brazil. Municipalities in white are those where no local mass media outlet exists. Source: Atlas da Notícia (2018).

One of the most influential papers in the literature on political accountability, *Exposing Corrupt Politicians* (Ferraz and Finan 2008), finds positive and substantive effects of electoral sanctioning of corrupt politicians in the context of Brazilian municipalities. Brazilian voters tend to punish mayors whose wrongdoing have been found before the 2004 elections as a result of the publicization of the same audits that are analyzed here. Differently from my analysis, they compare to reelection rates of mayors in municipalities that were audited right before and right after the 2004 elections. Their positive findings for electoral sanctioning are restricted to the sample of Brazilian municipalities that had a radio station prior to the 2004 elections, what is the case of only a third of Brazilian municipalities. Municipalities where local radio stations exist are different from those that do not have any radio station in many aspects. For instance, radio stations are located in wealthier and more populous municipalities. Additionally, radio stations play an important role during elections. Radio stations are required to transmit mandatory electoral ads for 45 days prior to the election [9]. Campaign ads are transmitted in prime time and the distribution of the time is determined by the representation of mayoral candidates' coalitions in the Federal Congress. Having a local radio station, therefore, changes both the bargaining for electoral coalitions and how campaigns are run. Transmitting information about wrongdoing in electoral ads might give the opposition an important tool to voice and publicize their opponents' malfeasance. This makes it difficult to disentangle the ability of the opposition to use its mandatory radio time from the role that mass media might have in transmitting revelations about corruption. Because the presence of mass media is not randomized, it might still be the case that other unobserved municipal characteristics lead to an over estimation of the effect of voters' ability to sanction corrupt politicians.

Getting a radio license is frequently politicized and depends on mayors' and city councilors' abilities to lobby in the federal Congress (Boas and Hidalgo 2011). Boas and Hidalgo's (2011) research shows that radio licenses are frequently used as a bargain chip among elected officials in different levels of government and that the property of local radio stations has im-

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[9]Starting in 2015, the number of days of mandatory electoral ads became 30.

portant electoral consequences[10]. Besides being owned in many cases by an active politician (e.g. mayor, city council member, state deputy or federal deputy), radio stations in Brazilian towns are frequently biased in their political coverage and depend greatly on the municipal government for most of their revenues (Lopes 2018). Unfortunately there is no measure of whether the information about the audits and their details indeed reaches most voters, and how voters process the information and if it is useful for them when deciding whom to vote for. Importantly for this study, it could be that there is a large variation in how the existing local mass media transmits information contained in the audit report.

Another aspect of the context in which the analyses of Ferraz and Finan (2008) were conducted makes their findings quite unique. The 2004 municipal elections in Brazil were the first when candidates who had been reelected in 2000 faced a term limit. Prior to 1997, reelection to executive offices was forbidden. Looking at the reelection rates and vote shares of mayors running for reelection in this particular electoral cycle does not account for all the municipalities were mayors were not reelected between 1996 and 2004: 43% of all municipalities in Brazil. For Ferraz and Finan (2008), local radio stations transmit information that make voters more likely to sanction politicians. In contrast, by analyzing four electoral cycles (2004, 2008, 2012 and 2016), I show that the null effect of audits on reelection rates holds also for the subset of municipalities where at least one local radio station exists.

To test whether the existence of mass media mediates electoral sanctioning, I divide Brazilian municipalities in two groups: those that had a radio station in 2002, the year prior to when the audit program started, and those that did not have a radio station. I then compare whether the effect of audits are significantly different in each of the two groups. For the subsample of municipalities that had a radio station in 2002, the estimates of audits on reelection rates are slightly higher than in those where no radio station was present. The small magnitude and the statistical significance of the coefficients demonstrate that the effects of audits were the same across the two groups. The presence of local radio station does

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[10]For more information on the media environment in Brazilian municipalities, see chapter 5

not change the effect of audits on incumbent mayors' and parties' reelection rates (Figures 3.9 and 3.10). Instead of the presence of radio stations, the information environment of local politics might depend on the extent to which the media informs the public about the revelations and the magnitude of the interest. The local radio station might depend on municipal funds for surviving and, therefore, avoids dedicating great coverage to corruption scandals. Access to local broadcast radio stations does not seem to influence whether audits have electoral consequences in Brazilian municipalities. It might be possible, that in Brazilian municipalities, voters also respond to media coverage rather than media presence, as found by Chang et al. (2010) for the case of Italian legislators charged with malfeasance. Unfortunately, testing this hypothesis is challenging because of the nonexistence of a comprehensive dataset of media content, and the lack of newspaper coverage in Brazilian municipalities. In Chapter 5, I examine the effect of local media on mayors' malfeasance in a different context: when mayors in neighboring municipalities are removed from office by the judiciary.

Effect of Audit on Mayors' Reelection Rates
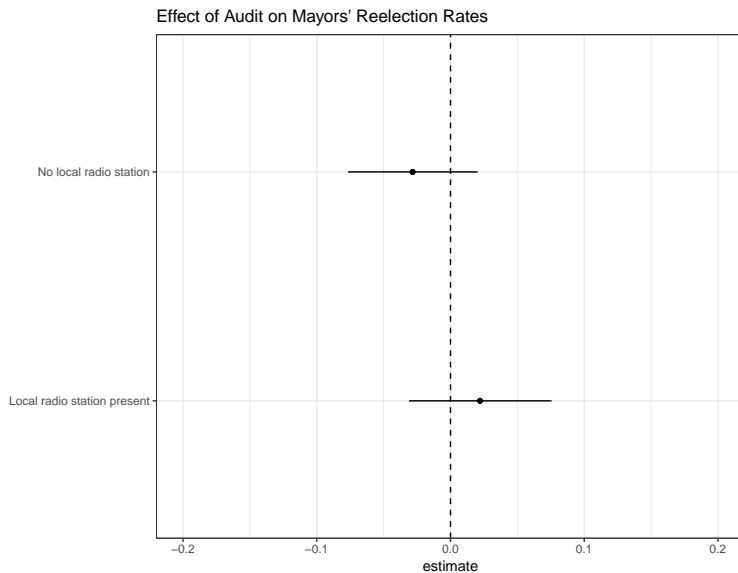
Figure 3.9: Effects of Audits on Reelection Rates (2004-2016) by the Existence of at least one Local Radio Station in 2002

Note: This figure plots the estimates of audits on unconditional reelection rates of the incumbent mayor that were not subject to a term limit. All estimates are based on the difference in means presented in equations 1 and 2 and explained in section 3.3.

Effect of Audit on Incumbent Party Reelection Rate
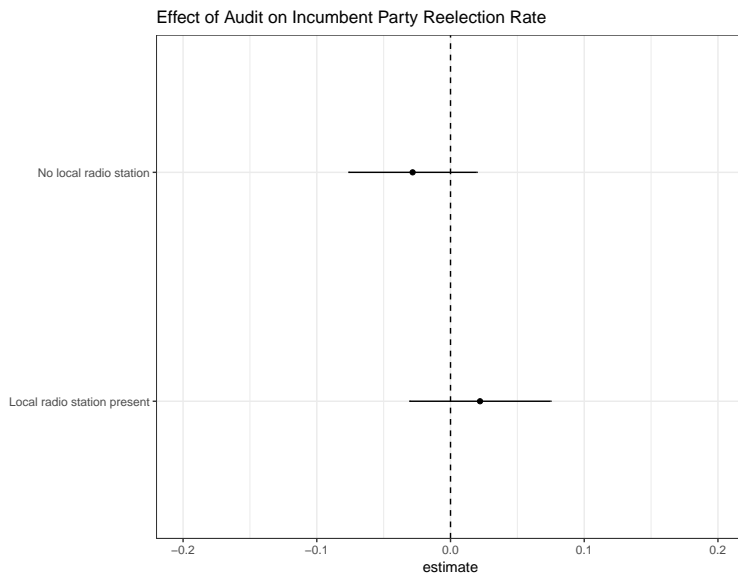
Figure 3.10: Effects of Audits on Party Reelection Rates (2004-2016) by the Existence of at least one Local Radio Station in 2002

Note: This figure plots the estimates of audits on unconditional reelection rates of the incumbent party. All estimates are based on the difference in means presented in equations 5 and 6 and explained in section 3.2.

3.7 Corruption Levels and Reelection Rates

Even though most audit reports reveal malfeasance at the municipal level, the local political system (e.g. political elites, investigative authorities, media, local parties and voters) might react differently when there are many incidents of corruption that are revealed rather than just a few. Differently from being audited, how much corruption is found is clearly not random and might be mediated by political incentives and other characteristics of the local political system. How much corruption is found also depends on the ability of auditors to reveal it and of politicians to hide it. For this reason the analyses presented in this section should not be interpreted as causal but as revealing patterns of the relationships between corruption levels and the ability of politicians and parties to remain in power. Actors also have prior expectations of how much corruption there is and that might or not be confirmed by the audits.

Audit reports are highly technical and contain many details that are complex for non-experts to analyze. For this reason, it is likely that the information contained in the reports will be mediated by local politicians, journalists or other members of the civil society. From the theoretical point of view, it would be ideal to compare agents' (prior) estimated level of corruption with how much was actually found. An audit report might make actors update their beliefs of how much corruption there is. Corruption perceptions have important consequences but, in general, are not very accurate or even correlated with actual corruption (Olken 2009). Corruption levels are by nature hard to estimate unless people are directly involved and in a relatively higher and central position in the corruption network. Despite its complexity, the objective measure of corruption that is revealed by the audits in Brazil has advantages over measures that rely on perceptions of corruption or other self-reported measures (Razafindrakoto and Roubaud 2010).

I use two coding schemes to measure how much corruption was found and whether the level of corruption uncovered is associated with electoral sanctioning. Both rely on the original audit reports and are objective measures of corruption. I combine the original coding of the audit reports made by the CGU and that produced by Brollo et al. (2013),

which are also based on the original reports. These are the two most comprehensive datasets available. Using both, I get the full coverage of audit program from 2003 to 2016. I present the results for each dataset separately.

CGU's coding scheme builds directly on the reports themselves and provides the raw count of what the institution classifies as "corrupt acts". The CGU clearly differentiates illegal acts from bad management practices that are not illegal. Building on CGU's audit reports and coding scheme, my first measure of corruption is the raw count of illegal acts detected and reported by the auditors. Illegal acts reported are largely based on two laws regulating administrative improbity (Law 8,429 of 1992) and the contracting and procurement procedures (Law 8,666 of 1993)[11]. Examples of the typified crimes include explicit diversion of funds from public coffers, over-pricing, and illegal contracting procedures (e.g. evidence of favoritism to specific companies). Audit findings are available for audits that were conducted between March 2006 and February 2016.
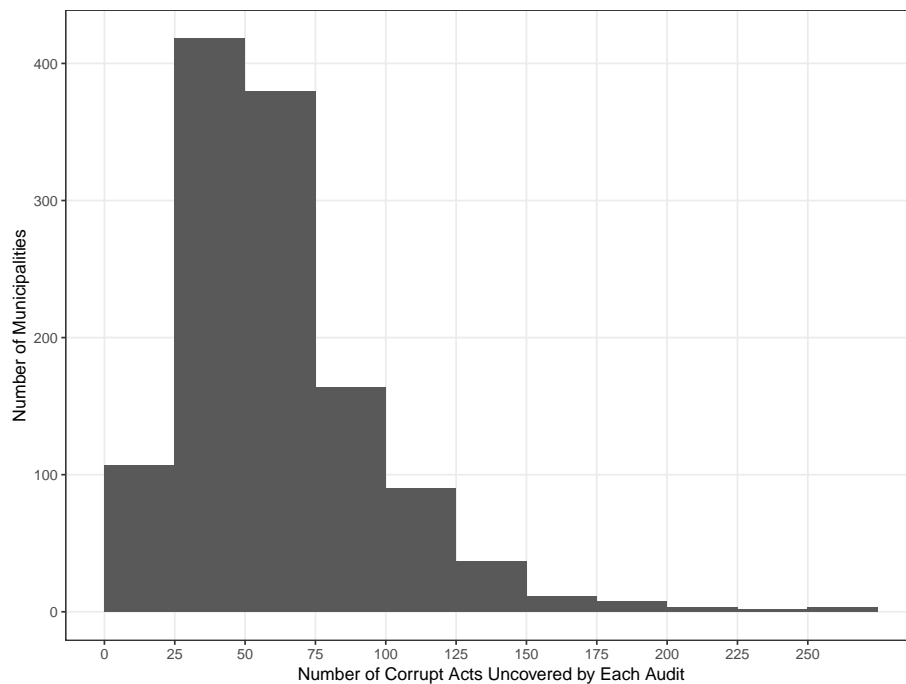
Figure 3.11: Number of Corrupt Acts Revealed by each Audit (2006-2016)

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[11]The document that contains the explicit instructions for auditors is available (in Portuguese) at: http://www.cgu.gov.br/Publicacoes/auditoria-e-fiscalizacao/arquivos/manual_in_03_05-12-2017.pdf

There is a large variation of what each audit uncovered (Figure 3.11). Most audits reported between 25 and 75 illegalities. The median number of illegalities found by each audit was 56. For the period covered by the CGU dataset, the two extreme cases are that of the municipalities of Quiterianópolis and Vargem Bonita. In Quiterianópolis, a municipality in the Northeastern state of Ceará, in 2007 auditors reported 273 illegalities. In Vargem Bonita, a small town in the Southeast state of Minas Gerais that was audited in 2013, auditors found much less: 4 illegal acts. These municipalities differ in many aspects. The total population of Vargem Bonita is 2,163 while that of Quiterianópolis is 20,979. Vargem Bonita is also much wealthier: its income per capita is almost 4 times larger than that of Quiterianópolis. Because of differences in the size of municipal budgets, in Quiterianópolis, auditors inspected R$ 66 million of public funds while in Vargem Bonita they inspected a less than R$ 1.8 million. Because of such differences in municipal characteristics, in addition to the raw number of illegalities, I construct three other measures of municipal corruption: (i) the total number of corrupt acts divided by the number of auditing "service orders" (different aspects that auditors analyzed) in each municipality[12], (ii) the total number of corrupt acts divided by the logarithm of the total municipal population, (iii) the total number of corrupt acts divided by the logarithm of the total amount of public funds that were audited. The number of service orders is useful to normalize the findings because the protocol and the domains that were investigated have changed overtime [13]. These normalized variables are constructed to take into account the municipal differences highlighted by the example above. While this makes them more accurately comparable, I also keep the raw number because that provides a proxy of audit results that might be easier for the public to understand. These measures of corruption intensity are highly correlated [14].

Figures ?? and ?? display the average (unconditional) reelection rates for incumbent mayors and parties at different points of the intensity of the corruption that was uncovered

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[12]This measure has been used as a proxy of corruption intensity by Zamboni and Litschig (2018) and Avis et al. (2018)

[13]For more on the changes overtime, see Avis et al. (2018).

[14]See appendix to this chapter
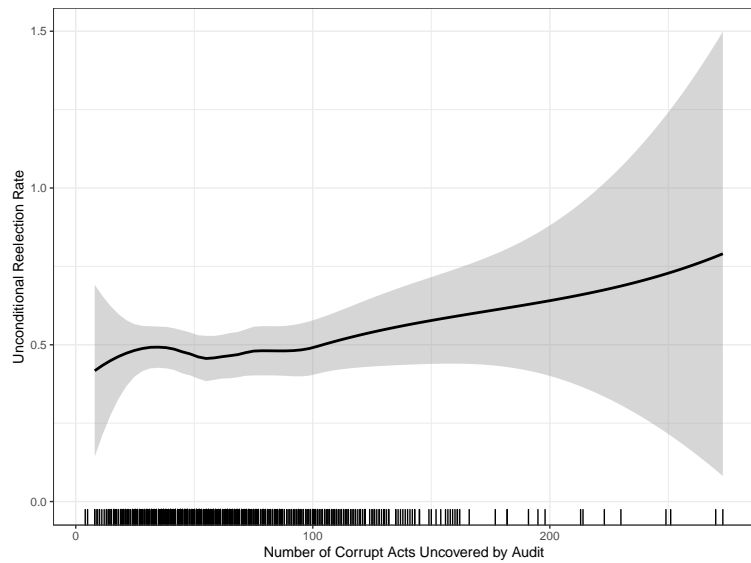
Figure 3.12
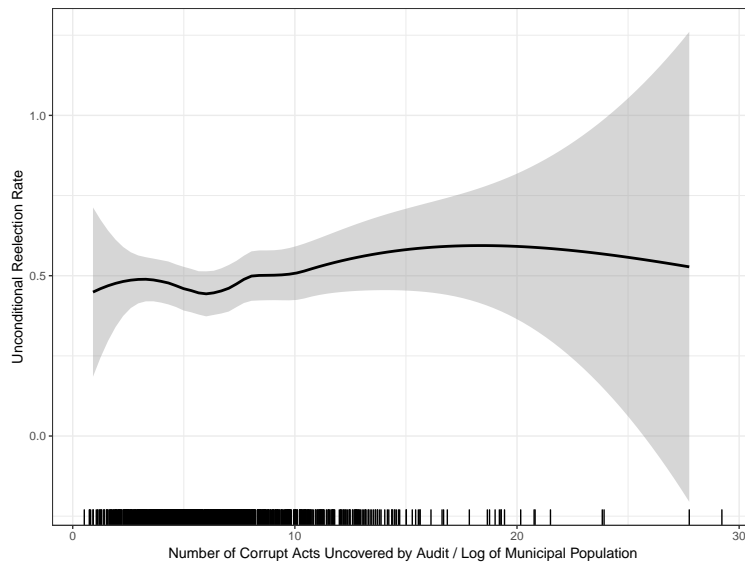
Figure 3.13: Mayors' Unconditional Reelection Rates by Audit Findings (2008-2016)
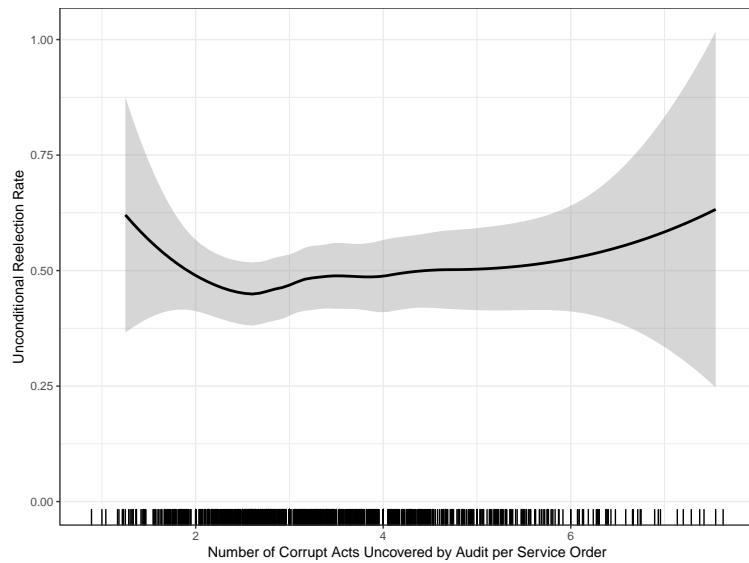
Figure 3.14: Mayors' Unconditional Reelection Rates by Audit Findings (2008-2016)
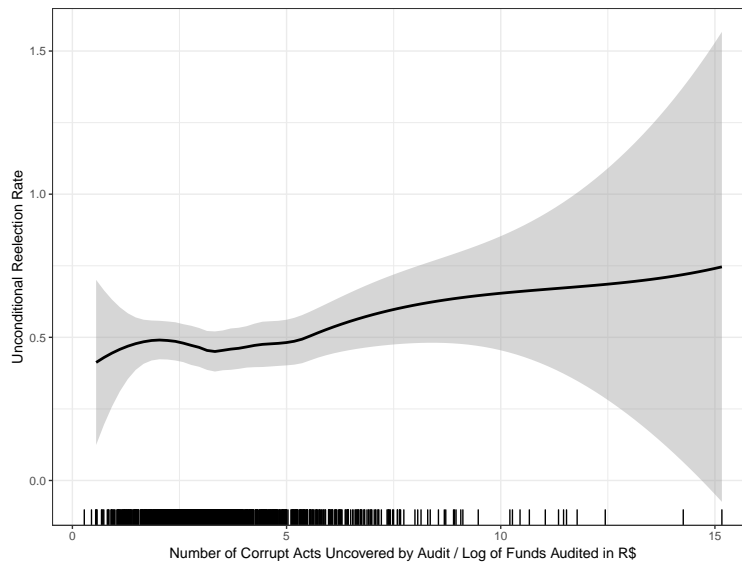
Figure 3.15: Mayors' Unconditional Reelection Rates by Audit Findings (2008-2016)
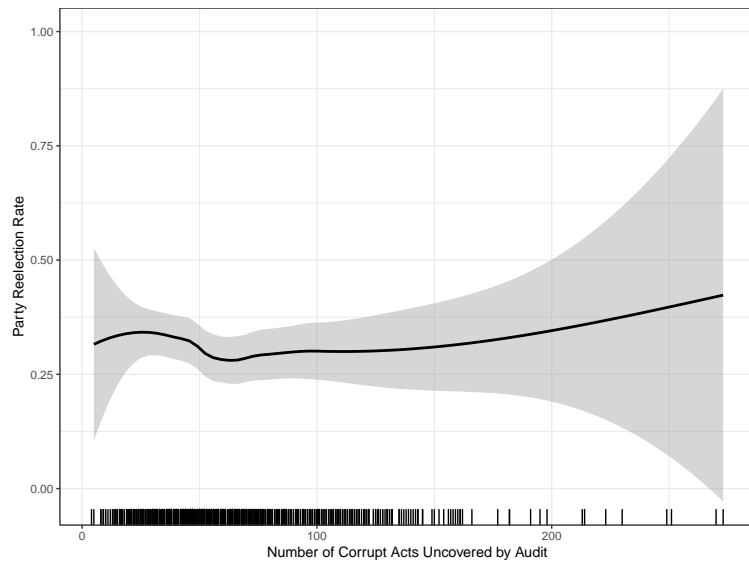
Figure 3.16: Party Reelection Rates by Audit Findings (2008-2016)
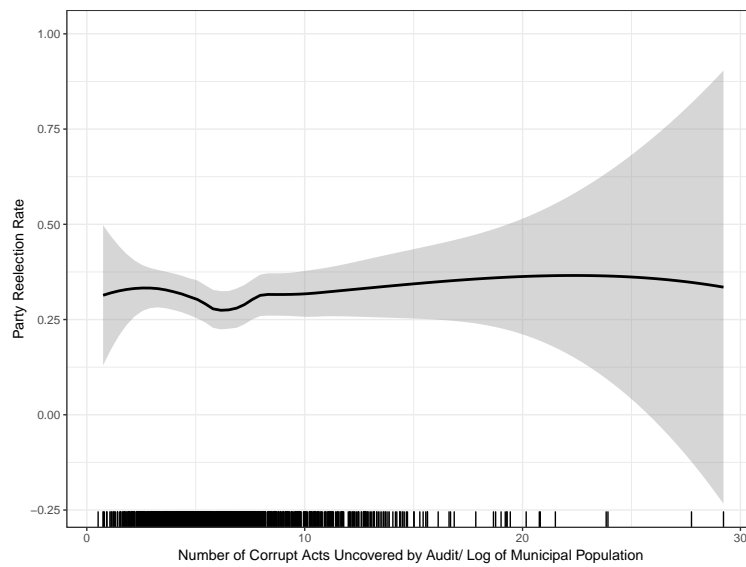
Figure 3.17: Party Reelection Rates by Audit Findings (2008-2016)
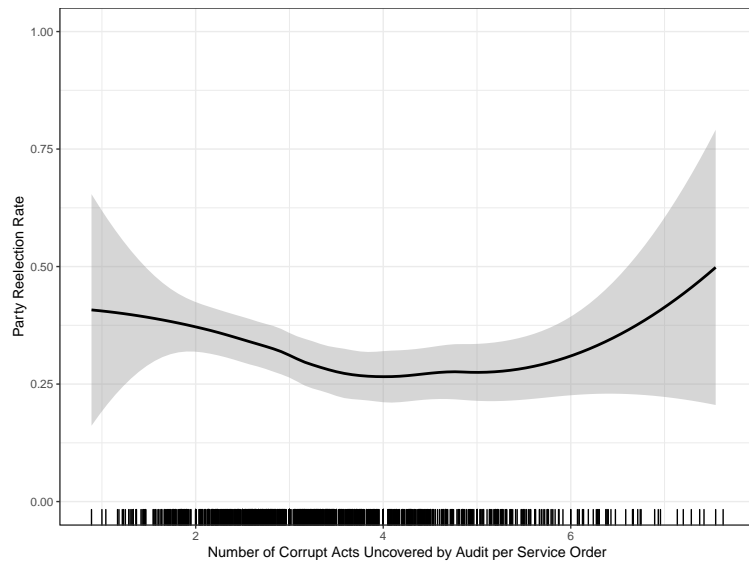
Figure 3.18: Party Reelection Rates by Audit Findings (2008-2016)
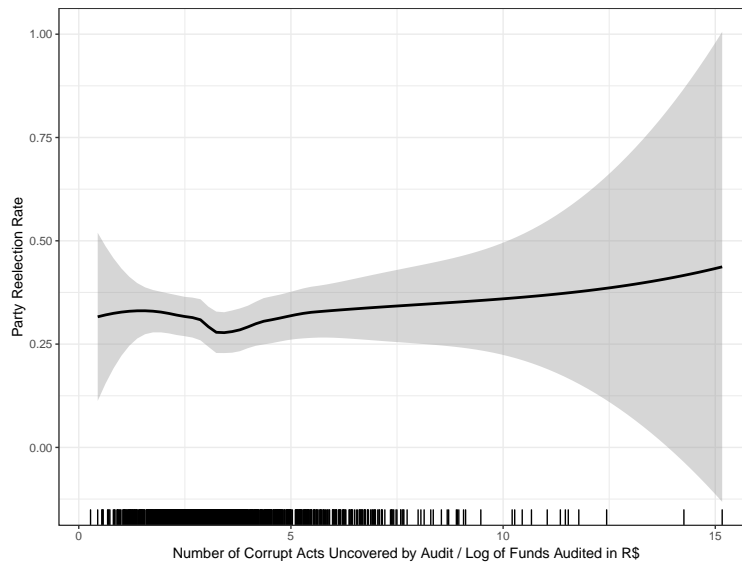
Figure 3.19: Party Reelection Rates by Audit Findings (2008-2016)

by the audits. I use local linear regressions to estimate the relationship between corruption intensity and (unconditional) reelection rates. I exclude from the analyses of mayors' reelection rates municipalities in which the mayor was term limited. If electoral sanctioning is effectively taking place, reelection rates should be lower in municipalities where audits uncover a higher level of corruption. The ability of incumbent mayors and parties to remain in office, however, is not correlated with intensity of corruption that is uncovered by the audits. On the contrary, the figure that plots the relationship between mayors' reelection rates and the raw number of illegalities presents even a slightly positive relationship between the two variables. However, the relationship at higher levels of corruption is very imprecisely estimated because there are few municipalities where auditors found more than 150 irregularities. The lack of correlation between corruption levels and reelection rates corroborates the lack of electoral sanctioning of mayoral corruption in Brazil.

I also use a measure of corruption constructed by Brollo et al. (2013), which builds on a more stringent definition of corruption and relies on the same original audit reports. They construct a dichotomous measure of whether a municipal administration committed an act that can be classified as "narrow" corruption. This is a measure that focuses on four specific illegalities: (i) severe illegal procurement practices; (ii) fraud; (iii) favoritism in procurement or bidding processes; and (iv) over-invoicing of public services or goods (Brollo et al. 2013). Another advantage of this coding scheme is that it attributes the corruption acts to the respective administration and distinguishes them from acts that were committed during a previous administration. This dataset covers audits that happened between 2003 and 2011. Other municipalities that were audited by an audit prior to the 2012 election are excluded from the sample.

In 48% of the audited municipalities there was at least one illegality that fits criteria of narrow corruption that is the responsibility of the current administration [15]. Narrow corrupt acts that were the responsibility of a prior administration were revealed in 20%

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[15]This rate is smaller than the average for the program because later audits uncovered more episodes of corruption. This is mostly due to changes in the protocol auditors needed to follow. See http://www.cgu.gov.br/Publicacoes/auditoria-e-fiscalizacao/arquivos/manual_in_03_05-12-2017.pdf for the specific protocols.

of the municipalities and, in approximately 10%, audits revealed that both prior and the current municipal executives committed acts of malfeasance. Therefore, only 10% of the audit reports recount episodes of narrow corruption committed by a former administration and not by the current administration. [16]

Mayors' Reelection Rates by Audit Status and Results
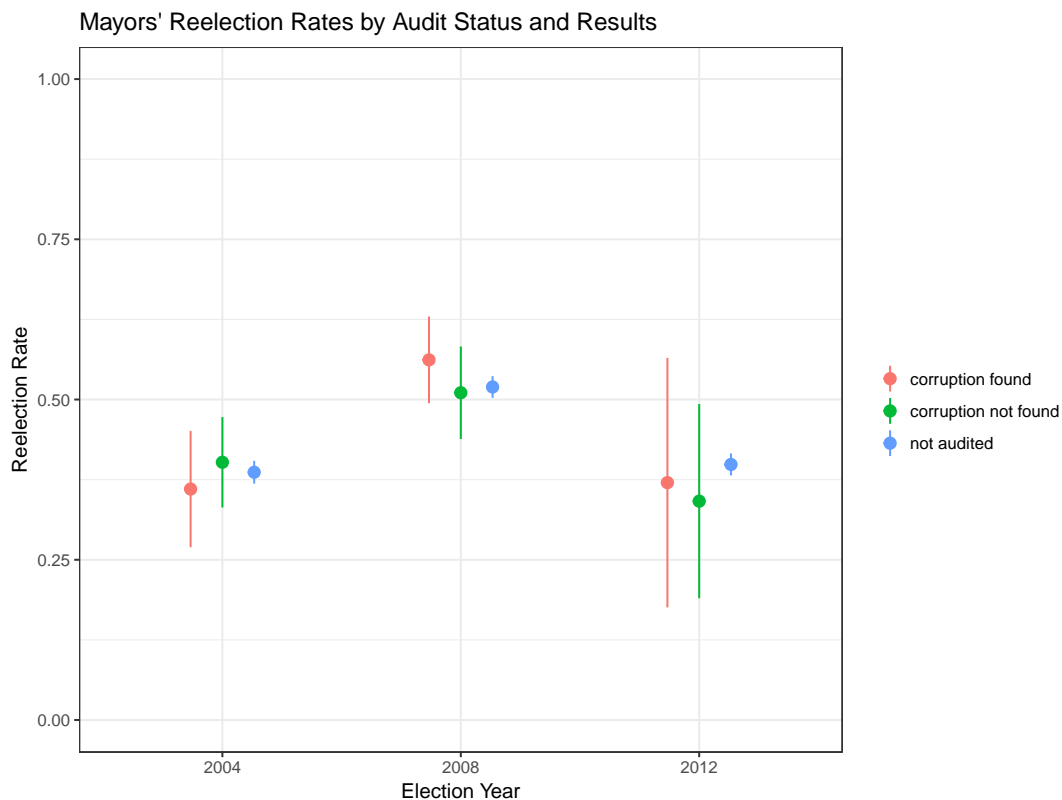
Figure 3.20: Average Unconditional Reelection Rates by Audit Status and Results (2004-2012)

Using this classification of "narrow" corruption, I compare the reelection rates of incumbent mayors in municipalities where corruption was revealed by auditors to those where "narrow" corruption was not found, and to those of mayors in non-audited municipalities. The figure contains the average reelection rates for non-term-limited mayors in each of the three categories and the standard errors of the mean. Mayors' in municipalities where audits did not find substantial evidence of corruption were not, on average, more like to be

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[16]This reduces concerns related to the measures of corruption that rely on CGU original coding, which does not explicitly attribute responsibility across administrations.

reelected than municipalities where clear evidences of corruption were found. The reelection rates in municipalities that were not audited was not substantially different from the other groups. Similarly to the results for the intensity of corruption, the dichotomous measure of "narrow" corruption indicates that uncovered corruption is not correlated with the ability of the mayors to remain in office. The temporal variation in reelection rates, higher in 2008, is more significant in explaining the differences across the three groups than what is revealed by the audits. [17]

3.8   Did the audits cause ideological change in local governments?

The 40% (unconditional) reelection rate in Brazilian municipalities means that in 60% of the cases an incumbent mayor does not remain in government for a subsequent term. Even though audits do not affect the reelection rates of neither incumbents nor that of incumbent parties, the high level of political turnover still allows for audits to have other relevant political consequences. It might be, for instance, that a share of incumbents are always able to remain in office, and that there is a group of municipalities in which, in general incumbents are not reelected. In the later group, the parties government might be discredited after an audit. Parties that are effectively distant from the incumbents in terms of the policies they propose and the values they defend only increase their chances of winning in case of corruption revelations. To test this possibility that audits might affect power alternation, I analyze whether being audited promotes changes in the ideological orientation of those leading the local executives. Firstly, I briefly discuss the origins and placement of Brazilian parties in the left-right political spectrum. Secondly, I describe some of the most relevant changes in ideology of municipal executives over the last two decades. Building on this discussion, I demonstrate that anti-corruption audits do not have substantive political consequences for the ideological orientation of the party in office.

The strength and popularity of individual political parties at municipal level varies sig-

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[17]The smaller sample explains the lack of precision of the estimates for the 2012 elections with respect to those for the 2004 and 2008.

nificantly across the country. Parties in Brazil frequently join coalitions with parties that have a different position in the ideological spectrum. In addition, coalitions at the municipal level often contradict party alliances at the state and national level. Despite these complex alliances and the high level of fragmentation in the party system, Samuels and Zucco (2018) demonstrate that most Brazilian voters have either a strong affinity or a strong antipathy towards the *Partido dos Trabalhadores* (PT, Workers' Party), Brazil's main center-left party that held the Presidency between 2003 and 2016, and that these partisan and anti-partisan affinities structure voters' behavior and Brazil's party system. To a lesser extent, the center-right Party of Brazilian Social Democracy (PSDB), which held the presidency between 1995 and 2002, also helps to structure the party system and provides a meaningful label for voters.

Despite coalitions that are formed by parties in different sides of the ideological spectrum, data from the Brazilian Legislative Surveys shows that most parties have followed fairly consistent ideological positions over the last 3 decades (Power and Zucco 2019). The classification of parties ideological positions is done by aggregating legislators' responses about their own placement and views on issues such as the economy, the ideological position of their party and that of other parties. Two exceptions are the Party of Brazilian Social Democracy (PSDB) and Socialist People's Party (PPS). Both parties transitioned from a center-left to the center-right in the second half of the 1990s and beginning of the 2000s, respectively. Because my analyses focus on the period after 2000, I classify them both as non-left parties. I do not distinguish between centrist and right-wing parties because there are important cases for which the ideological position overlap, i.e. the estimates are indistinguishable (Lucas and Samuels 2010). To use a classification that is consistent both in terms of political elites' perceptions and voters' behavior and does not require many data-driven assumptions, I use a simple dichotomous classification based on the estimates of party's ideologies provided by Power and Zucco (2019). I classify as left the PC do B, PDT, PSB, PT, PC do B and the PSOL (as well as the very small PCO and PSTU)and all other parties as non-left[18]. These parties have been frequent allies in presidential elections (either in the

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[18]For the full names of the parties and the estimates of their classification in the full ideological spectrum, see Power and Zucco (2019)

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first round or in the runoffs), in elections for governorships, and tended to vote similarly in the Chamber of Deputies and in the Senate.

My classification is also compatible with developments in Brazilian politics since the middle of the 20th century. The military dictatorship (1964-1985) made centrist and right-wing politicians the incumbents in the political market place in Brazil (Ames 2001). Hagopian (1996) highlights the persistence of local political elites and of their practices, including corruption and patronage, despite the transitions from democracy to dictatorship in the 1960s and from dictatorship to democracy in the 1980s. Centrist, center-right and right-wing parties remained strong after the re-democratization period and governed more than 90% of the municipalities in Brazil throughout the 1980s and 1990s. Between 2001 and 2004, the 4 biggest parties in this ideological spectrum governed 70% of Brazil's municipalities. These were the PMDB and PSDB (a dissident faction of the PMDB, created in 1988) [19], which originated from the controlled opposition to the military dictatorship, and the PP and the PFL (later DEM), which originated from ARENA, the party created by the military dictatorship to support the regime [20]. These parties governed Brazil at the federal level and the vast majority of state and local governments from the period of gradual re-democratization in the beginning of the 1980s until 2002 (Figueiredo 2011)[21].

The anti-corruption audit program was introduced after the Workers' Party (PT), a party that had long denounced political corruption and the way politics had been traditionally conducted in Brazil, won the Presidential elections in 2002. Barry Ames (2002:32) described the view held by most Brazilian congressmen in the 1990s and beginning of the 2000s about a victory of Lula da Silva, the Workers' Party's most prominent politician, in the following way: "a Lula victory, they understood, might lead to a permanent rather than a temporary

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[19]For the ideological shifts of the PSDB, which moved from the center-left in the early 1990s to a center-right position (Power and Zucco 2012)

[20]*Partido do Movimento Democrático Brasileiro*, Party of the Brazilian Democratic Movement; *Partido da Social Democracia Brasileira*, Party of Brazilian Social Democracy; *Partido Progressista*, Progressive Party, and *Partido da Frente Liberal* or Liberal Front Party, now called the *Democratas*, Democrats

[21]The exceptions are the two year during Collor's term (1991-1992), when the PMDB and the PSDB, were not part of the governing coalition

end to business as usual". The victory happened at a time when the party moderated its stance on many issues and formed a coalition that included a few right-wing parties [22].

At the time of Lula's victory, the Workers' Party held 200 mayorships out of the 5,507 municipalities. Despite governing Brazil's biggest city, São Paulo, and a few other populous municipalities, the Workers' Party was only the 8th largest party in terms of the total number of municipalities it governed. [23] The growth of the Workers' Party before conquering the Presidency was based on institutional innovations and on the expansion of social policies in local and state governments (Amaral and Power 2015). The municipalities governed by Workers' Party mayors in the 1990s and early 2000s, for example, besides substantial investments in social policies, promoted institutional innovations such as participatory budgeting and the creation of policy-specific forums, aiming at giving the poorer sectors of the society and local experts a bigger say in local public policies (Wampler and Avritzer 2004). These institutional innovations were also implemented with the logic of trying to circumvent the left's limited strength in city councils.

The audit program is a good example of reformist elites (the Workers' Party - PT - and some of its coalition partners) that try to reform governance practices and to change the nature of the political game at the local level after reaching higher levels of government. Because of the limited political power held by the PT at the local level, the anti-corruption program had an important political rationale. Since most municipalities were not governed by the PT, revealing malfeasance by local governments might contribute to the party's growth at the local level. The lottery program and the highly technical background of auditors, selected through competitive public examinations, would serve as a shield to criticisms about possible politicization of the investigations.

The program encapsulated one of the biggest dilemmas facing the PT: whether to make broad-based political alliances that almost inevitably included the more traditional and

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[22]The Vice-President on Lula's ticket, José de Alencar (from the right-wing Liberal Party (PL), is often referred to as a symbol of that alliance, in addition to a letter that Lula wrote to secure investor during the Presidential campaign.

[23]At the time, the Workers' Party was especially popular with urban middle classes and the urban poor in the most industrialized areas of the country (Zucco 2013).
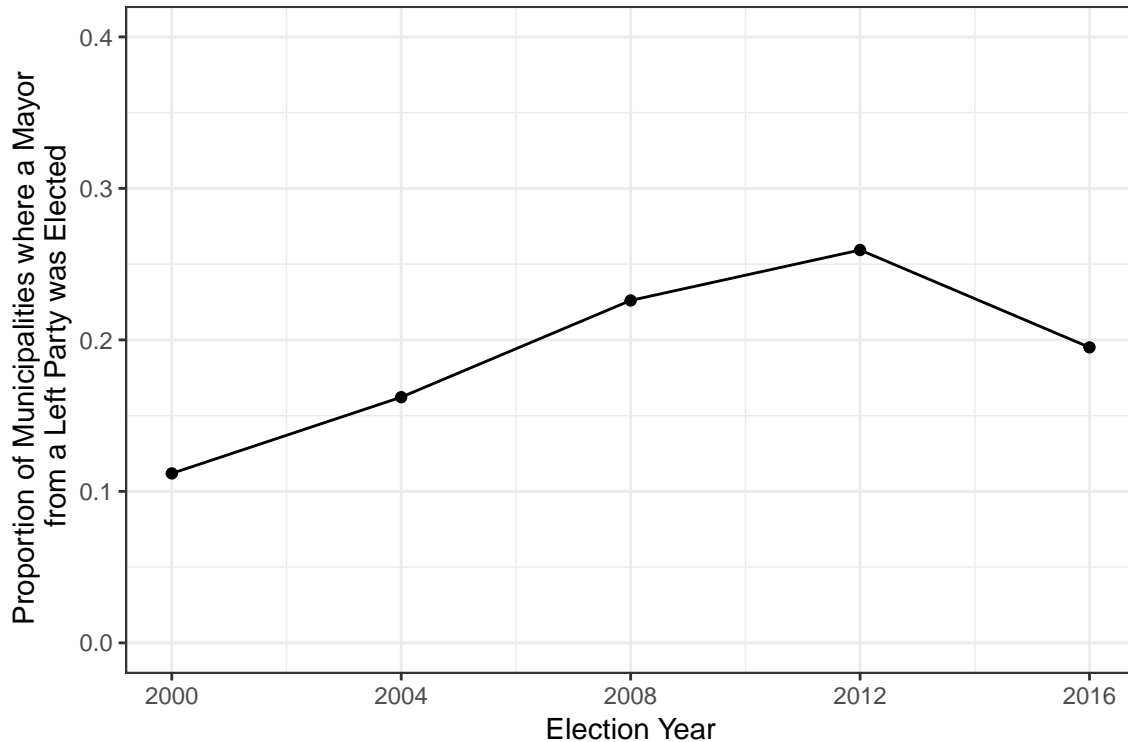
Figure 3.21: Proportion of Municipalities Governed by Left Parties (2000-2016)

clientelistic parties of the center and the right (Amaral and Power 2015, Nobre 2013) [24]. Their support was not only important for the PT to be able to govern and to pass reforms, but also to have crucial supporters in the territory when elections came. Because of the party's limited organizational structure and reach in most Brazilian municipalities, the PT often made deals with state and local political elites from the center and the right in return for support for its legislative agenda in the National Congress and to its presidential candidates. This bargaining often included not fielding candidates from the PT in majoritarian elections (e.g. governor, senator and mayor) and endorsing the candidacies of allied parties. During the PT's presidencies, the capacity of other investigative authorities (e.g. Federal Police, Public Ministry) was also substantially strengthened and so was the anti-corruption legislation (e.g. money laundering regulation, plea deals law). However, PT's presidencies are themselves

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[24]The unwillingness of PSDB and the PT to collaborate and support each other is accentuated by their leadership of each of the two blocks that competed in the runoff of all presidential elections between 2002 and 2014.

embroiled in many corruption scandals [25]. For this reason, I also measure whether audits promoted a reprisal against candidates from the left.

As Figure 3.21 shows, although the number of municipalities governed by a left party increased substantially in the 2000s, right-of-center political parties remained the dominant forces in most Brazilian municipal governments throughout the period under consideration. This happens despite what was described as the fall of powerful state party machines, attributed to the economic and social policies implemented by the Workers' Party after it reached the Presidency in 2002 (Borges 2011, Montero 2012). The proportion of municipalities governed by a mayor from any left-wing party grew significantly during the period: from 12% in 2000 to 26% in 2012, and then declined back to 16% in 2016, shortly after President Dilma Rousseff's (Worker's Party) impeachment. Whether anti-corruption audits contributed to change in the ideological orientation of local executives is a question that has not been previously examined. The program was created during the first year when Brazil's most important party on the left of ideological spectrum took office for the first time. There is no evidence that the program was used for illegal political purposes nor were there any scandals (OECD 2018).

To capture whether anti-corruption audits promote ideological change in municipal executives, I compare audited and non-audited municipalities using the same estimation strategy specified in section 3.3. My three outcome variables to measure ideological change in local government are the following: (i) the probability of a political turnover from non-left to the left, (ii) probability of a political turnover from the left to the non-left and (iii) probability of an ideological change in general. The estimates for (i) and (ii) use the subsamples of municipalities that were governed by the non-left and the left, respectively. The estimates for (iii) use all eligible municipalities. The effect of audits on ideological change are the result of the compounded effect of the actions taken by local political system in response to the audits, that includes the local media, prosecutors, incumbent and opposition politicians, as well as voters. Voters might, for example, not have the option of promoting ideological

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[25]Anderson 2019

change if parties do not field any candidate from a different side of the ideological spectrum. Parties, of course, are going to take into consideration voters' preferences. The period under analysis uses all audits that happened between 2003 and 2016 and encompasses the electoral results from the 2004, 2008, 2012 and 2016 elections.

Despite high levels of party turnover at the municipal level, approximately half (47%) of all Brazilian local executives were never governed by a left-party in the period between 2000 and 2020. This contrasts with the ability of Brazil's only major left party, the Workers' Party, to get the majority of votes in four consecutive presidential elections: 2002, 2006, 2010 and 2014. In municipalities that elected a mayor from the left, there was a high probability of a transition back to the non-left immediately following the left's victory. A mayor from a leftist party held the mayorship for only one term in 27% of municipalities through the 20-year period. In 2004 and 2008, 62.5% and 48% of the municipalities governed by the left in the previous term elected a non-left mayor, respectively. This backlash against leftist mayors happens at the same time as the leftist mayors gain ground in other municipalities. The proportion of municipalities governed by a mayor from a left party more than doubled: from approximately 10% in 2000 to 26% in 2012. That transition from the left to the non-left became less common since the 2012 elections, about 25%. The probability that a municipality that is governed by a non-left party transitions to the control of a party on the left is much less common: approximately 12% during the period under analysis (Figure 3.25). This means that most incumbent mayors from a non-left party who lose an election are replaced by a politician from that same side of the ideological spectrum. Despite high political turnover across parties holding the mayorship, the level of transition from parties in the left to non-left and from non-left to left is not very large, especially in the early 2000s.

The estimates show that, on average, audits do not have a substantial impact on the ideological orientation of the party controlling the local executive (Figure 3.25.). Even though the program temporally coincides with a period when the proportion of mayors from parties in the left of the ideological spectrum increased substantially, anti-corruption audits did not contribute to that growth. Audits do not increase the likelihood that incumbent parties are replaced by a party from a different side of the ideological spectrum. This result

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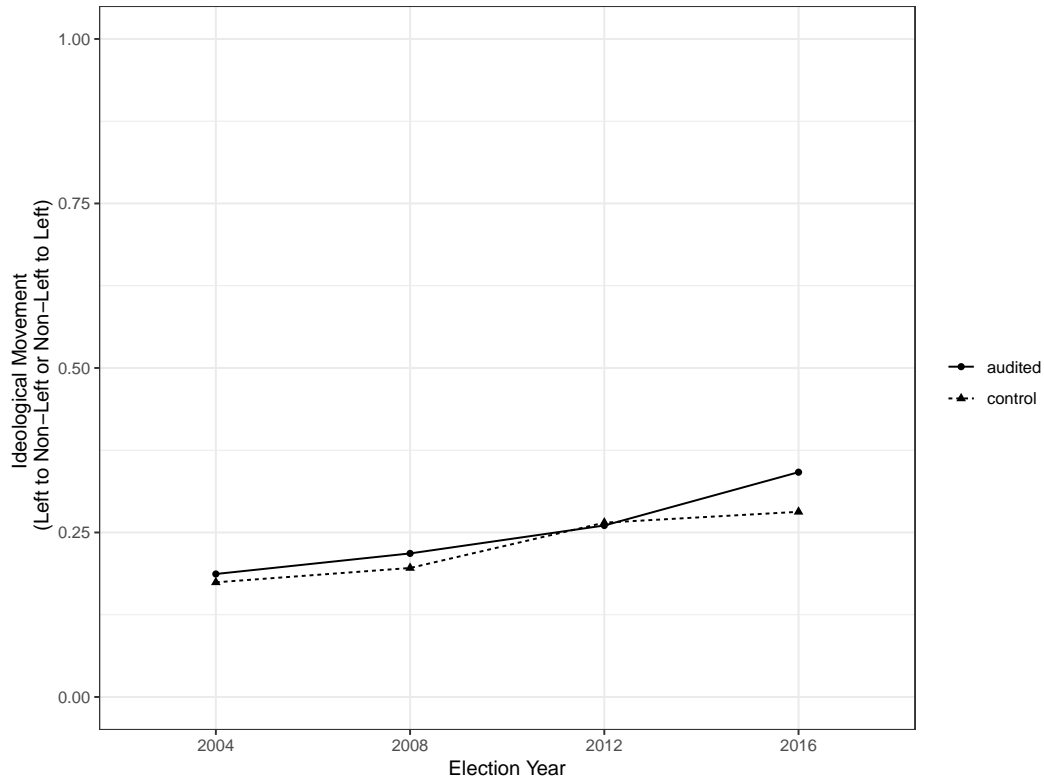
Figure 3.22: Changes in Mayoral Party's Ideology Over Time (2008-2016)

corroborates the limited political effects of anti-corruption audits in Brazilian municipal governments.

3.9 Discussion

Political corruption affects the distribution of power and sways state decisions away from the public interest and help to block structural reforms One of the major ways through which anti-corruption audits are expected to help reducing corruption is by revealing credible information about malfeasance. Because corruption damages their welfare, voters are expected sanction those responsible for malfeasance. In this chapter, I provide evidence about the limitations of anti-corruption audits in sparkling electoral backlash against those whose corruption is revealed. Incumbent parties and mayors do not become less likely to remain in power after their governments are investigated. Neither are these parties sanctioned if they
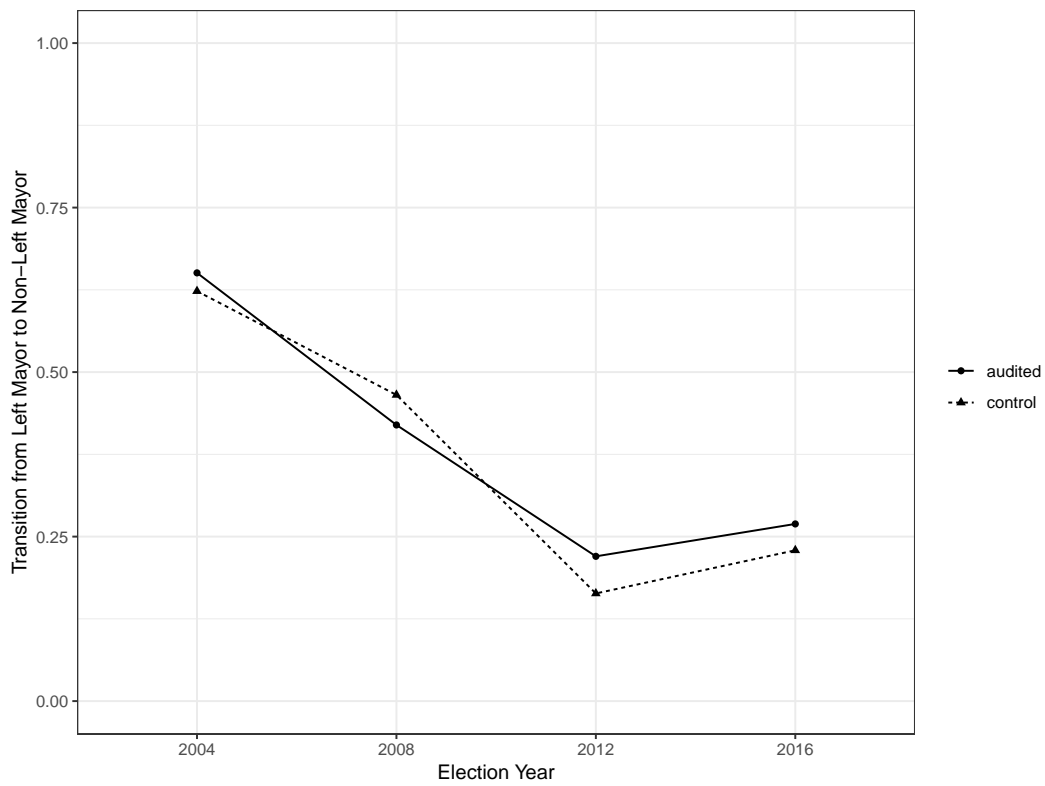
Figure 3.23: Changes in Mayoral Party's Ideology Over Time (2008-2016)
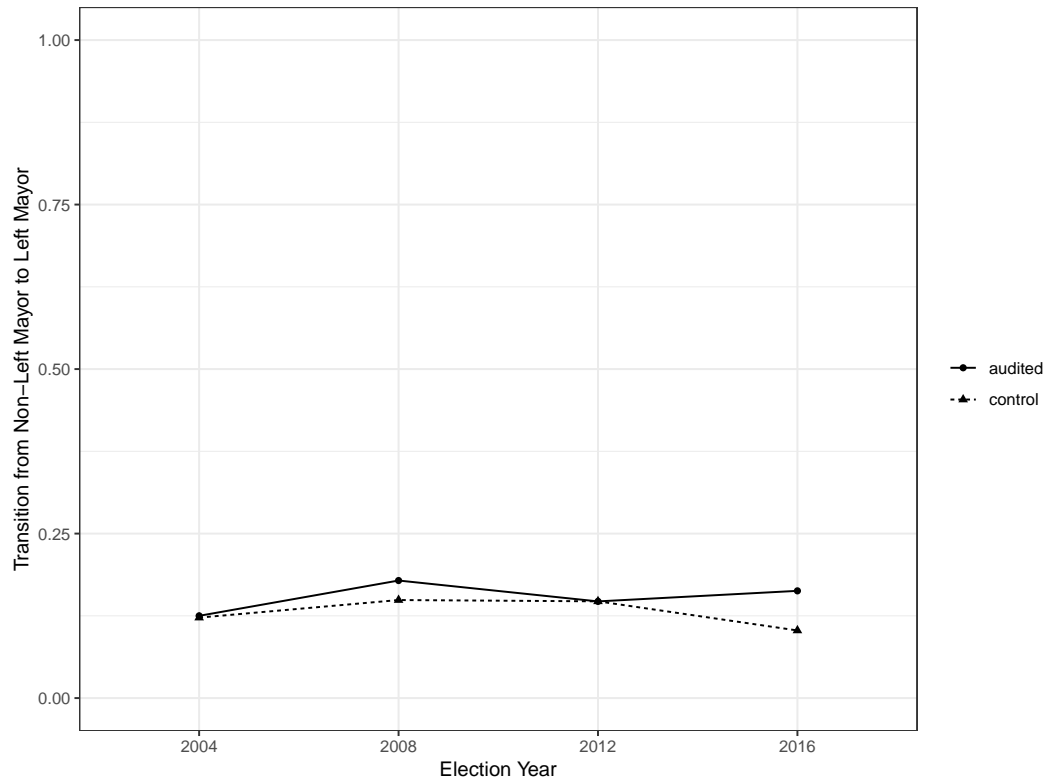
Figure 3.24: Changes in Mayoral Party's Ideology Over Time (2008-2016)
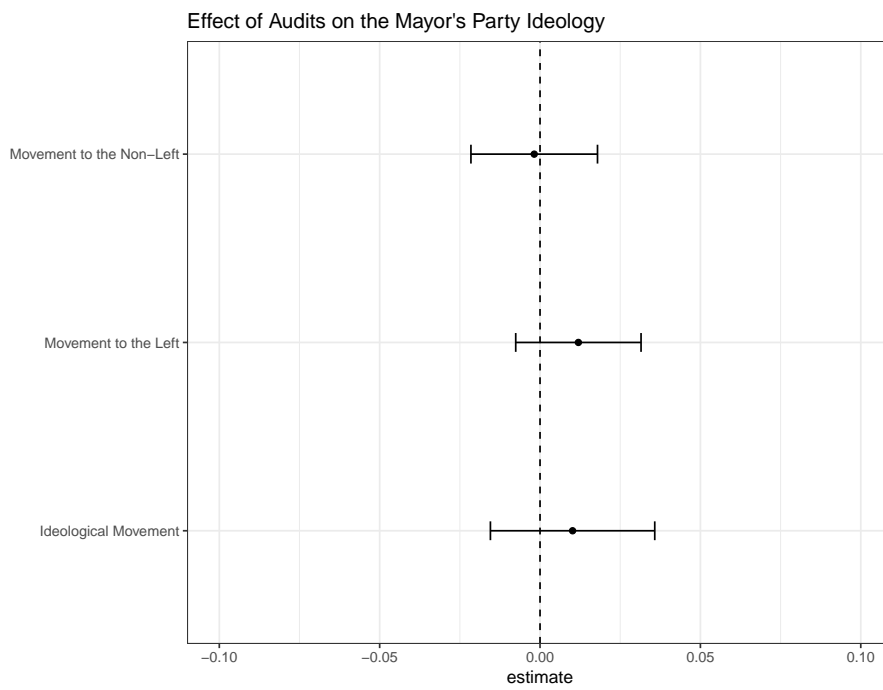
Figure 3.25: Effect of Audits on Mayoral Party Ideology (2004-2016)

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decide to adopt a different electoral strategy and support a candidate from another party, something common in the context of local politics in Brazil. I also present evidence that the null effect of audits on reelection rates are not mediated by the presence of the local mass media or the previous level of electoral competition.

Reports that contain evidence of multiple corrupt acts are not more likely to undermine politicians ability to remain in office than reports that contain much less incriminating information. Despite high rates of political turnover and electoral competition, revealing corruption did not case an ideological transition in the party leading the local executives, either. The highly technical anti-corruption audits promoted by reformist elites at the national level, did not benefit less entrenched and more programmatic parties on the left of the ideological spectrum. In the next chapter, I propose an explanation for why incriminated mayors are able to survive impeachment, and remain competitive in the subsequent elections.

3.10 Appendix
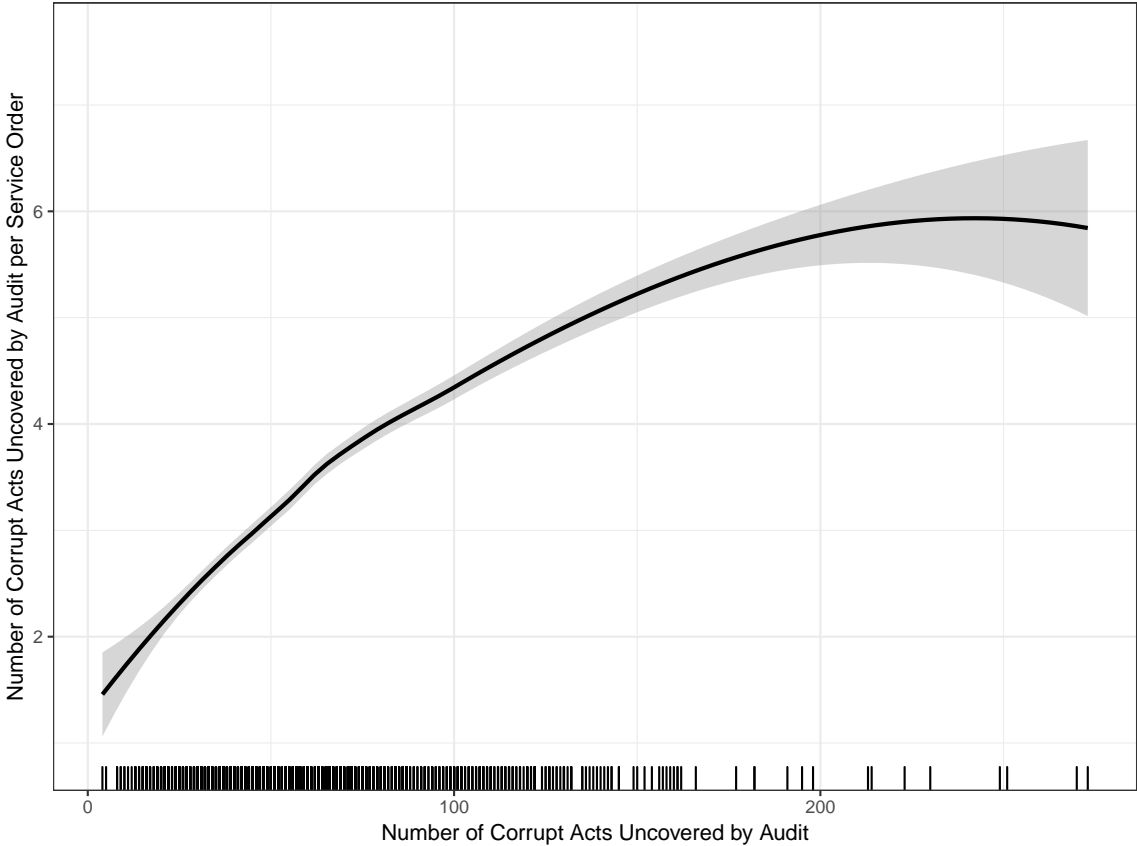
Figure 3.26: Measures of Corruption Intensity, based on Original Audit Reports (2006-2016)
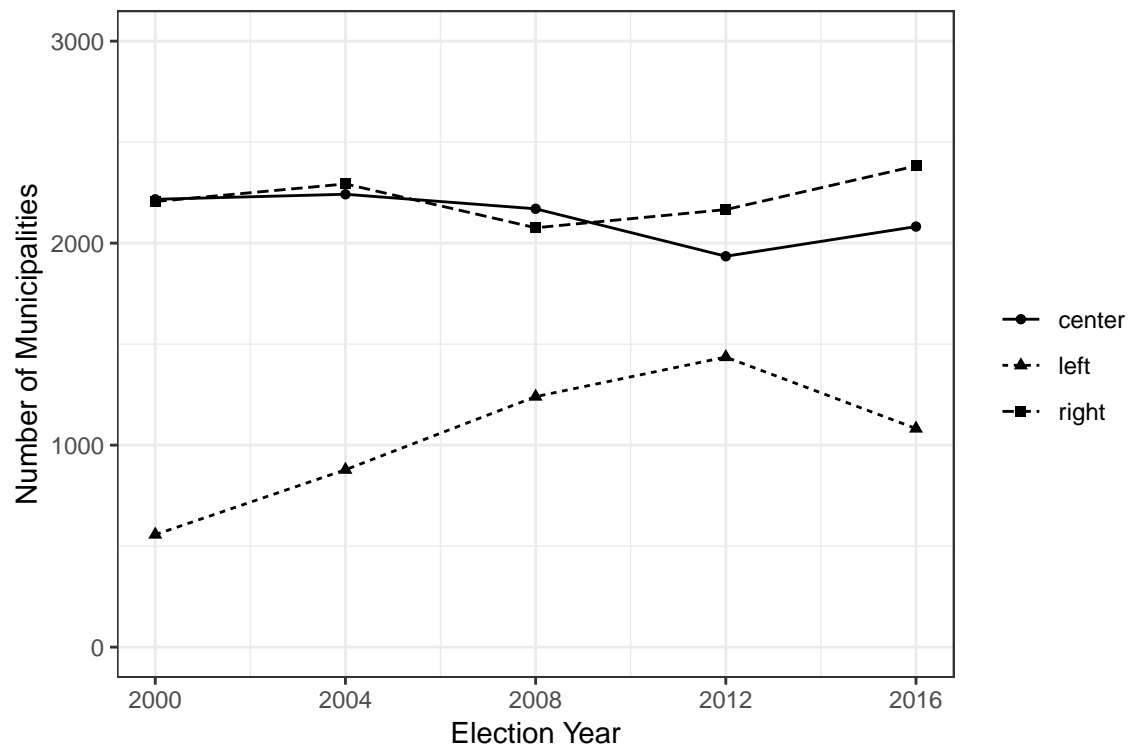
Figure 3.27: Proportion of Municipalities Governed by a Right, Center and Left Parties (2004-2016)

CHAPTER 4

Political Survival and Politicians' Enrichment after Anti-Corruption Audits

Anti-corruption has been in the forefront of the agenda of many civil society groups and international organizations, especially since the late 1990s. Many governments introduced reforms such as stricter laws that govern malfeasance, rules that require a higher level of transparency from governments, and other institutional innovations since then (Recanatini 2011). These include, for example, the creation of agencies that are specialized in the investigation or prosecution of corruption cases, audit authorities, ombudsman offices, and financial intelligence units. Most analysts of such anti-corruption initiatives throughout the world, however, consider their performance in the last decades to be deficient (Persson et al. 2013, Johnston 2018, Mungiu-Pippidi 2016). Reforms and anti-corruption campaigns often result in incomplete successes or in partial failures (Pei 2018). There are many examples in which there was a complete backlash from the high-corruption *status quo* and/or an extensive use of the initiatives against political adversaries and do not follow the principles of impartiality (Balán 2016, Gillespie and Okruhlik 1991).

The failures of such reforms are connected to the observation that only a few countries have managed to shift from a systemic level of corruption to a moderate one in the last decades (Mungiu-Pippidi and Johnston 2018). How societies manage to escape an "equilibrium" of high corruption and move to moderate levels of corruption remains a main puzzle for the fertile and vast scholarly literature on corruption. One of the reasons is that systemic corruption makes it difficult for there to be a group of actors (e.g. voters, political parties, public prosecutors, judges, investigative journalists) that has enough incentives, power and tools to monitor and to enforce honesty (Persson et al. 2013, Manow 2003). Societies face

stiff obstacles in this transition from a high corruption equilibrium to a less corrupt one because of the difficulties in changing shared expectations about others' behavior. Political and economic elites that enjoy large short-term benefits from the *status quo* are unlikely to accept substantial changes in the system. In this chapter, I provide an explanation for why many of these initiatives fail. I demonstrate that political elites in Brazilian municipalities respond to incriminating evidence by changing their rent-sharing strategies, what allows them not only to remain in government by escaping removals from office or impeachment but also to keep a workable coalition that allows them to be competitive in the subsequent election.

Independent audits of governments, a prominent anti-corruption intervention, are considered to be one of the most effective ways of fighting corruption (Olken and Pande 2012, Olken 2007, Ferraz and Finan 2018). Since 2003, audits uncovered substantial evidence of corruption in most municipal governments in Brazil. The exposure of malfeasance, as shown in chapter 4, however, did not lead to substantial political change. In this chapter, I provide an explanation for the lack of political effects by looking at the interaction between elected officials. I test the impact of the crackdown on corruption on elected officials' rent-sharing strategies by comparing what happens in municipalities where auditors investigated malfeasance to what happens in non-audited municipalities. After an audit, mayors need the cooperation of the majority of local legislators to avoid further legislative scrutiny (e.g. hearings; the establishment of parliamentary commissions of inquiry; and to block impeachment proceedings) so that they are able to remain in office. Mayors hold a monopoly over the disbursement of public expenditure and employment in municipal governments. This allows them to control resources that can be used for the personal enrichment and to fund the political campaigns of specific politicians in exchange for their support. Changes in mayor's rent-sharing strategy depend on two important characteristics of the political context: (i) the strength of the mayor's party in the local legislative branch and (ii) whether the mayor is her/himself eligible for reelection.

Mayors hold substantial discretion over public expenditure, the hiring and firing of public employees and other tools of executive branch. My analyses document that their ability to

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allow other elected officials to access rents curbs the effectiveness of the legislative branch in exercising its constitutional role of executive oversight. This explains the lack of impeachment proceedings against mayors whose corruption was revealed. I show that the effects of audits on councilors' wealth accumulation varies according to the strength of the mayors' party in the local legislature. In municipalities where audited mayors need to attract the support of a higher share of local council members to avoid further investigations, municipal councilors, including those in the opposition, are more likely to experience an increase in their personal wealth. Material rewards make councilors less likely to coordinate to hold the mayor accountable for corruption. This impairs collective action among local politicians and limits the consequences of the revelations of malfeasance. In municipalities where the mayor's party holds a higher share of the seats in the city council, legislators are less likely to benefit from changes in the rent-sharing strategies that are triggered by an audit.

In addition to allowing obtaining when the mayor need the support of councilors from other political parties, audits favor councilors who allied with the mayor in the elections prior to the audit. Using the randomization generated by lotteries that determine which municipal governments are investigated, I find that, on average, audits lead to abnormal increases in the wealth accumulation of councilors affiliated with political parties that were part of the mayor's electoral coalition but not affiliated with the mayor's party [1] A regression discontinuity design allows me to isolate and test whether mayors favor members of the electoral coalition differently. Using elections where an allied mayor was elected by a close margin of victory, I demonstrate that being in the mayor's coalition triggers a positive effect on wealth accumulation in audited municipalities but not in municipalities that are not audited. Coalition partners are able to extract more rents from bargaining because their past interactions with mayors reduce transaction costs by lowering the risks of retaliatory denouncement and the uncertainties associated with rent sharing after an audit takes place (Della Porta and Vannucci 2016). In non-audited municipalities, electoral coalition and membership in the mayor's party do not make councilors more likely to benefit from spoils

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[1]I use the term members of mayor's electoral coalition to refer to councilors who formally supported the mayor in the election but that do not belong to the same political party as the mayor.

of office relatively to other council members.

Changes in rent-sharing strategies help incriminated mayors not only to elude legislative scrutiny and remain in office until the end of their terms but also to gather support for the subsequent elections. I demonstrate that when mayors are not term limited, they focus on preventing the defection of councilors who were part of their coalition in the previous elections. As a result, previously allied council members benefit from higher personal wealth accumulation and, differently from other councilors, do not observe a reduction in their campaign revenues. In municipalities where mayors who do not have the same incentives to build an electoral coalition because they are term limited, the effect of anti-corruption audits on councilors' wealth and campaign revenues are different. In this context, audits lead to an increase in wealth accumulation of the mayor's closest political allies: council members in the mayors' party. Because of their closer ties, councilors who belong to the mayor's political party are those most likely to remain loyal after she or he leaves office. Mayors also have incentives to allow these councilors to access resources because they are those most likely to have incriminating evidence that could potentially be used against the mayor in future judicial inquiries. Because most bargaining happens in secrecy, councilors' positions are not usually made explicit in public. As a result, councilors do not on average get punished from protecting the mayor and failing to further investigate the executive branch for wrongdoing.

In this chapter, I provide an explanation for the null findings of an influential literature that has found limited effects of anti-corruption interventions such as the dissemination of information about incumbents' malfeasance. [2] Incriminated politicians in Brazil react to anti-corruption interventions by sharing more of the spoils of office with politicians who are crucial for their short-term survival in office, including those in other political parties and in the opposition. The political incentives faced by mayors mediate the effect of audits on elected officials' wealth and campaign revenues. Bargaining (policy concessions, cabinet appointments, illicit transfers, campaign contributions) between the mayor and local legislators make the latter less likely to coordinate with their colleagues to hold mayors accountable

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[2]See chapter 4 for a discussion of the literature on electoral sanctioning of corruption.

even after corrupt transactions involving the latter were revealed. Part of the spoils is obtained by opposition politicians, even though they can potentially become challengers to the incumbent. The transfers of wealth resulting from mayors' survival strategy help them to remain in office. When mayors are eligible to run the upcoming elections, their reactions strengthen their future electoral prospects by gathering support from other politicians and preventing defections in their coalitions, including councilors who could themselves decide to challenge the mayor directly.

Building on studies that highlight the role played by electoral incentives (Grossman and Michelitch 2018), this chapter contributes to the literature on anti-corruption by highlighting two aspects: (i) anti-corruption interventions cause incriminated politicians to change their rent-sharing strategies and to seek the political support that will sustain them in office and (ii) the political context faced by politicians prior to when the interventions take place shapes how politicians respond to anti-corruption initiatives. Moreover, I provide systematic empirical evidence for theories that highlight that collective action problems can prevent anti-corruption initiatives and reforms from achieving their full potential (Geddes 1994, Klasjna, Little and Tucker 2016, Persson et al 2013). Mayors' short-term survival in office and reelectoral incentives, including the ability to block further investigations by the legislature, as well as legislators' demands for personal wealth and campaign funds influence the efficacy of anti-corruption crackdowns.

This chapter also contributes to the literature on private returns to elected office and their relationship with corruption. This literature has documented the pecuniary benefits of public office in countries as different as China, India, Italy, Russia, the United Kingdom and the United States (Eggers and Hainmuller 2009, Fisman et al. 2014, Szakonyi 2018, Lenz and Lim 2009, Truex 2014, Cingano and Pinotti 2013). This rich literature has focused mostly on measuring and describing the returns to public office and, in some cases, underline the positive association between corruption and politicians' enrichment. My study shows that investigating and reporting corruption can have different consequences for elected officials' enrichment depending (i) on their previous political alliances, (ii) on the political incentives of other elected officials and (iii) on the characteristics of the local political context.

My work also has implications for the literature on the relationship between political institutions and corruption, especially for the role played by the separation of powers and inter-branch relations in presidential systems (Helmke 2017). Highly fragmented party systems are increasingly common throughout Latin America as well as in other parts of the world and frequently incentivize presidents, governors and mayors to appeal to legislators from other political parties to form a majority in the relevant legislature. The strength of the party that heads the executive branch in the legislature influences the patterns of rent redistribution among elected officials after an anti-corruption intervention takes place. Mayors whose parties are weak in the legislature have to redistribute more to a legislative shield that will sustain them in office after corruption is revealed.

4.1 Politicians' Reactions to Revelations about Corruption and Legislative Oversight

Legislative oversight of the executive branch is considered one of the cornerstones of presidential democracies. If "ambition counteracts ambition", discoveries of wrongdoing in the executive branch should trigger a reaction by the legislature. However, when describing what typically happens to audit reports across the world, Rotberg (2017: 89) asserts that: "in most cases, the reports of auditors general are destined, by law, to be delivered to the relevant parliament. In such a venue, inconvenient findings of auditors general have languished, pigeonholed for political reasons". Rotberg (2017) does not make explicit the political reasons for why these reports languished and pigeonhole. If legislators acted in the interests of the majority of voters, we would expect them to continue investigating and to take action based on what was revealed by the audit report. After a costly audit report is produced, depending on the political affiliation, it might be in the legislators' best interest to bring attention to what was revealed. Political opponents and those not associated with the discovered wrongdoing, including potential newcomers to politics, could amplify the effects of audits and increase their own chances of getting elected to office (Rose-Ackerman and Palifka 2016).

While opposition and other political entrepreneurs are expected to gain politically by blaming incumbents for corruption, incriminated politicians have strong incentives to rise up against the accusations. Illustrative examples of politicians trying to block investigations, discredit their accusers, and make accusations about their political adversaries' wrongdoings abound in multiple parts of the world. Adebanwi and Obadare (2011), in their analysis of Nigerian politics, describe this process as "corruption fighting back". Morris (1999) gives a series of examples of Mexican politicians, accused of corruption, denouncing corruption allegedly committed by their political adversaries. When possible, politicians will try to de-fund investigative authorities or change the rules of the game to protect themselves. Corrupt politicians have great incentives to contest that information, to co-opt the media to prevent scandals, and to engage in other activities that shift voters' perceptions (McMillan and Zoido 2004). Corruption revelations may even lead to even more extreme measures and turn into political violence against whistleblowers, investigative journalists, political adversaries, public employees or other individuals who revealed or reported on corrupt transactions (Fisman and Miguel 2010).

Resignations are not common in most contexts because they usually equate the admission of guilt and have stiff consequences for political careers, making politicians lose their credibility without the opportunity of convincing others of their innocence. Unless their political careers are immediately over following the disclosure of corruption, incriminated elected officials need the cooperation of other elected officials to remain in government. This cooperation is useful to avoid further scrutiny by the legislative, impeachment proceedings, or an expulsion from the legislature in case the audit report malfeasance committed by one or more legislators. Being expelled or removed from office might be particularly costly for elected officials because of parliamentary immunity and the ability to exchange political favors with other actors using public resources (Guarnieri 2003). Staying in office may also be the best judicial strategy in places where the procedures are slow and being in office helps the judicial defense because of special status held by elected officials (Chang et al. 2010).

In many cases, implicated politicians need the support of at least a significant share, usually a majority, of the relevant legislature to avoid impeachment proceedings (this is the

case of Brazilian mayors), a vote of no-confidence (typical of parliamentary systems) or being expelled from a legislature in case they are legislators (Pérez-Liñán 2007). Being impeached for corruption might undermine political careers and make politicians less able to avoid punishment by judicial authorities. Because of these stiff consequences of an early removal from office, anti-corruption audits make implicated politicians become more vulnerable about their immediate political survival.

One reason why legislatures may fail to prosecute politicians is because many of their members might themselves be involved or benefit from the corruption schemes. Other reasons why legislative scrutiny may fail is because the legislative body lacks the technical expertise to go further in the investigations and, most importantly, the political incentives to expose corruption. Institutions created by politicians that control other politicians often fail because they are themselves subject to exchanges of political favors and loyalties (Hidalgo et al. 2016, Morgenstein and Manzetti 2003). Actions taken by individual politicians and their consequences are likely to be contingent on the behavior and expectations of other politicians (Persson et al. 2013, Fisman and Golden 2017). To be effective, these initiatives need to modify the expected benefits and change mutual expectations among potential participants in corrupt transactions. Politicians' actions are likely to depend on whether and to what extent they expect loyal (or potential) voters to reward denouncement.

Members of the same political party as a politician implicated in corrupt deals have the following options: (i) they can deny the corruption revelations and stand behind the implicated politician to try to keep the party brand intact, (ii) favor the expulsion of the politician involved in corruption from the party, (iii) switch to a different political party to try to distance themselves from the accusations or (iv) they might simply not take a stance about the matter. Daniele et al. (2018) show that in Italy after the *Mani Pulite* (Clean Hands) Operation, local politicians from scandal-hit parties who were not directly implicated anticipated voters' responses by withdrawing from politics or by switching parties. Most political parties in Brazil are not considered to be a major constraint on elected officials because of the low incentives to keep party cohesion and the easiness of switching parties

(Klašnja and Titiunik 2017)[3]. Examining politics at the federal level in Brazil since re-democratization, Nobre (2013) argues that most of the important bargaining between the Presidency and the Federal Congress in Brazil happened behind close doors. The majority of the vetoes remain in the shadows and things that are not a consensus do not become a topic of debate in the legislature.

4.1.1 Building a Legislative Shield to Protect the Mayor From Further Investigations

The relationship between the party fragmentation and corruption has been the subject of important theoretical and empirical work. On one hand, party fragmentation is expected to help fighting political corruption by lowering the costs of entering into politics (Persson, Tabellini and Trebbi 2001). Barriers to entry in the political market determine, for example, whether a non-corrupt or less corrupt party can have the same policy platform and get the votes that would have gone to a party accused of corruption (Galeotti and Merlo, 1994). Fragmentation also makes coalitions more flexible, can help to avoid inter-branch deadlock, especially in contexts where party discipline is low, and might allow for less policy concessions by the executive (Kellam 2015). On the opposite side of the debate are scholars who argue that the fragmentation of the party system is connected to the prevalence of corruption (Mainwairing 2003, Huntington 1968). In proportional representation systems, there are more severe collective action problems for politicians in the opposition to monitor corruption and a more diffuse clarity of responsibility (Kunicova and Rose-Ackerman 2005, Tavits 2007).

Building coalitions that sustain the executive in power and allow it to hold a majority in the legislature, even if a temporary one, is an important feature for democratic governance in presidential systems where there is a high level of party fragmentation. The tools to obtain legislators' support usually include policy concessions and political appointments, which, in turn, are important for legislators' re-electoral ambitions (Ames 1990, Martinez-Gallardo 2012). Through the exchange of favors between the mayor and council members, the later

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[3]For more details on political parties in Brazilian municipalities, see chapter 3.

can try to satisfy the demands of the public and try to establish long-term relationships with voters [4]. Another possible way to exchange favors is to use money diverted through corruption to pay for the transaction costs of coalition bargaining (della Porta and Vanucci 1999). Pacts of reciprocal protection against corruption scandals between different political parties in exchange for bribes are not a rare phenomenon. They surfaced, for instance, as a result of the *Mani Pulite* investigations in Italy, the Fujimori-Montesinos scandal in Peru, the *"Mensalão"* ("Monthly Payments") and the *"Lava Jato"* (Car Wash/Petrobrás) investigations in Brazil (della Porta and Vanucci 1999, McMillan and Zoido 1997, Power and Taylor 2011). These major revelations of corruption demonstrated how different parties participated in division of the proceeds of malfeasance and how public resources were channeled to deputies and their political campaigns through contractors, state owned enterprises, party treasurers and intermediaries. An important characteristic of these deals is the exchange of rents for legislative support. The head of the executive can use a "punishment regime" - fire or threaten to fire the political appointees/allies of those who defect from her/his coalition -, reward loyal supporters, or attract others by offering such exchanges (Cheibub and Limongi 2002).

Without strong parties brokering and enforcing agreements, individual legislators can condition their support on having their own policy and/or patronage demands satisfied. This situation is typical of most Brazilian municipalities since the beginning of the 2000s [5]. Many city councils are composed by one or two legislators from each party. I argue that negotiations that happen between the executive and individual legislators in Brazilian municipalities can be characterized as a non-cooperative multilateral bargaining (Stole and Zwibel 1996). One feature of these interactions is that it is impossible to write a contract that will bind legislators to support the executive ex-ante. This means that negotiations depend on the outside options of legislators and the executive. Actors can bargain ex-post over rents. Bargaining between actors is possible at all times before decisions (e.g. an agreement, an

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[4] For an explanation about the role of council members and how that relationship weakens political parties in Brazilian municipalities, see Novaes (2018).

[5] See section 4.2 (above) for a detailed description of the fragmentation of city councils.

exchange of a political favor or a legislative vote) are taken. In addition to their policy and patronage demands, legislators will agree to cooperate with the executive depending on their expectations of both licit and illicit future rents and how much rents they can extract in the present (Niehaus and Sukhtankar 2013). Mayors' bargaining power is strengthened because they do not usually depend on one (pivotal) legislator and can always offer alternative deals to other legislators. This puts legislators in competition among themselves and reduces the rents they are able to extract from their relationship with the executive.

Because of the budgets they control, mayors have a temporary "monopoly" rights to political favors and may use this monopoly rights to generate large rents for themselves or redistribute rents to others in exchange for support (Aidt and Dutta 2008). Legislative bodies are a privileged institution of negotiation. According to Schleifer and Vishny (1993), the policing role of a corruption network (e.g. detect offenders and punish those who deviate) is made easier if the running elite is small and power is centralized. The difficulty to enforce collective agreements among city council members in Brazilian municipalities that might threaten the mayors' power can be illustrated in the words of a city council member from Araruana, a town in the state of Rio de Janeiro: "When we (council members) were elected, we sat down and said the following: 'we will have a strong municipal chamber'. Knowing the difficulties the Mayor will have, we will guide the executive. We had everything to be a great chamber, as never seen in Araruama. Right after, the personal interests started to get on the way. Council member A went to the Mayor's office because his father was asked to be a Municipal Secretary. It started with him, then council member B, then another one, then another. Before we realized, we were divided in three groups inside the Chamber" [6] (Lopez 2004: 97). Local factions compete among themselves for whom will have the "privilege" of supporting the executive.

Governing as a minority mayor in Brazil requires compromise with other local parties to

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[6]Original Translation from Portuguese: "Quando nós [vereadores] nos elegemos, nós sentamos em uma roda e dissemos assim: 'nós vamos ser uma Câmara forte'. Nós vamos conduzir, sabendo das dificuldades que o Prefeito teria, nós íamos conduzir o Executivo. Tínhamos tudo para ser uma grande Câmara, com um poder nunca visto em Araruama. Não foi porque começaram a existir os interesses pessoais. O seu Fulano [nome do Vereador] foi para lá porque o pai foi chamado para ser Secretário. Começou com ele, depois foi o Vereador B, depois foi outro, outro e, quando vimos, estávamos em três grupos dentro da Câmara".

build a governing coalition. In many municipalities, each party has one or two legislators, and the ability of parties to discipline its members is limited due to the easiness of party switching. Studying the same context, Britto and Fiorin (2016) find that in Brazilian municipalities that have an extra legislator in the Municipal Chamber because they are right above the population threshold, the audits reveal higher levels of corruption. A mayor's ability to resist to further investigations and remain in office depends on whether they maintain a proportion of legislators who are not willing to favor further investigations, a parliamentary commission of inquiry and/or impeachment proceedings.

The demand to open an impeachment procedure may come from any citizen or a group of citizens, a council member.

My argument is that the bargaining power of each individual legislator vis-a-vis the executive is conditional on how many other members of the city council are willing to support the executive. Although the majority of legislators would suffice for blocking the start of oversight measures such as impeachment proceedings and investigations, the executive might have reasons to attract more than the minimum winning coalition because that reduces the probability that a single legislator would be pivotal (Groseclose and Snyder 1996). When an audit report is released, the mayor needs to give away power and material resources to other politicians, including to those in other political parties, even though they may become potential future rivals, in exchange for short-term political support. If the mayor's party holds a smaller share of seats in the legislature, there are greater the incentives to compromise with a higher share of the remaining legislators in exchange for their support.

I assume that mayors have a higher degree of control over the political careers of members of the city council who belong to their own political party relatively to council members in other political parties. Mayors usually control the local party branch and can therefore influence who gets nominated for the post of mayor in future elections. There might be both reputation and other costs related to changing parties after an audit reveals a mayor's corrupt actions. If the party of the head of the executive does not hold a legislative majority, the mayor needs to attract the support of at least a share of legislators from other political parties to avoid investigations or the start of impeachment proceedings. One testable implication

of this logic is that, after an audit, legislators will be rewarded more in settings where the mayors' party is weaker. I use the strength of the mayors' political party in the Chamber as a mediator of the effect of audits on elected officials' wealth. I test whether mayors, when their political survival is threatened by audits, which in most cases find evidence of corruption transactions, engage in a strategy that leads to a higher increase councilors' wealth in places where legislators' have a higher bargaining power (hypothesis 1).

Hypothesis 1: The effect of audits on mayors' rent-sharing strategies is mediated by the share of additional council members a mayor needs to attract in order to achieve a legislative majority.

I present the empirical strategy and explain how I operationalize the hypothesis in a measure of legislators' bargaining power in section 4.4 (below). By sharing rents, incriminated politicians prevent further investigations and a removal from office that might damage their political careers. This includes sharing rents with politicians that might become their political adversaries in the future. In municipalities where the mayor's party is strong, the mayor can exploit the competing incentives of individual members and does not have to share as much rents after an audit takes place.

Because of the uncertainty related to illicit transfers and the risks of denouncement from unsatisfied counterparts, politicians prefer to reduce the transaction costs associated with rent-sharing (Della Porta and Vannucci 2016). Politicians establish informal institutions and norms that work as mechanisms of protection against the oversight of external actors and to lower frictions among the participants of corrupt transactions. When faced with unexpected crisis, such as a corruption revelation, previous interactions and longer political relationships with council members that were part of the electoral coalition facilitate the mayors' quest for political support in the legislative branch. Experimental research shows that a common feature among elected officials is that follow well the dynamics of reciprocity (Enemark et al. 2016). Both inter-branch bargaining and the illicit exchange of public resources in return for political support are related to reciprocity. In line with the arguments above that mayors have a higher level of control over politicians in their own political parties, co-partisan councilors have strong incentives to support the mayor and would have a harder

time disassociating themselves with the wrongdoings exposed. I test whether having been in the mayors' coalition make legislators more likely to receive material benefits as a result of an audit.

Hypothesis 2: Audits prompt incriminated mayors to redistribute more rents to councilors who were members of their electoral coalitions.

Besides surviving in government, non-term-limited incriminated mayors might change their rent-sharing strategies in ways that benefit councilors that might support them in the upcoming elections. In this condition, mayors need to redistribute more to prevent defections from (allied) councilors from other parties and at the same time try to construct a broad electoral coalition to be competitive electorally. Councilors from other parties also have the potential of running against the mayor themselves and might require higher rents not to do so. For term-limited mayors who are incriminated by audits, the electoral incentives are not as pressing. Protecting themselves against legislative and judicial sanctioning is a more pressing issue. Mayors can transfer resources to closer allies, such as councilors who belong to the mayor's own political party, to try to perpetuate their influence in local government.

Hypothesis 3: Audits prompt term-limited mayors to transfer more rents to councilors in their own political parties.

4.2 Research Design

In the previous sections, I explained the reasons why we should expect audits to lead to changes in the rent-sharing strategies of incriminated politicians and their bargaining with councilors from different parties.

4.2.1 Data and Measurement

Data on audits of municipal governments come from the Office of the Comptroller-General (*Controladoria Geral da União*). Electoral data, including details on the coalition compositions, reported politicians' assets and campaign revenues comes from the *Tribunal Superior*

Eleitoral (TSE), Brazil's federal electoral court. Data on municipal characteristics comes from two official sources: *Instituto Brasileiro de Geografia e Estatística* (IBGE) and *Instituto de Pesquisa Econômica Aplicada* (IPEA).

4.2.1.1 Treatment: Anti-Corruption Audits

I leverage the lotteries that determine which municipalities are selected to be audited in each Brazilian state. The average state in Brazil has 214 municipalities. I take into account all audits that happened between January 1st 2009 and July 17th, 2012, when the candidacies were submitted for the 2012 elections. On this date, all candidates have to submit their complete affidavits and wealth declarations. All municipalities selected to be audited by the CGU were indeed audited.

4.2.1.2 Outcome Variables:

Politicians' Total Assets Growth To test the effects of audits on the wealth accumulation of council members, I use detailed data on politicians' assets declarations. Since the 2008 elections, all participants in local elections are required by the electorar authorities (*Tribunal Superior Eleitoral*, Superior Electoral Court) to report all their personal assets when submitting their candidacies. This disclosure happens right at the official start of the electoral campaign. Improper reporting of assets is subject to penalties under the electoral law: up to 5 years of prison and a penalty fee. Monitoring institutions can compare those declarations with those submitted by candidates to tax authorities. [7] I construct a measure of total growth in assets by taking into account the inflation that happened during the period. This measure captures the growth in assets over 4 years of all candidates who participated in both the 2008 and 2012 local elections.

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[7]Brazilian tax law allows citizens not to update the value of their properties (e.g homes and vehicles), unless these are a result of recent transactions. Assets that were acquired a long time ago are particularly likely to be subject to measurement error because of inflation or appreciation/depreciation of assets. This is not the case for recently acquired assets and, therefore, not likely to affect the change in wealth accumulation, my outcome of interest, significantly.

To account for negative growth as well as positive growth and to obtain estimates that are less subject to the presence of outliers, I use a generalized inverse hyperbolic sine transformation of the change in total wealth between 2008 and 2012. [8] This transformation has similar properties to a logarithmic one. But unlike that transformation, the inverse hyperbolic sine is defined at zero and allows for negative numbers to be transformed as well. The symmetric function is linear around the origin and approximates the logarithm in the right tail [9].

An advantage of this measure is that it is based on disaggregated assets (e.g. candidates need to provide the estimated value of each asset: house and vehicles, how much money they have in their bank accounts, other investments, companies they own, etc). Since they become publicly available, discrepancies in the declarations can be subject to criticism by political opponents, local journalists or the public. Candidates have, for instance, to provide the model and year of their vehicles, what can be easily compared with market rates. These declarations can also be subject to external checks by tax authorities, who also have access to the asset declarations made by all individuals when filling their income taxes. Salaries of local legislators are relatively constant across municipalities. There are ceilings over which salaries cannot go that depend on total municipal population [10]. Not all changes in personal returns to elected office are the result of illegal actions that could be classified as corruption. Many local politicians in Brazil have or work in businesses that could benefit from municipal policy decisions. Changes in politicians' wealth can be the result of legal negotiations that end up disproportionately benefiting those holding political office such as tax breaks or subsidies to specific economic sectors in which they might have private businesses (Rossi, Pop and Berger 2017).

My measure of wealth accumulation is limited to politicians who ran for elected office in both 2008 and 2012. Approximately 78% of all sitting council members reran in 2012.

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[8]The values account for the inflation between August 2008 and August 2012. I transform the change in total councilors wealth between 2008 and 2012 (x) in the following way: $z = ln(x + \sqrt{x^2 + 1})$.

[9]The transformation has been used in many other applications, including studies of wealth (Bellemare and Wichman 2019)

[10]See chapter 2 for more details on legislators' salaries and wealth.

In municipalities that get audited, council members do not become less likely to run for reelection. Nor is it the case that wealthier council members are more likely to leave politics after an audit in comparison to less wealthy politicians in the same office. A main limitation of this measure is its reliance on (publicly disclosed) self-reported wealth, something that is also the case in other studies on private returns to public office (Fisman et al. 2014, Querubin and Snyder 2013). Even self-reported wealth can indicate important rent-seeking practices. Fisman et al. (2014), for instance, find that the asset growth of those elected in more corrupt states of India are substantially higher than those elected in less corrupt ones.

My analyses would be less reliable if audits cause a systematic upward or downward bias in the disclosure of assets. It is not clear how would the incentives of elected officials to report change as result of an audit, especially those who are not directly involved in revelations of corruption. Politicians might perceive that the salience of money in politics might be augmented in the electoral race, and that would be an incentive to report less than the truth. In contrast, politicians might perceive they would become more likely to get exposed when misrepresenting their assets. Because results the results indicate effects for members of the mayor's electoral coalition but not for elected officials strengthens the credibility of the estimates. If there is a bias, it that is not seem to be generalized across political parties and alliances. Another caveat of this measure is that candidates do not have to report the wealth owned by their family members, such as spouse or children. Even if the measure at the individual level might not be perfectly accurate, when aggregated and compared across thousands of candidates it can be informative about patterns. Notorious corruption scandals in Brazil over the last decades such as the episodes involving former speaker of the Chamber of Deputies Eduardo Cunha, former President Michel Temer and Senator Geddel Vieira Lima attest that corruption was associated with abnormal changes in politicians' declared wealth even for highly visible politicians (Piauí 2018).

In addition to that, the wealth does not consider variations that happen after the campaign period starts. On one hand contractors might intensify transfers near elections (Mironov and Zhuravskaya 2016). My estimates for campaign revenues, on the other hand, do incorporate corporate donations. Most of this money is unlikely to make into the politi-

cians personal wealth and more likely to be used for campaigning. To account for money that is transferred during the campaign, I use councilors' campaign revenues. There are high incentives for politicians to declare most campaign revenues even if their origins are illegal. The Car Wash scandal revealed that large sums of money used to finance electoral campaigns were indeed declared as campaign revenues even though they came from businesses engaged in cartel that illegally benefited from contracts with different areas of Petrobrás, Brazil's giant oil company.

Change in Campaign Revenues In addition to the changes in politicians' total assets, measured before the official campaign starts, I also analyze changes in the total campaign revenues of individual councilors' by comparing what each candidate raised in the 2008 and the 2012 elections. This accounts for all money that is transferred to finance electoral campaigns. Most resources to fund political of local politicians are transferred by the candidates themselves, followed by contributions by local companies. There are high incentives for parties to report revenues. Even contractors that do business with local governments often make legal campaign contributions that result from illegal deals (Mironov and Zhuravskaya 2016). I cannot, however, exclude the possibility that the a share of the money used by campaigns are under-reported. The direction of the bias that under-reporting of campaign revenues would cause, its relationship with audits is not a straight-forward challenge to the estimates, specially if when we compare across councilors by their partisanship.

Electoral Outcomes

I also measure the effect of anti-corruption audits on electoral outcomes of councilors including their (unconditional) reelection rates. The effect on councilors' reelection rates is a joint product of many reactions that unleash after an audit takes place, including the changes in rent-sharing strategies, the extent to which councilors' actively denouncing and investigate the executive branch. The ultimate decision of whether to reelect a councilor will taken by voters.

4.2.1.3 Mediator: Legislators' Bargaining Power

To test hypothesis 1, I construct a measure of legislators' bargaining power. The total number of councilors in ranges from 9 to 55 members, and is set by the total municipal population. The median of the mayor's party share of the local council is 24%. Figure 4.1 also shows that since the 2000 elections there is a substantial party fragmentation in city councils. The mayor's party does not have a legislative majority in 90% of all municipalities. Political affiliations are considered before the 2008 elections, months before any audit takes place.
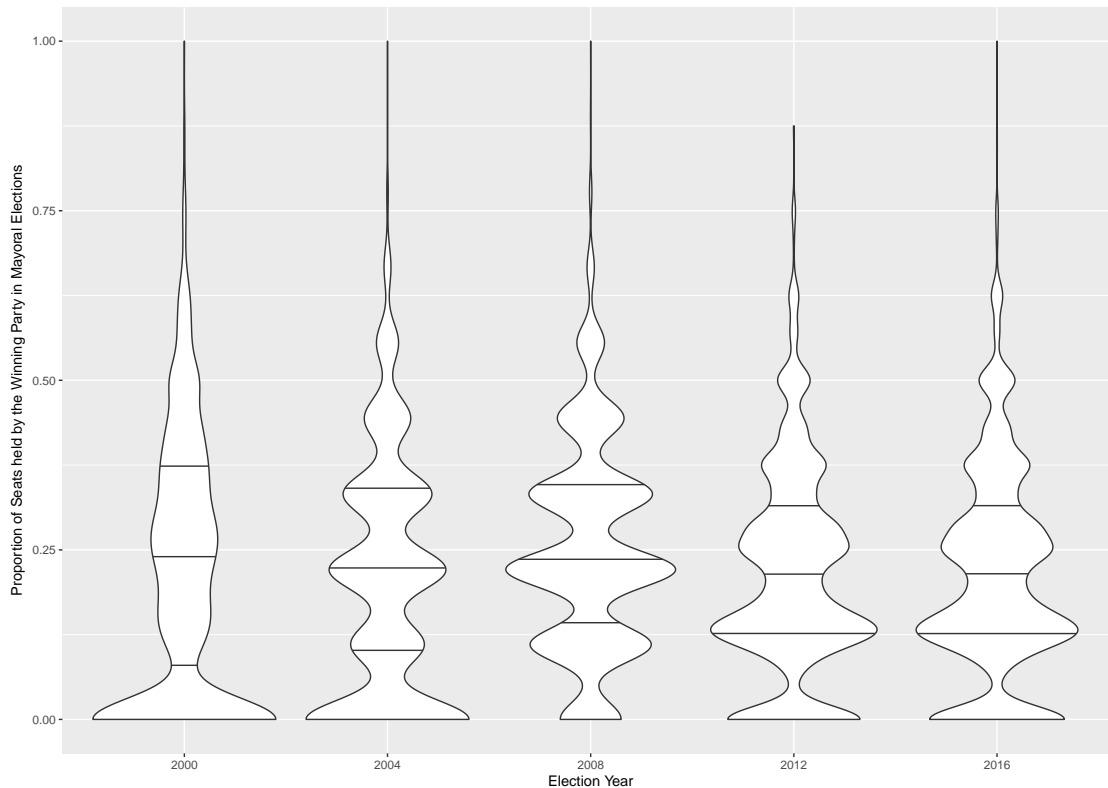
Figure 4.1: Proportion of Seats Held by the Mayor's Party in the Local Council

Note: From the bottom to the top, horizontal lines represent the minimum, the 25th percentile, the median and the 75th percentiles, respectively.

I assume that mayors have a relatively higher control over the political careers of members of their own political party (e.g. control of the nomination process). This attachment is also visible to voters and other politicians. This might cause potential repercussions or

costs for council members trying to distance themselves from the mayor. I operationalize the individual bargaining power of legislators by constructing a variable that measures the proportion of additional votes a mayor needs to attract (other than members who are affiliated with her/his party) to have a majority in the city council. Although having a majority is not strictly necessary to avoid the final impeachment vote, having the support of the majority of the council has several advantages: blocking investigations, the establishment of parliamentary commissions of inquiry, parliamentary hearings and the initiation of impeachment procedures. Impeachment needs to be approved by two-thirds of the legislators in the council. The proportion of votes that are necessary to attract to avoid the final impeachment vote are, nevertheless, proportional to the votes needed to have a majority.

The bargaining power(ω_m) of legislators in municipality m if the total number of seats in the city council is odd is defined as:

$$\omega_m = \frac{\sum_{i=1}^{N} s_i + 1 - 2s_k}{2\left[\sum_{i=1}^{N} s_i - s_k\right]}$$

if $s_k < \frac{\sum_{i=1}^{N} s_i + 1}{2}$

(4.1)

$$\omega_m = 0,$$

otherwise.(4.2)

If the total number of seats in municipality m is even, the individual bargaining power of each legislator is:

$$\omega_m = \frac{\sum_{i=1}^{N} s_i + 2 - 2s_k}{2\left[\sum_{i=1}^{N} s_i - s_k\right]}$$

if $s_k < \frac{\sum_{i=1}^{N} s_i}{2} + 1$

(4.3)

$$\omega_m = 0,$$

otherwise.(4.4)

where s_i refers to the number of seats held by each party i=1,...N and the subscript k represents the party of the mayor. The intuition behind this measure is rather simple. If the number of seats in the local council is 10 and the 3 legislators belong to the mayors' party, for instance, the mayor needs 3 additional votes out of the remaining 7 legislators. Therefore, the bargaining power of legislators, ω_m, equals $\frac{3}{7}$. If the number of seats remains 10 and there 4 legislators who belong to the mayors' party, ω_m is now reduced to $\frac{1}{3}$.

4.2.2 Empirical Strategies

4.2.2.1 Natural Experiment

Natural Experiment Similarly to what was done in chapter 4, I compare the main outcomes of this study (changes in elected officials' total assets and campaign revenues) in municipalities that were audited to those in municipalities in the same state where there were not audited. This natural experiment allows me to isolate the effects of the audit on councilors' wealth from that of other variables. I take into account the stratification of the original treatment and reduce the possible effects of the different potential outcomes that could potentially be generated by the existing differences in treatment probability across states.

The original randomization strategy of the lotteries that selected municipal governments to be audited allows me to estimate the average treatment effects (difference-in-means) for each state and combine them in the following way:

$$\hat{\tau} = \sum_{j=1}^{J} \frac{N_j}{M} \hat{\tau}_j \tag{4.5}$$

where,

$$\hat{\tau}_j = \frac{1}{N_{1j}} \sum_{i=1}^{N_j} D_{ij} Y_{ij} - \frac{1}{N_{0j}} \sum_{i=1}^{N_j} (1 - D_{ij}) Y_{ij} \tag{4.6}$$

each block is represented by j=1,.., J, N_j is the number of units in each block j, M is the total number of units, N_{1j} is the number of treated units in each block, N_{0j} is the

number of control units in each block, $\hat{\tau}_j$ is the average treatment effect in each block. $\hat{\tau}$ is the outcome of interest: the average of block-specific difference-in-means, weighted by the proportion of units in each block. This allows to account for biases that might exist between the potential outcomes and the probability of receiving the treatment, which varies across states. Because randomization in each block is independent, the estimated variance takes into consideration the estimated difference-in-means in each block and the size of each block with respect to all observations. The degrees of freedom are equivalent to the total number of observations minus two times the number of blocks: $N_j - 2 * J$ (Gerber and Green 2007). Confidence intervals are built using a t-distribution and the corresponding degrees of freedom. My estimates can also be interpreted as analogous to an intent-to-treat effect (ITT) of the revelation of corruption since most audits indeed reveal at least one episode of serious corruption. [11] For outcomes at the level of members of the municipal chamber, my estimates take into account the clustering at the municipal level. Since most outcomes are for more than one unit in each municipality, e.g. when the is more than one councilor from in the mayors' coalition, my estimates take into account the clustering at the municipal level, the level of the treatment. This avoids underestimating standard errors by assuming that councilors' wealth accumulation in the same municipality, for instance, are independent of that of other councilors in the same municipality.

I use the same specifications to test the randomization procedure across a set of municipal covariates, including pre-treatment political and socio-economic characteristics. In table 1, I provide tests for covariate balance by treatment assignment for the period between 2008 and 2012. The treatment is well-balanced across local political and socio-economic characteristics. Importantly, audits do not disproportionately target or avoid any of the four main parties, including the party holding the presidency at the time, the Workers' Party (PT). The level of party fragmentation and representation of the mayors' allies in the local council is also balanced across treated and control municipalities. The only variable that presents a statistically significance imbalance is the share of votes for the Workers' party

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[11]I follow a definition of corruption that builds on a combined dataset of Brollo et al. (2013) and Avis et al (2018), which itself builds on the definitions provided by the CGU itself.

candidate in the prior presidential elections. The difference is substantively negligible: in treated municipalities, the proportion of valid votes for Lula da Silva in 2006 were 56.05% while in control municipalities that proportion was 56.03%. Joint tests corroborate the balance of the treatment across covariates.

Table 4.1: Covariate Balance by Treatment Assignment (2009-2012)

Variable	Control Mean	Imbalance	Std.error	p.value
Political Characteristics (2008 elections)				
Number of Parties in the City Council	5.28	-0.01	0.06	0.89
Number of Seats in the City Council	9.18	0.02	0.03	0.52
Party Fragmentation in the City Council	0.25	-0.00	0.00	0.86
Prop. of Seats held by Mayors' Pre-Electoral Coalition	0.53	0.00	0.01	0.66
DEM Mayor	0.14	0.01	0.01	0.68
PMDB Mayor	0.20	-0.01	0.02	0.63
PSDB Mayor	0.16	-0.02	0.01	0.24
PT Mayor	0.07	-0.00	0.01	0.85
Term-Limited Mayor	0.25	0.01	0.02	0.62
Vote Share of PT Presidential Candidate (2006)	0.62	0.00	0.00	0.03
Municipal Characteristics				
Distance to the State Capital (logged)	2.55	0.03	0.06	0.59
Human Development Index (2000)	0.70	0.00	0.00	0.90
Population (logged, 2006)	9.33	-0.01	0.04	0.90
Income Inequality (2000)	0.56	-0.00	0.00	0.73

Note: Imbalances estimated by the weighted average of block-specific difference-in-means of each covariate, calculated using the same procedure explained in equations 1 and 2, (see section 5.3, above). Number of municipalities: 5,547.

4.2.2.2 Regression Discontinuity Design

In addition to the leveraging the random selection of municipal administrations to be audited by the CGU, I use a regression discontinuity design to test the (causal) effect of being in the mayor's electoral coalition and party membership on wealth accumulation (hypothesis 2). My uses electoral margins of victory of councilors' allies in mayoral races as the running variable for co-partisans and for those that belonged to the mayoral candidates coalition. I compare outcomes for legislators that are part of winning coalition (party) to legislators' whose coalitions (party) just lost the mayoral elections. The goal is to estimate τ_{RD}, the average treatment effect of that the councilor's coalition partner (or party) wins the mayoral election on the personal wealth accumulation of councilors. τ_{RD} is defined as:

$$\tau_{RD} = \lim_{mv \to 0^+} \mu(mv) - \lim_{mv \to 0^-} \mu(mv) \tag{4.7}$$

This estimation procedure allows to control for potential cofounders by restricting Similarly to widely used regression discontinuity designs for close electoral races, the estimation relies on the assumption that councilors on either side of the threshold are comparable. This method allows me to compare legislators because, on average, the only difference among them is their treatment status: whether a politician from their party or coalition becomes the mayor because of a close electoral victory. In more technical terms, the main assumption of a sharp regression discontinuity is that observable and unobservable characteristics are balanced near the zero threshold, i.e. for very competitive mayoral races. This allows me to test whether members of the mayors' electoral coalition were more likely to become wealthier with respect to members of the losing candidates' electoral coalition in audited municipalities as well as to compare to what happens in non-audited municipalities. Because Brazilian mayoral elections are in general very competitive, there is a large number of electoral races that are decided by a close margin and many councilors near the cutoff. Other studies have used a regression discontinuity based on close elections in Brazil and highlight the inability of actors to precisely manipulate on which side of the threshold they are going to be and the balance across the groups that just won and just lost the mayoral elections.

I follow the state-of-the-art practices of regression discontinuity and construct data driven bandwidths and both conventional and robust estimates and confidence intervals following the algorithms suggested by Calonico et al. (2017). I divide all Brazilian councilors who ran both the 2008 and 2012 elections into four groups, based on two criteria (i) whether they supported a mayoral candidate from their own party or supported a mayoral candidate from another political party and (ii) whether their municipalities was audited or not. Figures 4.2, 4.3, 4.5 and 4.4 display the density of margin of victory, showing that there is no clear manipulation of the running variable in any of the four samples. In addition to these density tests, I provide another test that shows a continuity in the a different variable: the wealth of councilors in 2008 (see Table 3 in the appendix to this chapter).
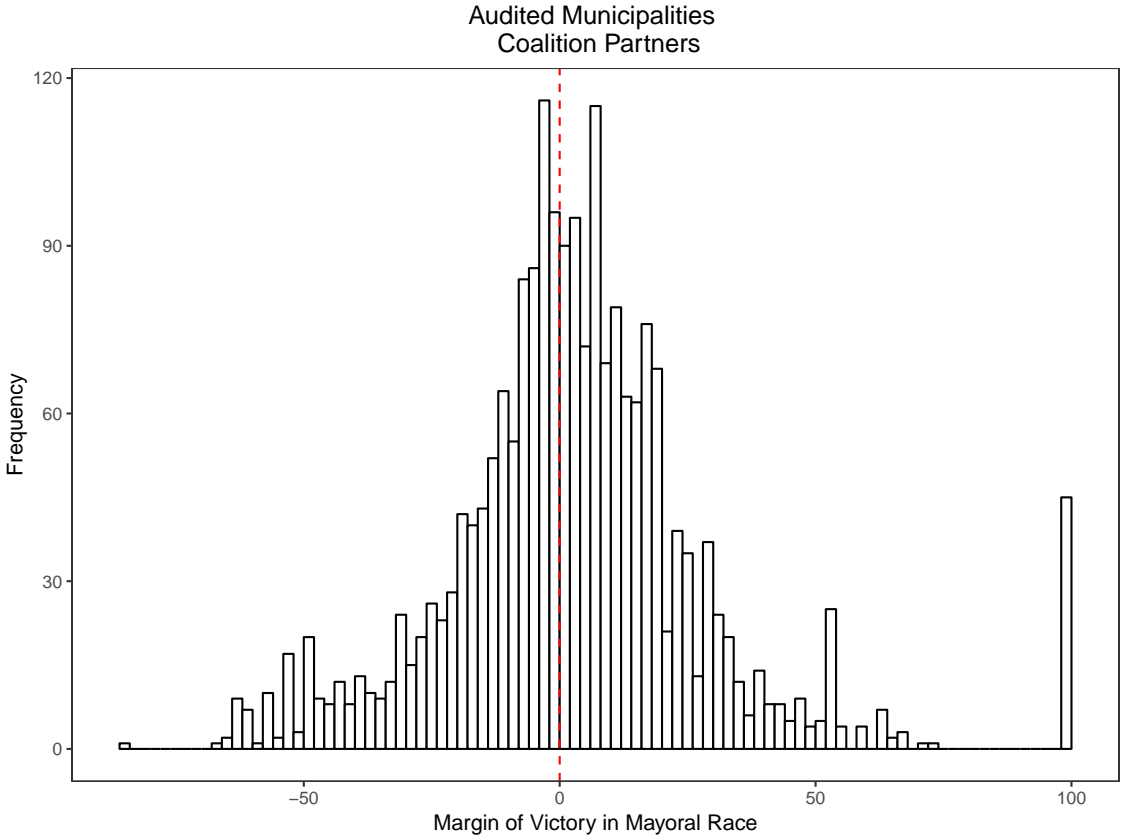
Figure 4.2: Margin of Victory of Coalition Partners in Mayoral Races (2008 elections).
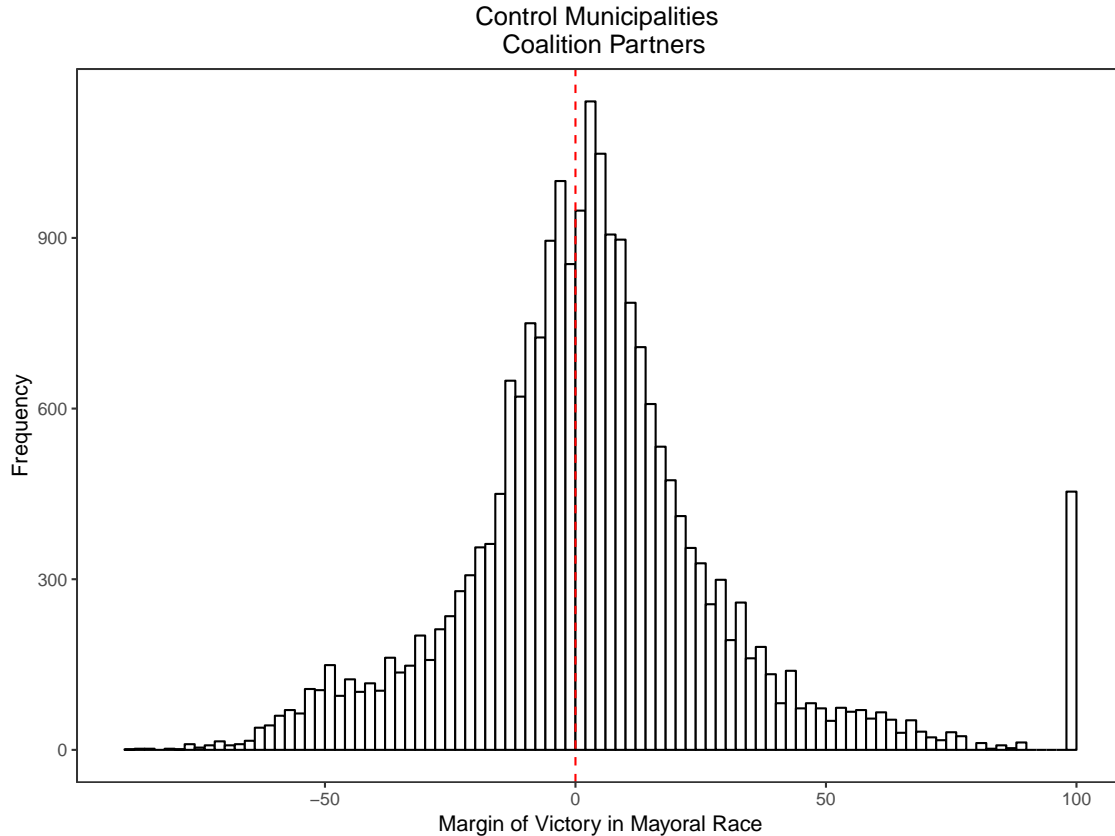
Figure 4.3: Margin of Victory of Coalition Partners in Mayoral Races (2008 elections).

4.3 Effects of Audits on Legislators' Wealth Accumulation by Bargaining Power

To analyze the effect of audits on councilors' rents, I test whether councilors, after being investigated by an audit, appropriate more rents in municipalities where the mayor's party is weaker in comparison to municipalities where the mayors' party holds a higher share of the seats in the city council. To test this, I use the measure of legislators' bargaining power (see section above) as a mediator for the effect of audits on councilors' wealth. The intuition behind this measure is the following: the higher legislators' bargaining power is, the more difficulty it is for the executive to reach a majority by relying only on the votes of members of their own parties in the municipal chamber. To remain in government, mayors need to convince a share of council members from other parties as well as those in their own party. Having the majority of the city council allows the executive to protect itself from further

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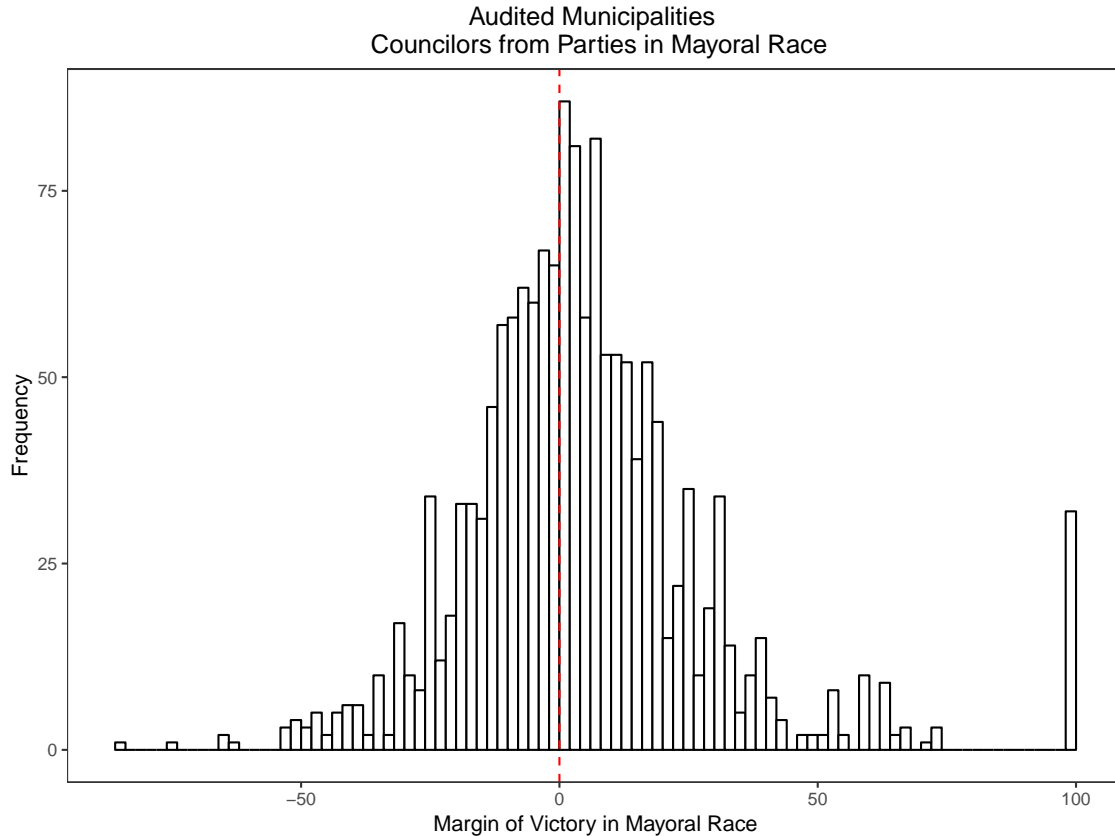
Figure 4.4: Party's Own Margin of Victory in Mayoral Races (2008 elections)

investigation.

The outcome measure considers the rent that is appropriated by all councilors. Therefore, it includes the councilors who belong to the mayors' party, those who belong to parties that supported the mayor in the previous election, and those who supported other candidates for the post of mayor, and parties that did not support any candidate in the mayoral race. The reason for doing that, is that mayors will need to redistribute to many on average. If the mayor needs to attract the support of a large proportion of council members, councilors in the mayors' party will have a stronger bargaining power in comparison to those in municipalities where the incumbent party holds a larger share of the seats. Having a majority in the local council also increases the probability that a mayor will be able to elect a loyal politician as in the presidency of the city council, what is important because of the agenda-setting powers of that office.

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Control Municipalities
Councilors from Parties in Mayoral Race
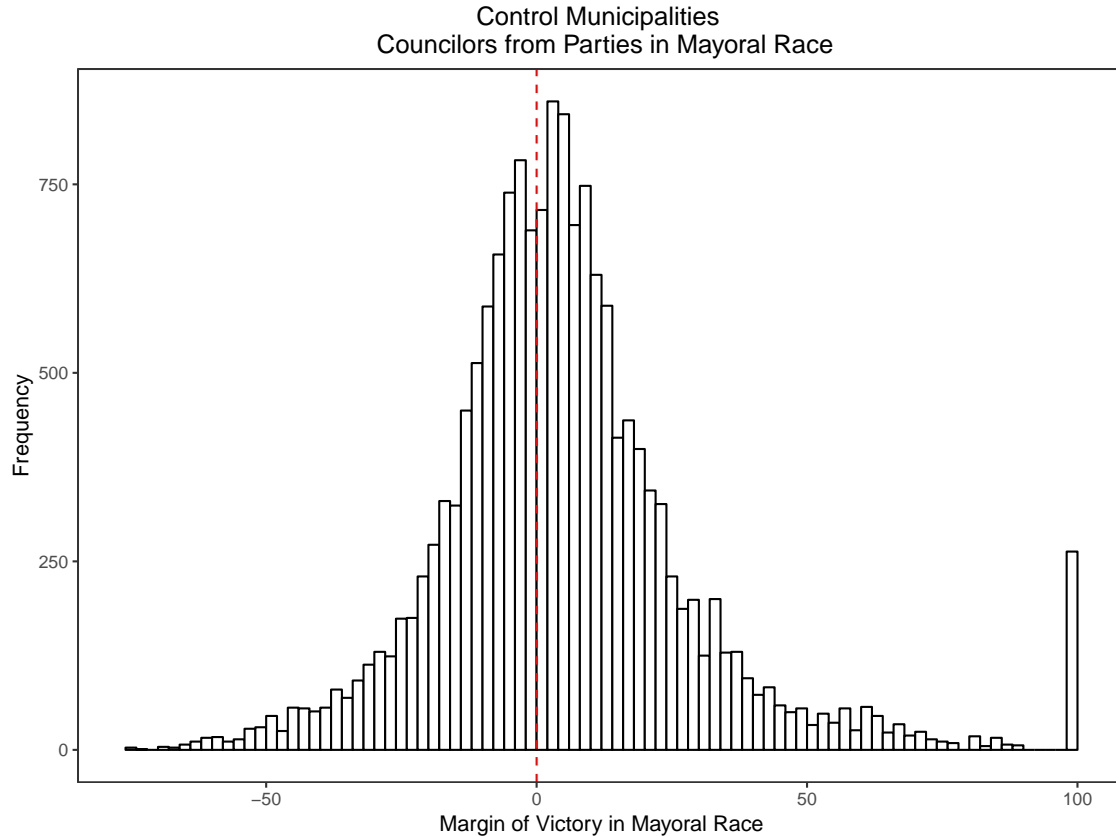
Figure 4.5: Party's Own Margin of Victory in Mayoral Races (2008 elections)

If mayors exert relatively more control over legislators in their own parties. Politicians in the mayor's party will be less able to distance themselves from revelations about municipal corruption. Those not in the mayor's party are more likely to credibly differentiate themselves from the incumbent administration and, therefore, demand rents in return for not defecting. To test this hypothesis, I divide Brazilian municipalities in two groups, based on the median level of legislators' bargaining power. The median bargaining power of legislators is 0.33, meaning that in the median municipality, the mayor needs to attract the support of at least one third of the remaining legislators (other than co-partisans) to reach a majority in the council (e.g. have 50%+1 of the votes). This means that for the group of municipalities in which legislators' bargaining is lower, she has to attract the support of less than a third of the legislators who are not her co-partisans.

Figure **??** displays the effects of audits for the two subgroups of municipalities. In mu-

nicipalities where the mayor needs the support from a smaller fraction of other legislators, the effect of audits of legislators' wealth is negative, suggesting that rents obtained by legislators on average, decrease. Audits of local executives lead to a relatively higher increase in the wealth growth of members of legislators in municipalities where mayors need to attract more than a third of non-co-partisans to reach the majority of the Chamber. This suggests that rent-sharing strategies differ across political contexts and that audits lead to different patterns in the wealth accumulation of legislators' depending on the strength of the mayor's party in the legislature.

4.4 Effects of Audits on Councilors' Wealth

In the absence of corruption, audits of municipal governments would be expected to have no substantial effect on the private wealth of elected officials. I argue that members of parties that previously supported the mayor are those likely to be compensated if they refrain from defecting from the mayors' coalition (hypothesis 2). Because of their previous relationships, councilors in the mayors' pre-electoral coalition are able to extract rents from the local government in return for the mayors' political survival and whose support would be important for future elections.

To investigate whether audits cause changes in wealth of city councilors that depend on their political affiliation and alliances, I separate local legislators in 5 groups. The classification depends on their party affiliation and their parties' participation in pre-electoral coalitions in the 2008 elections. I classify councilors who belonged to (i) the same party as the mayor, (ii) to a party that was part of the mayor's coalition, (jii) to a party of the defeated mayoral candidates, (iv) to a party that supported another mayoral candidates. A residual category is formed by councilors' whose parties did not to support any coalition in the mayoral race.

Figure 4.7 displays the average change in local legislators' wealth in the period between 2008 and 2012 by their political standing in the 2008 mayoral election. The average wealth changes in non-audited municipalities are not very different across the different political

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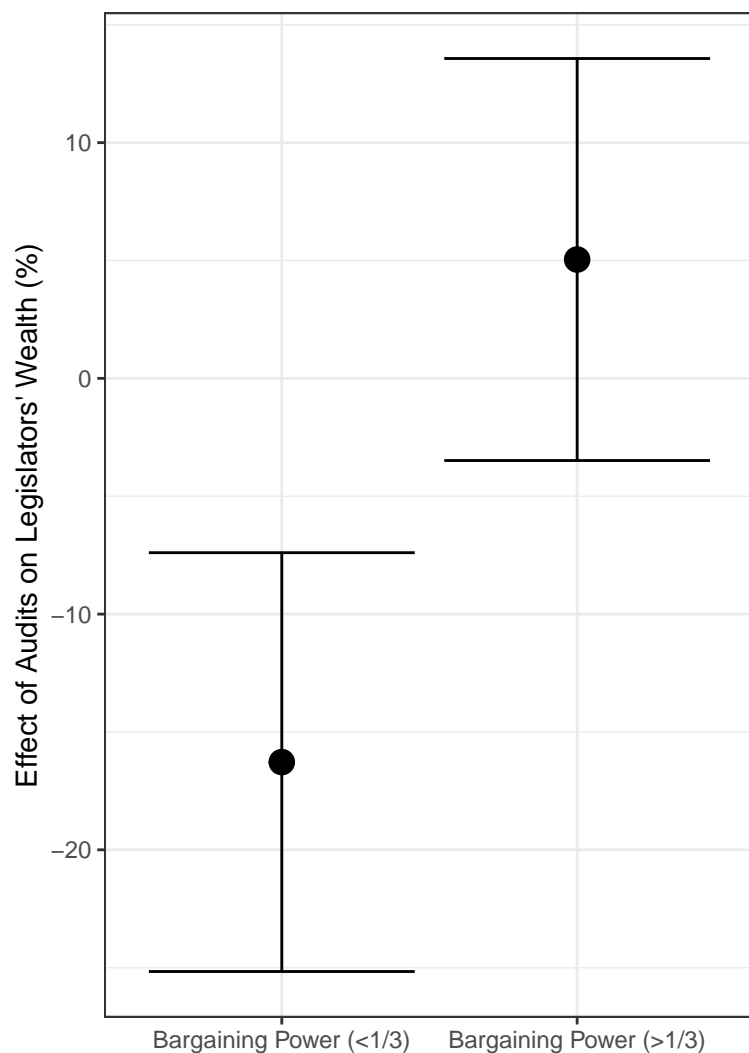
Figure 4.6: Effect of Audits on the Wealth Growth of Local Legislators by Audit Status and Legislator's Bargaining Power

Note: These estimates are based on wealth accumulation of 42,271 members of city councils in 5,374 municipalities. I use the estimation strategy described in 4.2 (above) and cluster the standard errors at the municipal level.

parties, suggesting that, on average, local legislators' enrichment does not clearly depend on their previous political alliances and that rents are not targeted to a specific set of councilors. Audits promote changes in how who benefits from rents. Council members in the mayor's original electoral coalition are the only ones who on average get a boost in their wealth after
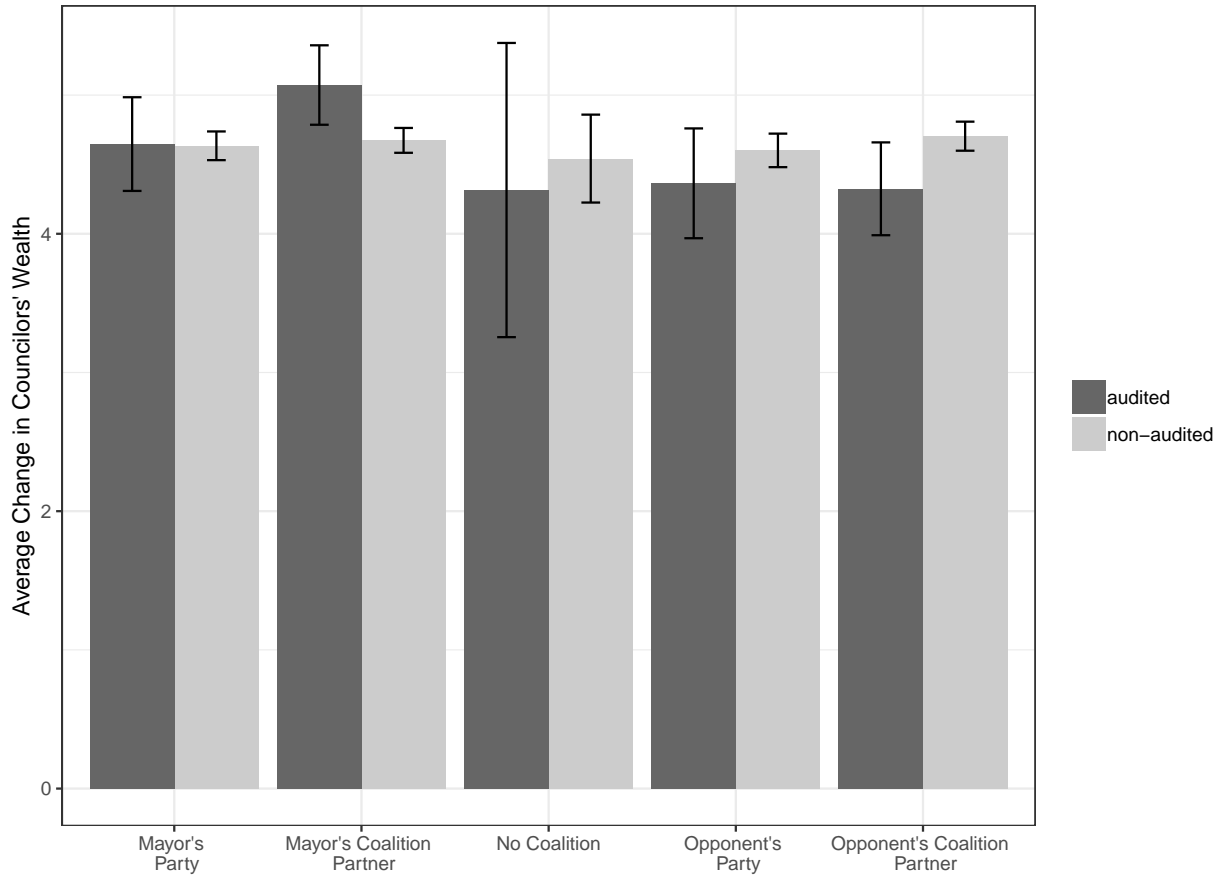
Figure 4.7: Audits and Councilors' Wealth by Political Alliances (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations of 42,271 members of the city council who ran both the 2008 and 2012 municipal elections in Brazil.

an audit. These include material rewards to former political allies who might be tempted to defect. Since they can potentially defect from the mayors' coalition and support further investigations, political allies get re-compensated for not resorting to the strategy that can result in the mayor's impeachment. Besides revealing malfeasance in general, audits reports give indications to other politicians of how much wrongdoing the local executive has been engaging on. For insiders who know the details of the projects, audits also reveal who is likely to have personally benefited from the transactions (e.g. contractors, mayor, councilors in the mayor's party, etc). If corruption at the executive mostly benefits those in the mayor's

party, this might make the mayors' allies in the city council demand more for themselves to continue supporting the mayor.

Because they do not belong to the mayors' party they are less likely to suffer a reputation cost for the audit findings and cannot be punished by the local branch of the party, usually controlled by the mayor himself. Because a mayor needs the support of a majority in the local council to avoid further investigations, their previous political allies are in a good position to demand more rents (legal or illegal) from the municipal administration. Council members who previously supported the mayor in the elections do not have any legal obligation of supporting the government and could defect at any time. Councilors in the mayors' party do not observe a significant change in their wealth when comparing audited and non-audited municipalities. Members of the mayor's party are very important in the local council to try to defend the mayors against the incriminating evidence that is released by the audit report but do not seem to be able to extract more rents for themselves. In subsection 5.5.1, I show that they are able to extract more rents when the mayor is term limited.

4.5   Effects of Coalition Membership and Co-Partisanship on Legislators' Wealth Accumulation

In the previous section, I showed that members of the mayor's pre-electoral coalition are those who, on average, benefit from increases in their personal wealth after an anti-corruption audit takes place. I now recast this question and estimate the effects of being in the mayors' coalition on wealth accumulation in both audited and non-audited municipalities. To do that, I divide councilors in four groups using two criteria: (i) whether the councilor's party nominated one of its members to run the mayoral elections or supported a candidate from another party and (ii) whether the councilor's municipality was audited or not in the period. The running variable for all samples is the margin of victory of the allied/co-partisan mayor in the 2008 elections.

To test hypothesis 2, that mayors favor members of their previous electoral coalitions after an audit takes place, I compare the wealth accumulation of those that belong to those
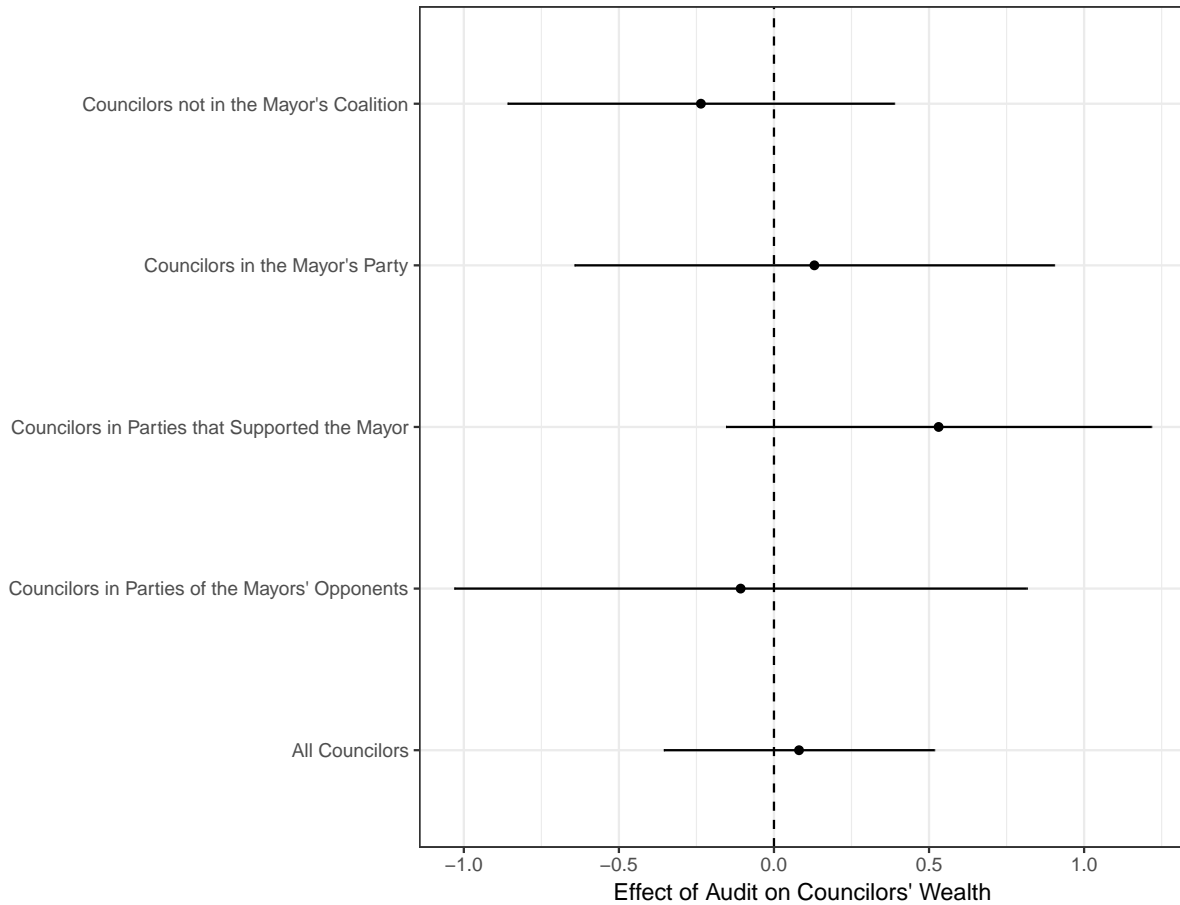
Figure 4.8: Effects of Audits on Councilors' Wealth by Political Alliances (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations of 42,271 members of the city council who ran both the 2008 and 2012 municipal elections in Brazil.

whose coalitions won the mayoral race to those that did not by a close margin. Similar regression discontinuity designs have been used to estimate the returns to political office in other contexts (Querubin and Snyder 2009, Eggers and Heinmuller 2009). In Brazilian municipalities, understanding who benefits from changes in incriminated mayors' rent-distribution strategies can illuminate the reasons why these mayors are able to survive in office and to remain competitive in subsequent elections.

Legislators in the mayor's coalition extract rents in return for their continuous support. The ability of previous coalition members to distance themselves from wrongdoing makes them more likely to be able to charge a higher premium not to defect from the incumbents legislative shield after an audit takes place (Figure 4.9). In municipalities that are not audited, on the other hand, having been in mayor's previous electoral coalition does not lead to more wealth accumulation.

In addition to the figures showing the regression discontinuities, I provide a table that contains all estimates as well as other details for each specification. Results show that the returns to having an coalition partner or a co-partisan in the City Hall (*Prefeitura*) are not, on average, substantial in normal times.

Being a co-partisan of the mayor does not result in higher returns to office for legislators neither municipalities are audited nor when the municipalities are not. As in other studies using regression discontinuity designs, these results are especially valid for close mayoral races and the interpretation of the findings should consider that. The lack of substantial spoils of office for co-partisans of the mayor might be an important factor in explaining the extremely high fragmented local political systems.

4.6 Audits, Term Limits and Legislators' Wealth Accumulation and Campaign Revenues

To measure the influence of short-term electoral incentives on rent-sharing strategies, I divide the sample of Brazilian municipalities based on whether the mayor was term limited or not.
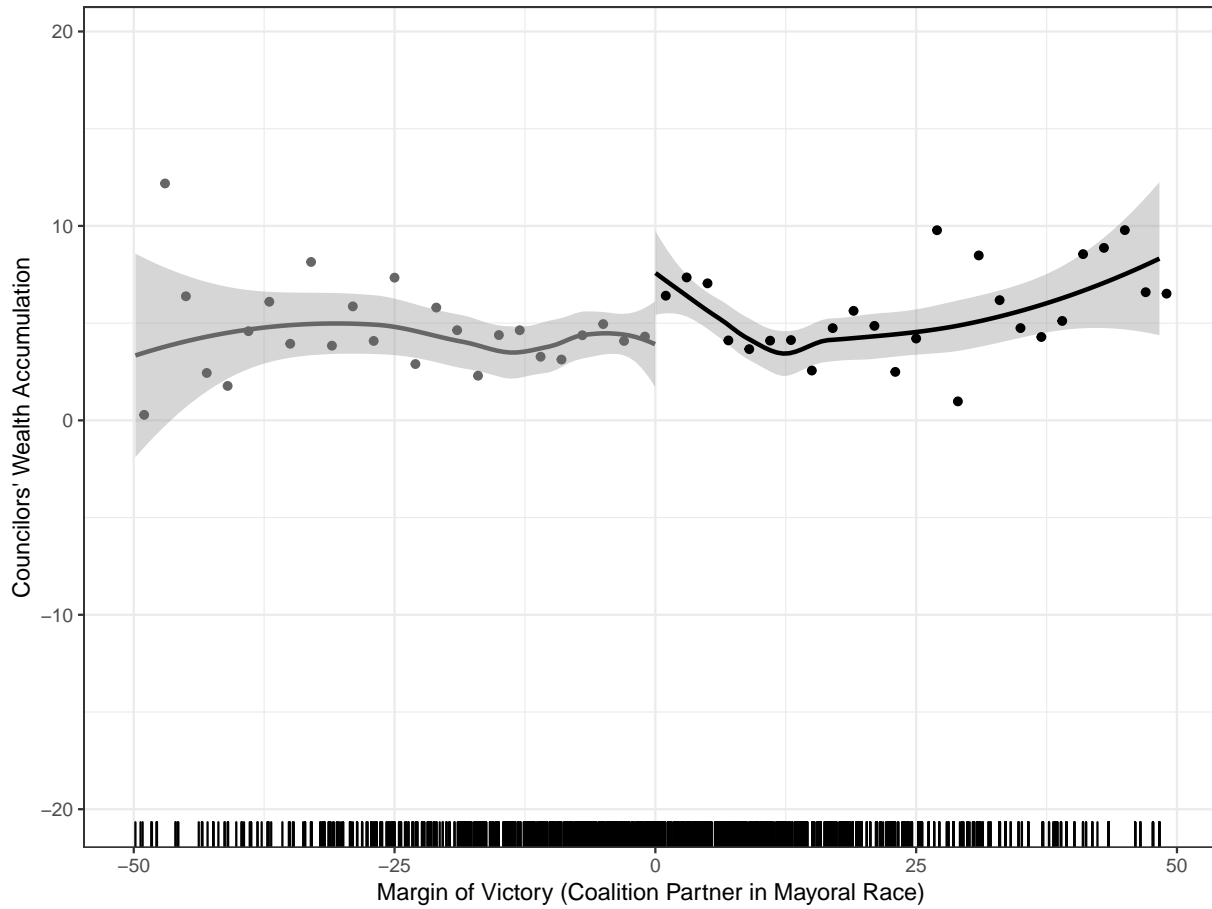
Figure 4.9: Effect of Membership to the Mayor's Coalition on Councilors' Wealth Accumulation (Audited Municipalities)

Note: All councilors who were members of either winning and losing mayoral candidates' coalitions in 2008 and that ran in both 2008 and 2012 elections are included in the analysis. This does not include councilors who belonged to the same party as the mayor or as another mayoral candidate. This figure displays local linear polynomial smoothing on both sides of the threshold. Bandwidths for this non-parametric estimation are endogenously selected using the procedure proposed by Calonico et al. (2014).
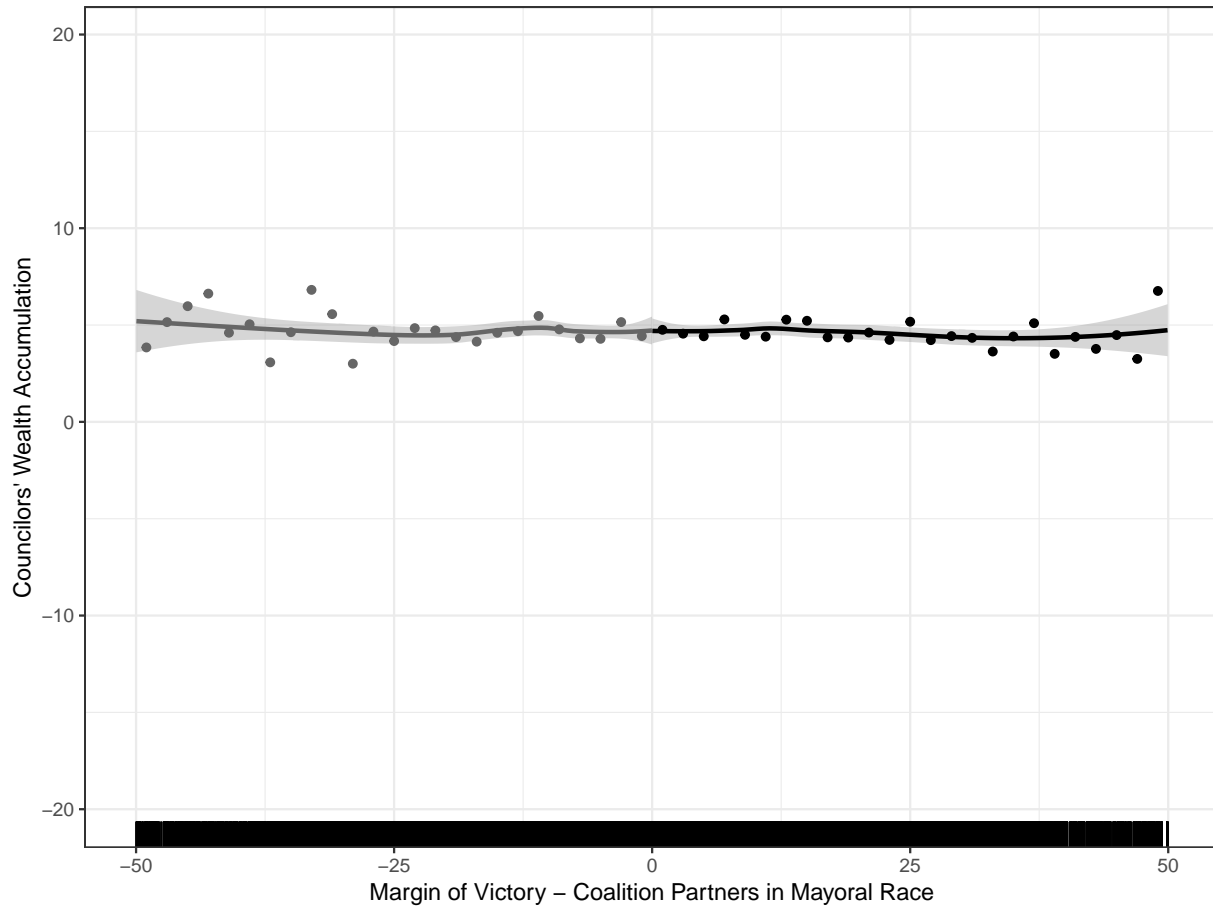
Figure 4.10: Effect of Membership to the Mayor's Coalition on Councilors' Wealth Accumulation (Non-Audited Municipalities)

Note: All councilors who were members of either winning and losing mayoral candidates' coalitions in 2008 and that ran in both 2008 and 2012 elections are included in the analysis. This does not include councilors who belonged to the same party as the mayor or as another mayoral candidate. This figure displays local linear polynomial smoothing on both sides of the threshold. Bandwidths for this non-parametric estimation are endogenously selected using the procedure proposed by Calonico et al. (2014).
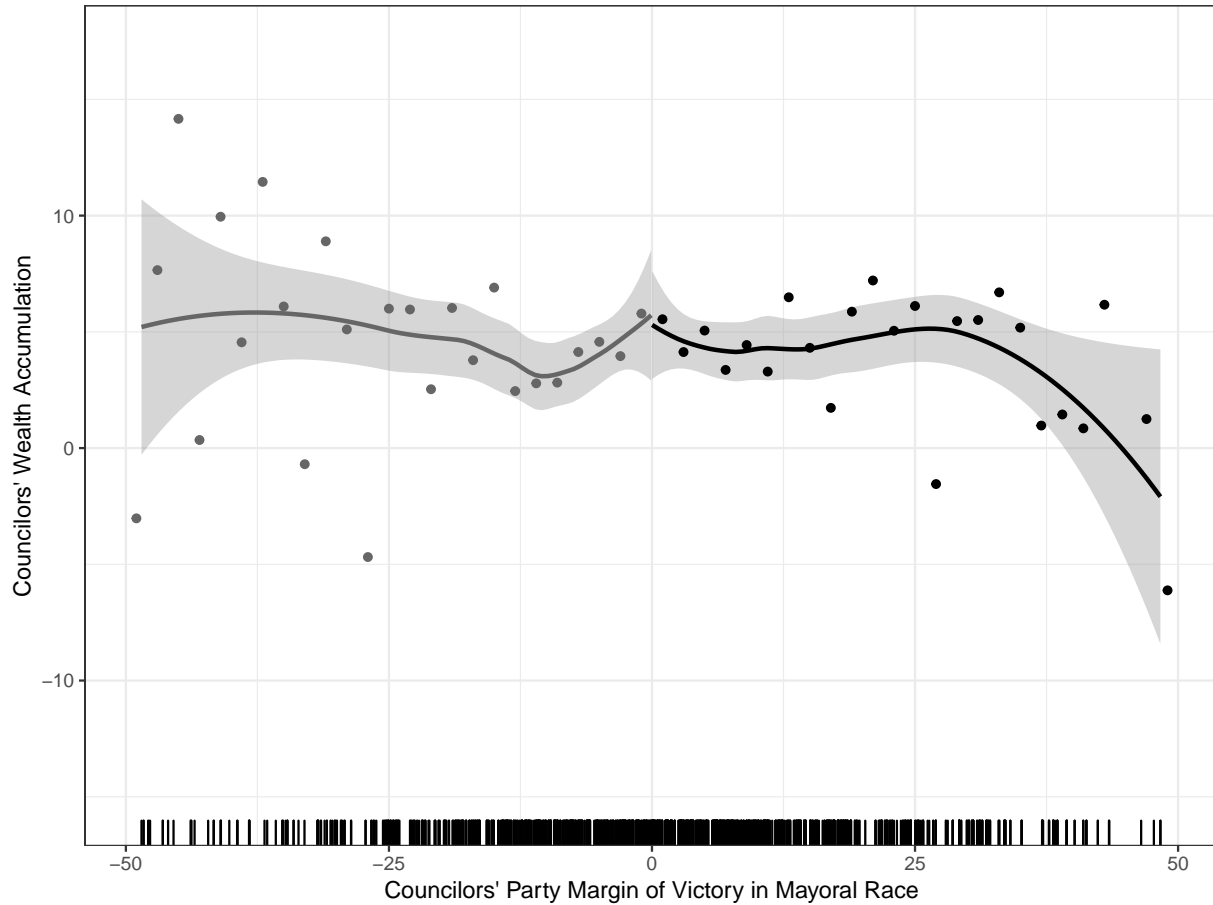
Figure 4.11: Effect of Membership to the Mayor's Party on Councilors' Wealth Accumulation (Audited Municipalities)

Note: All councilors who were members of either winning and losing mayoral parties in 2008 and that ran in both 2008 and 2012 elections are included in the analysis. This figure displays local linear polynomial smoothing on both sides of the threshold. Bandwidths for this non-parametric estimation are endogenously selected using the procedure proposed by Calonico et al. (2014).
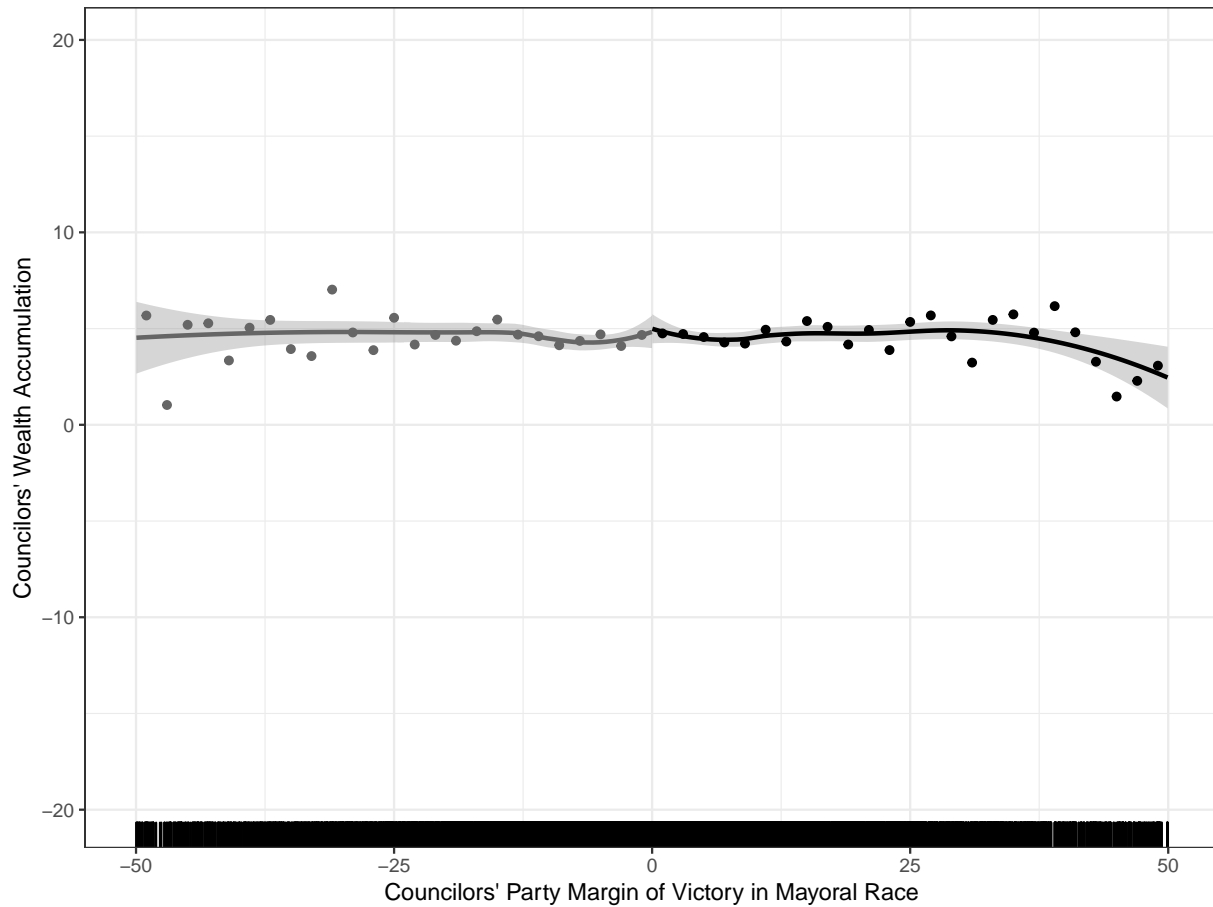
Figure 4.12: Effect of Membership to the Mayor's Party on Councilors' Wealth Accumulation (Non-Audited Municipalities)

Note: All councilors who were members of either winning and losing mayoral parties in 2008 and that ran in both 2008 and 2012 elections are included in the analysis. This figure displays local linear polynomial smoothing on both sides of the threshold. Bandwidths for this non-parametric estimation are endogenously selected using the procedure proposed by Calonico et al. (2014).

Table 4.2: Audits, Partisan Membership and Wealth Accumulation - RDD estimates

Participation in Mayoral Elections	Coalition	Coalition	Own Candidate	Own Candidate
Audited Municipalities	Yes	No	Yes	No
Effect on Wealth Accumulation	3.178***	0.052	-0.462	0.213
Standard Error	(0.925)	(0.280)	1.160	0.386
p-value (Conventional)	0.001	0.492	0.690	0.582
z-value (Robust)	3.259	0.223	-0.497	0.438
p-value (Robust)	0.001	0.823	0.619	0.661
Number of Observations	2,059	21,274	1,507	15,944
Bandwidth size	12.38	14.12	15.13	12.27

Note: Note: Estimates for the coefficient of audit on the wealth accumulation of council members between 2008 and 2012. Inverse hyperbolic function. Standard errors are clustered at the municipality level.

By doing that, my analyses are not contingent on the actual decision of the mayor to run for reelection, what might itself be endogenous to have the municipal executive being audit. Whether a mayor can immediately run for office again is already determined prior to the lotteries that decide which municipalities will be audited during that term. Thus, I am sub-setting Brazilian municipalities based on a pre-treatment covariate. I compare changes in rent-sharing strategies of mayors who had won the elections in 2004, were reelected in 2008, and thus cannot run for office in 2012 to mayors who are serving their first term in 2009-2012. I use two different variables to measure changes in mayors' rent-sharing strategies: changes in councilors' total personal wealth and changes in councilors' total campaign revenues. Both variables are measured using the generalized inverse hyperbolic sine transformation to account for negative and null values (see sub-section 4.2.1 for details of this transformation).

Wealth Accumulation Similarly to what was done in section 5.3, I compare councilors' wealth accumulation in audited and non-audited municipalities depending on their partisan and previous coalition partnership with the incumbent mayor. I find that in municipalities where mayors are eligible to run in 2012, an audit during the term leads to a higher increase

in the wealth accumulation of councilors' who are not co-partisans of the mayor but who have joined the mayor's coalition in the 2008 elections.

Figure 4.13: Effects of Audits on Councilors' Wealth - Non-Term-Limited Mayors (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations councilors who ran both the 2008 and 2012 municipal elections in Brazil. Standard errors are clustered at the municipal level.

In municipalities where the mayor is already on her/his second term, the effect of audits on the average growth in wealth is positive and statistically significant for councilors who were co-partisans of the mayor in 2008 (Figure 4.14).

Campaign Revenues The open-list system through which council members are elected and limited public financing of political campaigns is characterized by a context where candidates have to raise their own resources for campaigning. [12]

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[12]There were substantial increases in the public funds after the decision of the Brazilian Supreme Court to ban campaign contributions from enterprises in 2015.

Figure 4.14: Effects of Audits on Councilors' Wealth - Term-Limited Mayors (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations of councilors who ran both the 2008 and 2012 municipal elections in Brazil. Standard errors are clustered at the municipal level.

Similarly to what happens for councilors wealth after audits, a distinguished pattern emerges when we observe changes in campaign revenues of councilors running for reelection in municipalities where the mayor was term limited in comparison those where the mayor was not term-limited. Both term-limited and non-term-limited mayors face the threat of impeachment but non-term-limited mayors do not have the same incentives of having a to gather a strong electoral coalition to be competitive electorally. The ability to raise campaign funds is one of the crucial assets for legislative careers in systems where candidates have great incentives to raise money for their own campaigns (Matthews 1986). A quote from a local politician in India cited by Vaishnav (2017: 148) illustrates this idea: "without money you cannot do anything. You will be wiped out. You first have to make money, and then you can do good after you are entrenched and secure".

Campaign revenues are important assets when running for office. Mayors can use the power of their offices, for instance, to direct its allies such as contractors with the municipal to transfer resources to the political campaigns of politicians whose political support they want to ensure. It is not uncommon to see transfers from mayoral candidates themselves towards the councilors' campaigns. Figure 4.15 displays that for the subset of municipalities where mayors are eligible to run for reelection in 2012, councilors who belong to the mayor's party or to a party that did not back the incumbent party in 2008, are more likely to have their campaign revenues negatively affected by an audit. Audits do not cause similar financial constraints for the electoral campaigns of coalition partners of the incumbent in 2008 do not observe similar constrains.

In municipalities where the mayor is not eligible for reelection, the effects of audits on the campaign funds of all councilors are much more similar (Figure 4.16). One possible interpretation is that the different patterns suggested by Figure 4.15 and Figure 4.16 have to do with the mayor's short-term electoral incentives and need to prevent defections and to construct a strong coalition to increase their chances of reelection.

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Figure 4.15: Effects of Audits on Councilors' Campaign Revenues - Non-Term-Limited Mayors (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations of councilors who ran both the 2008 and 2012 municipal elections in Brazil.
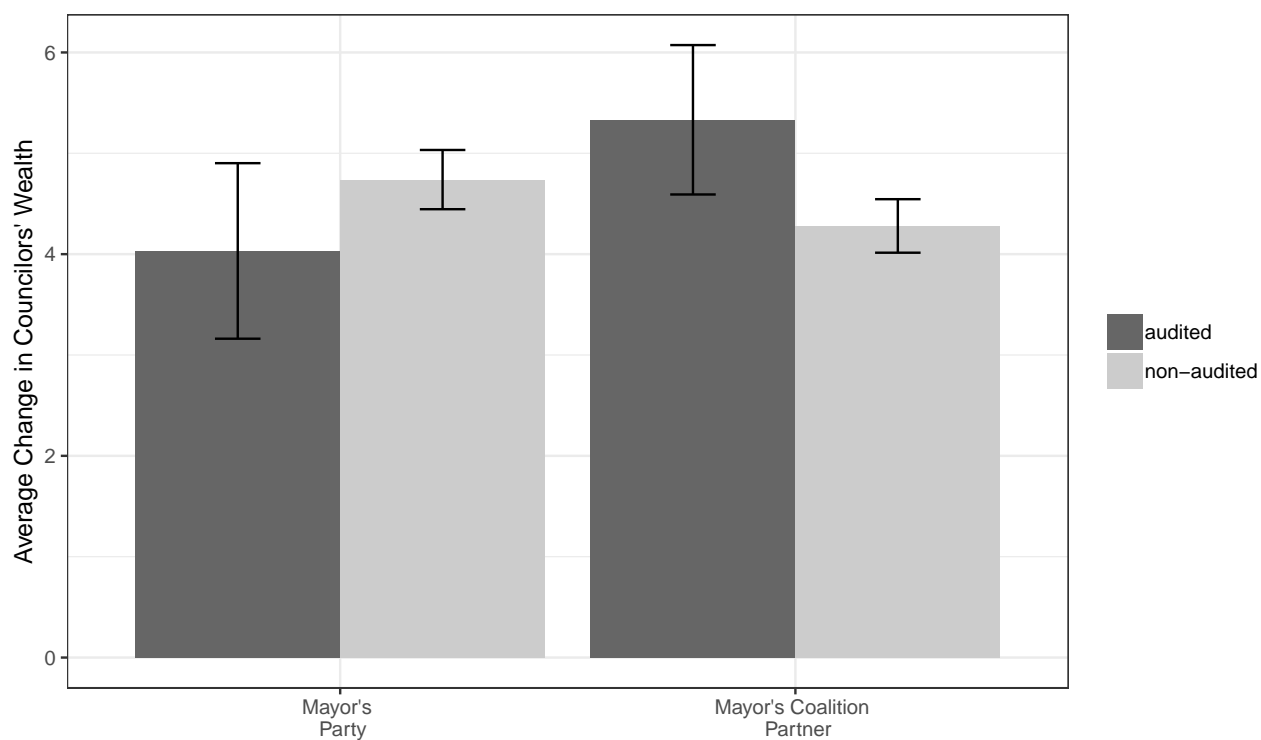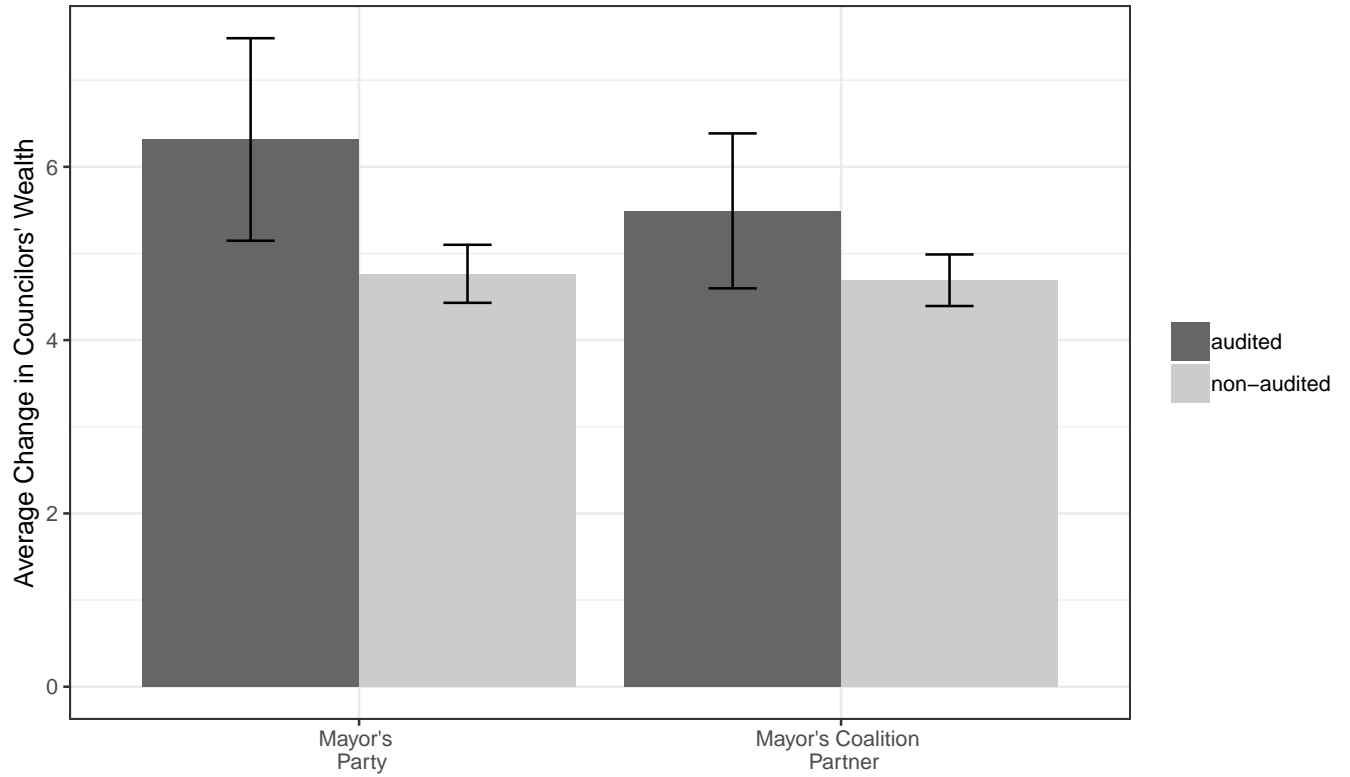
Figure 4.16: Effects of Audits on Councilors' Campaign Revenues - Term-Limited Mayors (2008-2012)

Note: This figure plots the average growth of politicians' assets between August 2008 and August 2012. Estimates are based on the asset declarations of councilors who ran both the 2008 and 2012 municipal elections in Brazil.

4.7 Effect on Councilors' Reelection Rates and Councilors' Party Switching

The most prominent scholar of local politics in Brazil of the last century , Victor Nunes Leal (1977:60), wrote in 1949 that: "To favor allies, the local boss slips into ambiguous territory that lies between the legal and the illicit, or that penetrates right into delinquency, but the partisan solidarity regenerating sponge that overcomes any sins. The definitive rehabilitation will come with political victory, because, in politics, on its contrary, there is only one embarrassment: to lose". This quote suggests the importance of political victories for the stability of the system. We might expect that failure to impeach a visibly corrupt mayor might lead to a backlash against the political class, making voters more likely to punish incumbent councilors at the ballot box. If councilors expect to suffer electoral loss if they do not move forward investigations against the mayor and punishing the mayor for the findings revealed by the audit, they would be more likely to coordinate with their colleagues and hold the mayor accountable.

However, despite the inaction of Municipal Chambers, suggesting the complicity of a large share of its members, average councilors' conditional (on rerunning for office) or unconditional reelection rates are not altered by audits through time. Rerun rates are only slightly (less than two 2 pp.) higher in audited municipalities (Figure 4.17).

There does not seem to be any substantial electoral sanctioning of councilors' inaction, irrespective of their partisan affiliation. The effect of audits on the reelection rates of councilors is null for members of the mayor's party, other members of the incumbent mayors' coalition, and for councilors that did not support the incumbent mayor (Figure 4.18). A possible culprit might be the demanding informational environment typical of the electoral system used to elect councilors in Brazil (open-list proportional representation). Voters do not punish councilors' inaction even after revelations of corruption are provided by the audit reports. It may be the case that many councilors might fear that investigating corruption and dismantling the networks of corruption poses certain risks to the activities that allow for the exchange of favors and rents they personally benefit from.
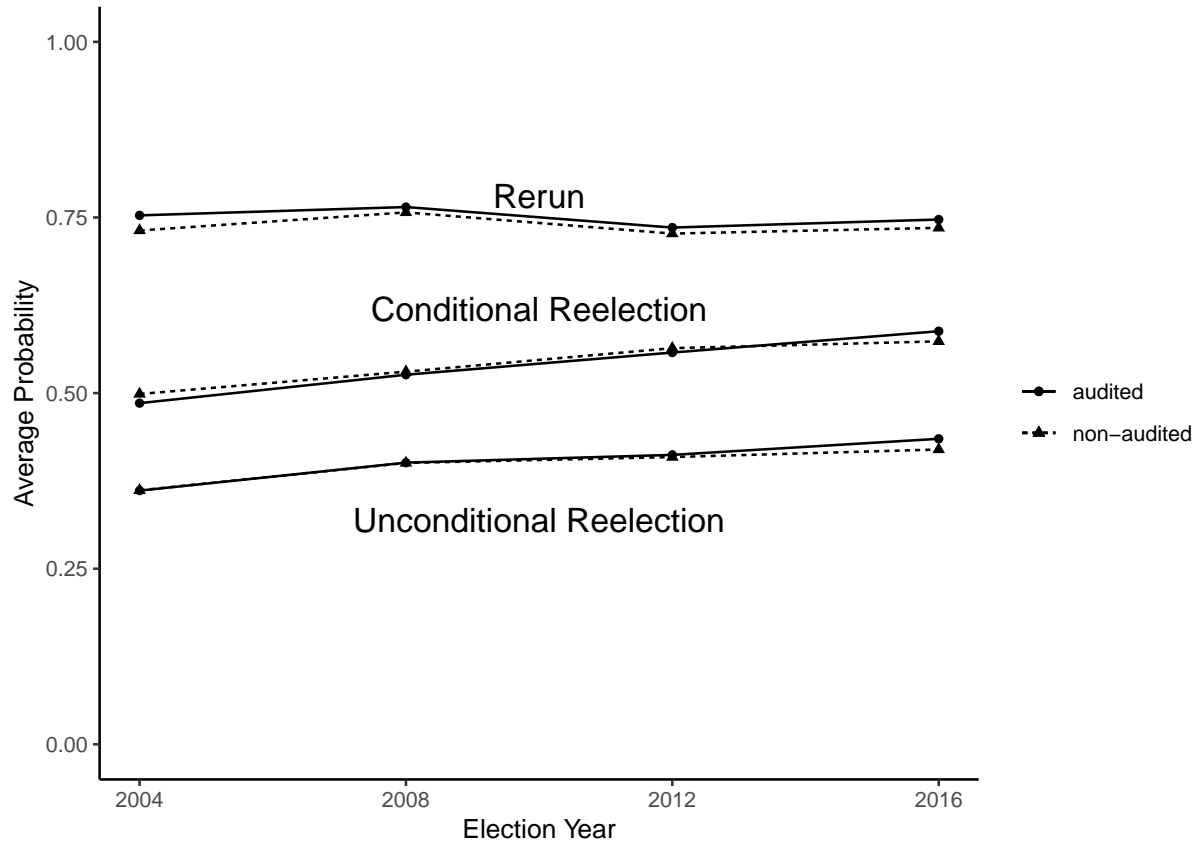
Figure 4.17: Average Reelection Rates

Note: This figure plots councilors' rerun, (conditional) and (unconditional) reelection rates in audited and non-audited municipalities in the 2004, 2008, 2012 and 2016 elections.

4.7.1 Councilors' Party Switching
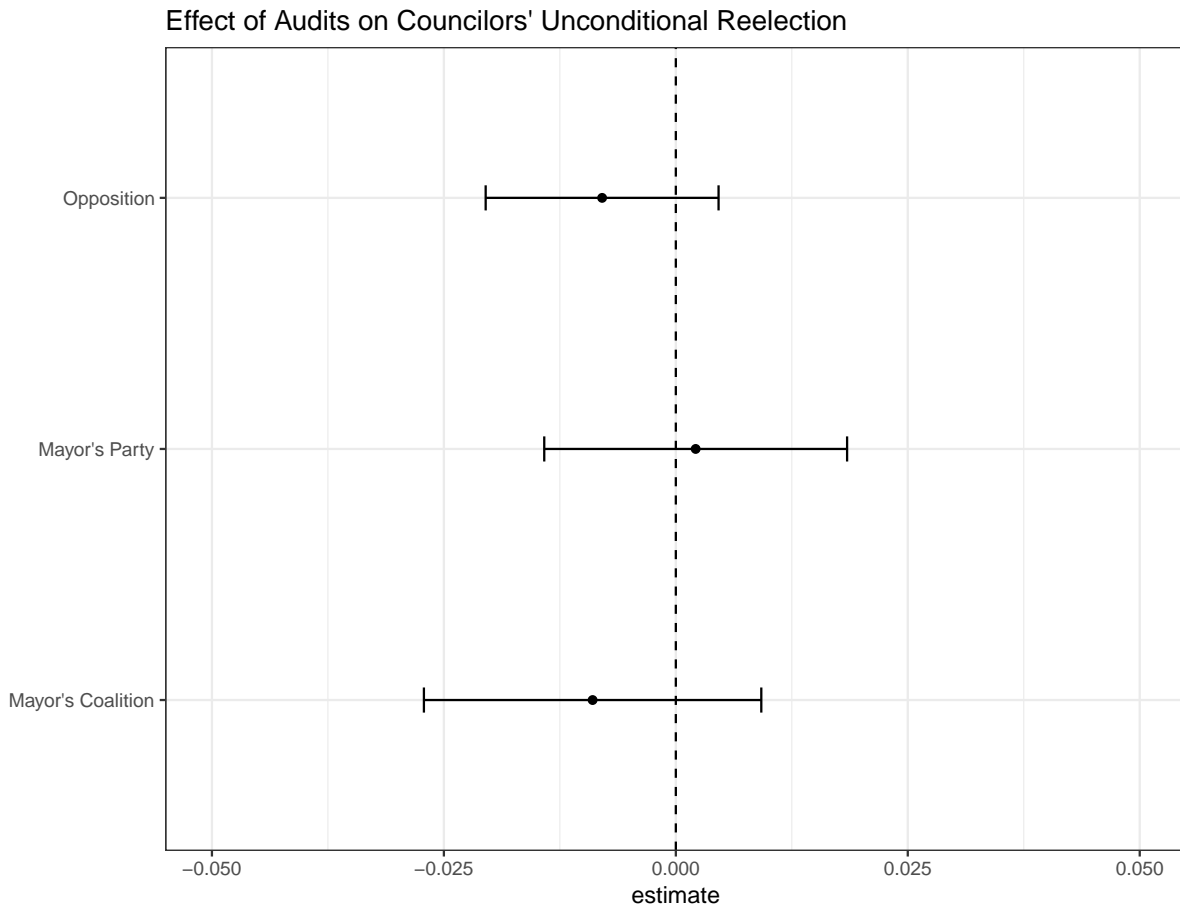
Figure 4.18: Effects of Audits on Councilors' (Unconditional) Reelection Rates by Partisanship

Note: This figure plots the estimates of audits on (unconditional) reelection rates in audited and non-audited municipalities for the 2004, 2008, 2012 and 2016 elections based on the difference in means specified in equations 1 and 2. Confidence intervals are explained in section 4.2.

On average, councilors in the opposition or in parties that supported the mayor are more likely to switch parties. There is a 40% probability that a council member shifts do a different political party after one term (Figure 4.19). Council members in the mayor's party are less likely to switch parties: 28%. Audits does not affect the probability that a council member switches to a different political party, irrespective of their original political affiliation with respect to that of the mayor (Figure 4.20).
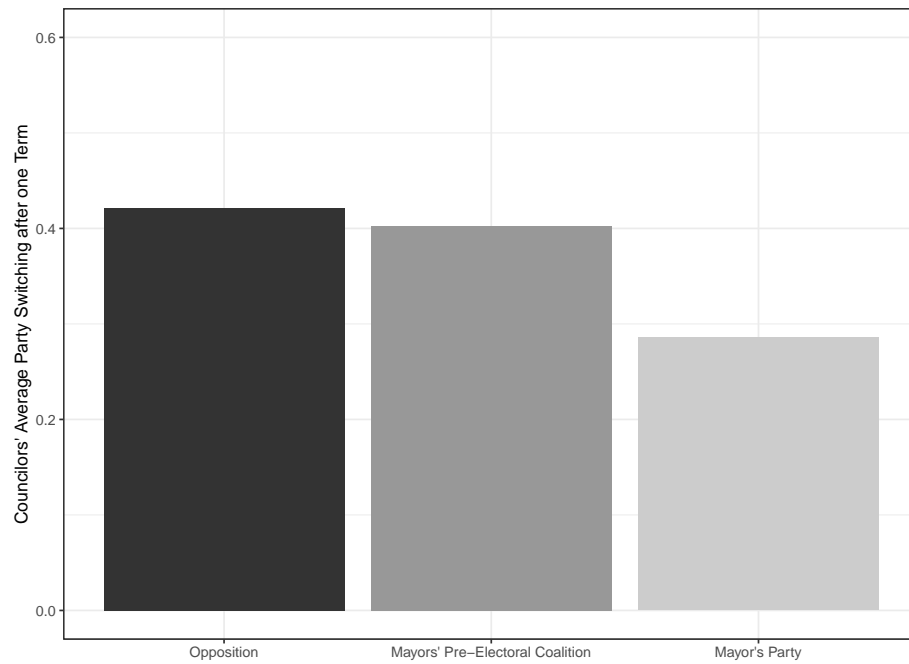
Figure 4.19: Average Party Switching by Partisanship (2000-2016)

Note: This figure plots the average probability that a council member switches to a different political party in one term by their original partisanship.

Effect of Audits on Party Switching by Councilors
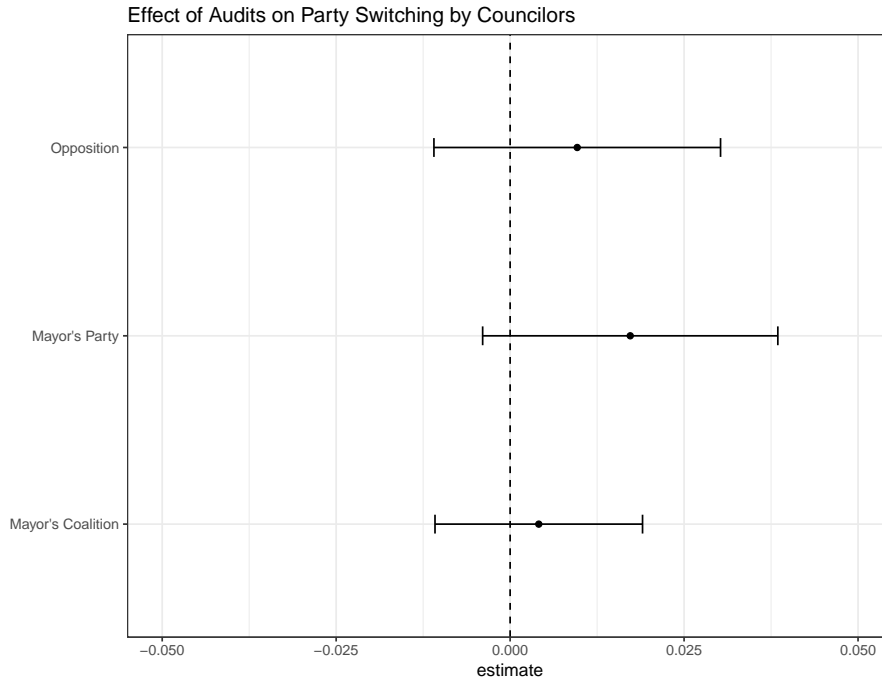
Figure 4.20: Effect of Audits on Party Switching by Partisanship (2000-2016)

Note: This figure plots the effect of audits on councilors' probability of switching parties.

4.8 Discussion

Most audit reports by the CGU contain evidence of corruption in local executives. I demonstrate that, after an audit, incriminated politicians change their rent-sharing strategies. Councilors who are crucial for the mayors' short-term survival in government political survival obtain more of the spoils of office. In municipalities where the mayor needs to attract the support of a larger percentage of members of the council who are not from the mayors' party to constitute a majority, audits lead to higher changes in councilors' wealth in comparison to municipalities where the mayors' party is stronger. Besides leading to higher wealth accumulation of politicians in critical positions for mayors' political survival, audits benefit politicians who are crucial for the mayor's re-electoral ambitions: electoral coalition members in previous elections.

The analyses presented in this chapter are a hard test for the ability of politicians to re-optimize their strategies and share public resources with other politicians. In Brazilian

municipalities, incumbency is generally a liability when running an election and political competition is fierce. Nevertheless, mayors in audited municipalities manage to keep a workable governing coalition that allows them not only to avoid getting impeached and to be as competitive as non-audited mayors when elections come. Most legislatures have oversight mechanisms that can expand investigations and could provide an arena to raise public awareness about corruption in the executive branch. I demonstrate one of the reasons why in Brazil local legislatures fail in their task of scrutinizing and providing oversight over the executive, even after audits reports reveal detailed and documented accounts of corruption.

I show how anti-corruption interventions change the rent-sharing strategies of local political elites. Even though most audits of municipal governments in Brazil disclose malfeasance, implicated politicians have successfully managed to avoid damage to their political careers. I demonstrate one way through which incriminated politicians protect themselves. Audits alter the political bargaining among local politicians, reducing the power of mayors with respect to other local political actors. To avoid legislative scrutiny and impeachment charges, mayors give up material resources in the benefit the wealth accumulation of elected officials whose political support is crucial for the mayors' political survival. To survive politically, mayors need to share resources even with politicians who might become potential adversaries. The increase in councilors wealth is higher in municipalities where the mayor's party held a smaller share of the seats in the legislature before the audit took place. Opposition politicians are more likely to enrich themselves after an audit in places where mayors need the support from a larger fraction of them, suggesting that the mayors' political strategy is also being used to co-opt and prevent opposition after corruption is revealed.

My results provide evidence for the argument that "there are no easy fixes for political corruption" and a reason for its resilience. Even highly independent anti-corruption interventions such as those in Brazilian municipalities are not immune to the reaction by political elites, who have the ability to redistribute resources to remain in power. My work provides concrete ingredients to this argument by showing that the effects of randomized audits on politicians' wealth accumulation depend on the political circumstances, which in turn affect

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the bargaining power of pivotal political elites who can safeguard an incriminated politician in exchange for rents.

4.9 Appendix
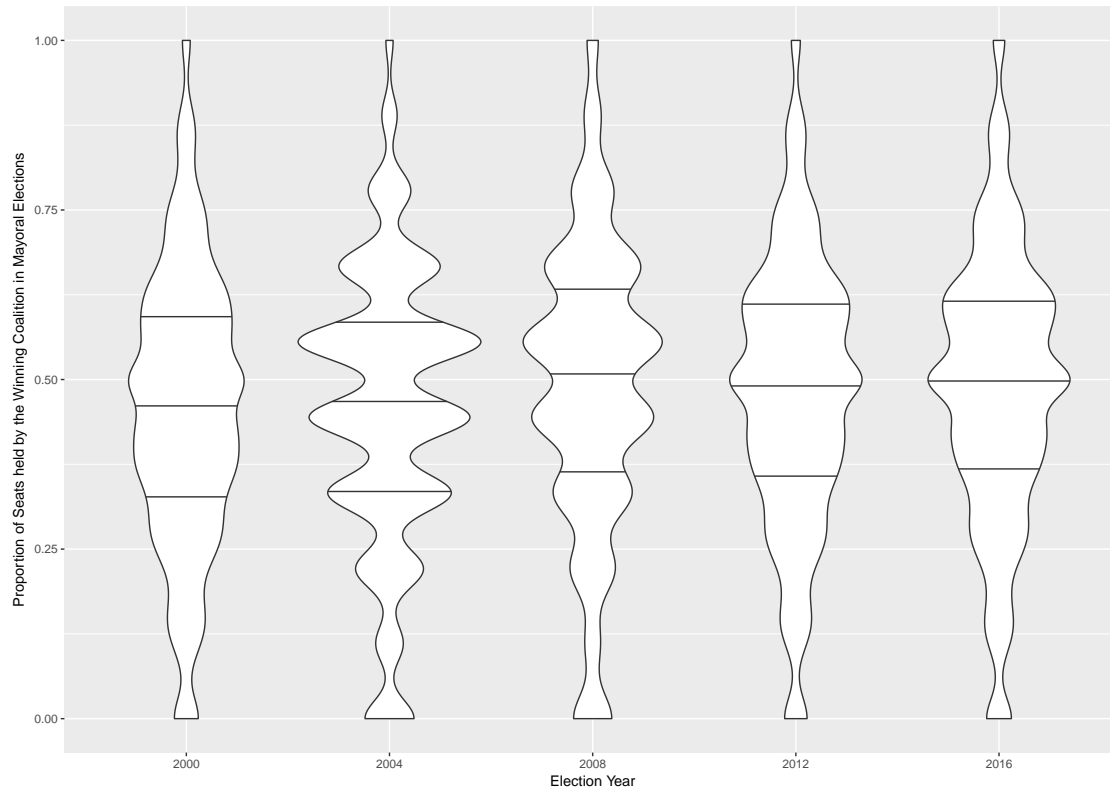
Figure 4.21: Proportion of Seats Held by the Mayor's Electoral Coalition in the Local Council

Note: From the bottom to the top, horizontal lines represent the 25th, the median and the 75th percentiles, respectively.

Table 4.3: Test of RDD Assumption

	Coalition Members
Audited Municipalities	Yes
Log (Wealth in 2008)	0.244
Standard Error	(0.355)
p-value (Conventional)	0.492
Number of Observations	2059

Note: Estimates for the coefficient of audit on the level of total assets held by council members in 2008. Standard errors are clustered at the municipality level. Triangular kernel. Robust non-parametric estimates suggested by Calonico et al. (2014).

CHAPTER 5

Can Judges and the Press Stop Corruption?

The results on the limitations of electoral sanctioning presented in chapters 3 and about the obstacles to legislative oversight in chapter 4 raise serious concerns about the ability of democratic systems to create incentives for politicians not to engage in malfeasance. In this chapter, I ask a different but related question: does the judicial punishment of corrupt politicians deter political corruption? Surprisingly little systematic evidence to this fundamental question exist, especially for developing democracies and in countries that lack a judiciary that upholds the rule of law consistently. Seeing politicians breaking laws with impunity might be a main reason why anti-corruption policies often fail to change the underlying incentives faced by other deciding whether to engage in corruption (Pande and Olken 2013, Rothstein 2011). The punishment of corrupt public officials to serve as deterrence to the actions of others is commonly articulated in anti-corruption strategies throughout the world (Manion 2004, Abbink 2004, Lambert-Mogiliansky et al. 2007). For instance, the anti-corruption drive by China's President Xi Jinping uses the visibility of punishment of thousands of public officials (Lorentzen and Lu 2018). As I have shown in chapter 3, even when elected officials' corruption is publicly advertised, they often manage to escape prosecution and frequently win subsequent elections [1]. According to Olken and Pande (2011), despite increase in the measurement and the techniques used in recent studies on corruption, empirical evidence on the responsiveness of politicians to legal enforcement and punishment remains scarce. One of the exceptions is the work by Fisman and Miguel (2007) on the effects of the law enforcement of parking tickets against foreign diplomats in New York City,

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[1]For evidence for other countries, see Chang et al. (2010) and the literature review in De Vries and Solaz (2017)

something they show is closely related to corruption levels.

Removals of elected officials from office because by judicial decisions because of corruption have become increased substantially in Brazil since the beginning of 2000s. According to my estimates based on the original court rulings, from 2000 to 2014, 542 mayors have been removed from the top-level office in the municipality. Mayors who are convicted for corrupt acts they have during during elections or during their term in office lose office and become ineligible for holding any public office for the subsequent 5 to 8 years, depending on the basis of their verdicts. When convicted, politicians have to reimburse public coffers, pay penalties and often have to cover the costs of conducting supplementary elections. To test whether there are spillovers caused by deterrence, I assess whether mayors in municipalities that are part of television markets in which a mayor has been removed (treated areas) are less corrupt than mayors in television markets where no mayor has been removed (control areas). Politicians are uncertain about how much the judiciary is capable of investigating corrupt practices and willing to enforce the law. My argument is that elected officials are informed by the experience of other officials about their own likeliness of getting caught. Therefore, visible punishment causes a change in perception in the probability that corrupt exchanges will be punished if discovered, what, in turn, makes politicians and the other actors that would potentially participate in corruption transactions to respond by engaging in less illicit activities and by being more careful in hiding their actions. I cannot exclude the possibility that politicians engage in less visible corrupt activities or that become more likely to bribe judges as a result of observing effective punishment against corruption.

Local television acts as a major channel for the dispersion of information about removals from office in a contexts of very low information and high media concentration. The coverage of the punishment resulting from a corruption scandals provides participants of corrupt exchanges with relevant signals about their own probability of being punished and the type of judicial authorities they might interact with. Acting strategically, politicians will try to anticipate the consequences of voters' reactions to information being transmitted by the media, particularly because they might perceive it as costly for their reputations and future career prospects. I address it by assessing whether the removal of corrupt mayors from office

in Brazil deters corruption in neighboring municipalities and exploit the geographical configuration of local television markets. My analyses indicate that mayors of municipalities in the same television market as a mayor who has been removed from office are significantly less likely to be found guilty of corruption. The deterrence of corruption, however, is conditional on the ownership structure of the media: when the local television affiliate is owned by an active politician, local governments are not responsive to the removal of neighboring mayors. I also show that the deterrence effect is not explained by the electoral sanctioning of incumbent mayors.

This chapter makes the following contributions to the empirical literature on political corruption: (i) it documents significant spillovers of legal enforcement in Brazilian municipalities, and (ii) it presents evidence that the ownership of local media by politicians mediates the effect of enforcement on the deterrence of corruption. I find that mayors in treated areas are significantly less likely to engage in corrupt activities that were later sanctioned by monitoring institutions. The removal of corrupt mayors from office in specific municipalities causes mayors in neighboring municipalities to be responsive to information about the likelihood of punishment. I also demonstrate that this deterrence effects does not seem to be explained by electoral sanctioning. For municipalities in which the Globo television stations are owned by a politician, i.e. in places where the transaction costs between politicians and the media are likely to be lower because of possible exchanges of political favors (Besley and Prat, 2006), the effect corruption deterrence does not hold.

5.1 Legal Enforcement, Media and Corruption

Canonical models on the causes of corruption highlight that a politician's decision to engage in corrupt practices depends on the difference in between the rents from being in office and the probability of being punished multiplied by the magnitude of the penalty (Becker and Stigler 1974; Rose-Ackerman 1975). Due to the hidden nature of corruption, the risk of being punished is not always clear to politicians ex-ante. Literature on criminality highlights that the perceived risk of punishment might work as an effective deterrent to criminal behavior

(Wright et al., 2004).

Political elites are strategic and have strong incentives to acquire information on their probability of being indicted. In many contexts, the high level of collusion in between politicians and their monitors makes the former very safe to engaging in corruption and be positive about their immunity from prosecution (Rosenstein 2011). However, if collusion among monitors and politicians is imperfect, there is an asymmetry of information so that politicians are only able to capture a noisy signal of their probability of being monitored and, if found guilty, punished. Their reaction to a "shock" in legal enforcement can be understood as an update in political actors' beliefs of their own probability of punishment, what in the case of this study is represented by their likeness to be removed from office in case of conviction for unlawful behavior. Fisman and Miguel (2007), for example, find that diplomats did respond to an increase in the legal enforcement of parking tickets in New York City by reducing violations. When looking at how potential members of corrupt networks react to the removal of a politician from office, I consider that they continuously update their beliefs about the type of monitors they are interacting with based on existing information. This study is, therefore, also related to the literature that emphasizes the importance of independent judiciaries for curtailing corruption (Alt Lassen 2008; La Porta et al. 2004). Many countries have traditionally failed to establish a system that has mechanisms that limit collusion between judges and politicians.

Analyzing how local officials react to monitoring in Indonesia, Olken (2007) finds that a substantial increase in the monitoring of road projects by independent engineers led to significant reductions in missing expenditures. This holds despite more intensive monitoring did not necessarily translate into punishment. Others empirical studies about monitoring have shown that politicians might revert to activities that are not being actively monitored. Analyzes of how Brazilian mayors react to have municipal government subject to audits have found that auditing causes the expansion of illicit activities that are not being monitored: in the case of municipalities in the Amazon, leads to an increase in the levels of deforestation (Cisneros et al. 2013).

The decision of political actors to engage in corruption depends on their perception of

central systemic aspects such as how monitoring translates into punishment. The current empirical literature on the causes of corruption emphasizes the role of electoral sanctioning: punishment as the loss of a successive election (Ashworth, 2012; Ferraz and Finan 2008; Larreguy et al. 2015). The ability of voters to sanctioning politicians who engage in corruption depends on the coverage by (or on the existence of) the mass media. Ferraz and Finan (2008) find that voters effectively punish Brazilian mayors whose corruption has been uncovered by audits by reducing their probability of being reelected only when there is a local radio station. Larreguy et al. (2015) find that having a local media outlet facilitates the electoral sanctioning of malfeasant mayors in Mexico by improving the information level available to voters.

Political elites are strategic and have strong incentives to acquire information about their probability of being indicted. In many contexts the high level of collusion in between politicians and their monitors makes the former safe about their immunity from prosecution (Rothstein 2011). If collusion among monitors and politicians is imperfect, however, politicians are only able to capture a noisy signal of their probability of being monitored and, if found guilty, punished. Their reaction to a "shock" in legal enforcement can be understood as an update in politicians' beliefs of their own probability of punishment (in the case of this study, their likeness to be removed from office in case of conviction for unlawful behavior). Corrupt transactions have high transactions costs and require trust and low levels of uncertainty among its potential participants for them to take place (della Porta and Vannucci 1999, Lambsdorff 2007). In addition to providing voters with information about the behavior of politicians (Snyder and Stromberg, 2010), I argue that the mass media also provides actors with information about what happens in other municipalities and relevant signals about the willingness of prosecutors and judges to convict politicians for corruption. These make the engaging in illicit activities riskier. Politicians update their beliefs about the type of monitors they are interacting with when observing the removal of other politicians from office, based on existing information. I argue that by closely observing removals from office, mayors and other participants in corrupt transactions update their own likelihood to be punished, what, in turn, makes politicians respond by engaging in less illicit activities

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or by engaging in more hidden activities. Because of uncertainties and the changes in the rule of law in Brazil in the 2000s (presented in chapter 2), the risk of being punished is not always clear to politicians ex-ante. Elected officials are unable to anticipate the behavior of courts and auditors.

Hypothesis 1: Mayors and other members of corrupt networks are less likely to engage in corruption when observing another mayor being removed from office in a neighboring municipality.

Local television is an important instrument for the diffusion of information about scandals in local politics that transcend the municipal borders. The media coverage of the removal from office provides politicians with relevant signals about their own probability of being punished and the characteristics of the judiciary and investigative authorities they are interacting with. It also provides voters, political parties and opposition politicians with information. Acting strategically, politicians react to the changing informational environment because of sanctioning prospects, reputation considerations and future career prospects.

I conceptualize media ownership in a similar vein to what is suggested by the literature on media capture to test whether the control of the media influences the effect of removals on corruption. Even if the media is privately owned it might be engaged in an exchange of favors with politicians (Besley and Prat 2006). Di Tella and Franceschelli (2011) finds that government advertisement reduces the the coverage of corruption scandals by newspapers in Argentina. Looking at state and federal legislative elections in Brazil, Boas (2014) finds that ownership of broadcast media by politicians results in an electoral advantage for its owners. I argue that the ownership of the media by an active politician lowers the transaction costs in a bargaining game in between the media and politicians because of the possibility of tangible exchange of political favors (e.g. campaigning, distribution of funds, pork barreling). Private media that rely less on governmental advertisement and are less attached to political careers of their owners are more likely to provide citizens with more reliable information (Besley and Prat 2006, Gentzkow et al. 2006).

Hypothesis 2: The control of television affiliates by career politicians obstructs the

Table 5.1: Summary of Predictions: Effects of Removing a Mayor from Office in Neighboring Municipalities (compared to other municipalities)

Explanations	Corruption Level	Incumbent's Vote Share
Deterrence	-	
Displacement	+	
Electoral Sanctioning		-
Non-Informative	0	

deterrence effects of law enforcement.

I also account for three important alternative hypotheses. Because of the way criminal groups operate, illegal activities might become more prevalent in neighboring municipalities as a result of a crackdown. Such a displacement of corruption to neighboring municipalities would cause the reverse effect suggested by hypothesis 1. It might also be that punishment in a municipality makes voters more likely to punish incumbent politicians

These two hypotheses have very different predictions in comparison to hypothesis 1 and 2, which I summarize in the table below:

5.2   Empirical Strategy and Local Television Markets in Brazil

To test the hypothesis that removals deters corrupt transactions, I compare the corruption record of mayors in treated and in control municipalities in the following term. The treatment status is attributed to a mayor based on whether the municipality is reached by the same local television signal as at least one municipality where a mayor has been removed during the previous term in office. I exclude the municipalities where the mayor has been removed because my goal is to understand the effect a removal has on mayors in general and not on mayors who came to office in quite special circumstances. To examine whether the effect is explained by electoral sanctioning, I also test whether the treatment has an effect on the mayors' probability of being reelected in 2004.

The treatment based on local media markets serves to test whether mayors react to information being conveyed by the mass media. Knowing that other mayors have been removed from office might shape citizens' views on the administration's probity and their likeliness of monitoring local governments. Politicians, who have incentives to anticipate those reactions, might also receive this information through the media and be exposed to the coverage of the scandal. The content on national TV is unlikely to be based on what is happening in small municipalities. Local television is a main instrument for the diffusion of information that transcends the borders of a municipality in Brazil. Radio stations also play a significant role in local politics (Boas, 2014). Nevertheless, the content broadcast by radio stations is likely to be more limited about what happens in more distant places since most radio stations reach only one or at maximum a few municipalities [2]. In environments where the media environment is very limited (in only 30% of all municipalities there is a local radio station), local television shows play a major role for the diffusion of information. In 2000, 87 percent of Brazilian households owned a television set. By municipality, the median percentage of households that owned a TV set was 82 percent [3]. In 2010, the percentage of households who owned a TV set had grown from 87 to 95 percent (IBGE 2010). 89% of Brazilians adults say they watch television every day and 69% say they watch television in order to get informed (Media Dados 2011).

To understand the role of television in the diffusion of information on the removal of a corrupt mayor and its subsequent effects on corruption and reelection rates, I collected data on the geographical configuration of the most important over-the-air television network: Globo. Globo's viewership is widespread across the territory. In 2006, it controlled 57 percent of total viewership (Media Dados 2007) and 79% of the advertisement funds devoted to over-the-air television (Inter-Meios 2007). The Globo network is composed of five owned

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[2]An exception are the radio stations that are part of a larger radio network studied by Larreguy and Monteiro (2014) to understand the disbursement of federal relief funds. The reach of cable television and the internet, despite their growth in importance over the last decade, is still limited: in 2010, they were present in 28 percent and 30 percent of Brazilian households, respectively (IBGE 2010). Newspaper readership in Brazil during the 2000s was very low even in comparison to countries with similar levels of income: around 50 copies per a thousand inhabitants (World Association of Newspapers and News Publishers 2015).

[3]Own calculations based on census data (IBGE 2010)

TV stations and 117 independently-owned local affiliate networks (see map, below). Most of its territorial expansion happened in the 1970s and 1980s. By 1991, it was present in more than 90 percent of the municipalities. [4] The geography of Globo market areas is particularly suitable to the study of information spillovers because their signal is shared by a median of 29.5 municipalities up to a maximum of 312. The news programs that are not national are composed of a mixture of statewide (produced at state capitals) and local content (broadcast from the headquarters of the affiliate network, usually located in the largest town of the media market). More than one third of the news presented in Globo is produced and broadcast at the local level. The state and local news programs go on air for at least one hour (starting at 6:30 AM), for 45 minutes starting at 12 PM and then for 15 minutes starting at 7:15 PM Monday through Saturday. A survey done in 2003 by TGI Brasil found that 69% of the population said that they watched local news programs regularly (Goulart, 2006) [5].

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[4]For more details on the evolution of Globo's signal, see La Ferrara et al. (2012).

[5]This survey is representative at the national level, having interviewed approximately 6,000 people
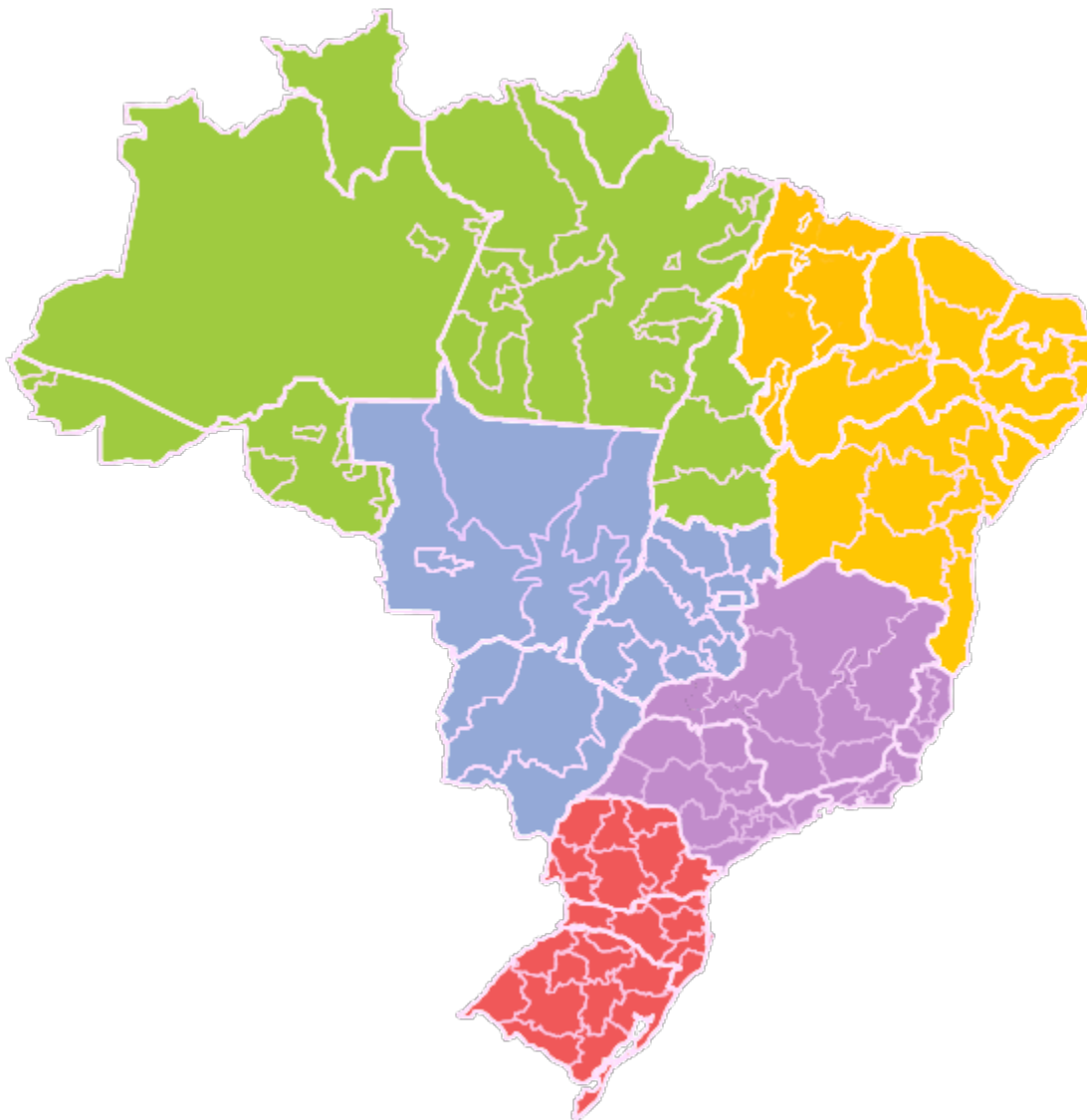
Figure 5.1: Geography of Globo Markets in Brazil

Note: Source: Atlas de Cobertura - Rede Globo (2015). Ticker lines represent state boundaries. Colors refer to the commonly used geographical division of Brazil in main regions: North, Northeast, Center-West, Southeast and South.

The following maps illustrate the geographic configuration of the Globo local affiliates in the state of Espírito Santo and São Paulo. Rede Gazeta is the state affiliate in Espírito Santo and produces statewide content from its branch in Vitória, the capital. Local content

is also produced and broadcast from 4 branches in the state, which are located in Linhares (yellow area), Cachoeira do Itapemirim (blue), Colatina (light blue) and in Vitória itself (green). In the state of São Paulo, whose population is 46 million, the state is divided into 13 geographical areas which produce local content. TV Globo owns the branch in the state capital that produces statewide programs. The white dots in the map refer to the municipality where the branch of each local affiliate is located.
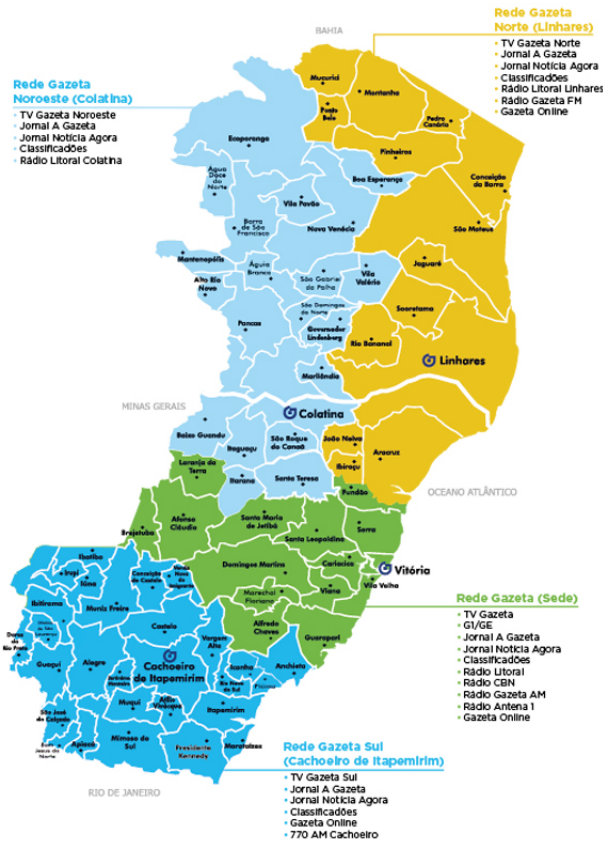
Figure 5.2: Example: Geographic configuration of Globo in Espírito Santo.

Note: Source: Atlas de Cobertura - Rede Globo (2015).

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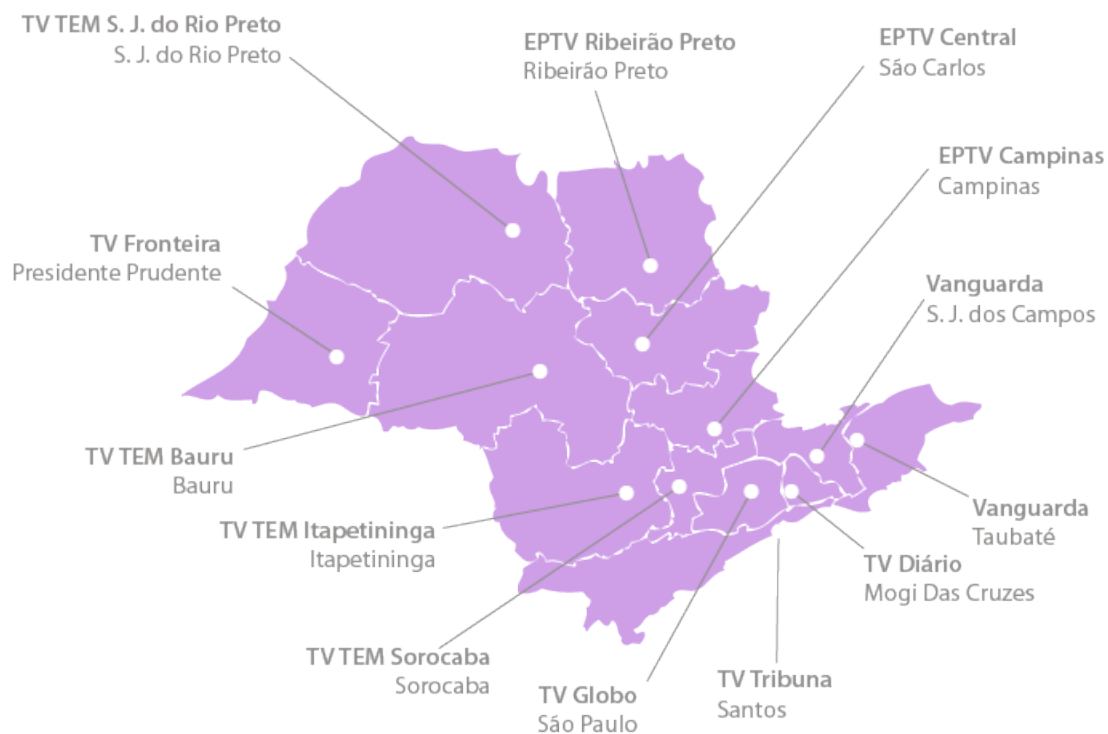
Figure 5.3: Example: Geographic configuration of Globo in São Paulo.

Note: Source: Atlas de Cobertura - Rede Globo (2015).

Ideally, I would use a data based on media content to know whether the removals of mayors from office has actually been covered by the local news media. Unfortunately there are no records that allow me to measure content information of local news in all Globo affiliates. Globo local affiliates are not particularly well-known for doing intensive investigative reporting (Porto 2012). However, due to the importance and visibility of having a mayor removed from office, the removals of mayors from office were very likely to be reported by local news [6]. Besides its viewership and territorial breadth, I focus on Globo because other television networks do not broadcast much local content. One of the reasons for this is that these networks have only one affiliate per state. Therefore, news programs are viewed state-wide

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[6]This was confirmed by a search of 25 randomly chosen cases in the news websites of local affiliates through G1, a web portal that incorporates published reports of news across the Globo network.

instead of being decentralized and unlikely to cover what happens in smaller municipalities. I also include the number of television channels available at each municipality as one of the pre-treatment covariates. This is important to account for the role that might be played by a more competitive media environment (Besley and Prat 2006).

The main assumption of my identification strategy is that whether a specific municipality belong to one of Globo's affiliates is exogenous to the removal of a mayor from office during the period under study. Due to the operational costs of establishing a local affiliate and the economies of scale associated with television signals, it is unlikely that mayors would have significant influence in selecting the television markets in order to avoid the news of a removal from another mayor to happen. The consequences of whether corrupt politician decides not to run or receive less votes because the information about removal of mayors has been transmitted is part of my quantity of interest (the average treatment effect). I assume that mayors do not have the ability or clear reasons to manipulate the media market in which their municipalities are located in anticipation or as a result of the removal of a corrupt mayor from government in a municipality that shares the same local television signal. The assignment of subjects to a treatment or to a control group, therefore, is assumed not to be controlled by the subject under investigation (mayors). This is a similar assumption to that of Krasno and Green (2008), who also assume the inability of politicians to influence the short-term geography of media markets.

The main caveat of this analysis is that the initial characteristics of municipalities in the same television area where a mayor has been removed might differ from the characteristics of municipalities in an area where no mayor has been removed. In section 6.5, for example, I demonstrate that in municipalities in the treatment areas, there is a higher level of illiteracy. If we assume that illiteracy also leads politicians to be more likely to engage in corruption, a point usually made in the literature on the causes of corruption (Bardhan and Mookherjee 2006), then the fact that municipalities where illiteracy is higher are more likely to receive the treatment actually means that the estimates that do not correct for this factor underestimate the deterrence effect. In order to account for such confounding factors, I use matching techniques suggested to improve the balance on the observed municipal characteristics. The

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limitations of methods based on the selection of observables to account for unobservable factors or other cofounding factors that might explain the effects is a major obstacle for the credibility of my empirical strategy.

I present results based both on a simple comparison of means and compare them to those obtained using selection on observable based on matching techniques. Once pre-treatment observable variables are comparable, can be more confident that the average treatment effect is not a result of these confounders. I present the results based on three different matching techniques: entropy balance (Hainmueller 2011), inverse propensity score weights (Hirano, Imbens, and Ridder 2003) and Mahalanobis distance. I also provide the results from estimations that include the bias-correction suggested by Abadie & Imbens (2011) to account for differences in the observed variables. The standard limitations of identifications strategy based on matching on observables, e.g. the impossibility of ruling out the role of unobserved factors, hold.

Another possible danger to my study is whether mayors are able to buy off or co-opt the local media in order to prevent the release of information on mayors who are removed from office or for the local media not to give to much coverage of the subject. A potential way of co-opting media outlets is to increase the amount of government advertisement (Di Tella and Franceschelli 2011). If there are television affiliates that do not publicize the removal of a mayor because municipal governments tend to buy more ads, this would mean that what the effects uncovered would be an underestimate. Notwithstanding, in order to address this issue, I use two strategies. The first is to account for politicians who themselves are owners of the Globo affiliates. If a politician is an owner of the media outlet, there might be easier access for mayors to co-opt or for the local media not be willing to release information. There is also a tendency for media outlets controlled by politicians to be willing to report a removal in case a mayor from a adversary party is removed and not when a political ally is removed. In the case of Globo's local affiliates, 14 out of 122 affiliates are owned by politicians [7]. This results in 13% of all Brazilian municipalities being in areas where at least one of the owners

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[7]My calculations based on data on media ownership obtained from Donos da Mídia (2015), an independent media monitoring group.

of the Globo local affiliate is an active politician.

5.3   Data and Measurement

To test the effects of removals of mayors on corruption and on reelection rates, I assemble a dataset that contains detailed information on all (electoral, criminal and civil) court rulings involving Brazilian mayors since the beginning of the 2000s. I combine this original dataset with geographical configuration of the local mass media together with publicly-available information on electoral results and the Superior Electoral Tribunal (TSE), the Brazilian Institute of Geography and Statistics (IBGE) and reports from anti-corruption bodies: the federal Court of Audits (TCU) and state courts of audits (TCMs) [8]. In the next subsections, I explain the construction of the two outcome variables (subsection 2.1) and the the removal of mayors from office (subsection 2.2).

5.3.1   Main Outcome Variables: Convictions for Corruption

My proxy of corruption, the main outcome variable of this study, is whether the mayor has been convicted for corruption for something that was done during her/his term. Many mayors are convicted because the accounts of the municipality during their term in office have been rejected because of an "irreparable irregularity" that configures an "intentional act" by the mayor on the basis of the law of administrative improbity. Examples of the typified crimes include illicit enrichment while in office, diversion of funds from public coffers, and illegal bid procedures (e.g. because of favoritism to specific companies) [9]. My measure is quite conservative since I code as corruption only when the rejection entails an unappealable decision. Irregularities that are not proven as intended or are the result of mismanagement are, therefore, not classified as corruption.

I create two variables that serve as proxies of corrupt acts perpetrated by the mayor: (i)

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[8]Summary statistics and the complete sources of data are available in Table 5 and Table 6 (appendix).

[9] For more details on the institutional characteristics of the Courts of Audit, please see the appendix to this chapter.

an indicator variable of whether the mayor has been convicted because of illegalities during her(his) mandate and (ii) an ordinal variable that considers in how many judicial trials has the mayor been convicted because of frauds of the municipal accounts. To account for trials that precede the term in consideration, only rejections based on court cases that are initiated after the beginning of a politician's term in office are considered. A factor that homogenizes the convictions of politicians throughout the country is that all mayors have the possibility of appealing to the same superior courts. To code these variables, I use newly-released data on the criminal convictions of politicians and civil servants that have been made available by the TCEs, TCMs and TCU, and contain information on all relevant sentences since 2002. Of the 5,453 mayors who were in office in between 2005 and 2008, 300 mayors (approximately 5.5%) had been convicted for corruption. Figure ?? portraits the geographic dispersion of mayors whose mandate lasted from January 2005 to December 2008 throughout Brazil that have had their accounts disapproved, showing that this phenomenon is not regionally concentrated.

Considering all mayors in office between 2005 and 2008, the mean number of convictions for corruption was 0.086. Figure ?? displays the number of convictions for mayors who were found guilty, i.e. those that had a value of the ordinal variable of corruption that is higher than zero. Of the 300 mayors who were convicted, the majority, 222, was convicted once and 51 was convicted twice. Danilo Abreu, mayor of Palmeriândia (Maranhão), had the largest number of convictions: 29. In one of this sentences, Abreu is implicated for having diverted more than 770 thousand Reais (approximately 320 thousand U.S. dollars) from the National Education Fund in a fraud of a biding procedure. The project consisted in building new classrooms and furnishing nine pre-schools. Abreu was convicted by the Federal Court of Audits based on evidence that these services were not executed, that the municipality had provided false receipts and that the construction company that was contracted had been inactive for ten years before the bidding procedure. The number of convictions of Abreu is not representative of the mayors under consideration but is exemplary of the kind of frauds for which mayors have been found guilty. Convictions have been used as a measure of corruption in many contexts (Alt and Lassen 2008).
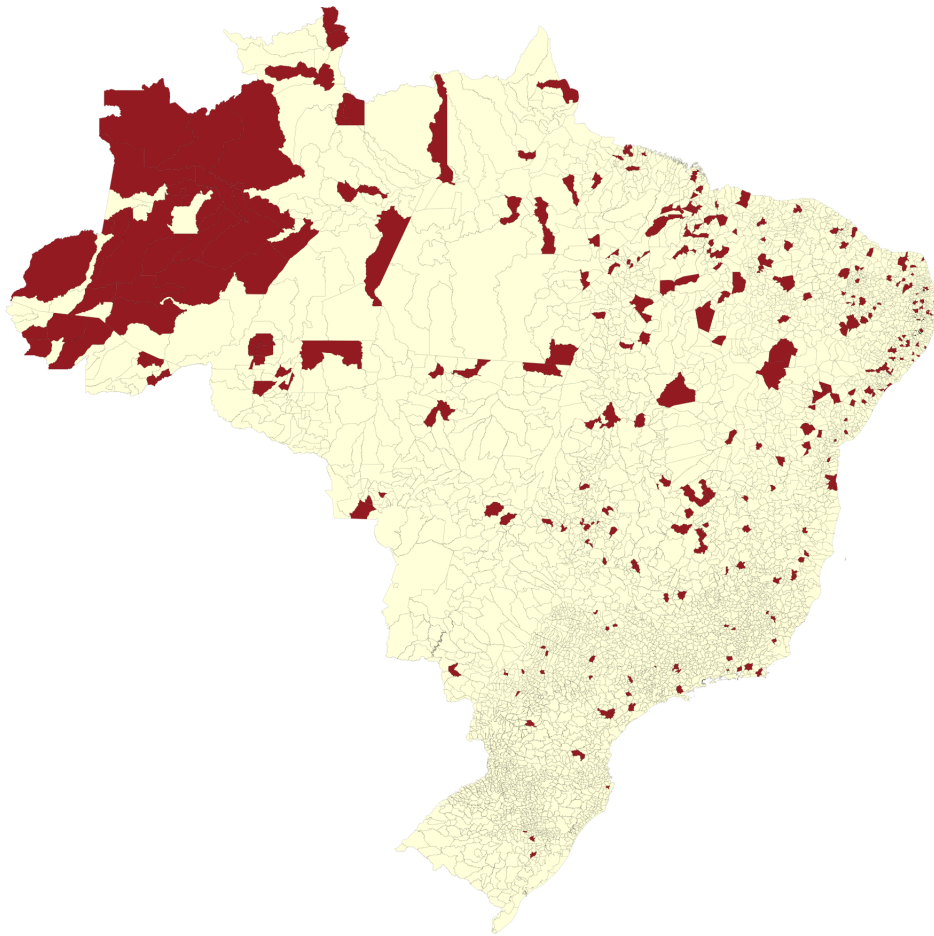
Figure 5.4: Mayors Who Had Their Accounts Rejected for a Irreparable Irregularity (Law of Administrative Improbity) between 2005 and 2008
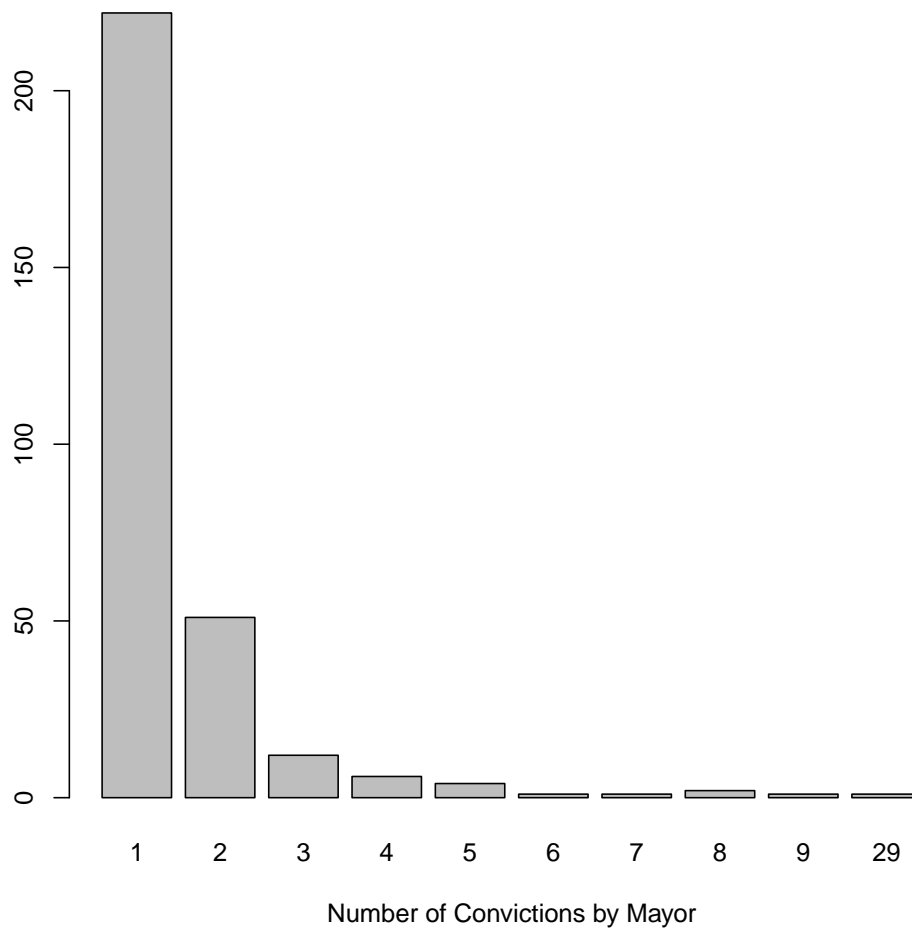
Figure 5.5: Number of Convictions (mayors who had at least one conviction among those in office from 2005 to 2008

Variables are constructed based on trials conducted by State and Federal Courts of Audit. Both the State Courts of Audit and Federal Courts of Audits (*Tribunais de Contas do Estado (TCE)*) have independent budgets and staffs and their decisions are taken by a collective decision-making structure. Councilors depend on political appointments by the Governor and the State Legislatures and have tenure until they are 70 years old. A mandatory proportion of the councilors are civil servants who have had careers as professional auditors or as public prosecutors. Hidalgo et al. (2017) find that civil servants are only slightly less likely to have

a pro-politician bias in comparison to freely appointed members. Every year, TCEs oversee the execution of the budget of each municipality. After a professional auditor reviews the accounts and writes a report on whether the accounts follow the law (including contracts, procurement, budget and spending requirements), municipalities are randomly assigned to a specific TCE or TCU councilor, who becomes the responsible for presenting the case to the court. The full plenary of court of audits can then accept, accept with reservations or reject the accounts based on their compliance with the law. The Federal Court of Audits *Tribunal de Contas da União (TCU)* has a similar structure and is responsible for auditing federal transfers and programs that are executed by the municipalities.

5.3.2 Removals from Office

I collected information on whether mayors have been removed from government because of a final judicial decision or a resignation that has occurred in connection to a judicial trial. The court rulings were obtained in the electronic archives of two branches of justice (Electoral and Main Court System) in each of the 26 states and in the Federal Electoral Court and main Federal Court. I considered a mayor to be removed from office only when (s)he did not come back to office until the end of their original term. If a mayor was temporarily removed but was then able to regain her/his mandate because of an appeal or an overruling, I consider that the mayor has not been removed. This coding rule is based on the signals that having a mayor who re-assumed government might have on the perception of impunity[10].

The Act of Administrative Improbity (1992) establishes limits and specific sanctions for public officials when they commit crimes of illicit enrichment, embezzlement from public treasury or crimes against the principles of the public sector. The costs associated with the loss of a mandate and the implication for their political careers of being deprived of

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[10] I also checked my coding with the records of mayors present in the lists published by the *Conferação Nacional dos Municípios* (CMN, National Conferation of Municipalities) in 2011 and 2013. Many of the names in those lists were mayors who had been only temporarily removed from office and through an appeal to a higher court managed to come back to office. Because it relied on telephone calls to the municipalities, the list also contained information that in several instances misrepresented the reasons why mayors were removed from office.

candidacy for the subsequent five to eight years is a significant penalty for politicians. There are new elections in case the mayor who is removed had obtained more than 50%+1 of the votes. The mayor and the vice-mayor who are removed from office also have to reimburse the costs associated with those supplemental elections. In case the ousted mayor had obtained less than 50% + 1, the candidate who came in second serves for the rest of the duration of the original mandate. This might also mean a punishment if we believe there is a cost for a politician if a political adversary comes to office.

Since most judicial decisions that resulted in the removal of a mayor from office happened in the last two years of their term in office, I analyze the consequences of the removal of mayors during the term from 2000 to 2004 on the level of corruption in the subsequent term: 2005 to 2009. I do not analyze the more recent period because there are many court cases concerning the mayors who were in office until 2012 that have not yet been subject to a final judicial decision. In the following section, I explain the use of local television market to attribute treatment status and give further reasons for why mayors are limited in their ability to choose whether they receive the treatment.

5.3.3 Pre-Treatment Variables

Socio-Economic and Demographic Variables. Based on the existing literature on the causes of corruption, I check the balance of the following pre-treatment covariates: (i) the level of per capita income of the municipality, (ii) the level of illiteracy, (iii) the average number of years of study of the adult population, (iv) the level of income inequality, and (v) the level of urbanization.

Media Variables Previous studies on the effect of local media on municipal politics in Brazil have been focused on whether the municipality possesses or not a local radio station (Ferraz and Finan 2008). In order to account for confounding effect of the role of radio on the transmission of information, I include two dummy variables that capture whether there is a AM radio station located at the municipality. I also create a variable that expresses number of over-the-air television channels available in each municipality.

<u>Institutional Variables</u> Based on the findings of Litchig and Zamboni (2008) that judicial presence reduces the level of corruption committed by Brazilian mayors, I include whether the municipality is the seat of the judicial district, i.e. *comarca*.

Table **??** contains the descriptive statistics for the outcome, treatment as well as the control variables used in this chapter. The following table contains the sources of the data.

Table 5.2: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Ordinal Variable of Corruption	5,250	0.083	0.574	0	29
Indicator Variable of Corruption	5,250	0.053	0.224	0	1
Channel Owned By Politicians	5,250	0.121	0.326	0	1
Reelection	5,250	0.358	0.480	0	1
Illiteracy	5,250	21.493	12.454	0.900	60.700
Average Years of Study	5,250	4.067	1.289	0.800	9.700
Inequality (Thiel)	5,250	0.520	0.109	0.185	1.271
Urbanization Level	5,250	58.990	23.404	0.000	100.000
Judicial Seat (comarca)	5,250	0.477	0.500	0	1
Radio AM	5,250	0.217	0.412	0	1
Number of TV channels	5,250	3.475	1.780	0	6
log (PercapitaIncome)	5,250	4.997	0.576	3.415	6.861

5.4   Results

An important condition for the empirical strategy undertaken is whether mayors in treated areas are compared to those in control areas and therefore, how compelling an estimate based on a simple comparison of means is. The credibility of a study lacking true randomization

Table 5.3: Data Sources

Variable	Source
Removals from Office	Original data collection (see section above for details)
Ordinal Variable of Corruption	Original coding based on records of TCU, TCE, TCM
Dummy Variable of Corrupt	Original coding based on records of TCU, TCE, TCM
Channel Owned By Politicians	Donos da Mídia
Reelection	Own coding based on TSE
Illiteracy	Census - IBGE(2010)
Average Years of Study	Census - IBGE(2010)
Inequality (Thiel)	Census - IBGE(2010)
Urbanization Level	Census - IBGE(2010)
Judicial Seat	Perfil - IBGE(2006)
Radio AM	Perfil - IBGE(2006)
Number of TV channels	Perfil - IBGE(2006)
Radio FM	Perfil - IBGE(2006)
Budget Dependence	Own coding based on data from IpeaData
Proportion of Households that Own a Television Set	Census - IBGE(2010)
log (PercapitaIncome)	Census - IBGE(2010)
Globo Media Markets	Atlas de Cobertura - Rede Globo
Globo Affiliates Owned by Politicians	Own coding based on data from Donos da Mídia

depends on the whether units of analysis have incentives or the capacity to self-select into treatment (Dunning, 2012). Mayors probably have incentives to be in a control group but their ability to influence whether the television will publicize the news of a mayor that is removed from office is probably limited. This is different from the incentives governments have when they try to block the dispersion of information that might implicate themselves directly. To check whether treatment and control groups are balanced with respect to variables that might explain the difference in outcomes, I examine a set of municipal characteristics in 2000 and attributes of the mayors who were elected in the 2000 elections. The characteristics of treated and control municipalities are not very different from a substance point of view. Nevertheless, some pre-treatment covariates of municipalities in the treatment groups and the control groups are not fully balanced (5.6). Treated municipalities possess higher levels of illiteracy and their citizens have an lower average number of years of education. If the population that is less educated leads mayors to be less reactive to the spread of information on the removal of a mayor, a comparison of means in between the treated and control areas would lead to a underestimation of the effect that removals from office have on corruption. Treated municipalities have characteristics that are understood to be related to corruption: an average income per capita that is 2 percent lower and a slightly higher budget dependence on the of the federal and state governments. The lack of perfect balance in between pre-treatment covariates across groups does not undermine the empirical analysis but plausibly lead to an underestimation of the treatment effect.
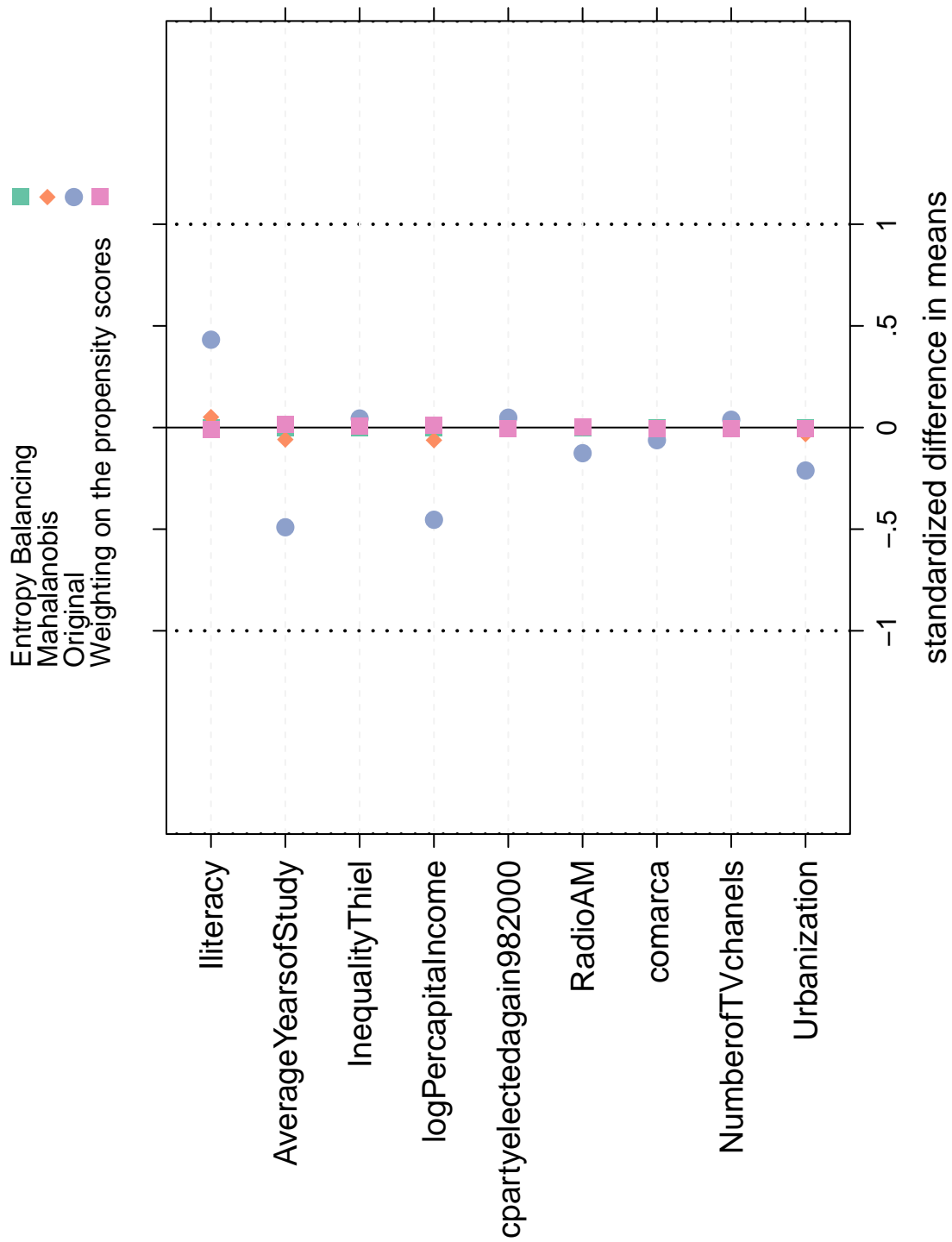
Figure 5.6: Balance on Pre-Treatment Covariates

Comparison of Means

	Treatment	Control	Difference in Means
Corruption (indicator variable)	0.050	0.059	-0.009
			(0.143)
Corruption (ordinal variable)	0.071	0.094	-0.023
			(0.133)
Number of Observations	2450	2800	5250

Note: The p-values of a Welch Two Sample t-test are in parentheses.

A simple comparison of means in between treated and control municipalities uncovers a treatment effect of -0.09 for the binary variable on corruption, meaning that mayors in treated municipalities are 15 percent (0.9 percentage point) less likely to have their accounts rejected for corruption than those in control municipalities (Table 1). In terms of the ordinal variable of corruption, the effect of being in a Globo market area where a mayor is removed from office decreases the level of corruption by 24 percent (2.3 percentage points). The Welch Two Sample t-test, nevertheless, demonstrates that these effects are not significantly different from zero from a statistical point of view.
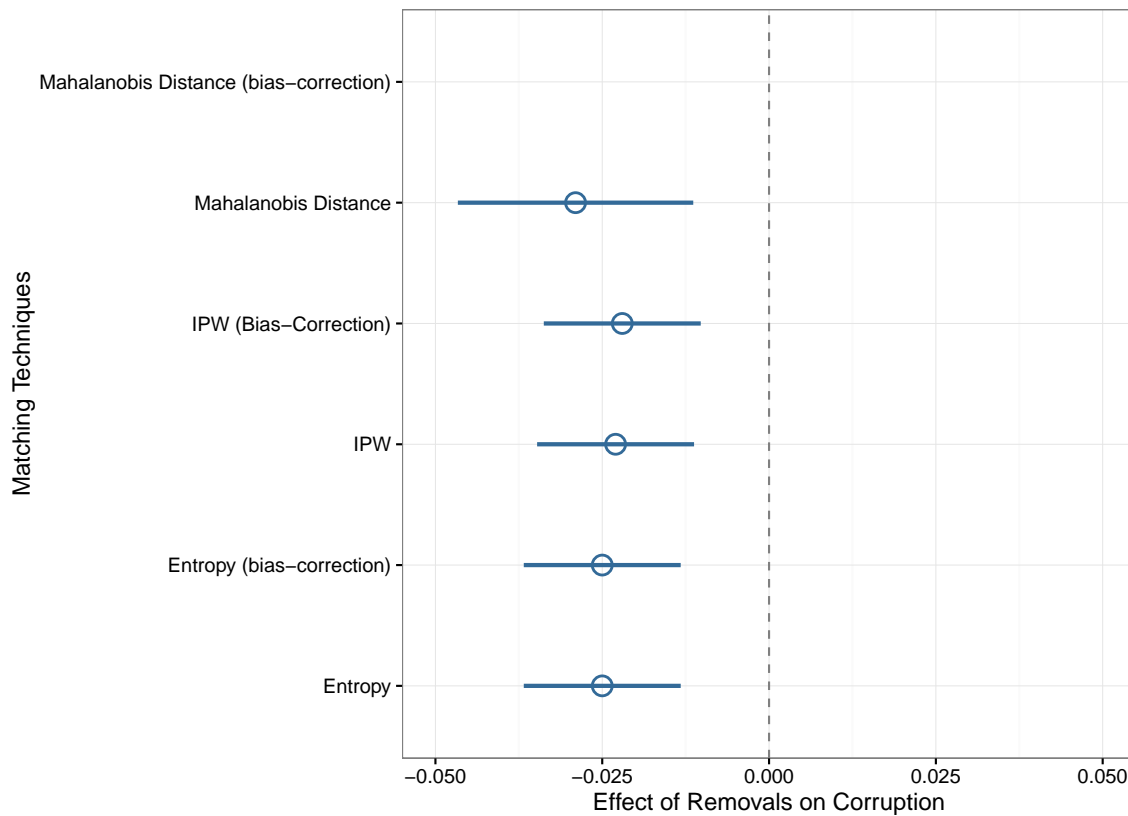
Figure 5.7: Effect of Neighboring Mayor's Removal From Office on Convictions

Note: Average probability of convictions for control (indicator variable): 0.06.

The different matching strategies estimate that being exposed to the same media as a municipality is which a mayor was removed reduces corruption (indicator variable) from 2.2 to 3.3 percentage points (table 6.3 and figure 1). Figure XX shows how the common support improves using the inverse probability weighs. It also shows that the effect is robust when, besides the matching estimations I correct for possible biases by including the covariates. This provides evidence in favor of the corruption deterrence hypothesis. Mayors that in television markets where another mayor has been removed from office are significantly less likely to engage in corrupt activity. When examining the level of corruption based on an ordinal variable, the results are also consistent with the deterrence hypothesis. Mayors in control municipalities had approximately 0.1 conviction on average. Table 3 reveals that the

most conservative estimate of the average treated effect is a reduction of approximately 5 percentage points in the number of convictions (ordinal variable on corruption).
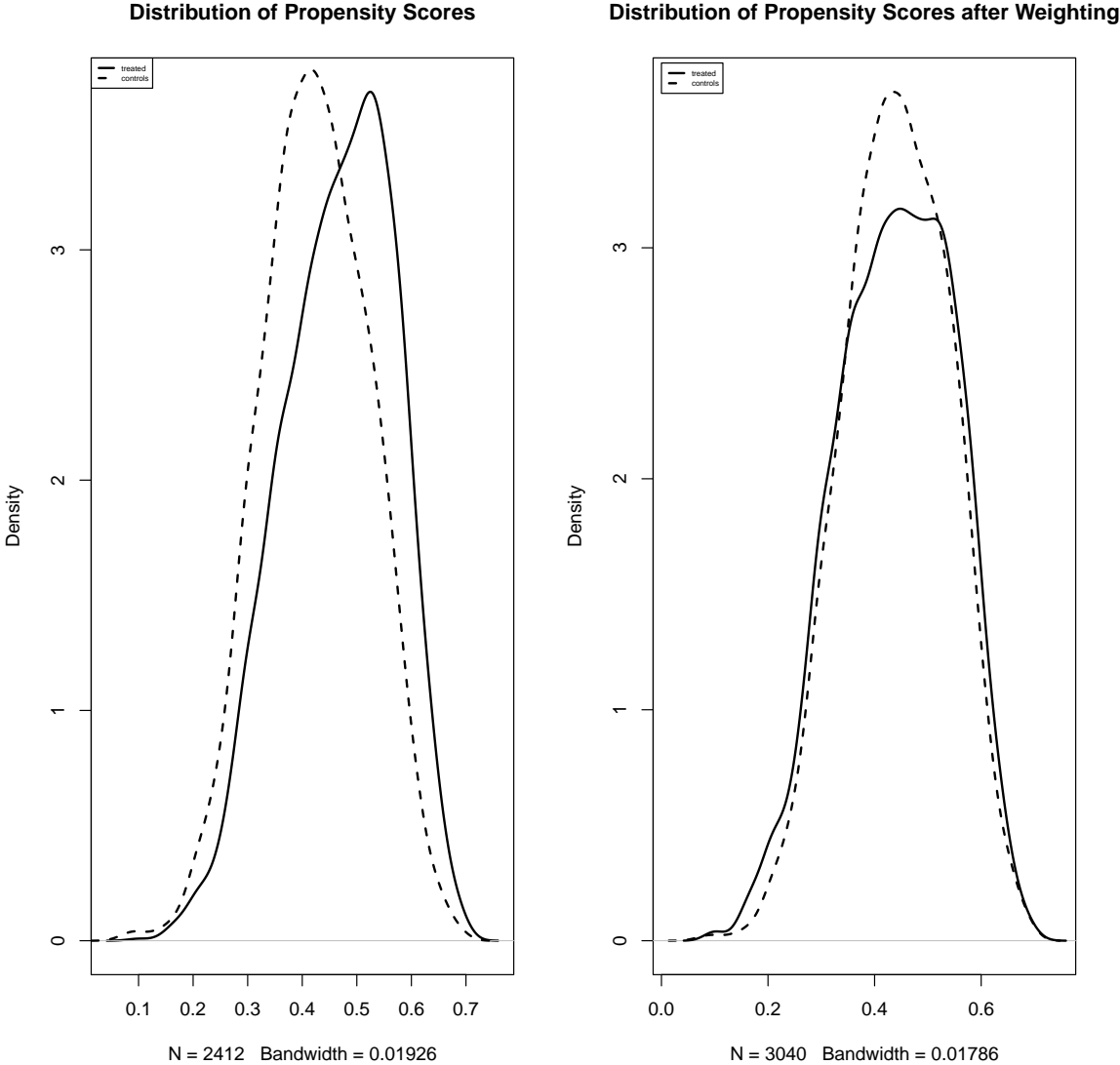
Figure 5.8: Common Support based on Full Sample

To understand whether these effects are explained by more intense electoral sanctioning in treated areas, I compare the reelection rates of mayors using the same strategy that was used to measure the effects on corruption. The reelection rate for mayors in the 2004 elections was 0.2841. Being in a municipality that shares the local television with a municipality where a

Table 5.4: Effects on Corruption - Selection on Observables (Matching)

| | Indicator variable | | Ordinal variable | |
	Estimates	SE	Estimates	SE
Entropy Balance	-0.025	0.0065	-0.0613	0.0192
Entropy Balance (Bias-Correction)	-0.025	0.0064	-0.0613	0.0191
IPW	-0.023	0.0062	-0.0493	0.0178
IPW (Bias-Correction)	-0.022	0.0061	-0.0489	0.0176
Mahalanobis Distance	-0.029	0.0089	-0.050	0.022
Mahalanobis Dist.(Bias-Correction)	-0.033	0.009	-0.058	0.022

mayor was removed does not change the probability that the incumbent mayor is reelected. The probability of reelection is roughly the same across treated and control municipalities (table 6.5). This provides some evidence that the mechanism is result of a change in mayors' perception of punishment instead of a result of an increase in the electoral sanctioning of incumbent mayors.

Table 5.5: Effects on Reelection Rates - Selection on Observables (Matching)

	Estimates	Standard Errors
Entropy Balance	0.000	0.001
Entropy Balance (Bias-Correction)	0.000	0.001
Inverse propensity score weights (IPW)	-0.001	0.001
IPW (Bias-Correction)	-0.001	0.012
Mahalanobis Distance	0.002	0.0014
Mahalanobis Distance (Bias-Correction)	0.000	0.000

The deterrence effect does not hold for politicians operating in areas where a politician is the owner of the Globo TV affiliate. The average effect of the treatment is not significant when comparing treated and control municipalities located in market areas where the Globo affiliates are at least partially owned by a politician. This suggests a role for collusion in between politicians when deciding whether to broadcast the removal of a mayor from office. Mayors in areas where the media is owned by a politician are not likely to respond to that removals by reducing their corrupt activities.

Table 5.6: Effects on Corruption - Selection on Observables (Matching) - Sub-sample: Globo Affiliates that are owned by Politicians

	Estimates	Standard Errors
Entropy Balance	−0.002	0.024
Entropy Balance (Bias-Correction)	−0.002	0.024
Inverse propensity score weights (IPW)	−0.013	0.023
IPW (Bias-Correction)	−0.011	0.022
Mahalanobis Distance	−0.005	0.034
Mahalanobis Distance (Bias-Correction)	−0.020	0.038

5.5   Discussion

The removals of corrupt mayors from office in Brazil has an effect that surpasses the borders of the municipalities where they governed. Mayors of municipalities that are located in the same media markets as those municipalities where a mayor has been removed from office react by engaging less in corrupt activities in the subsequent term. My explanation is that the law enforcement altered the perception that politicians and potential participants in corrupt transactions had of their own likeliness of being punished. This deterrence effect does not

seem to be explained by the electoral sanctioning of incumbent politicians. Providing voters with information about the punishment of a corrupt mayor in a neighboring municipality does not on average make voters more likely to support opposition candidates.

My findings highlights the imperfections in the informational environment in which local politicians operate. Even though they have incentives to acquire information on their probability of being punished, because the level of certainty required for corruption transactions to take place and the transaction costs that these transactions entail, changing their perception increase the costs associated with coordination that is needed for corrupt transactions to take place. My findings highlight that there are deterrence effects of uncovering, punishing corrupt politicians and publicizing its punishment.

In addition, the deterrence effect does not hold when analyzing municipalities in Globo affiliates that are owned by politicians. This suggests a different mechanism through which the ownership of local television by politicians negatively affects political accountability in Brazil. This complements previous analysis that highlighted how local radio stations are a necessary condition for the sanctioning of corrupt mayors (Ferraz and Finan 2008) and the more direct consequences of radio ownership on the electoral prospects of legislators (Boas, 2015). The relationship between local television and politicians in big federal countries, such as Brazil, as well as in other democracies and the potential negative welfare effects is a topic that deserves further investigation. Effective anti-corruption strategy should not only aim at shifting politicians' incentives by making punishment a credible threat but should also aim at investing in initiatives that ensure the transparency and the broadcasting of sanctions.

CHAPTER 6

Conclusion

6.1 Overview and Main Findings

Analysts of the performance of anti-corruption policies over the last decades have provided evidence of their limitations (Persson et al. 2013, Johnston 2018, Mungiu-Pippidi 2016). Despite substantial effort to reforms legal and investigative structures, and the creation of new institutions to investigate malfeasance, these well-intended policies are not having their expected effects. In this dissertation I investigate how reactions by political elites moderate the efficacy of anti-corruption policies. I explain the strategic responses of elected officials when corruption is exposed and when other officials are punished for corruption. I examine the consequences of the following anti-corruption policies in the context of Brazilian municipalities: randomized audits that investigate municipal finances and programs, removals of corrupt politicians from office by the judicial branch, and the Clean Slate Law of 2010, which banned convicted individuals from running for office.

Corruption investigations in Brazilian municipalities often uncovered frauds and overpricing in public procurement, illegal bidding practices, and kickbacks from contractors flowing to politicians. These are some of the forms of corruption that are also widespread in other countries (Brierley 2019, Cingano and Pinotti 2013). Money is diverted from public infrastructure or service provision to finance political campaigns and to enrich contractors, elected officials and intermediaries (Mironov and Zhuravskaya 2016). This has negative consequences for most voters and distorts democratic representation. Initiatives that provide voters with information about such deals have not been successful. Most of the current empirical literature on electoral sanctioning of corruption finds that even when voters are informed about

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wrongdoing, implicated politicians often manage to get reelected. I corroborate the findings of this literature in the setting of Brazilian municipalities, where most voters hold strong anti-corruption norms. I show that anti-corruption audits do not lead to substantial political consequences for the governing coalition in terms of their ability to remain in office. The context of substantial turnover, and electoral competition of most Brazilian municipalities together with the multi-party system does not make audits more likely to changes in the ideological orientation of local executives either.

To investigate how mayors and incumbent parties avoid damages to their electoral prospects after anti-corruption audits reveal corruption in municipal government, I take advantage of a natural experiment. This program randomly selects municipalities to be audited by the Office of the Comptroller-General and has uncovered concrete evidence of malfeasance in most that were investigated municipalities in the last 2 decades. Information revealed by these audits might threaten sitting mayors with further investigations, make possible the opening of impeachment proceedings and serve as a focus for the campaigns of opposition politicians. I demonstrate that incriminated mayors avoid damages to their careers by changing their rent-sharing strategies: they share more of the spoils of holding office with other politicians who are crucial for their short-term survival in government. That includes councils affiliated with opposition parties, councilors in their own political parties as well members of the mayor's previous electoral coalition.

The effects of audits on wealth accumulation of council members depends on the bargaining power of pivotal political elites who can safeguard an incriminated politician in exchange for rents. The "bonus" in the wealth accumulation of local council members is higher in municipalities where the mayor needs to obtain the support of a higher proportion of local council members among those who do not belong to the mayor's party to ensure a majority in the council. This strategy makes council members less likely to coordinate to hold mayors accountable for malfeasance. As a result, it helps incriminated mayors not only to elude legislative scrutiny (further investigations and impeachment) but also to run successful re-election campaigns by preventing defections from members of their coalitions. These rents benefit councilors directly or indirectly as contributions to their campaigns. Like corruption,

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changes in the rent-sharing, which can be both legal or illegal, after an audit serve as an emollient, softening conflict and reducing friction between the legislative and the executive branches.

Audits of Brazilian municipalities are good examples of highly independent and professional anti-corruption interventions suggested by experts and recommended by international organizations and prominent non-governmental organizations. By providing an explanation for why such anti-corruption intervention do not have substantial political consequences, these findings highlight the capacity of elected officials to re-optimize their political strategies. Political elites use their ability to exchange favors and transfer rents in return for political survival. Elected officials are interdependent and strategic about the political alliances and exchange of favors and resources necessary to keep their coalitions.

Corruption is understood as an important glue to keep coalitions together as wells sa for elected officials' political survival (Della Porta and Vannucci 1999). I shed light on how Brazilian mayors react to anti-corruption interventions by trying to prevent defections in the coalition that elected them. City council members who were part of the incriminated mayor's electoral coalition benefit from an increase in the wealth accumulation in audited municipalities. In addition, I show that when incriminated mayors are eligible to run for reelection, politicians who had previously joined the mayor's coalition are more likely to benefit from increases in their wealth as well as to obtain campaign funds after an anti-corruption audit takes place. In sum, mayors' short-term survival in office and re-electoral incentives, including their ability to block further investigations by the legislature, as well as legislators' demands for personal wealth and campaign funds seem to play an important role in influencing the efficacy of anti-corruption crackdowns and explaining why legislative bodies are not more effective in monitoring.

In addition to electoral sanctioning and legislative oversight, democratic systems include a judiciary branch that has the responsibility of sanctioning politicians for corruption based on the evidence that is presented by prosecutors and other investigative authorities. Judicial impunity is often articulated as a major reason for corruption persistence. If actors do not get substantial punishment such as monetary penalties or risk spending time in prison, the

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decision of whether to engage in corrupt transactions might still be affirmative. I show that the Brazilian states where audits reveal the greatest percentage of resources being used for illegal are those where politicians are less likely to be convicted for corruption. Taking advantage of sub-national variation in judicial sanctioning of corruption, I address whether judicial punishment of corrupt politicians deters political corruption. Surprisingly little systematic evidence to this question are currently available, especially in developing democracies. I address it by testing whether the removal of corrupt mayors from office in Brazil deters corruption in neighboring municipalities. I collect original data on all removals from the highest elected office at the municipal level between 2000 and 2014. Differently from a system where political corruption is very unlikely to be punished, as was the context in Brazil until the early 2000s, 542 mayors were removed from office since then. I use the geographical configuration of local television markets to measure the effect of information about these removals on potential participants in corrupt exchanges in a context of high uncertainty about the probability of judicial conviction for corruption. My analyses indicate that mayors of municipalities in the same media market as a mayor who has been removed from office by the judiciary are significantly less likely to be found guilty of corruption. These findings highlight the imperfections in the informational environment in which local politicians and other potential members of corrupt networks operate vis-a-vis the investigative authorities and judges. I also demonstrate that for municipalities where the main television station is owned by an active politician, a removal of a corrupt mayor does not lead the deterrence of corruption. In places where media outlets are captured by politicians, information about the punishment of corruption is less likely to be transmitted or less informative.

6.2 Implications and Future Research

Actors who engage in illegal behavior have great incentives to find innovative ways to escape all types of controls. In the last decades, scholars working on the corruption have themselves innovated substantially and developed cleaver ways to measure and to study corruption using more sophisticated statistical techniques (Fisman and Golden 2017). The fertile literature on

the topic has allowed us to learn a great deal about how collusion between the different participating actors work, and about the causes and the consequences of corruption (Treisman 2007).

There is plenty of anecdotal evidence in newspapers and in news channels of politicians across the world trying to undermine controls in visible ways. My works suggests a less visible and more subtle strategy of reacting to controls: politicians making deals not to further investigate corruption because that might change the way the "only game in town" works. The need for the mayor to strike informal bargains with many veto groups is an intrinsic part of Charles Merriam's (1929) description of urban politics in Chicago as well as accounts of New York City by James Scott were only the municipal government had pockets that were "deep enough" to solve problems.

Understanding the differences between the capacity of local and national level politicians might be a promising way to explain the variation in their reactions. National elites might have greater powers attempts to limit the scope and the reach of the investigations, and to directly influence the laws governing malfeasance and the appointment of judges and prosecutors. Local elites, on the other hand, might have more freedom to act without being in the spotlight (e.g. appear in national news). There are some connections with the debate on why impeachments of presidents in region like Latin America are so frequent (Samuels and Shugart 2010, Mainwaring 1993). Many of these impeachments were directly or indirectly related to salient corruption scandals (Pérez-Liñán 2007, Helmke 2017). The conditions under which most municipal politicians in Brazil operate, however, are very different from those of Presidents but not very different from some politicians at the federal levels such as federal deputies. Social protests and media coverage, for instance, are rare phenomena in most municipalities.

My work has focused on systematic analyses of how specific anti-corruption interventions interact with major tools of democracy such as electoral accountability and oversight of the executive by the other branches of government. Besides testing these relationships in different contexts, a possible direction for further research would be to understand whether politicians' reactions depend on factors that facilitate their subsequent actions such as highly

fragmented party systems and characteristics of the mass media environment. More highly fragmented party systems, for instance, might be connected to demanding informational environment, resulting in greater collective action problems for politicians and voters to monitor and sanction corruption (Kunicova and Rose-Ackerman 2005, Tavits 2007).

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