

How Do Business Owners Run Governments? Evidence from Brazilian Municipalities

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October 24, 2024

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Abstract

This paper studies the impact of electing business owners as mayors in Brazilian municipalities on resource management, public service delivery, and local economic activity. By leveraging a national business registry from the Brazilian Federal Revenue Agency, merged with candidates' information, I am able to identify business candidates. Using a Regression Discontinuity Design for close elections, I find that business mayors do not successfully transfer their managerial skills to the public sector, as they struggle to improve personnel management. In addition, they fail to secure as many financial resources as their non-business counterparts, leading to a reduction in local revenue of 7.5%. Evidence suggests that this reduction in local revenue may be due to difficulties in accessing intergovernmental transfers, indicating that managerial experience may come at the expense of political skills. Despite the reduction in resources, business mayors do not negatively affect public service delivery or local economic activity. I find no impact on health outcomes and a small but positive effect on private sector employment.

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Acknowledgments: I am grateful to Diana Moreira, Arman Rezaee, and Monica Singhal for their invaluable support and feedback. I also thank Ellen Anderson, Marianne Bitler, Carlos Brito, and Ashish Shenoy, as well as the participants of the UC Davis Development Seminar and UC Davis Applied Micro Series, for providing insightful comments and suggestions.

1 Introduction

Effective governments are crucial to fostering economic growth and development, yet many states fail to enhance their bureaucracies and improve public service delivery (Besley et al., 2022). While attention is often placed on reducing corruption and patronage, a dimension with significant potential for advancement is organizational management. There is growing interest in understanding the role that management plays in organizational performance, both in private sector firms (Bertrand and Schoar, 2003; Bloom and Van Reenen, 2007; Bloom et al., 2013; Giorcelli, 2019; Bandiera et al., 2020), as well as in public sector organizations (Rasul and Rogger, 2018; Janke et al., 2019; Carreri and Payson, 2021; Fenizia, 2022; Otero and Munoz, 2022; Best et al., 2023). Evidence indicates that CEOs exert a unique contribution to firm outcomes. Each CEO has a distinct style that they imprint in their companies when making strategic decisions (Bertrand and Schoar, 2003). Variations in managerial style arise from qualifications, inherent abilities, personality traits, and demographic characteristics. In practice, CEOs successfully transition across different sectors, demonstrating their management skills are portable beyond a particular sector.¹(Dejong and Ling, 2013) But are managers able to translate managerial skills to the public sector?

In this paper, I investigate the consequences of electing a business owner to serve as mayor in Brazil. Business owners' professional experience may be particularly relevant for running a municipality. On the one hand, they might leverage their managerial skills to optimize resources, improve the delivery of public services, or foster private sector growth. Additionally, their sector-specific expertise could support growth in industries where they have experience, as they might possess a deeper understanding of the regulations affecting these sectors and know which policies could enhance their development (Besley, 2005; Alesina and Tabellini, 2007). On the other hand, however, these skills may not translate directly

¹<https://www.marketwatch.com/story/ceos-are-switching-between-industries-4-times-as-much-due-to-blurring-of-skills-2020-02-13>

The following high-profile examples illustrate this cross-sector mobility: Alan Mulally from Boeing to Ford, Lou Gerstner from RJR Nabisco to IBM, Peter Moore from EA to Liverpool Football Club, Rahuel Johri from Discovery Networks to Board of Control for Cricket in India, or Meg Whitman from eBay to HP.

to the public sector, where organizations typically operate under different rules: they have different tools available, face bureaucratic processes, and pursue goals that are not profit-driven. Additionally, if managerial skills come at the cost of political skills, they could limit the ability to provide public services. Finally, business owners might have distinct preferences that do not align with the goal of increased government effectiveness. For example, in the US, members of Congress who enter politics after careers in profit-oriented professions vote substantially more conservatively than other members (Carnes, 2012). Additionally, they may pursue policies that favor their sector or align with the interests of their business networks (Gehlbach et al., 2010).

To shed light on this question, I implement a regression discontinuity design. This allows the estimation of the causal treatment effect by comparing outcomes in municipalities where a business candidate barely won versus municipalities where a business candidate barely lost. I look at the impacts on resource management, public service delivery, and local economic activity. The study combines labor market survey data and municipal accounting records for 5570 municipalities. I answer this question in the context of Brazilian municipalities. My setting offers three key empirical advantages for addressing this question. First, Brazilian mayors are pivotal actors with the actual power to shape municipal outcomes, unlike other contexts, where mayors have limited authority (Gerber and Hopkins, 2011). They are responsible for both political and administrative duties. Second, business mayoral candidates are prevalent. During the 2020 local elections, 29% of the candidates for mayor were business owners. These candidates frequently highlight their managerial expertise to distinguish themselves during electoral campaigns. Finally, I leverage data from a national registry of businesses from the Brazilian Federal Revenue Secretary, which allows me to precisely identify mayoral candidates' business ownership.

First, I examine whether business mayors can transfer their skills in managing human and financial resources to municipal government. Research in the private sector shows that better management is associated with lower employee attrition, which helps companies avoid

losing valuable resources and with the ability to recruit and retain employees with higher levels of human capital (Hoffman and Tadelis, 2021; McCormack et al., 2014; Bender et al., 2018). However, I find that mayors with managerial experience neither lower bureaucratic turnover nor affect the composition of the workforce while in office. When serving as mayors, these managers operate in a less flexible environment regarding hiring and dismissals. We might expect that talented managers would adapt and find ways to improve government efficiency under these conditions. In particular, recent literature finds that good managers in the public sector induce older workers to retire by reallocating tasks (Fenizia, 2022). I examine whether business mayors increase the retirement of tenured employees, but I do not find a significant effect.

I find that business mayors are not better at managing financial resources. Electing a business mayor reduces total local revenue per capita by 7.5%, leading to fewer resources available for municipalities to fulfill their responsibilities, such as providing education and healthcare. There is no effect on the collection of local taxes or public fees. My analysis suggests that this reduction stems from a decline in the discretionary transfers from federal and state governments that business mayors attract to their municipalities, which heavily depends on the mayor's administration. These results indicate that electing a business mayor limits the ability to secure the same amount of resources as their non-business counterparts. Consistent with the decrease in revenue, I also find a reduction in expenditure.

Finally, I find that the foregone resources do not compromise economic activity and public service delivery. Using a health index that includes infant mortality, immunization coverage, prenatal consultations, and hospital beds, I find no significant effect of electing a business mayor on overall health outcomes. I examine spending in the health sector and find that, although total expenditure declines, the proportion allocated to capital spending increases. This shift toward investment could help explain why the reduction in revenue did not lead to a deterioration in health outcomes. Additionally, electing a business mayor has a small but positive effect on local economic activity, as measured by formal employment, with the

largest gains seen in the industry and retail sectors. I show that a mayor’s ownership in a particular sector does not significantly affect growth in that sector, suggesting they are not favoring their base.

My paper contributes closely to the emerging literature that studies whether management matters for organizational performance, particularly within the public sector. First, the literature shows that the implementation of management practices in the public sector is positively associated with government performance (Rasul and Rogger, 2018; Rasul et al., 2021; Carreri and Payson, 2021). A second strand of this literature focuses on the impact of managers themselves. Fenizia (2022) finds that better managers increase office productivity in Italy’s administrative public sector, driven primarily by the exit of older workers who retire when a productive manager takes charge. Otero and Munoz (2022) show that incorporating CEOs with managerial qualifications into public hospitals reduces mortality rates. These CEOs improved resource allocation and reduced staff turnover. I contribute to this literature by studying the impact of management experience when running a municipality. First, I focus on top-tier management by studying the role of mayors as chief executives of municipalities rather than lower-level bureaucrats primarily involved in public service delivery. This focus is relevant because mayors have the authority to influence a wider range of municipal outcomes. Additionally, unlike these studies, I find that managerial experience does not lead to improvements in resource management within the municipality and may even have adverse effects.

This paper also connects to research that examines the effect of political leader attributes on governance outcomes. The literature has focused on the effect of gender (Chattopadhyay and Duflo, 2004; Ferreira and Gyourko, 2014; Brollo and Troiano, 2016), religiosity (Meyerson, 2014), education (Besley et al., 2011), and age (Alesina et al., 2019) on leaders’ spending decisions, personnel policies, the public policies they implement, and the public goods they provide. I contribute to this literature by focusing on their previous professional experience, in particular, business ownership. This attribute is especially relevant because the skills

that business owners acquire during their professional experience can be highly applicable to running a municipality. Mayors are responsible for planning and executing public policy, allocating budgets, and managing public employees—areas where the managerial skills of business owners may play a crucial role. The closest papers to mine are Kirkland (2021) and Szakonyi (2021). Kirkland (2021) finds that electing a business owner as mayor in the US leads to reduced spending on housing and community development but increased spending on roads, while Szakonyi (2021) shows that in Russia, business politicians similarly boost expenditures on roads and transport without affecting health and education spending. First, I contribute to this literature by examining the delivery of public services and local economic activity, expanding the analysis beyond the already explored focus on preferences and fiscal policy. Additionally, in the context of my study, mayors hold managerial roles. Unlike other settings, Brazilian municipalities do not have an appointed manager position separate from the mayor. This allows them to have a significant influence over city outcomes. Finally, I leverage access to a national registry of business owners, which allows me to precisely identify individuals with actual business experience, thereby further strengthening the analysis.

The rest of the paper is organized as follows: Section 2 elaborates on the setting of Brazilian local governments. Section 3 describes the data sources used to construct the treatment and the outcome variables. In Section 4, I introduce the empirical strategy and argue for the validity of the regression discontinuity design. The results are presented in Section 5. Finally, I conclude in Section 6.

2 Institutional Background

I study the effects of electing a business owner as mayor in Brazilian municipalities on resource management, public service delivery, and local economic activity. This section provides relevant details about municipal governments in Brazil. First, I elaborate on how Brazilian local elections work, followed by a discussion of the main funding sources that municipalities rely on to provide public services and a description of the municipal bureaucracy.

2.1 Brazilian Local Elections

Brazil has 5,568 municipalities that elect a mayor, vice mayor, and city council every four years through direct elections. Municipal elections are held in October, and the elected mayors take office in January of the following year. Mayors serve four-year terms and can be re-elected once. I will study the municipal elections of 2016 and 2020, the most recent elections for which data is available.

In municipalities with up to 200,000 registered voters (approximately 97% of municipalities in the country), mayors are elected in one-round elections using a plurality system. Municipalities with over 200,000 registered voters feature run-off elections if no candidate achieves a majority in the first round. To simplify the presentation of the empirical results, I exclude municipalities above this population threshold.² I also exclude municipalities that hold irregular elections, which occur when the elected candidate has their registration rejected or is disqualified due to electoral misconduct. These elections take place at varying times, leading to discrepancies in mayoral tenure. Consequently, I excluded the 148 largest municipalities from the 2016 sample and 155 from the 2020 sample. Additionally, I excluded 164 municipalities in 2016 and 96 in 2020 due to irregular elections.

2.2 Public Finance

Municipal governments in Brazil are responsible for delivering essential public goods and services, with education and health being their primary responsibilities. They provide preschool and basic education up to ninth grade, as well as basic health care services. Municipalities allocate, on average, 28% of their revenue to education and 27% to health, making these the two largest expenditure areas (FINBRA, 2021). Additionally, they manage urban services

²Keeping such municipalities in the sample would require a fuzzy regression discontinuity design, where the business vote margin from the first round of elections is used as an instrument for whether the municipality ultimately elected a business mayor. By focusing on municipalities with one-round elections, I can present my empirical results using a sharp regression discontinuity framework.

such as transportation, road traffic control, road maintenance and pavement, sewage, public lighting, waste management, urban zoning, and urban cleaning services.

The main funding source for municipalities to execute their responsibilities is transfers, primarily from state and federal governments, accounting for 85% of their revenue, on average (FINBRA, 2021). Most of these transfers are mandatory, determined by either the constitution or specific laws, and their disbursement relies solely on legal mandates. A smaller share of transfers, however, is discretionary. These transfers allow federal or state governments to allocate resources to municipalities based on specific local needs. Mayors play a significant role in securing these funds. First, the municipal administration must apply for the transfers. Then, the state or federal legislature must incorporate them into the budget law through an amendment. Finally, the state or federal executive branch decides whether to execute the transfer. Successfully attracting these funds relies on the technical and administrative expertise of the mayor's office, as well as their political skills.

Municipal governments in Brazil have significant autonomy to collect local taxes and public fees. These sources complement revenue from transfers, accounting for only 6% of total local revenue (FINBRA, 2021). They have authority over the following three taxes: tax paid by services providers (ISS, *Imposto sobre Serviços*), tax on urban property (IPTU, *Imposto Predial e Territorial Urbano*), and tax on the transaction of real estate properties (ITBI, *Imposto sobre a Transmissão de Bens Imóveis*). Additionally, they charge public fees for road conservation, waste management, urban cleaning, lighting, and issuing construction licenses. Municipalities have the discretion to set rates, subject only to city council approval, and are responsible for enforcing tax payments. In the case of IPTU, for example, some municipalities may set progressive rates based on property value or vary rates depending on the property's location and use. Similarly, for ITBI, some municipalities offer exemptions, particularly for lower-value properties or individuals within specific income ranges. The only restriction municipalities face is that federal law limits the ISS rate to between 2 and 5 percent. Municipal governments, however, often underutilize their tax authority. For example,

IPTU non-compliance exceeds 20 percent in about 85 percent of municipalities (Ferraz et al., 2024). Therefore, there is significant potential for improving tax collection through better tax administration.

2.3 Municipal Bureaucracy

Municipal employment represents a large portion of public sector jobs in Brazil. Municipal public employees fall into two main categories: tenure-track and temporary. The procedures for hiring and dismissal differ considerably between these categories. The selection of both types of municipal employees is exclusively managed at the municipal level, without influence from the state or federal government. The only federal requirement imposed on municipalities is that their personnel expenditure must not exceed 60% of their net current revenue.

For tenure-track employees, the selection process is based on objective criteria, requiring them to pass a public civil service exam known as “*Concurso Público*”. They enjoy substantial job security. After three years in the position, they get tenure and can only be dismissed following a judicial ruling and for specific reasons, such as severe misconduct.

In contrast, temporary municipal employees are hired without the need for a public civil service examination. The municipal government has full discretion over their selection, as the process is not subject to specific regulations. Temporary contracts are typically used for top positions, providing the mayor with flexibility by allowing a faster hiring process and the ability to recruit individuals with specific qualifications. Temporary employees are not guaranteed job stability. Their contracts’ length is not restricted, and they can be dismissed at any time without the need for a judicial ruling.

Politicians have strategic motivations for making discretionary appointments in the bureaucracy. Evidence shows that, in Brazil, political connections significantly influence public sector employment, driven largely by patronage, as politicians use public sector positions to reward their supporters (Colonnelli et al., 2020; Barbosa and Ferreira, 2023). Additionally,

evidence suggests that politicians utilize their discretionary powers to appoint party members, aiming not only to strengthen party organization but also to influence policy-making by ensuring that appointees align with their policy goals (Brollo et al., 2017). Such practices raise concerns, as disruptions in the bureaucracy associated with political turnover have been shown to negatively impact the quality of public education, one of the primary responsibilities of local governments in Brazil (Akhtari et al., 2022).

3 Data

To address my research question, I first need to identify business candidates using data on the identities of mayoral candidates and business owner registrations. I then measure the impact on resource management—both human and financial—public service delivery and local economic activity. As a result, the study combines data from the following five sources.

Electoral Data. Electoral data come from the Brazilian Superior Electoral Court (TSE, Tribunal Superior Eleitoral), the most important body of the electoral justice system, responsible for organizing and overseeing all elections in Brazil.

TSE provides information on all the candidates for mayor in Brazil. I use their names and IDs to match with the business registry and identify business candidates. Additionally, they include the following demographic characteristics of the candidates: age, gender, race, marital status, education, party affiliation, and occupation. I use this data to address a potential confounding effect with other mayors’ characteristics.

I use electoral results from the 2016 and 2020 municipal elections to determine each candidate’s vote share and identify the winning candidate. With the candidates’ vote share, I construct the running variable used in the regression discontinuity design: the business vote margin. The business vote margin is defined as the difference in vote share between the business owner candidate and the most voted non-business owner candidate. Further methodological details are discussed in Section 4.

Business Ownership. To identify which of the mayoral candidates are business owners, I use data from the National Register of Legal Entities (CNPJ, Cadastro Nacional da Pessoa Jurídica) from the Brazilian Federal Revenue Secretary (Secretaria da Receita Federal do Brasil). This dataset comprises monthly registration information of legal entities relevant to the tax administration, including the identity (name and ID) of the owners. It also includes the following information about the businesses: unique firm identifier, the firm’s name, activity status, date of entry, date of closure (if closed), sector, size, address, initial capital, and the owner’s role. The categorization of businesses by size depends on both the businesses’ revenue and the number of employees, and it determines the applicable tax regime. Businesses are classified into sectors based on the National Classification of Economic Activities (CNAE). I use this data to explore heterogeneity in my analysis.

For a candidate to be considered a business candidate in my analysis, they need to be registered as owners before the election. I include owners of both active and non-active businesses. I exclude from my sample any businesses registered without capital and individual entrepreneurs. This approach helps to exclude cases where business ownership might mask employment relationships.

The dataset was made publicly available in 2018, and each release provides a snapshot of firms’ registration data as of the publication date. The version that I am using corresponds to May 2019. There were 9,987 business candidates in the last two electoral cycles. They comprised 25% of mayoral candidates in 2016 and 29% in 2020. Table 1 shows descriptive statistics of business candidates in my sample.

Employment. The source of employment information is the *Relação Anual de Informações Sociais* (RAIS), an annual survey compiled by the Brazilian Ministry of Labor reporting all labor contracts in the public and formal private sector in Brazil.

First, to measure the effect on local economic activity, I aggregate the total number of labor contracts and the total number of firms in the private sector by municipality. Addition-

Table 1: Descriptive Statistics Business Candidates

Variable	Business candidates
Number of businesses	2.17
Years in the business	13.89
Size	
Micro	0.72
Small	0.19
Medium, Big & Others	0.29
Sector	
Retail	0.35
Professional Act.	0.13
Construction	0.12
Industry	0.11
Health	0.10
Observations	9,987

Notes: Descriptive statistics for mayoral business candidates in the 2016 and 2020 elections. Average value for each candidate across their different businesses. Sector is defined at the CNAE section level. Includes the biggest five sectors. Size and Sector do not sum to one because individuals may own more than one business. Others include public administration bodies, non-profit entities, and international organizations.

ally, RAIS assigns a sector code to each labor contract based on the National Classification of Economic Activities (CNAE), which I use to compute the total number of contracts and firms within each sector. My outcome variables are the inverse hyperbolic sine transformation (Asinh) of the total number of workers and the total number of firms, as well as the number of workers and firms by sector. I show the effect on the five largest sectors: Retail, Industry, Agriculture, Construction, and Transportation. These sectors account for 78% of employment contracts (RAIS, 2022).

Additionally, to measure the effect on personnel management within the municipality, I aggregate employment information at the municipal level, restricting it to only labor contracts in the public sector at the municipal level (i.e., the municipal government is the employer). Since RAIS also includes information on the type of contract (i.e., temporary or tenure-track) and given the differences described in Section 2, I also compute the total number of municipal employees by contract type. RAIS also includes data on workers' educational levels and reasons for contract termination. This allows me to measure three key outcome variables: bureaucratic turnover, educational composition of the bureaucracy, and retirement of tenured workers. Bureaucratic turnover is defined as the share of new municipal personnel in a given year, while the educational composition is measured by the share of municipal employees with a college degree. Lastly, I compute the share of tenured workers who retire each year.

Public Finance. I use municipal-level public finance data from *Finanças do Brasil* (FINBRA), a database compiled by the Brazilian National Treasury (Tesouro Nacional). It contains yearly self-reported accounting records from all Brazilian municipalities, including disaggregated data on revenues and expenditures.

My outcome variables are the total municipal revenue per capita, total tax and public fees revenue per capita, total discretionary transfers per capita, total planned spending per capita, and by category. I use the logged transformations of each of these variables for the analysis. Additionally, all monetary values are adjusted for inflation to 2021 values using

the IPCA index (Extended National Consumer Price Index) from IBGE.

Health Outcomes. I use data from DATASUS, a platform of the Unified Health System managed by the Brazilian Ministry of Health that compiles information from various sources within Brazil’s healthcare system. It provides municipal-level data on health establishments, access to health services, and a range of health indicators.

To measure public service delivery in the health sector, I use the following indicators: number of hospital beds per thousand inhabitants, under-1-year-old infant mortality per thousand, pre-natal consultations per birth, and immunization coverage. Using these indicators, I calculate a standardized weighted index following Anderson (2008).

4 Research Design

This section outlines the details of my identification strategy and provides evidence supporting the identification assumptions. I causally estimate the effects of electing a business owner as mayor using a sharp regression discontinuity design (RD) for close municipal elections in Brazil.

The main challenge in comparing outcomes between municipalities with a business mayor and those with a non-business mayor is that business mayors are not randomly assigned. Municipalities where a business candidate wins by a large margin may systematically differ from municipalities where support for business candidates is weaker, resulting in the election of a non-business mayor. If these differing characteristics correlate with my outcomes of interest, a simple comparison of municipalities may yield biased results. For instance, municipalities more likely to elect a business mayor may have more conservative views, which could lead to a preference for smaller government. Such unobserved factors could influence both government spending and the likelihood of electing a business mayor, potentially leading to biased estimates in a standard regression analysis.

The RD for close elections restricts the analysis to municipalities with narrow election margins, comparing outcomes in municipalities where a business candidate barely won with those where a business candidate barely lost. The key intuition is that municipalities where a business candidate narrowly loses can serve as a reasonable counterfactual, under certain assumptions, for municipalities where a business candidate narrowly wins. In close elections, the probability of either candidate winning approximates a coin flip.

The running variable in the RD is the business vote margin, defined as the difference between the vote share of the business-owner candidate and the vote share of their strongest non-business opponent. The treatment is the business candidate’s electoral victory, and the cutoff is zero: municipalities elect a business mayor when the business candidate’s vote margin is above zero and elect a non-business mayor otherwise (control group).

My main specification will be a linear regression for close elections, where “close” is defined according to the optimal bandwidth selection of Calonico (2016). Formally, I estimate the following equation for municipalities within the bandwidth:

$$\begin{aligned}
Y_{mt+2} = & \alpha + \beta \mathbb{1}\{BOVoteMargin_{mt} > 0\} + \gamma BOVoteMargin_{mt} \\
& + \delta \mathbb{1}\{BOVoteMargin_{mt} > 0\} \times BOVoteMargin_{mt} \\
& + X'_{mt}\Lambda + \epsilon_{mt}
\end{aligned} \tag{1}$$

, where β is the coefficient of interest. Y_{mt+2} is the outcome of interest in municipality m measured two years after the election. $BOVoteMargin_{mt}$ is the business candidate vote margin. X'_{mt} is a set of control variables: election fixed effects, lagged outcome variable, and some municipality characteristics (lagged GDP, share of rural, share of women, education level, and household characteristics). To compute the bandwidth, I use MSE optimal bandwidth selector for the RD treatment effect estimate. My main results are also robust to CER-sum bandwidths. Standard errors are clustered at the municipal level.

4.1 Sample and Timeline

To conduct my analysis, I first excluded municipalities with more than 200,000 registered voters and those that held irregular elections. I then restricted the sample to municipalities with only one business candidate. In 2016, 1,981 municipalities (35.60% of all municipalities) had one business candidate, while in 2020, 2,085 (37.45% of all municipalities).

4.2 Identification Assumptions

For equation 1 to estimate the causal effect of electing a business mayor, the key identification assumption is that all relevant factors besides treatment are continuous around the cutoff and, thus, any discontinuity in outcomes at the cutoff is the result of the election of a business mayor.

To provide support for this identification assumption, I show in Table 2 a series of regression discontinuity estimates on municipality characteristics within the bandwidth of my main results. Close is defined as $|BOVoteMargin| < 0.13$ in this table. Columns 1 and 2 show the mean value of the variables at baseline for municipalities where a business candidate won and municipalities where a non-business candidate won in a close election. Column 3 shows the p-value of the coefficient of interest with the corresponding variable at baseline used as the outcome variable and including electoral fixed effect. I find no evidence of discontinuity in covariates at the zero threshold. Importantly, there is no statistically significant discontinuity in our main outcomes of interest at baseline (one year prior to the election). I conclude that it is reasonable to assume smoothness around the cut-off in the absence of the treatment.

Identification also requires the absence of selective sorting around the business candidate victory threshold. For this assumption to hold, the running variable should be continuous around the cut-off. I run a formal test for manipulation of the running variable, which fails to reject the hypothesis of continuity of the running variable around the cut-off (McCrary, 2008). Figure 1 displays the result of the test, showing there is not a discontinuous change

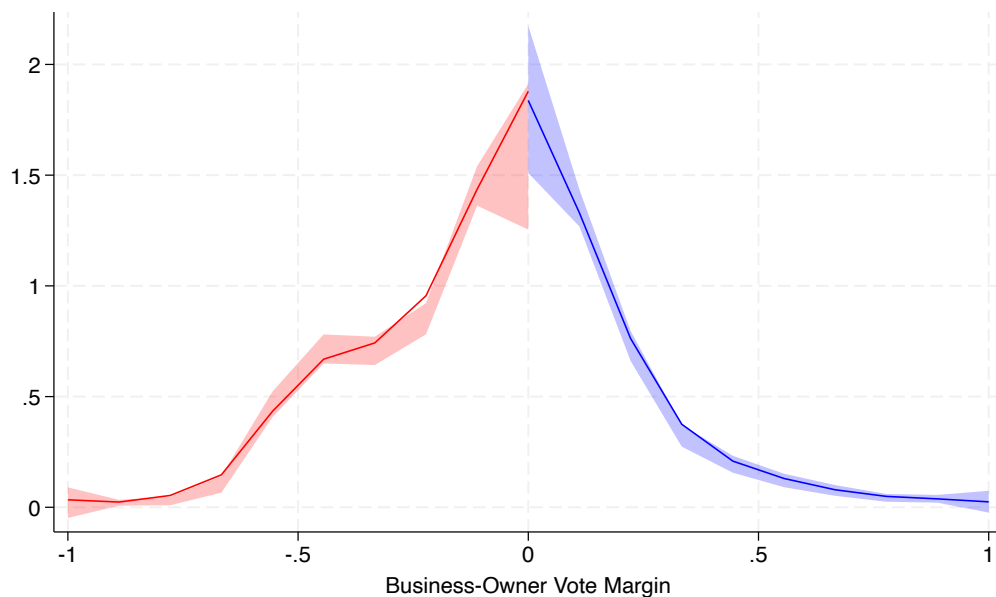
Table 2: Test for Discontinuity in Baseline Outcome Variables, $|BOVoteMargin| < 0.13$

	BO elected	BO not elected	P-value
Outcome Variables at Baseline			
Share of new municipal personnel	0.28	0.30	0.88
Share of new municipal personnel - temporary	0.53	0.54	0.35
Share of workers with college	0.37	0.37	0.23
Share of retired personnel	0.01	0.01	0.26
Log total revenue pc	8.01	7.98	0.50
Log taxes pc	4.39	4.45	0.76
Log transfers pc	4.05	4.12	0.21
Log spending pc	8.09	8.09	0.34
Health index	0.03	0.05	0.62
Asinh # of workers	6.79	6.87	0.09
Asinh # of firms	6.27	6.30	0.18
Municipal Characteristics			
Water network	68.71	66.77	0.70
Waste collection	59.09	59.10	0.54
Sewage	24.56	25.71	0.51
Share of women	49.50	49.39	0.86
Share of urban	61.19	60.61	0.10
Share of public	0.33	0.32	0.25
Share with no school	35.81	35.18	0.39
Illiterate rate	18.12	16.77	0.46
GDP pc	25024.86	25657.55	0.58
Observations	794	841	1635

Notes: Column 1 reports the mean value of each variable in municipalities where a BO won, column 2 for municipalities where they lost, and column 3 reports p-value on electing a business owner from Equation 1 using each of the baseline characteristics as the dependent variable. Standard errors are clustered at the municipality level.

at the cut-off.

Figure 1: Manipulation Test of the Running Variable



Another concern with my research design is the potential confounding effect with other mayors' characteristics. Business ownership could be perceived as a bundled treatment encompassing various correlated characteristics. For example, business mayors might be more likely to belong to right-wing parties, which influence their public policy decisions. Hence, results might be driven by partisanship rather than business ownership. To evaluate this, I test whether business mayors who win close elections against non-business candidates differ in observable characteristics. I run my main specification using the following winning mayors' characteristics as an outcome: gender, age, race, marital status, education, partisanship, and incumbency.

In Table 3, I find no evidence that business owner mayors who narrowly won the election are more likely to be men, older, white, more educated, from a right-wing party, or incumbents. However, the results do indicate a difference in marital status. In the Appendix, I present my main results while controlling for mayors' marital status and demonstrate that

the findings remain robust. This suggests that my findings are driven by business mayors' non-observable characteristics. While I do not find any differences in these observable characteristics, I cannot rule out the possibility that business mayors have different unobservable characteristics. However, for this to be a problem in the interpretation of our results, such unobservables would need to be correlated with the outcomes of interest.

Table 3: Test for Discontinuity in Mayor Characteristics, $|BOVoteMargin| < 0.13$

	BO elected	BO not elected	P-value
Male	0.90	0.86	0.53
Married	0.70	0.74	0.03
Age	0.46	0.51	0.15
White	0.68	0.67	0.46
College completed	0.56	0.54	0.84
High school completed	0.86	0.83	0.44
Right party	0.36	0.34	0.53
Incumbency	0.16	0.20	0.97
Observations	794	841	1635

Notes: Column 1 reports the mean value of each variable in municipalities where a BO won, column 2 for municipalities where they lost, and column 3 reports p-value on electing a business owner from Equation 1 using each of the mayor characteristics as the dependent variable. Standard errors are clustered at the municipality level.

5 Results

In this section, I present the main results of my analysis of the effects of electing a business mayor. All specifications include electoral cycle fixed effect. Column 2 uses a fixed bandwidth. Column 3 controls for the lagged outcome variable, lagged GDP per capita, and the municipality characteristics evaluated in Table 2.

5.1 Management of human resources

First, I examine whether electing a business mayor reduces bureaucratic turnover. Excessive personnel turnover is a challenge for many organizations. Employee attrition leads to the loss of important knowledge and skills, resulting in a significant reduction of resources in the organization. When it comes to the public sector, local bureaucratic turnover, precipitated by political turnover at the mayoral level, has been found to harm the quality of public education in Brazil (Akhtari et al., 2022). Management literature indicates that improved management has a negative relationship with employee attrition (Hoffman and Tadelis, 2021; McCormack et al., 2014). I found that the close election of a business mayor does not significantly affect bureaucratic turnover. Moreover, it does not influence the proportion of new personnel with temporary contracts, a category where mayors have greater discretion in hiring. Results are presented in Table 4 and Table 5, that show the effect two years after the election took place.

At the same time, better management can influence the composition of the workforce. Well-managed firms tend to recruit and retain employees with higher levels of human capital (Bender et al., 2018). I found that the close election of a business mayor does not significantly affect the educational composition of the bureaucracy, measured by the share of municipal workers with a college degree. Table 6 shows this result.

Finally, in the public sector, managerial talent raises office productivity, partly by the exit of older workers who retire when more productive managers take over (Fenizia, 2022). In Table 7, I do not find a significant effect of electing a business mayor on the retirement

of tenured workers.

Table 4: Effect on Share of new municipal personnel

Outcome	Share of new municipal personnel		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.0192 (0.0265)	-0.0173 (0.0301)	-0.0186 (0.0218)
Mean	0.345	0.349	0.345
Obs	1876	1488	1876
Using BW	.159	.12	.159
Opt BW	.159	.159	.159
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Effect on Share of new municipal personnel - temporary contracts

Outcome	Share of new municipal personnel		
	(1)	(2)	(3)
$\mathbb{1}\{BOVoteMargin_{mt} > 0\}$	-0.0133 (0.0367)	0.0159 (0.0390)	0.0000940 (0.0336)
Mean	0.605	0.615	0.605
Obs	1560	1383	1560
Using BW	.137	.12	.137
Opt BW	.137	.137	.137
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Effect on Educational Composition

Outcome	Share of workers with college		
	(1)	(2)	(3)
$\mathbb{1}\{BOVoteMargin_{mt} > 0\}$	-0.00917 (0.0150)	-0.00992 (0.0161)	-0.00479 (0.0127)
Mean	0.413	0.414	0.413
Obs	1757	1483	1757
Using BW	.146	.12	.146
Opt BW	.146	.146	.146
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Effect on Retirement of Tenured Workers

Outcome	Share of retired workers		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.00165 (0.00166)	-0.00160 (0.00176)	-0.00128 (0.00155)
Mean	0.013	0.012	0.013
Obs	1555	1425	1555
Using BW	.131	.12	.131
Opt BW	.131	.131	.131
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.2 Management of financial resources

Table 8 displays the effect of electing a business mayor on local revenue at the end of the second year of government, and Figure 2 displays its graphical representation. Close business mayor victories decrease total local revenue per capita by approximately 7.5% two years after the elections. This result indicates that electing business candidates reduces the resources available to municipalities for fulfilling their responsibilities, such as providing education and healthcare.

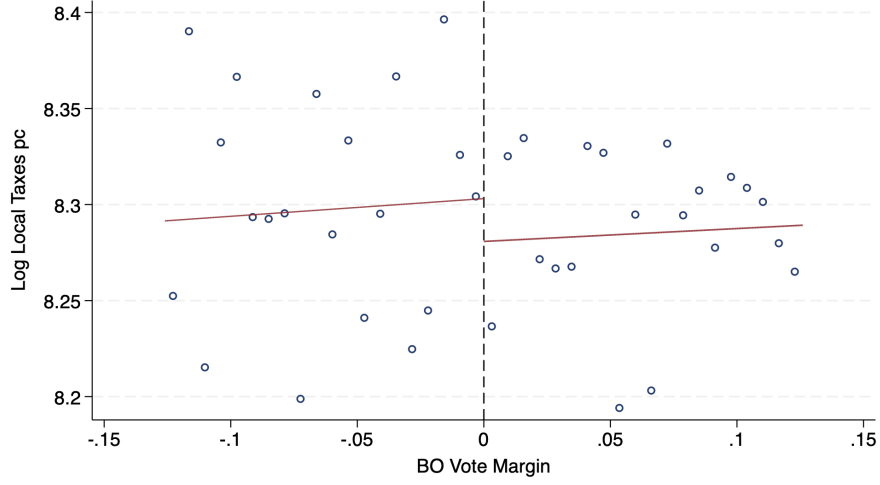
Table 8: Effect on Local Revenue

Outcome	Log Total Revenue per capita		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.0822* (0.0435)	-0.0871* (0.0446)	-0.0764** (0.0375)
Mean	8.521	8.519	8.521
Obs	1566	1492	1566
Using BW	.127	.12	.127
Opt BW	.127	.127	.127
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A follow-up question to this result is where this decline in local revenue is coming from. First, I examine whether the decrease in local revenue is coming from a decrease in local taxes and public fees. As discussed in Section 2, local governments in Brazil have authority over three main taxes and several public fees. On one hand, one could expect that efficient management would improve the collection of taxes and fees, thereby increasing revenue. At the same time, it is common for business candidates to claim during their electoral campaigns

Figure 2: Effect on Local Revenue two years after the elections



Note: This figure displays the coefficient on electing a business owner from Equation 1, using one common MSE optimal bandwidth selector and a fixed bandwidth of 0.12. It includes both election cycles (2016 and 2020). Controls include election fixed effects, lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level.

that taxes are too high for entrepreneurs, so we might expect them to reduce the taxes and fees over which they have discretion. A business mayor's victory in a close election is not associated with a decrease in local taxes or public fees (Table 9).

Additionally, I look at whether this decrease is coming from discretionary transfers. Attracting discretionary transfers heavily depends on the mayor's administration. While efficient management could help secure more transfers, a lack of political expertise might be disadvantageous, resulting in attracting fewer transfers. Table 10 and Figure 3 suggest that close business mayor victories decrease total discretionary transfers attracted by the municipality.

Finally, I examine the effect on municipal spending and find that, consistent with the results on revenue, a narrow victory by a business mayor leads to a reduction in overall municipal spending (Table 11). I then analyze in Table 12 the allocation of these cuts across the five major spending areas. The results show that business mayors spend less on health,

Table 9: Effect on Local Taxes and Public Fees

Outcome	Log Total Taxes and Fees pc		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.0157 (0.111)	0.0298 (0.121)	-0.00143 (0.0706)
Mean	4.890	4.883	4.890
Obs	1704	1454	1704
Using BW	.144	.12	.144
Opt BW	.144	.144	.144
Controls	No	No	Yes

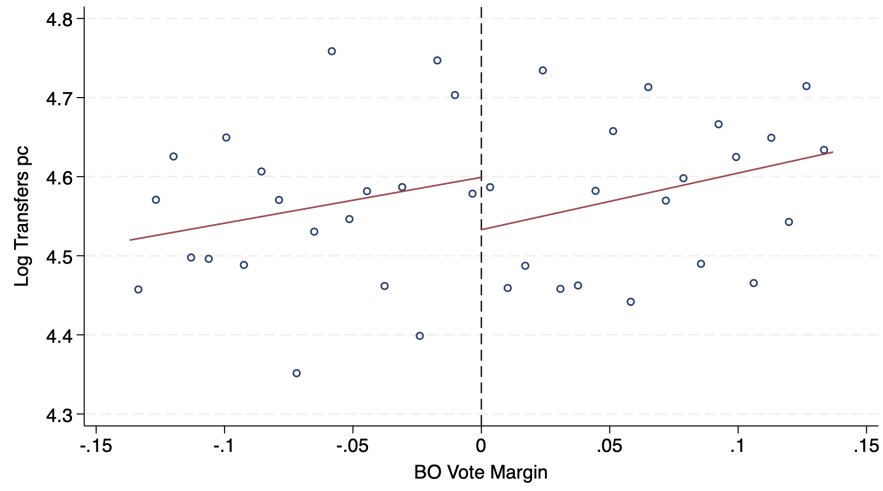
Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Effect on Discretionary Transfers

Outcome	Log Total Transfers per capita		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.263* (0.141)	-0.238 (0.147)	-0.148 (0.134)
Mean	4.770	4.784	4.770
Obs	1507	1372	1507
Using BW	.132	.12	.132
Opt BW	.132	.132	.132
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figure 3: Effect on Discretionary Transfers



Note: This figure displays the coefficient on electing a business owner from Equation 1, using one common MSE optimal bandwidth selector and a fixed bandwidth of 0.12. It includes both election cycles (2016 and 2020). Controls include election fixed effects, lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level.

administration, and social assistance.

Table 11: Effect on Total Spending

Outcome	Log Spending per capita		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	-0.0909** (0.0412)	-0.0741* (0.0387)	-0.0858*** (0.0327)
Mean	8.385	8.382	8.385
Obs	1391	1501	1391
Using BW	.111	.12	.111
Opt BW	.111	.111	.111
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 12: Effect on Spending by sector

Outcome	Log Spending per capita				
	Education (1)	Health (2)	Administration (3)	Urbanism (4)	Social Assist (5)
$1\{BOVoteMargin_{mt} > 0\}$	-0.0248 (0.0265)	-0.104*** (0.0384)	-0.106** (0.0516)	-0.0462 (0.0872)	-0.0857* (0.0459)
Mean	7.157	6.981	6.332	5.728	5.059
Obs	1817	1343	1535	1356	1644
Using BW	.155	.109	.126	.11	.135
Opt BW	.155	.109	.126	.11	.135
Controls	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the coefficient on electing a business owner from Equation 1, using one common MSE optimal bandwidth selector and a fixed bandwidth of 0.12. It includes both election cycles (2016 and 2020). Controls include election fixed effects, lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.3 Public Service Delivery and Local Economic Activity

I study the impact on the local economic activity, measured by the number of firms and formal employment created in the private sector in the municipality. Table 13 shows that electing a business mayor has no significant effect on the number of firms in the municipality. There is, however, a positive effect on the number of formal workers employed in the municipality in the private sector two years after the elections took place (Table 16). This effect might not be uniform across sectors. Business mayors might have specific knowledge, interests, or preferences that lead them to implement policies benefiting certain sectors while potentially disadvantaging others. Table 15 looks at the effect on the number of workers in the municipality by sector, focusing on the five biggest sectors, and shows that the largest gains occur in the industry and retail sectors. In the Appendix, I also look at the number of firms in these sectors, but there is no effect on this dimension.

Table 13: Effect on Firms

Outcome	Asinh # of firms		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	0.0316 (0.0958)	0.230** (0.114)	-0.00961 (0.0437)
Mean	6.358	6.364	6.358
Obs	2011	1510	2011
Using BW	.175	.12	.175
Opt BW	.175	.175	.175
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 14: Effect on Workers

Outcome	Asinh # of workers		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	0.108 (0.144)	0.278* (0.165)	0.0340 (0.0250)
Mean	7.038	7.013	7.038
Obs	1902	1510	1902
Using BW	.159	.12	.159
Opt BW	.159	.159	.159
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 15: Effect on Workers by sector

Outcome	Asinh # of workers				
	Retail (1)	Industry (2)	Agriculture (3)	Construction (4)	Transportation (5)
$1\{BOVoteMargin_{mt} > 0\}$	0.0641*** (0.0235)	0.190*** (0.0725)	-0.0221 (0.0515)	-0.0538 (0.116)	0.0490 (0.0796)
Mean	5.754	4.610	4.486	3.203	2.958
Obs	1864	1667	1995	1902	1687
Using BW	.155	.133	.172	.159	.136
Opt BW	.155	.133	.172	.159	.136
Controls	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 16: Effect on Health Index

Outcome	Asinh # of workers		
	(1)	(2)	(3)
$1\{BOVoteMargin_{mt} > 0\}$	0.108 (0.144)	0.278* (0.165)	0.0340 (0.0250)
Mean	7.038	7.013	7.038
Obs	1902	1510	1902
Using BW	.159	.12	.159
Opt BW	.159	.159	.159
Controls	No	No	Yes

Notes: This table reports the coefficient on electing a business mayor from Equation 1, using one common MSE optimal bandwidth selector. It includes both election cycles (2016 and 2020). All columns include election fixed effects. Column 2 uses a fixed bandwidth of 0.12. Column 3 includes controls: lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A Appendix

Table A1: Effect on Workers by sector

Outcome	Asinh # of firms				
	Retail (1)	Industry (2)	Agriculture (3)	Construction (4)	Transportation (5)
$\mathbb{1}\{BOVoteMargin_{mt} > 0\}$	-0.0173 (0.0190)	0.0406 (0.0376)	-0.00903 (0.112)	-0.0308 (0.0549)	0.0483 (0.0494)
Mean	5.187	3.276	4.169	2.922	2.821
Obs	1887	1735	1794	1808	2011
Using BW	.157	.141	.147	.149	.175
Opt BW	.157	.141	.147	.149	.175
Controls	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the coefficient on electing a business owner from Equation 1, using one common MSE optimal bandwidth selector and a fixed bandwidth of 0.12. It includes both election cycles (2016 and 2020). Controls include election fixed effects, lagged outcome variable, lagged GDP per capita, and municipal characteristics. Standard errors are clustered at the municipality level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

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