Politicians and Tax Policy: The Role of Preferences and Beliefs

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We examine the role of politician preferences and beliefs about tax policy drawing on a unique survey of over 700 local government leaders (mayors) in Brazil. Mayors rate raising tax revenue as an important policy priority and express strong beliefs that a range of tax interventions have the potential to improve revenue collection. Mayors are generally confident in their beliefs and often appear overoptimistic relative to existing empirical evidence. Mayoral political preferences as well as beliefs about the effectiveness of tax interventions are predictive of mayors seeking out further knowledge by attending an information session on raising tax revenue.

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I. Introduction

Local governments in most low- and middle-income countries (LMICs) exhibit limited state revenue capacity. These governments often rely heavily on intergovernmental transfers to fund local public goods and services and face high non-compliance in components of own-source revenues, such as property taxes (Gadenne & Singhal, 2014). A growing literature has focused on methods to improve local tax collection. However, the focus of the literature to date has been primarily on ways to improve taxpayer compliance and — to a lesser extent — aspects of tax administration, such as improvements in record-keeping and incentives for tax collectors (Slemrod, 2019; Jensen & Weigel, 2024). A critical but almost unstudied aspect of revenue capacity is the role of elected politicians, who generally play a key function in setting government priorities and approving new policy initiatives.

In this paper, we present some of the first systematic evidence on politician preferences and beliefs, drawing on a 2016 survey of over 700 local government leaders (mayors) in Brazil. These data were collected during a large national conference run by Brazil's National Confederation of Municipalities (CNM). The Brazilian local government setting provides a nice context for studying these issues for several reasons. Mayors in Brazil have substantial autonomy over setting priorities and managing both revenue collection and public service delivery. Local own-source tax revenue remains low (5.7 percent of total municipal revenues on average). Non-compliance rates for local taxes are high, and many municipalities struggle with limited administrative capacity. We have rich data on municipality and mayor characteristics as well as the ability to link stated preferences and beliefs to concrete action: the choice to attend a conference session on increasing tax revenue.

This survey was conducted as part of a randomized controlled trial conducted by Hjort *et al.* (2021). Mayors at the CNM conference were randomly invited to a conference session that provided information on taxpayer reminder letters. The authors demonstrate that roughly 40 percent of invited mayors attended the session and that session

attendance increased the probability that municipalities subsequently adopted the taxpayer reminder policy by 10 p.p. However, the survey of mayors originally intended as a baseline has not been previously analyzed or linked to session attendance.[1]

We first demonstrate that although neither conference attendance nor survey completion was compulsory, the survey sample appears representative of all local governments on most respondent and municipality characteristics. We also provide evidence that to the extent there is sample selection, this selection is unlikely to affect our findings. We therefore consider our results as reflective of the entire population of Brazilian mayors.

We present three main sets of findings. First, we examine politicians' stated preferences over policy priorities in their upcoming terms. The vast majority of respondents expect to give raising tax revenue priority, and 35.6 percent rate it as a very high priority. The latter share is higher than the comparable share for a number of other expenditure-side policy areas (road maintenance, sanitation, and public transport), but lower than the shares for healthcare and primary education. This is perhaps not surprising given that healthcare and education are — by far — the two largest budget categories for Brazilian local governments.

We then analyze the correlates of policy prioritization, standardizing our measure to capture the relative priority the mayor places on raising tax revenue as compared to other policy areas. We find that mayors in municipalities with higher Gini coefficients consider taxes to be more of a priority, consistent with standard models of redistribution. We also find that mayors in municipalities with higher poverty rates as well as those who perceive the poor to be an important political constituency are less likely to rate tax collection a priority. This may reflect a greater desire to improve pro-poor expenditure, which is primarily centrally financed. Mayor characteristics generally have limited explanatory power, although we do find that male mayors, college-educated mayors and mayors in their second terms place slightly higher priority on revenue collection.

Second, the survey asked mayors about their beliefs about whether a range of tax inter-

[1] Approximately half of the sample in Hjort *et al.* (2021) responded to the survey, rendering it unsuitable as a baseline.

ventions would improve revenue collection and by how much. Specifically, mayors were asked about the revenue potential of reminders about audits and penalties; reminders to pay on time; reminders indicating that neighbors pay on time; tax discounts for timely payment; and lottery tickets for timely payment. We provide a survey of the existing empirical evidence most closely related to each of these interventions and then examine how mayor priors compare.

Mayors generally have quite favorable views about the potential of tax interventions, with the share of mayors reporting a belief that the given intervention would raise revenue ranging from 54.9 (neighbors policy) to 95.1 percent (tax discounts). While it is difficult to compare across studies, we argue that mayor beliefs are broadly in line with the available empirical evidence for the audits and neighbors interventions. However, they are systematically overoptimistic, and often highly so, for the other surveyed interventions. Mayors appear most overoptimistic in the cases for which the existing evidence is most limited. We do not find that mayor or municipality characteristics are systematically predictive of stated beliefs. We also document that mayors are generally confident in their beliefs. Strikingly, confidence generally increases with mayors' priors on the magnitude of expected revenue gain, even when these beliefs are well above the range supported by the empirical evidence.

Third, we link survey responses to data from the randomized evaluation of Hjort *et al.* (2021) to study the predictive power of mayor preferences and beliefs on the decision to attend the information session on raising tax revenue. An advantage of this setting is that we can relate mayor characteristics to tax policy actions, holding constant their constraints and opportunities. A contribution relative to Hjort *et al.* (2021) is that linking the survey data allows us to look at a richer set of mayor characteristics that are not typically available in administrative data.[2]

[2]While Hjort *et al.* (2021) used some mayor characteristics from administrative data for a similar prediction exercise (see Hjort *et al.* (2021), Table A.9) such as age, gender, education level, term in office and political party, we present a richer set of survey-based predictors: mayors' personal views on the effectiveness of various tax instruments, policy priorities, perceptions of political constituencies, and self-identified ideology.

We find that mayors who believe the poor to be an important voting constituency and those who are more right-leaning are significantly less likely to attend the session conditional on being invited. Controlling for these variables, a stated preference for tax collection as a policy priority is not predictive. We next turn to beliefs about effectiveness. Note that mayors did not know that the session would focus specifically on reminder letters ex ante. We find that mayors with strong prior beliefs about the effectiveness of at least one of the surveyed tax policy interventions are more likely to attend, indicating that favorable beliefs about policy impact may increase demand for additional knowledge.

A growing body of work has sought to study individual preferences for redistribution as well as beliefs and preferences regarding specific tax policies; see, for example Stantcheva (2021) and Fisman *et al.* (2020). These attitudes are critical for understanding how individuals might choose to vote for politicians and policies. However, just as critical is the role of the preferences and beliefs of politicians themselves. Voters' choices are bound by the existing and incomplete set of politicians from which they can choose (Lee *et al.*, 2004; Iaryczower *et al.*, 2024), and politicians' views are likely to be important in setting the policy agenda and choosing which programs are implemented. However, to the best of our knowledge, the only previous study to survey politicians about tax policy preferences is Ashworth & Heyndels (1997). Their study focuses on preferences over tax *rates* in Belgium municipalities, whereas we have the ability to examine a wider range of policy priorities, perceived political incentives, and beliefs about specific tax interventions. We can also link these views to demand for additional information.

A second emerging strand of literature focuses on the link between research findings and policy decisions. We provide the first evidence on politician priors about the effectiveness of a wide range of potential instruments to improve tax compliance. In addition, while several studies examine how policymakers update their beliefs about policy effectiveness when exposed to new research findings (Banuri *et al.*, 2019; Rogger & Somani, 2023; Nellis *et al.*, 2019; Vivalt & Coville, 2023), we contribute by examining the predictive power of preferences and beliefs on a specific action: taking up the opportunity to

learn more about ways to raise tax revenue. This paper complements Hjort *et al.* (2021) by linking our rich survey data to examine the predictive power on information take-up of a broader set of politician characteristics.

Finally, we contribute to a literature concerning leaders' identities and the extent to which individual characteristics matter for policy. Previous work has shown that easily observable characteristics such as a political leader's education, gender and professional experience matter for public service delivery (Brollo & Troiano, 2016; Martinez-Bravo, 2017; Martinez, 2024). There is, however, little survey data on their beliefs and preferences linked with specific actions they take on the job. A notable exception is Carreri (2021), who implements a survey about preferences and policy-agnostic managerial practices adopted by Italian mayors. We complement this work by focusing on a specific policy area; asking complementary questions about beliefs regarding potential policy interventions; and testing whether politician views predict demand for knowledge while holding their opportunity for action constant.

II. Institutional Context and Data

A. Local Governments in Brazil

Municipalities are the lowest level of government in Brazil, with a total of 5,570 municipalities nationwide. Municipalities hold executive powers, exercised by an elected mayor who serves a four-year term and may be re-elected for one consecutive term, and legislative powers vested in the city council, whose councilors also serve four-year terms but without term limits. The mayor, as the head of the city's administration, is responsible for setting investment priorities and implementing public policies. In contrast, the city council functions as a supervisory and legislative body, ensuring that the mayor's actions adhere to legal requirements and holding the authority to enact and revise laws on various issues, such as regulating business hours and supplementing state and federal legislation. One of the most significant laws discussed by the city council is the annual budget law, which the mayor proposes but the council can amend, outlining how the

city's resources will be allocated.

Each municipality is responsible for providing essential public goods and services, including the provision of preschool and elementary education, the administration of health policies, including the operation of hospitals, and the oversight of basic sanitation services such as urban cleaning, water supply, waste treatment, and sewage systems. Additionally, municipalities govern housing policies such as property regulation, public transportation, and the construction and maintenance of both urban and rural roads. Table 1 shows that the largest spending areas are education and health, together accounting for over 55 percent of the average local expenditure, followed by administration (14.8 percent), urban development (8.1 percent), transportation (3.8 percent), and sanitation (2.2 percent). In aggregate, mayors are responsible for managing about 20 percent of the country's total public spending (Gadenne, 2017).

The funding for the provision of local public goods and services is mainly sourced from intergovernmental transfers provided by federal and state governments, representing 81 percent of total local revenues on average (see Table 1). The largest revenue source for Brazilian municipalities is the *Fundo de Participação dos Municípios* (FPM), a constitutionally established formula-based transfer from the central government. The amount a municipality receives is primarily determined by its population size, with discontinuous shifts in the amount transferred occurring at 18 defined population thresholds. This transfer accounts for approximately 35 percent of total revenues for the average municipality.

Local tax revenues account for a relatively smaller share of total municipal revenues, comprising almost 6 percent for the average municipality.[3] There are three main local taxes: business taxes on the provision of services by firms and self-employed professionals (ISS); urban property taxes (IPTU); and taxes on real estate transactions (ITBI). In addition, municipalities can impose public fees for services related to road maintenance, lighting, and the issuance of construction permits, among other municipal fees. The ISS and IPTU are the most significant sources of tax revenue, contributing 2.7 and 1.3 percent,

[3]The remaining 13 percent of municipal revenue comprises contributions, grants, fines and penalties, credit operations, and asset management revenues, among other sources.

respectively, to the average local budget.

Municipalities have substantial autonomy over local tax collection. Mayors can affect local revenue in two ways: through the setting of tax rates and fees and through policies to encourage tax compliance. Municipalities have complete autonomy to set the rates for urban property taxes, taxes on real estate transactions, and public fees. They also have discretion to set business taxes on the provision of services (ISS) rates within a federally mandated range of 2 to 5 percent. The Brazilian federal constitution empowers the executive branch of municipalities to collect taxes — with city council approval — so the mayor's office has significant influence in the structure of local taxes.

Mayors also have potential scope to raise revenue by closing the tax gap. In practice, local governments in Brazil have limited capacity to enforce tax payments (Gadenne, 2017), and the heavy reliance on intergovernmental transfers may weaken the incentives for tax collection (see e.g., Ferraz *et al.*, 2024). Local tax administrations rarely impose meaningful penalties for non-compliance, and around half lack specialized tax workers, such as tax auditors or tax technicians.[4] While most have taxpayer registers, many are outdated and offer limited coverage (Carvalho Junior, 2013, 2017). Studies on property tax collection, for instance, estimate that non-compliance rates exceed 20 percent in most municipalities (De Cesare & Smolka, 2004; Carvalho Junior, 2018).

B. Data

We examine politician preferences and beliefs using a novel survey conducted with Brazilian mayors. The survey was conducted at the *Confederação Nacional de Municípios Novos Gestores* conference in 2016 (National Confederation of Municipalities New Managers Conference). The *Novos Gestores* conference is a political gathering organized by the National Confederation of Municipalities (CNM) every four years, before the start of a new

[4]Two studies provide suggestive descriptive facts on enforcement capacity. Ferraz *et al.* (2024) analyze a sample of 2,950 municipalities with an average population of 18,000 and document that approximately 50 percent lacked specialized tax personnel on their payrolls between 2005 and 2012. Carvalho Junior (2017) documents that in a sample of 47 large Brazilian municipalities — including several state capitals and most municipalities with populations exceeding 300,000 — fewer than 22 percent employed property seizures or public auctions to address properties in arrears between 2011 and 2014.

municipal administration. Mayors are invited to attend in rotating groups based on region of the country, with each group participating in 2-3 days of meetings. These meetings include a variety of training sessions, organized by CNM staff, policy experts, state and federal officials, and non-governmental institutions, like universities and international agencies. The goal of the conference is to bring mayors up to speed with relevant rules, practices, and policies. Topics sessions range from discussion of fiscal laws to policy areas such as health, education, and public finances.

The survey was conducted as part of a larger research initiative (Hjort *et al.*, 2021; Moreira & Santini, 2022). However, these survey data have never previously been utilized. The questionnaire was distributed in paper form to every mayor at the conference registration desk upon arrival. Though self-administered completion was voluntary, mayors were offered lottery tickets for two domestic trips or one international trip as an incentive for completing the survey. The survey asked mayors about their policy priorities, their beliefs about the likely effectiveness of several tax policy instruments, and their political constituencies. We provide more detail on specific survey questions below, and the full survey instrument is provided in Appendix A.

We complement the survey data with multiple secondary data sources. Characteristics of mayors are obtained from Brazil's Superior Electoral Court (*Tribunal Superior Eleitoral*) for the year 2016. Municipal characteristics, including poverty rates and the Gini index, are sourced from the 2010 Census. Municipal population and national GDP estimates are provided by the Brazilian Institute of Geography and Statistics (IBGE - *Instituto Brasileiro de Geografia e Estatística*) for the year 2016. Tax revenue and expenditure data are sourced from FINBRA (*Finanças Municipais*). Variables related to tax policy instruments are obtained from the IBGE *Pesquisa de Informações Básicas Municipais* (MUNIC), a yearly detailed survey on the structure, dynamics, and functioning of municipalities. The variables from the 2015 MUNIC survey used in this paper include the existence of a municipal property tax (IPTU - *Imposto sobre a Propriedade Predial e Territorial Urbana*) and a

municipal tax on services (ISS - *Imposto Sobre Serviços de Qualquer Natureza*).[5]

C. Summary Statistics and Sample Representativeness

There are several sources of selection into our survey sample. First, the CNM conference excludes the largest 200 municipalities.[6] Second, while all elected mayors are invited to attend, not all choose to do so. In the year the survey was conducted, 2,645 mayors attended the conference. Third, not all mayors chose to answer the survey, despite the provided incentives. This was a busy time for attendees, with many opportunities to clarify questions and network. 829 mayors (close to a third of attendees) responded to the survey.[7]

Finally, as noted, the survey was administered as part of a larger research project which included inviting randomly selected mayors to a training session on "how to raise local tax." This session discussed findings from a set of randomized controlled trials demonstrating the positive effects of a taxpayer reminder letter policy on tax compliance (Hjort *et al.*, 2021). To avoid the possibility that session attendance could have influenced reported preferences and beliefs, we restrict our sample to mayors who either did not attend this session or completed the survey before the session was conducted. This leaves us with a final sample of 716 mayors.

Table 2 presents summary statistics for two groups of municipalities: those in our survey sample and all Brazilian municipalities. We begin by examining the following municipal characteristics: population, Gini index, poverty rate, and local tax revenues as a percentage of total revenues. The average municipality in our sample has a population of about 19,000 residents, a poverty rate of nearly 22 percent, and a Gini index of approximately 50. From 2010 to 2015, the average share of municipal tax revenues in

[5]The survey also includes variables on the digitization and updating of real estate registries, ISS updates, the existence of municipal fees, tax reductions, and exemptions; variables related to the PGV (*Planta de Valores Genéricos*), an integral part of the municipal registry system; as well as variables on human resources, urban planning, and environmental management.

[6]CNM does not provide support for the largest municipalities. There is another association of municipalities that targets the 200 largest municipalities (*Frente Nacional de Prefeitos e Prefeitas*).

[7]Of this sample, 7 are vice-mayors, who are key members of local administrations. Excluding these individuals does not affect our results.

total municipal revenues was 6 percent. Despite the selection into the sample, our surveyed municipalities are remarkably representative of the full set of 5,570 municipalities in Brazil. An exception is population: surveyed municipalities have, on average, nearly 20,000 fewer inhabitants. This is not surprising given that the CNM conference excludes the largest 200 municipalities. In addition, the goal of the CNM conference is to train newly elected mayors from small and medium municipalities (up to 100,000 inhabitants), and conference activities tend to cater to this group. Sampled municipalities also have a lower poverty rate than the full set of municipalities, but this difference is slight: surveyed municipalities have a poverty rate that is 1.4 p.p. lower, representing only 6 percent of the mean.

We next turn to mayor characteristics. We observe that mayors are, on average, 47 years old, almost 90 percent of them are men, around 65 percent have at least a bachelor's degree, and 15 percent are serving their second and final term in office. Mayors are similar to those in the total set of municipalities based on age (sample mayors are slightly younger) and male representation, but are 23 percent more likely to have college education and 34 percent less likely to be in their second term. The second term effect could potentially be explained by incumbent mayors having previously attended such sessions and therefore not benefiting very much from attending. Finally, we note that 95 percent of municipalities collect a local business tax and a local property tax, both in our sample and in the total set of municipalities.

We interpret our findings as demonstrating that our sample is broadly representative of all Brazilian municipalities with respect to municipal characteristics, tax policy, and mayors' characteristics, with the exception of population size, mayor education, and incumbency. We discuss the implications of this sample selection in our results below.

III. Policy Priorities

The survey asks mayors about the degree that they plan to prioritize seven core areas under their responsibility: pre-K and primary education; healthcare; increasing tax revenues

by getting taxpayers to pay their taxes; sanitation; public transportation; performance of those who work for the municipality and road maintenance. Specifically, mayors were asked the following: "*A mayor and the municipal administration must choose policy areas to prioritize more, and policy areas to prioritize less. They cannot give high priority to all policy areas. Please indicate how much priority you expect to give to each of the following policy areas in the term that you are about to start*." Mayors could choose not a priority, somewhat a priority, a priority, or a very high priority for each policy area. Although the survey did not restrict mayors from indicating a very high priority for all seven sectors, less than 2 percent actually did so, suggesting they took the "prioritization constraint" nudge seriously.

Ex ante, it is not obvious how mayors might prioritize tax collection. On one hand, own-source revenues are generally low, suggesting that increasing local tax collection might be a high priority. On the other hand, mayors could find it more fruitful to focus on improving public service delivery, which is primarily financed through intergovernmental grants. We find evidence in support of both.

Figure 1 presents the histogram of prioritization for each of the seven sectors. 86 percent of respondents expect to give raising tax revenue priority or very high priority. However, tax revenue still appears to be somewhat less important than a number of other policy goals. For example, 35.6 percent of mayors rated raising revenue a *very* high priority, higher than the comparable shares for road maintenance (32 percent), sanitation (29 percent), and public transportation (6 percent), but lower than the shares for healthcare (75 percent), pre-K and primary education (49 percent), and public employee performance (40 percent). Note that these priorities are consistent with the budgetary importance of these sectors: health and education are the two largest sectors under the control of municipal governments. However, tax collection also appears quite important despite the fact that it represents just 6 percent of revenues for municipalities on average.

We next turn to examining the predictors of tax collection as a policy priority, as shown in Table 3. We group our regressors into three categories: (1) municipal characteristics that could be expected to affect social planner preferences in an optimal tax model; (2) mayor

preferences, as proxied by demographics and self-reported political views; and (3) political incentives, as captured by mayor reports about their most important constituencies. Our outcome variable is the degree to which the mayor believes raising tax revenue is a priority. We first take out the mean from each individual respondent, obtaining a residual. The underlying objective is to measure preferences for tax policy relative to other policy priorities individuals choose. We then standardize this residual across the entire distribution of mayors to facilitate interpretation. The standardized measure is in standard deviation units of the "tax collection as a priority" variable.

Column 1 regresses our standardized measure of tax collection as a priority on four municipal characteristics: population, Gini index, poverty rate, and local tax revenues as a share of municipality revenues. We first note that population has a small and insignificant effect, implying that the population-based selection into the survey is unlikely to affect the external validity of these results to the full sample of Brazilian municipalities. Mayors in municipalities with higher Gini coefficients consider taxes to be more of a priority, consistent with standard models of redistribution. Mayors in municipalities with higher poverty rates (controlling for inequality) consider tax collection less of a priority. This potentially reflects a greater urgency to improve (centrally financed) pro-poor expenditure programs or greater reliance on centrally financed programs that target poorer municipalities.[8]

We next turn to mayor characteristics (see Column 2). A growing literature has demonstrated that heads of governments' characteristics, such as education, gender and professional background, are important for public service delivery (Brollo & Troiano, 2016; Martinez-Bravo, 2017; Martinez, 2024). Moreover, individual profiles may be even more relevant in low-quality institutional settings (Carreri, 2021). Inspired by this literature, we examine the predictive power of mayor's characteristics for policy prioritization: gender, age, educational attainment, and self-reported political views on a 0-10 left-right scale.

[8]For example, 70 percent of municipality health budgets come from federal transfers, and certain components depend on various factors such as the share of the population in Cadastro Único, a registry for low-income individuals. Confederation of health secretaries Report, 2023, accessed Oct 10, 2024.

We find that having a college education and gender have significant effects. College-educated (64 percent of the survey sample) and male mayors (88.4 percent of the survey sample) are both more likely to consider raising taxes a priority. However, the point estimates are small. Specifically, a male mayor is associated with a 0.0041 standard deviation higher prioritization, and this point estimate is about half for college education.

A third set of factors we consider are meant to capture mayors' electoral incentives (see Column 3). Elections are an important disciplining device with growing evidence that they do indeed constrain politicians (Besley & Burgess, 2002), and term-limits have been found to alter fiscal policy and policy priorities more generally (Besley & Case, 1995; List & Sturm, 2006). Consistent with this, we find that mayors in their second terms, and therefore ineligible for re-election, have a 0.0019 standard deviation higher tax collection prioritization. There is also a large literature documenting that political representation, or a politician's base, also shapes the policies that are put forward (Pande, 2003; Chattopadhyay & Duflo, 2004). We therefore include self-reported information on mayors' perceived political constituencies. Mayors were asked whether they believe particular groups voted for them less, the same, or more than they voted for the runner-up candidate (see Appendix Table A.1 for summary statistics on mayor responses regarding political constituents). We do not find that those with property or business owner constituencies — those most likely to be affected by local tax instruments — have significantly different preferences for raising taxes. When examining voting constituencies along the income margin, we find that mayors that perceive the poor to be an important constituency are much less likely to rate tax collection as a (relative) priority. A one unit increase in mayors reporting that they are more supported by the poor is associated with a 0.15 standard deviation lower rates of prioritizing tax collection.

Note that to the extent that certain characteristics explain selection into our sample and those same characteristics predict the degree a mayor prioritizes tax collection, there could be implications for the external validity of our results to the universe of municipalities. This appears relevant for only three variables: poverty levels, a mayor's education,

and second-term status. We expect bias to be limited because some of the effects are offsetting (i.e. poverty and college implied bias are contrary to the direction of the second-term status bias) and because the magnitudes of the effects of these characteristics on tax prioritization are all small.

Finally, we note that while each set of variables adds explanatory power, the R-squared of our regression in Column 3 is still only 8 percent. This indicates that the vast majority of variation in taxation as a policy priority cannot be explained by simple observable characteristics of either municipalities or mayors or by mayors' political views or incentives.

IV. Tax Intervention Beliefs and Accuracy

Politicians often have significant scope for making decisions that influence state revenue capacity, both in setting the statutory tax schedule and in adopting enforcement or incentive policies that could improve tax compliance. In this section, we focus on the latter and provide evidence on mayors' beliefs about the likely effectiveness of various tax compliance instruments.

Specifically, we analyze mayors' responses to the following series of survey questions: "*How will this policy affect municipal tax revenues (by getting taxpayers to pay their taxes)?*", with 8 answer options (*Decrease, Stay the same, Increase tax revenue by 1, 5, 10, 15, 20 percent*, and *by 25 percent or more*) and "*How confident are you in this guess?*", with options ranging on a 5-point scale from *Not confident at all* to *Very confident*. The policies include: reminding taxpayers about the possibility of audits or penalties for not paying their taxes; reminding taxpayers to pay their taxes on time; reminding taxpayers that most of their neighbors pay their taxes on time; providing discounts on the total amount to be paid for taxpayers who pay on time; and providing tickets for lotteries (for gifts or tax exemptions) for taxpayers who pay on time.

We note that four out of five tax instruments focused on encouraging taxpayers to pay on time, while the outcome variable of interest is municipal tax revenues. Mayors may

have interpreted the question to focus on short-run revenue impacts and/or believe that those who pay in a timely manner are more likely to pay at all. We cannot distinguish beliefs about these two channels from the available survey data.

A. Empirical evidence on the effect of tax policies

We begin by providing a brief review of available evidence on the impacts of the aforementioned tax instruments and then examine how politician beliefs compare and contrast. Comparing the impacts of tax compliance interventions across academic studies is challenging for two reasons. First, even interventions that fall under the same broad umbrella (for example, "threat of audit" or "peer information") often differ in the details. Second, tax compliance itself is multi-dimensional, and various studies define compliance as paying on time, payment on the extensive margin, reported income or revenue, or total tax payment. With these caveats in mind, we turn to summarizing the empirical evidence that most closely relates to each of the five tax instruments asked about in the survey.

Reminders: Audits/Penalties. Out of the five potential interventions, research examining the effect of highlighting traditional enforcement (audits and penalties) is the most longstanding and extensive. A number of randomized trials have sent notifications to taxpayers to increase their objective or subjective audit probabilities or to make fines and penalties for non-compliance more salient. These studies have often found positive effects on tax revenues, though the range of effects varies widely. For example, Bergolo *et al.* (2023) report a 7 percent increase in VAT payments in Uruguay, and, more closely related to local taxes, which are the focus of our study, Hernandez *et al.* (2017) document a 15 percent increase in property tax payments in Poland. In contrast, other studies find significantly larger effects, with increases of nearly 40 percent (Shimeles *et al.*, 2017) or more than double (Brockmeyer *et al.*, 2019). Additionally, Holz *et al.* (2020) document tax payment increases ranging from 13 to 45 percent, varying based on the type of message and whether the taxpayers were self-reported workers or firms. However, there are also

studies that have found no significant effect on tax payments (Cohen, 2024) or effects that are concentrated among certain subgroups of taxpayers (Slemrod *et al.*, 2001; Mascagni & Nell, 2022). In some cases, effects fail to persist beyond the short run (Bergolo *et al.*, 2023).[9] Overall, the existing empirical literature provides a wide range of estimates of audits and penalties on revenue (from 0 percent to more than double), which is perhaps not surprising given that the specifics of the message and the type of tax payment targeted vary across studies.

Reminders: Pay on Time. Isolating the effect of a pure reminder to pay on time is difficult. In many contexts, even receiving a notification from the tax authority may itself carry a perceived increase in enforcement. While reminder messages or texts about payment deadlines have been shown to increase timely payment (Del Carpio, 2013; Hallsworth *et al.*, 2017; Cohen, 2024) and declared income (Kettle *et al.*, 2016; Mascagni & Nell, 2022), evidence on whether pure reminders actually increase tax revenues is limited and mixed. The strongest evidence comes from Cohen (2024), who finds a 10 percent increase in the amount paid for the presumptive tax——a final tax on business income. However, they report no significant effect on the overall tax amounts or the personal income tax.

Reminders: Neighbors Pay on Time. Another strand of literature has tested interventions designed to appeal to tax morale, including messages that appeal to norms of equity, fairness, social pressure, recognition, or information about public goods. The evidence from this literature is mixed. A few studies have focused specifically on messages that include peer information. Most of these studies focus on timely payments or payments on the extensive margin, documenting effects ranging from 4 to 18 percent (Del Carpio, 2013; Bott *et al.*, 2017; Hallsworth *et al.*, 2017; Hernandez *et al.*, 2017). However, Castro & Scartascini (2015) find no average effect for the peer information treatment. Only Hallsworth *et al.* (2017) examine the impact on tax revenue and report a 12 percent increase in payment amounts.

[9] Another set of papers examine the impact on timely payments or payment on the extensive margin (Del Carpio, 2013; Castro & Scartascini, 2015; De Neve *et al.*, 2021), as well as on reported income (Bott *et al.*, 2017).

Tax Discount: Timely Payment. Tax authorities may also use positive financial incentives to encourage tax compliance, with the idea that resulting increases in tax revenue will more than offset the outlays from the incentives. To the best of our knowledge, there exists very limited evidence on the effect of the introduction of tax discounts on tax compliance. An exception is Dunning *et al.* (2024), who analyze a policy implemented in Uruguay in which the government randomly assigned year-long "tax holidays" — interruptions of payments — to taxpayers who paid their taxes on time. The authors found that the policy failed to enhance compliance, and recipients of the tax holiday experienced a substantial and prolonged reduction in payments after its conclusion. Additionally, examining a property tax amnesty in Argentina, Lauletta & Campos (2018) report a differential decrease in tax compliance among wealthier taxpayers and those with limited access to public goods.

Lottery Tickets: Timely Payment. A different type of financial incentive that some tax authorities have experimented with is introducing lottery tickets that are tied in some way to tax compliance. Evidence is limited and mixed regarding whether offering lottery tickets redeemable for gifts or tax exemptions to taxpayers who pay on time effectively increases tax revenue. Carrillo *et al.* (2021), for example, examined the impact of incentives on property tax compliance in Argentina, finding that while winning the lottery was associated with a 21 percent reduction in late payments, this did not lead to a significant increase in overall tax payments, as only a small proportion of taxpayers settled their overdue taxes to participate. In contrast, Naritomi (2019) found that implementing lottery tickets with monetary rewards for consumers, incentivizing them to ensure firms report sales, increased firms' reported sales by at least 21 percent over four years, translating into an estimated 9.3 percent increase in tax revenue. Similarly, Wan (2010) argues that a program that turns receipts into lottery tickets in China was effective, increasing total tax revenues by over 10.4 percent.

B. Mayor Beliefs about Policy Effectiveness

We now turn to the survey responses and document four key findings. First, in each case, the majority of mayors believe that the potential intervention would raise tax revenue. Second, mayors overall appear to be more optimistic about revenue impacts than is supported by the existing empirical evidence. Third, mayors are generally confident in their beliefs, even when the available evidence from the literature is quite limited or when their beliefs are highly optimistic relative to the empirical evidence. Finally, municipality and mayor characteristics are not predictive of mayor beliefs about policy effectiveness.

Figure 2 presents histograms of mayors' responses to each of the five survey questions, with the lighter bars denoting respondents that indicated that they were confident, quite confident, or very confident in their beliefs. Mayors appear to view the potential of these interventions quite favorably across the board. In all cases, less than 4 percent of respondents believed the intervention would backfire and result in a reduction in revenue. While some reported a belief that revenues would stay the same, the majority of respondents believed revenue would increase in all cases: reminders of audits / penalties (87.4 percent); reminders to pay on time (86.7 percent); reminders that neighbors pay on time (54.9 percent); tax discounts for timely payment (95.1 percent); and lottery tickets for timely payment (76.8 percent). Overall, mayors appear most optimistic about the revenue effects of a tax discount intervention and least optimistic about providing reminders that neighbors pay on time.

How do these beliefs compare with the empirical evidence outlined above? While it is difficult to make direct comparisons (for example, the tax instruments available to Brazilian mayors differ from the instruments examined in many of these studies), it appears that mayor beliefs are broadly in line with the empirical evidence in the cases of reminders about audits and penalties and reminders that the neighbors pay on time, and optimistic — often highly so — for the remaining interventions. 26 percent of mayors report that they believe reminders about audits and penalties would increase revenues by

10 percent, with 36.2 percent being less optimistic and 37.9 percent being more optimistic. Both the mean and the (high) variance in beliefs are consistent with the estimates described above. In the case of the neighbors intervention, more than to 40 percent believe the policy would have no effect on revenues, by far the highest null effect prior across the interventions. Of those reporting a positive anticipated effect, responses are centered in the 5-15 percent range, which we see as broadly consistent with the literature.

For the other three interventions, mayors appear systematically overoptimistic. There is little evidence that pure reminders to pay on time increase actual revenue collection (versus other outcomes, such as timely payment), but 86.7 percent of mayors believe such notifications would have a positive effect, with 27.4 percent reporting a belief that revenue collection would increase by 15 percent or more. For lottery tickets, the closest study to our context is Carrillo *et al.* (2021), who examine property tax collection in Argentina, and do not find evidence of positive revenue impacts. Other lottery studies, examining the effects of turning VAT receipts into lottery tickets, have found revenue impacts in the 10 percent range. In contrast, 77 percent of mayors believe lottery tickets would have a positive impact, with close to 40 percent anticipating a revenue effect of 15 percent or more. Finally, Dunning *et al.* (2024) find that a randomized tax holiday program in Uruguay for timely payment actually backfired and reduced revenue collection, as does Lauletta & Campos (2018), when looking at a property tax amnesty in Argentina. Only 2.6 percent of mayors report that they believe tax discounts would backfire, and the vast majority are optimistic, with over 90 percent believing a discount program would increase revenue collection by at least 5 percent and over a quarter of respondents reporting a revenue increase of 25 percent. A striking finding from these results as a whole is that mayors appear most overoptimistic where the empirical evidence is most limited (lotteries and tax discounts).

A second striking finding from Figure 2 is how confident mayors are in their beliefs.[10] Across all interventions, the majority of mayors express confidence in their beliefs about

[10]We categorize as 'Confident' responses indicating 'confident,' 'quite confident,' or 'very confident.' Responses of 'not confident at all' or 'somewhat confident' are categorized as 'Not confident.'

policy effectiveness. This is true even for interventions such as tax discounts and lotteries, where the existing empirical evidence remains limited. Surprisingly, the share of respondents expressing confidence in their beliefs generally *increases* as priors on the level of revenue gain from the intervention increases. For example, across interventions, virtually all respondents reporting that the proposed intervention would increase revenue by 15, 20, or 25 percent expressed confidence in their beliefs.[11] As discussed above, these estimates of revenue gains are generally well above what the empirical literature has found to date, with the possible exception of reminders regarding audits and penalties.

Interestingly, our findings on politician optimism and confidence are consistent with recent work on how policymaker and researcher/practitioner beliefs differ systematically. Vivalt & Coville (2023) conduct a series of experiments in collaboration with the World Bank and the Inter-American Development Bank. As part of their study, they elicit beliefs on the likely treatment effects of two common development programs: conditional cash transfers and school meals. A key takeaway from their study is that "[i]nitially, policymakers both believe development programs will have more positive results and are more certain about it than policy practitioners and researchers, despite reporting less familiarity with the programs." We do not have direct evidence on researcher beliefs about the treatment effects of the tax interventions in our study. However, to the extent that researcher beliefs reflect the mean and variance of the existing evidence, our findings may reflect general patterns about politician priors on the likely success of policy interventions rather than beliefs that are specific to the tax context.

Finally, we examine whether municipality characteristics, mayor characteristics, or mayors' political incentives (the same set of variables we focused on in Section III) have predictive power over mayors' beliefs about the likely impact of these tax interventions. As can be seen in Table 4, there are no systematic patterns and the majority of variables do not have statistically significant predictive power. In addition, the R-squareds of these regressions range from 2 to 5 percent, implying that the vast majority of variation in mayor

[11] Shares are smaller but still substantial when we instead define confidence as quite confident or very confident; overall, relatively few mayors indicate that they are very confident in their beliefs.

responses cannot be explained by these factors.

V. Perceptions and Policy Action

Two stylized facts from the survey evidence are that (1) policymakers put high priority on raising local revenue collection; and (2) policymakers generally have strong priors that a variety of tax compliance interventions have the potential to raise revenue. A next question is whether or not these stated preferences and beliefs translate into actions. Answering this question is challenging for two reasons. First, municipalities may vary in the opportunities and constraints they face in raising taxes. Second, we typically do not have data on individual attributes beyond basic demographics. Our setting allows us to overcome both of these limitations by combining our survey responses with the experiment conducted in Hjort *et al.* (2021).

At the same venue where the survey was implemented, a sample of mayors were randomly invited to participate in an in-person informational session on how to raise tax revenues. Details on this experiment and subsequent policy adoption are provided in Hjort *et al.* (2021).

We examine whether survey preferences and beliefs are predictive of whether or not mayors seek out information by attending the tax revenue session. This provides us a unique setting in which the opportunity to seek knowledge is assigned and we can therefore test whether leader identity matters for take-up. In addition, we know from Hjort *et al.* (2021) that institutional and municipal characteristics have very limited predictive power to explain session participation, whereas the mayors' individual characteristics, such as age and college education, are stronger drivers of session participation.[12] However, the administrative data used in Hjort *et al.* (2021) is limited on individual attributes. The mayor survey offers a unique opportunity to expand on the mayors' individual views and characteristics to understand the extent to which they matter.

[12]See Appendix Table A.9 in Hjort *et al.* (2021). As per their interpretation: "Younger and college-educated mayors are 7 and 15 percentage points more likely to participate than others, but term-limited mayors are no less likely to participate than mayors in their first term. None of the municipal characteristics, such as poverty rates, inequality, or income per capita, predict participation."

Table 5 examines the predictors of session participation. We group our regressors into (1) mayors' preferences, as proxied by whether they report tax as a priority, the profile of their constituencies, and self-reported political views; and (2) mayors' beliefs about tax instruments. Of the 881 mayors that were invited to participate in the sessions, we have survey responses for 212 mayors. The mayors that answer the survey are generally similar to the ones that do not (see Appendix Table A.2). We use the few characteristics for which they differ, namely poverty and college education, as controls in the analysis (see Table 5). These controls do not substantively affect our point estimates or statistical significance.

We find that reporting tax collection as a priority has limited predictive power in explaining session participation. However, mayors that perceive the poor as an important part of their voter base and mayors whose political views are right-leaning are both *less* likely to participate in the information session. A one-unit increase (on a three-point scale) of mayors reporting that they are more supported by the poor is associated with an 8-9 p.p. lower probability of participating in the session. This magnitude is similar to a change in the mayors' political view from center-right (political views equal to 7) to extreme-right (political views equal to 10).

We then examine the effects of expectations and confidence on session attendance. Note that while in practice the information session focused on tax reminder instruments, invited mayors did not know this ex ante: the topic of the session was described as focusing on raising local tax revenue. We therefore expect that mayors who are generally hopeful about any of the tax instruments would be more likely to attend. The effect of confidence is less clear: mayors with a high degree of uncertainty might be more likely to seek out additional information, but it is also possible that mayors who are confident in their beliefs that tax interventions can be successful would choose to attend. As discussed above, confidence is generally positively correlated with revenue expectations.

We find that a mayor's belief about tax instrument effectiveness is positively associated with session participation while their degree of confidence is negatively associated.

The direction of the point estimates holds whether we define effectiveness and confidence as being the mean (Column 1) or maximum (Column 2) across interventions. However, only mayors' maximum reported tax instrument effectiveness is a significant predictor of session participation.

Using Hjort *et al.* (2021) estimates of the effect of attending information sessions on policy adoption, we can make a rough estimate of the implied effect of beliefs on adopting a reminder letter policy. Leaders with more optimistic beliefs about the most effective tax instrument — those in the third quartile of the belief distribution compared to the first quartile — are 11 percentage points more likely to attend the information session, and this translates to a 1.1 percentage point increase in the probability of adopting the policy.[13]

VI. Conclusion

Politicians are a key intermediary between voters' political preferences and program implementation: they often set the policy agenda and have important decision-making roles. An emerging literature has stressed the importance of leader characteristics, but information beyond basic demographics is generally limited in administrative data. We contribute to this literature by exploiting rich survey data on preferences and beliefs of politicians in a large sample of Brazilian mayors. This sample is broadly representative of all local leaders in Brazil.

When understanding how tax policy is determined, it is important to understand how leaders prioritize tax collection as well as their priors about the effectiveness of tax compliance interventions. We find that mayors do indeed consider raising tax a high priority (though somewhat less so than core spending areas, such as health and education). This is striking, since own-source revenue in Brazil is a very limited share of overall local budgets, as is the case in many LMICs. Mayors generally have quite favorable views about the revenue potential of interventions to improve compliance, often expressing more op-

[13] We derive this estimate by combining three factors: the difference between belief quartiles (a 2-unit shift in the categorical measure), the predicted effect of beliefs about the most effective instrument on session attendance (0.0565), and the estimated impact of attending a session on policy adoption (0.1).

timistic and more confident beliefs than are supported by the existing empirical evidence. At the same time, we find that most municipal and mayoral characteristics have limited predictive power over preferences and beliefs, and most of the variation in these measures appears idiosyncratic.

Finally, we are able to provide novel evidence on how political incentives, beliefs and preferences translate into demand for knowledge by linking survey data with data from Hjort *et al.* (2021) on whether randomly invited mayors attend a tax information session. We find that right-leaning politicians and those who perceive the poor to be an important constituency are less likely to attend, while a stated priority for tax collection is not predictive. Finally, we find some evidence that those with stronger priors about the effectiveness of at least one potential tax intervention are more likely to seek out further information.

These findings have important broader implications for linking research to tax policy. While a growing body of randomized controlled trials in both low- and high-income countries have tested the effectiveness of various tax interventions, the ultimate impact of this research generally depends on policy adoption by elected leaders. Our results indicate that attempting to target information to leaders likely to be receptive based on readily available administrative data or even expressed priority is challenging; broad-based information provision about "what works" may be more effective. Once leaders update their beliefs positively, they may be more likely to seek out further information and move forward with policy adoption.

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References

ASHWORTH, JOHN, & HEYNDELS, BRUNO. 1997. Politicians' preferences on local tax rates: An empirical analysis. *European Journal of Political Economy*, **13**.

BANURI, SHEHERYAR, DERCON, STEFAN, & GAURI, VARUN. 2019. Biased Policy Professionals. *World Bank Economic Review*, **33**.

BERGOLO, MARCELO, CENI, RODRIGO, CRUCES, GUILLERMO, GIACCOBASSO, MATIAS, & PEREZ-TRUGLIA, RICARDO. 2023. Tax Audits as Scarecrows: Evidence from a Large-Scale Field Experiment. *American Economic Journal: Economic Policy*, **15**.

BESLEY, TIMOTHY, & BURGESS, ROBIN. 2002. The political economy of government responsiveness: Theory and evidence from India. *Quarterly Journal of Economics*, **117**.

BESLEY, TIMOTHY, & CASE, ANNE. 1995. Does electoral accountability affect economic policy choices?evidence from gubernatorial term limits. *Quarterly Journal of Economics*, **110**.

BOTT, KRISTINA MARIA, CAPPELEN, ALEXANDER W., SORENSEN, ERIK, & TUNGODDEN, BERTIL. 2017. You've Got Mail: A Randomised Field Experiment on Tax Evasion. *SSRN Electronic Journal*.

BROCKMEYER, ANNE, SMITH, SPENCER, HERNANDEZ, MARCO, & KETTLE, STEWART. 2019. Casting a wider tax net: Experimental evidence from Costa Rica. *American Economic Journal: Economic Policy*, **11**.

BROLLO, FERNANDA, & TROIANO, UGO. 2016. What happens when a woman wins an election? Evidence from close races in Brazil. *Journal of Development Economics*, **122**.

CARRERI, MARIA. 2021. Can good politicians compensate for bad institutions? Evidence from an original survey of italian mayors. *Journal of Politics*, **83**.

CARRILLO, PAUL E., CASTRO, EDGAR, & SCARTASCINI, CARLOS. 2021. Public good provision and property tax compliance: Evidence from a natural experiment. *Journal of Public Economics*, **198**.

CARVALHO JUNIOR, PEDRO HUMBERTO BRUNO. 2013. Property tax performance in Rio de Janeiro. *Journal of Property Tax Assessment & Administration*, **10**(4), 19–37.

CARVALHO JUNIOR, PEDRO HUMBERTO BRUNO. 2017. *Property tax performance and potential in Brazil*. Ph.D. thesis, University of Pretoria.

CARVALHO JUNIOR, PEDRO HUMBERTO BRUNO. 2018. *Panorama do IPTU: Um retrato da administração tributária em 53 cidades selecionadas*. Tech. rept. Instituto de Pesquisa Econômica Aplicada (Ipea).

CASTRO, LUCIO, & SCARTASCINI, CARLOS. 2015. Tax compliance and enforcement in the pampas evidence from a field experiment. *Journal of Economic Behavior and Organization*, **116**.

CHATTOPADHYAY, RAGHABENDRA, & DUFLO, ESTHER. 2004. *Women as policy makers: Evidence from a randomized policy experiment in India*.

COHEN, ISABELLE. 2024. Technology and the state: Building capacity to tax via text. *Journal of Public Economics*, **236**, 105154.

DE CESARE, CLAUDIO, & SMOLKA, MARTIM. 2004. *Diagnóstico sobre o IPTU*. Tech. rept. Lincoln Institute of Land Policy.

DEL CARPIO, LUCIA. 2013. Are the Neighbors Cheating? Evidence from a Social Norm Experiment on Property Taxes in Peru. *Unpublished Manuscript*.

DE NEVE, JAN EMMANUEL, IMBERT, CLÉMENT, SPINNEWIJN, JOHANNES, TSANKOVA, TEODORA, & LUTS, MAARTEN. 2021. How to improve tax compliance? Evidence from population-wide experiments in Belgium. *Journal of Political Economy*, **129**.

DUNNING, THAD, MONESTIER, FELIPE, PIÑEIRO, RAFAEL, ROSENBLATT, FERNANDO, & TUÑÓN, GUADALUPE. 2024. Disrupting Compliance: The Impact of a Randomized Tax Holiday in Uruguay. *The Journal of Politics*.

FERRAZ, CLAUDIO, FOREMNY, DIRK, & SANTINI, JUAN FRANCISCO. 2024. *Revenue Slumps and Fiscal Capacity: Evidence from Brazil*. Working Paper 32440. National Bureau of Economic Research.

FISMAN, RAYMOND, GLADSTONE, KEITH, KUZIEMKO, ILYANA, & NAIDU, SURESH. 2020. Do Americans want to tax wealth? Evidence from online surveys. *Journal of Public Economics*, **188**.

GADENNE, LUCIE. 2017. Tax me, but spend wisely? Sources of public finance and government accountability. *American Economic Journal: Applied Economics*, 274–314.

GADENNE, LUCIE, & SINGHAL, MONICA. 2014. Decentralization in developing economies. *Annual Review of Economics*, **6**.

HALLSWORTH, MICHAEL, LIST, JOHN A., METCALFE, ROBERT D., & VLAEV, IVO. 2017. The behavioralist as tax collector: Using natural field experiments to enhance tax compliance. *Journal of Public Economics*, **148**.

HERNANDEZ, MARCO, JAMISON, JULIAN, KORCZYC, EWA, MAZAR, NINA, & SORMANI, ROBERTO. 2017. Applying Behavioral Insights to Improve Tax Collection: Experimental Evidence from Poland. *Washington, D.C. : World Bank Group.*

HJORT, JONAS, MOREIRA, DIANA, RAO, GAUTAM, & SANTINI, JUAN FRANCISCO. 2021. How research affects policy: Experimental evidence from 2,150 brazilian municipalities. *American Economic Review*, **111**.

HOLZ, JUSTIN, LIST, JOHN A., ZENTNER, ALEJANDRO, CARDOZA, MARVIN, & ZENTNER, JOAQUIN. 2020. The $100 Million Nudge: Increasing Tax Compliance of Busi-

nesses and the Self-Employed Using a Natural Field Experiment. *SSRN Electronic Journal*.

IARYCZOWER, MATIAS, KIM, GALILEU, & MONTERO, SERGIO. 2024. Representation Failure. *R&R, Econometrica*.

JENSEN, ANDRES, & WEIGEL, JONATHAN. 2024. No Taxation Without the State: Bringing Tax Administration Back Into the Study of Tax Capacity. *In preparation for Journal of Economic Literature*.

KETTLE, STEWART, HERNANDEZ, MARCO, RUDA, SIMON, & SANDERS, MICHAEL. 2016. Behavioral Interventions in Tax Compliance: Evidence from Guatemala. *Washington, D.C. World Bank Group.*

LAULETTA, MAXIMILIANO, & CAMPOS, FELIPE MONTANO. 2018. Governments Pardons and Tax Compliance: The Importance of Wealth and Access to Public Goods. *Revista de Economia Politica de Buenos Aires*, **17**.

LEE, DAVID S., MORETTI, ENRICO, & BUTLER, MATTHEW J. 2004. *Do voters affect or elect policies? Evidence from the U. S. house*.

LIST, JOHN A., & STURM, DANIEL M. 2006. How elections matter: Theory and evidence from environmental policy. *Quarterly Journal of Economics*, **121**.

MARTINEZ, SOCORRO. 2024. How Do Business Owners Run Governments? Evidence from Brazilian Municipalities. *American Economic Journal: Applied Economics*.

MARTINEZ-BRAVO, MONICA. 2017. The local political economy effects of school construction in Indonesia. *American Economic Journal: Applied Economics*, **9**.

MASCAGNI, GIULIA, & NELL, CHRISTOPHER. 2022. Tax Compliance in Rwanda: Evidence from a Message Field Experiment. *Economic Development and Cultural Change*, **70**.

MOREIRA, DIANA, & SANTINI, JUAN FRANCISCO. 2022. Conectando Pesquisa a Gestão Municipal: Avaliações de impacto imfluenciam a formação de política pública? *Livros*.

NARITOMI, JOANA. 2019. Consumers as tax auditors†. *American Economic Review*, **109**.

NELLIS, GARETH, DUNNING, THAD, GROSSMAN, GUY, HUMPHREYS, MACARTAN, HYDE, SUSAN D., MCINTOSH, CRAIG, & REARDON, CATLAN. 2019. *Learning about Cumulative Learning: An Experiment with Policy Practitioners*. Cambridge University Press. Page 375–400.

PANDE, ROHINI. 2003. Can mandated political representation increase policy influence for disadvantaged minorities? Theory and evidence from India. *American Economic Review*, **93**.

ROGGER, DANIEL, & SOMANI, RAVI. 2023. Hierarchy and Information. *Journal of Public Economics*, **219**.

SHIMELES, ABEBE, GURARA, DANIEL ZERFU, & WOLDEYES, FIREW. 2017. Taxman's dilemma: Coercion or persuasion? Evidence from a randomized field experiment in Ethiopia. *In: American Economic Review*, vol. 107.

SLEMROD, JOEL. 2019. *Tax compliance and enforcement†*.

SLEMROD, JOEL, BLUMENTHAL, MARSHA, & CHRISTIAN, CHARLES. 2001. Taxpayer response to an increased probability of audit: Evidence from a controlled experiment in Minnesota. *Journal of Public Economics*, **79**.

STANTCHEVA, STEFANIE. 2021. Understanding Tax Policy: How do People Reason? *Quarterly Journal of Economics*, **136**.

VIVALT, EVA, & COVILLE, AIDAN. 2023. How do policymakers update their beliefs? *Journal of Development Economics*, **165**.

WAN, JUNMIN. 2010. The incentive to declare taxes and tax revenue: The lottery receipt experiment in China. *Review of Development Economics*, **14**.

TABLE 1: REVENUES AND EXPENDITURES OF BRAZILIAN MUNICIPALITIES, 2016

Variables	Share of Total (%)	USD Per Capita
REVENUES	100.0	1051.4
Local Tax Revenue	**5.7**	**59.2**
	(7.1)	(81.8)
Business Taxes (ISS)	2.7	28.2
	(3.7)	(57.6)
Urban Property Taxes (IPTU)	1.3	13.4
	(2.7)	(30.5)
Real Estate Transaction Taxes (ITBI)	0.8	8.5
	(1.3)	(13.0)
Other Local Taxes	1.4	13.1
	(3.4)	(12.4)
Intergovernmental transfers	**81.4**	**849.1**
	(11.8)	(417.7)
Federal Government	46.1	485.1
	(13.7)	(297.1)
State Government	19.1	219.3
	(9.5)	(199.7)
Other Intergovernmental Transfers	16.7	150.1
	(9.9)	(67.1)
Other Revenues	**13.2**	**147.1**
	(9.5)	(163.8)
EXPENDITURES	100.0	871.6
Health	24.1	207.9
	(5.0)	(94.1)
Education	31.7	260.3
	(9.4)	(97.1)
Sanitation	2.2	19.6
	(2.8)	(26.2)
Transportation	3.8	39.7
	(4.2)	(57.5)
Urban Development	8.1	71.1
	(4.7)	(62.1)
Administration	14.8	134.5
	(7.3)	(106.6)
Other Expenditures	17.9	161.9
	(7.4)	(113.6)

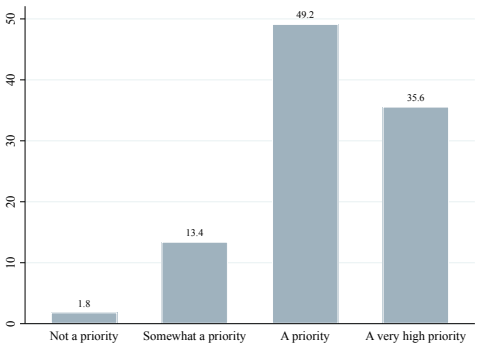
Notes: The values in each panel represent the mean (standard deviation) across municipalities of the share of each variable relative to total revenues (top panel) or expenditures (bottom panel), as well as the per capita value in USD. As a result, and due to rounding, the variables may not sum exactly to total revenues or total expenditures. The sample includes data from 5,442 municipalities for revenues and 5,447 for expenditures. 'Other Revenues' include various categories of revenue, such as contributions, asset and rental income, credit operations, fines and penalties, non-governmental grants, among other. 'Other Expenditures' include 21 categories of expenditure, such as social assistance, social security, culture, sports, and housing. As of December 2016, the exchange rate was 1 Brazilian Real (BRL) to 0.3 US Dollars (USD).

TABLE 2: SUMMARY STATISTICS

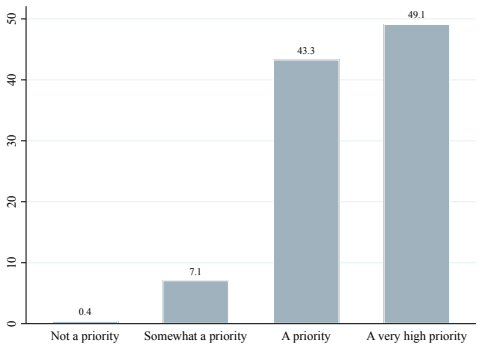
	Survey Sample		All Municipalities		Means
Variables	N	Mean	N	Mean	Difference
Municipalities' Characteristics					
Population 2016	716	19.0	5570	37.0	-18.0 **
		(24.3)		(217.0)	
Gini	716	49.5	5565	49.4	0.0
		(7.0)		(6.6)	
Poverty	716	21.8	5565	23.2	-1.4 *
		(17.3)		(17.9)	
Local Tax Revenues (% of total)	715	6.1	5563	6.4	-0.3
		(4.7)		(5.7)	
Mayors' Characteristics					
Male	713	88.4	5483	88.4	-0.1
		(32.1)		(32.0)	
Age	713	46.6	5483	48.9	-2.4 ***
		(10.2)		(16.4)	
College	713	64.1	5483	52.3	11.8 ***
		(48.0)		(50.0)	
2nd Term	713	15.0	5483	22.7	-7.7 ***
		(35.7)		(41.9)	
Tax Policies 2015					
IPTU Tax - existence	716	95.5	5569	94.8	0.7
		(20.7)		(22.2)	
ISS Tax - existence	716	94.1	5569	94.5	-0.4
		(23.5)		(22.8)	

Notes: Mean (standard deviation). The 'Survey Sample' includes 716 municipalities. 'All Municipalities' refers to the total of 5,570 municipalities in Brazil. Population indicates municipality number of inhabitants (in thousands). Local Tax Revenues indicates the average share of municipal tax revenues on total municipal revenues from 2010 to 2015. IPTU is Brazil's municipal urban property tax and ISS is the municipal business tax. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

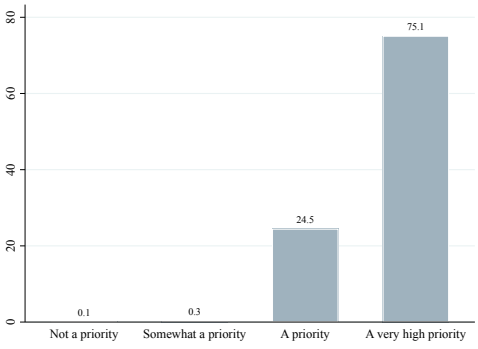
FIGURE 1: MAYORS' POLICY PRIORITIES



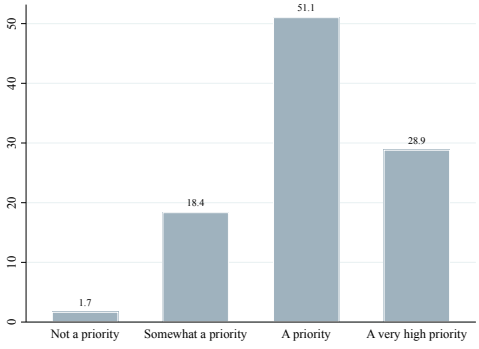
TAX COLLECTION



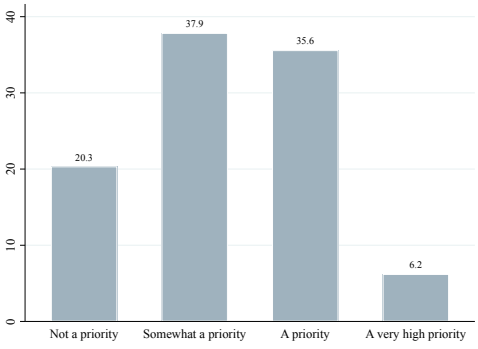
PRE-K AND PRIMARY EDUCATION



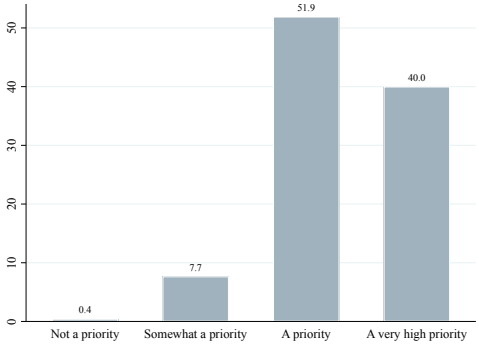
HEALTHCARE



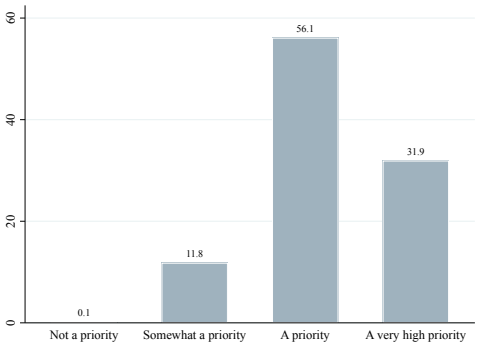
SANITATION



PUBLIC TRANSPORTATION



PUBLIC EMPLOYEES PERFORMANCE



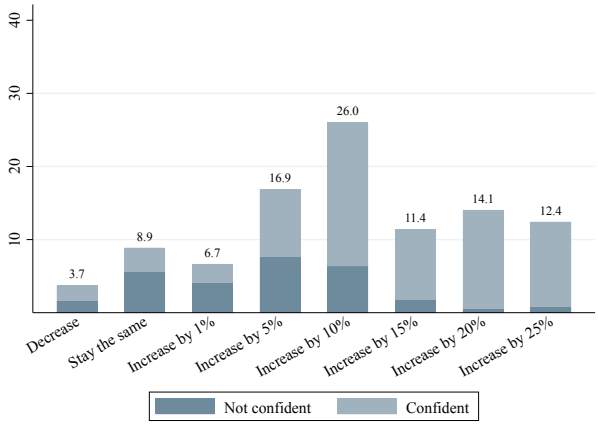
ROAD MAINTENANCE

TABLE 3: PREDICTORS OF TAX COLLECTION AS A PRIORITY

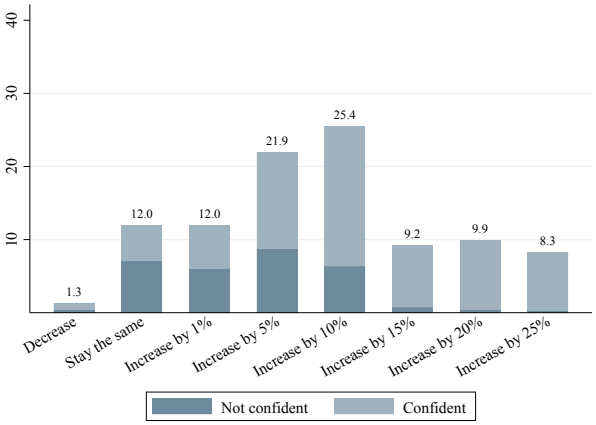
	Tax Collection Priority		
LHS Variable	(1)	(2)	(3)
Municipalities' Characteristics			
Population	-0.0007	-0.0013	-0.0010
	(0.0021)	(0.0020)	(0.0021)
Gini	0.0267 ***	0.0246 ***	0.0247 ***
	(0.0078)	(0.0079)	(0.0081)
Poverty	-0.0158 ***	-0.0146 ***	-0.0141 ***
	(0.0034)	(0.0035)	(0.0036)
Local Tax Revenues (% of total)	-0.0051	-0.0041	-0.0035
	(0.0095)	(0.0092)	(0.0094)
Mayors' Characteristics			
Male		0.0041 ***	0.0039 ***
		(0.0013)	(0.0013)
Age		0.0032	0.0033
		(0.0038)	(0.0038)
College		0.0017 **	0.0017 **
		(0.0008)	(0.0009)
Political Views		-0.0200	-0.0226
		(0.0196)	(0.0198)
Political variables			
2nd Term			0.0019 *
			(0.0010)
Voters: Property Owners			-0.0023
			(0.0687)
Voters: Business Owners			0.0152
			(0.0706)
Voters: Poor People			-0.1519 **
			(0.0610)
Voters: Middle-Income People			0.0233
			(0.0645)
Voters: Rich People			-0.0309
			(0.0544)
Constant	-0.9748 ***	-1.4045 ***	-1.0576 **
	(0.3283)	(0.4307)	(0.5042)
R-squared	0.04	0.06	0.08
Observations	707	677	667

Notes: OLS results. The dependent variable represents the priority that mayors assign to tax collection. This variable is constructed in two steps. First, for each respondent, we subtract the mean of their responses to all other priority questions from tax collection as a priority, obtaining a residual. We then standardize this residual across the entire distribution of respondents to facilitate interpretation. Local Tax Revenues indicates the average share of municipal tax revenues on total municipal revenues from 2010 to 2015. Political views are measured on a left-right scale, where 0 represents the most left-leaning and 10 the most right-leaning position. The 'Voters' variables are categorical, indicating whether mayors believe these groups voted for them less, the same, or more compared to the runner-up mayoral candidate. Robust standard errors are in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

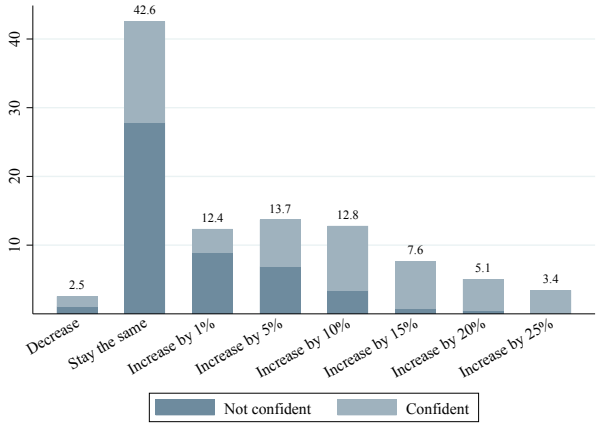
FIGURE 2: MAYORS' BELIEFS ON TAX POLICIES' IMPACTS



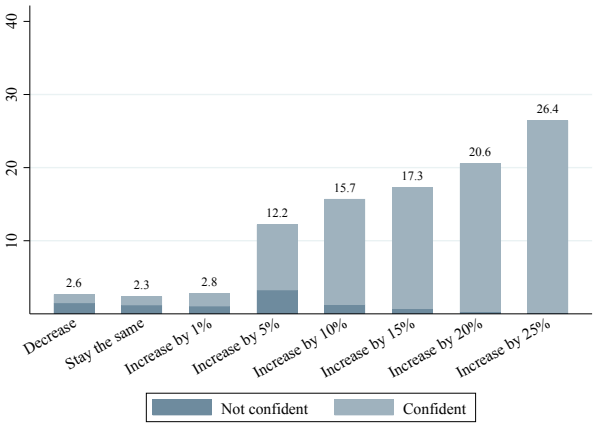
REMINDERS: AUDITS/PENALTIES



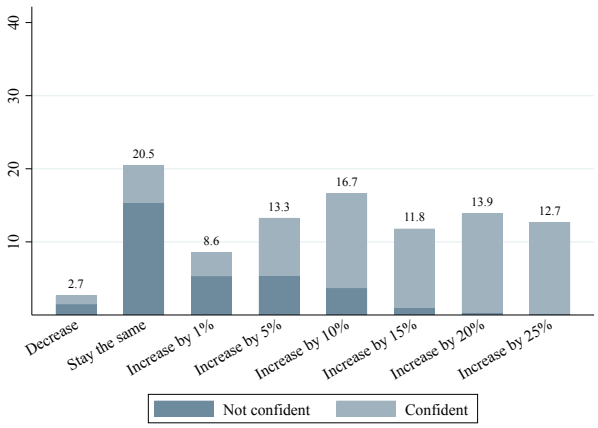
REMINDERS: PAY ON TIME



REMINDERS: NEIGHBORS PAY ON TIME



TAX DISCOUNT: TIMELY PAYMENT



LOTTERY TICKETS: TIMELY PAYMENT

TABLE 4: PREDICTORS OF MAYORS' BELIEFS ON TAX POLICIES' IMPACTS

		Tax Reminders		Tax	Lottery
	Audits/Penalties	Pay on Time	Neighbors	Discounts	Tickets
LHS Variable	(1)	(2)	(3)	(4)	(5)
Municipalities' Characteristics					
Population	-0.0026	0.0019	0.0004	0.0071 **	0.0147 ***
	(0.0040)	(0.0034)	(0.0027)	(0.0031)	(0.0035)
Gini	0.0130	-0.0048	-0.0119	0.0003	-0.0094
	(0.0145)	(0.0141)	(0.0141)	(0.0134)	(0.0160)
Poverty	-0.0181 **	-0.0050	0.0126 *	-0.0017	0.0139 *
	(0.0070)	(0.0066)	(0.0066)	(0.0061)	(0.0075)
Local Tax Revenue (% of total)	-0.0067	-0.0234	0.0043	-0.0216	-0.0520 **
	(0.0178)	(0.0172)	(0.0177)	(0.0172)	(0.0203)
Mayors' Characteristics					
Male	0.0004	0.0020	0.0008	-0.0004	-0.0029
	(0.0023)	(0.0022)	(0.0022)	(0.0022)	(0.0028)
Age	0.0021	0.0109 *	0.0157 **	0.0032	-0.0061
	(0.0073)	(0.0066)	(0.0069)	(0.0069)	(0.0082)
College	0.0022	-0.0010	-0.0024	0.0037 **	0.0028
	(0.0017)	(0.0015)	(0.0016)	(0.0015)	(0.0018)
Political Views	0.0620	0.0519	-0.0313	0.0423	0.0088
	(0.0393)	(0.0337)	(0.0357)	(0.0369)	(0.0407)
Political variables					
2nd Term	0.0011	-0.0022	0.0001	0.0023	0.0025
	(0.0021)	(0.0019)	(0.0020)	(0.0018)	(0.0025)
Voters: Property Owners	0.0754	0.1176	0.1225	0.1157	-0.0800
	(0.1341)	(0.1195)	(0.1146)	(0.1260)	(0.1394)
Voters: Business Owners	0.1252	0.0851	-0.1432	0.1901	0.1113
	(0.1324)	(0.1201)	(0.1194)	(0.1210)	(0.1375)
Voters: Poor People	-0.0573	-0.1630	-0.1436	0.0981	0.1059
	(0.1266)	(0.1154)	(0.1112)	(0.1147)	(0.1395)
Voters: Middle-Income People	0.0197	0.0652	0.0085	0.0887	-0.1158
	(0.1355)	(0.1250)	(0.1240)	(0.1233)	(0.1459)
Voters: Rich People	-0.1138	-0.1654	-0.0049	-0.1586	0.0716
	(0.1154)	(0.1022)	(0.1047)	(0.1113)	(0.1274)
Constant	4.0490 ***	4.3094 ***	3.7681 ***	4.5242 ***	5.0199 ***
	(0.9521)	(0.8632)	(0.8698)	(0.8940)	(1.0884)
R-squared	0.03	0.02	0.03	0.03	0.05
Observations	654	650	645	650	647

Notes: OLS results. The dependent variable is categorical, reflecting mayors' beliefs about how each tax instrument will impact municipal tax revenues. It is measured on a 1–8 scale (see survey questions in Appendix A). The dependent variable represents different tax instruments across columns: (1) reminders about the possibility of audits or penalties for nonpayment, (2) reminders to pay taxes on time, (3) reminders that most neighbors pay taxes on time, (4) tax discounts for timely payment, and (5) lottery tickets for taxpayers who pay on time. Local Tax Revenues indicates the average share of municipal tax revenues on total municipal revenues from 2010 to 2015. Political views are measured on a left-right scale, where 0 represents the most left-leaning and 10 the most right-leaning position. The 'Voters' variables are categorical, indicating whether mayors believe these groups voted for them less, the same, or more compared to the runner-up mayoral candidate. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE 5: PREDICTORS OF SESSION PARTICIPATION

	Information Session Participation	
LHS Variable	(1)	(2)
Tax Collection as a Priority	-0.0087	-0.0193
	(0.0323)	(0.0310)
Voters: Property Owners	0.0056	0.0058
	(0.0566)	(0.0562)
Voters: Business Owners	-0.0449	-0.0523
	(0.0553)	(0.0540)
Voters: Poor People	-0.0826 *	-0.0943 *
	(0.0488)	(0.0496)
Voters: Middle-Income People	-0.0623	-0.0683
	(0.0589)	(0.0581)
Voters: Rich People	0.0470	0.0423
	(0.0529)	(0.0526)
Political Views	-0.0300 *	-0.0267 *
	(0.0152)	(0.0152)
Effectiveness (mean)	0.0152	
	(0.0345)	
Effectiveness (max)		0.0565 **
		(0.0285)
Confidence (mean)	-0.0016	
	(0.0593)	
Confidence (max)		-0.0230
		(0.0438)
Constant	1.0432 ***	0.8826 ***
	(0.3123)	(0.2995)
Observations	212	212
Individual/Municipal Controls	Yes	Yes
R-squared	0.07	0.09

Notes: OLS results. The dependent variable is a binary indicator equal to 1 if the mayor participated in the information session on raising local tax revenues, and 0 otherwise. The variable 'Tax Collection Priority' represents the priority that mayors assign to tax collection. This variable is constructed in two steps. First, for each respondent, we subtract the mean of their responses to all other priority questions from tax collection as a priority, obtaining a residual. We then standardize this residual across the entire distribution of respondents to facilitate interpretation. The 'Voters' variables are categorical, indicating whether mayors believe these groups voted for them less, the same, or more compared to the runner-up mayoral candidate. Political views are measured on a left-right scale, where 0 represents the most left-leaning and 10 the most right-leaning position. The 'Effectiveness' variables are calculated as the mean and maximum values of each mayor's responses on the effectiveness of the five tax instruments. These responses were measured on a 1–8 scale (see survey questions in Appendix A). The 'Confidence' variables are calculated as the mean and maximum values of each mayor's confidence in their responses regarding the effectiveness of each tax instrument. These responses were measured on a 1–5 scale (see survey questions in Appendix A). The regressions control for municipalities' poverty rates and mayors' education, as these variables differ between the survey sample used in this paper and the treatment sample of Hjort *et al.* (2021) (see Appendix Table A.2). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A. Appendix

TABLE A.1: SURVEY RESPONSES ON POLITICAL CONSTITUENTS

How mayors think these groups voted for them compared to the runner-up mayoral candidate

	N	Less	The same	More
Property Owners	705	11.91	39.43	48.65
Business Owners	705	11.35	33.05	55.60
Poor People	707	9.48	22.91	67.61
Middle-income People	708	5.37	50.14	44.49
Rich People	709	32.72	31.03	36.25

Notes: The responses above answer the following question: For each of the following groups of people, please indicate if you think they voted for you less, the same, or more than they voted for the runner-up mayoral candidate.

TABLE A.2: SUMMARY STATISTICS - TREATMENT SAMPLES

Variables	Hjort et al. (2021) Treatment Sample N	Mean	Survey Treatment Sample N	Mean	Means Difference
Municipalities' Characteristics					
Population 2016	881	20.8	212	21.3	0.5
		(17.8)		(18.2)	
Gini	879	50.1	212	50.1	-0.0
		(6.5)		(7.0)	
Poverty	879	26.1	212	21.6	-4.5 ***
		(18.5)		(17.1)	
Local Tax Revenues (% of total)	880	6.2	212	6.7	0.5
		(4.7)		(4.5)	
Mayors' Characteristics					
Male	881	89.7	212	91.0	1.4
		(30.5)		(28.6)	
Age	881	48.1	212	47.2	-0.8
		(11.0)		(10.8)	
College	881	57.0	212	65.1	8.1 **
		(49.5)		(47.8)	
2nd Term	881	17.3	212	17.5	0.2
		(37.8)		(38.0)	
Tax Policies 2015					
IPTU Tax - existence	881	94.9	212	96.7	1.8
		(22.0)		(17.9)	
ISS Tax - existence	881	94.4	212	94.3	-0.1
		(22.9)		(23.2)	

Notes: Mean (standard deviation). The 'Hjort et al. (2021) Treatment Sample' refers to the 881 municipalities assigned to the treatment group, as described in Hjort *et al.* (2021). The 'Survey Treatment Sample' consists of a subset of 212 municipalities from the survey sample, where the mayor was invited to participate in the information session on raising local tax revenue. Population indicates municipality number of inhabitants (in thousands). Local Tax Revenues indicates the average share of municipal tax revenues on total municipal revenues from 2010 to 2015. IPTU is Brazil's municipal urban property tax and ISS is the municipal business tax. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Survey Novos Gestores

1. Respondent Information

1.1. **First name:** _____

1.2. **Last name:** _____

1.3. **Position in the municipality***:* _____

1.4. **State:** _____

1.5. **Municipality:** _____

1.6. **Phone number:** _____

1.7. **Email:** _____

2.1. A mayor and the municipal administration must choose policy areas to prioritize more, and policy areas to prioritize less. They cannot give high priority to all policy areas. Please indicate how much priority you expect to give to each of the following policy areas in the term that you are about to start:

Circle one option for each area

2.1.1. Pre-K and Primary education:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.2. Healthcare:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.3. Increasing tax revenues by getting taxpayers to pay their taxes:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.4. Sanitation:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.5. Public transportation:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.6. Performance of those who work for the municipality:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.1.7. Road maintenance:

(1) Not a priority **(2) Somewhat a priority** **(3) A priority** **(4) A very high priority**

2.2. You (or the mayor you represent) were recently elected or re-elected in the October elections. For each of the following groups of people, please indicate if you think they voted for you (or your mayor) less, the same, or more than they voted for the runner-up mayoral candidate.

Circle one option for each area

2.2.1. Property owners:

(1) Less **(2) The same** **(3) More**

2.2.2. Business people and Professionals:

(1) Less **(2) The same** **(3) More**

2.2.3. Poor people:

(1) Less **(2) The same** **(3) More**

2.2.4. Middle-income people:

(1) Less **(2) The same** **(3) More**

2.2.5. Rich people:

(1) Less **(2) The same** **(3) More**

2.3. Please indicate if you care less, the same, or more about the well-being of the following groups of people than most mayors in Brazil.

Circle one option for each area

2.2.1. Property owners:

(1) Less **(2) The same** **(3) More**

2.2.2. Business people and Professionals:

(1) Less **(2) The same** **(3) More**

2.2.3. Poor people:

(1) Less **(2) The same** **(3) More**

2.2.4. Middle-income people:

(1) Less **(2) The same** **(3) More**

2.2.5. Rich people:

(1) Less **(2) The same** **(3) More**

2.4. Political views are sometimes placed on a left-right scale. Where would you place your own political views on a scale from 0 to 10, where 0 means most left and 10 means most right? (Circle one number).

00	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**
Left										**Right**

3.1. In the following table you are presented with some policies that a mayor, and the municipal administration, could potentially use to get taxpayers to pay their taxes in order to increase tax revenues. For each policy, you are asked to (a) give your best guess as to how the introduction of the policy will affect municipal tax revenues (by getting taxpayers to pay their taxes), and (b) how confident you are in this guess.

Note: taxpayers are those legally required to pay taxes. For instance, urban property tax (IPTU) taxpayers are the owners of the property (or the tenants if is explicitly stated in the lease agreement). Services-of-any-nature tax (ISSQN) taxpayers are the business people or professionals that provide the service.

Policy	How will this policy affect municipal tax revenues (by getting taxpayers to pay their taxes)? ***Circle one option for each policy***	How confident are you in this guess? ***Circle one option for each policy***
3.1.1. Reminding taxpayers about the possibility of audits or penalties for not paying their taxes	**(1) Decrease tax revenues** **(2) No effect** **(3) Increase tax revenues by 1%** **(4) Increase tax revenues by 5%** **(5) Increase tax revenues by 10%** **(6) Increase tax revenues by 15%** **(7) Increase tax revenues by 20%** **(8) Increase tax revenues by 25% or more**	**(1) Not confident at all** **(2) Somewhat confident** **(3) Confident** **(4) Quite confident** **(5) Very confident**
3.1.2. Reminding taxpayers to pay their taxes on time	**(1) Decrease tax revenues** **(2) No effect** **(3) Increase tax revenues by 1%** **(4) Increase tax revenues by 5%** **(5) Increase tax revenues by 10%** **(6) Increase tax revenues by 15%** **(7) Increase tax revenues by 20%** **(8) Increase tax revenues by 25% or more**	**(1) Not confident at all** **(2) Somewhat confident** **(3) Confident** **(4) Quite confident** **(5) Very confident**
3.1.3. Reminding taxpayers that most of their neighbors pay their taxes on time	**(1) Decrease tax revenues** **(2) No effect** **(3) Increase tax revenues by 1%** **(4) Increase tax revenues by 5%** **(5) Increase tax revenues by 10%** **(6) Increase tax revenues by 15%** **(7) Increase tax revenues by 20%** **(8) Increase tax revenues by 25% or more**	**(1) Not confident at all** **(2) Somewhat confident** **(3) Confident** **(4) Quite confident** **(5) Very confident**

3.1.4. Providing discounts on the total amount to be paid for taxpayers who pay on time	**(1) Decrease tax revenues** **(2) No effect** **(3) Increase tax revenues by 1%** **(4) Increase tax revenues by 5%** **(5) Increase tax revenues by 10%** **(6) Increase tax revenues by 15%** **(7) Increase tax revenues by 20%** **(8) Increase tax revenues by 25% or more**	**(1) Not confident at all** **(2) Somewhat confident** **(3) Confident** **(4) Quite confident** **(5) Very confident**
3.1.5. Providing tickets for lotteries (for gifts or tax exemptions) for taxpayers who pay on time	**(1) Decrease tax revenues** **(2) No effect** **(3) Increase tax revenues by 1%** **(4) Increase tax revenues by 5%** **(5) Increase tax revenues by 10%** **(6) Increase tax revenues by 15%** **(7) Increase tax revenues by 20%** **(8) Increase tax revenues by 25% or more**	**(1) Not confident at all** **(2) Somewhat confident** **(3) Confident** **(4) Quite confident** **(5) Very confident**

4.1 With how many currently serving mayors (including those elected in 2016) of other municipalities have you talked (on the phone or in person) during the last 6 months (outside of CNM conferences)?

Circle one option for each area

(a) 0 **(b) 1** **(c) 2-5** **(d) 6-10** **(e) More than 10**

4.2 Could you please list the names of the currently serving mayors (including those elected in 2016) of other municipalities with whom you have talked regularly (on the phone or in person) during the last 6 months? (List up to 10, starting with the mayor you talked to the most, then the mayor you talked to the second most, and so on. If you did not talk to any, leave this section blank).

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____

Name:_____ Municipality and State:_____