Fiscal Rules, Austerity in Public Administration, and Political Accountability: Evidence from a Natural Experiment in Colombia *

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Abstract

Fiscal rules are a promising tool to overcome chronic public deficits, but their effectiveness and political feasibility remain unclear, particularly in weakly institutionalized settings. We leverage exogenous variation across Colombian municipalities in exposure to a fiscal rule that limits the operating expenditures of local governments. Our difference-in-differences analysis yields three main findings. First, the fiscal rule is highly effective at reducing operating expenditures and the probability of a current deficit. Second, there is no meaningful impact on local public goods or living standards. Third, the fiscal consolidation leads voters to be more satisfied with their local government and to re-elect the incumbent party at higher rates. These findings suggest that fiscal rules can reduce waste in public administration and can help to align fiscal policy with the preferences of voters in settings, like Colombia, with weak political parties and limited career concerns for local politicians.

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1 Introduction

Inefficiency in public administration is a perennial source of concern among academics and policymakers (Romer and Rosenthal, 1979; Brennan and Buchanan, 1980; Shleifer and Vishny, 1994; Finan et al., 2017; Besley et al., 2022). A recent IDB report estimates that waste in procurement, civil service and targeted transfers amounts to 4.4% of GDP in Latin America, which is comparable to what countries in the region spend on each of education or health (Izquierdo et al., 2018). In both rich and poor nations, growth in public spending has generally outpaced growth in public revenues in recent decades, which raises concerns about the sustainability of public debt and the need for a costly fiscal adjustment (Yared, 2019).

Fiscal rules offer a potential solution to chronic fiscal deficits. In particular, *golden* rules that set a numerical target for current spending or limit the government's ability to issue debt for expenditures other than investment could help to reduce waste in public administration. Fiscal rules of this kind are currently in use at multiple levels across the developed and the developing world (Bassetto and Sargent, 2006; Grembi and Manoel, 2012; Lledó et al., 2017). But despite the growing popularity of such rules, their effectiveness, impact on public goods, and political feasibility remain unclear (Alesina and Passalacqua, 2013).

Three key open questions remain. First, are fiscal rules effective, or are they undermined by weak enforcement and creative accounting (Milesi-Ferretti, 2004)? Second, does the ensuing fiscal consolidation reduce waste or does it compromise public goods and living standards? In the case of golden rules, even though they do not directly affect welfare spending, cuts to administrative expenditures could weaken state capacity (Besley and Persson, 2011). Third, are fiscal rules politically feasible, or do they lead to political backlash, making policymakers unwilling to introduce or enforce them? Providing a credible answer to these interrelated questions has proven difficult, given that multiple economic and political factors plausibly underlie the decision to introduce a fiscal rule (Heinemann et al., 2018).

This paper is the first attempt at answering all three questions above within the setting of the same fiscal rule. We leverage exogenous variation in exposure to a fiscal rule that set a cap to the administrative expenditures of Colombian municipalities to provide a comprehensive assessment of its fiscal, welfare and political impact. Three features of our study are noteworthy. First, we focus on a large and comparable set of local governments, located in the same country and sharing a common institutional structure. Second, our sample period covers almost two decades after the introduction of the rule, allowing us to assess its economic and political sustainability over a long time horizon. Third, qualitative interviews

with former mayors from the implementation period complement our quantitative analysis.

The fiscal rule was introduced in 2000 to address the fiscal imbalance affecting a large number of municipalities following an ambitious decentralization program in the early 1990s. The rule aimed to curb the rapid growth in the size of municipal governments by capping operating expenditures at 80% of current revenue. These expenditures mostly correspond to the payroll and procurement of the municipality's administrative apparatus. Operating expenditures do not include the payroll of frontline service providers for local public goods, such as education, health or sanitation, nor procurement for these sectors. Hence, we interpret operating expenditures as a measure of administrative capacity. These expenditures are quantitatively important and represented on average 30% of total municipal spending in the years before the reform. Moreover, they finance the organizational machinery of the local government, which could affect the design and implementation of public policies. Compliance with the rule is verified every year by the national fiscal watchdog. Non-compliant municipalities lose access to financial support from the central government and their top officials (e.g., mayor) face personal disciplinary sanctions, including suspensions and fines.

Our empirical strategy exploits the fact that the fiscal rule was binding *de facto* only for those municipalities with operating expenditures that exceeded the legal limit at the time of the reform. We construct a binary measure of exposure to the fiscal rule based on each municipality's average share of current revenue devoted to operating expenditures (i.e., the rule's targeted outcome, henceforth referred to as overspending ratio) in the five years before the rule came into effect in 2001. We use this measure of predetermined exposure to implement a difference-in-differences (DiD) research design, including municipality and department-year fixed effects. We present results from event studies to provide evidence in support of the *parallel trends* assumption and we address imbalance in predetermined covariates by including additional controls or using propensity-score weights. We also provide a large battery of robustness tests to rule out that our results are driven by reversion to the mean, mismeasurement of the main variables, or the impact of other concurrent reforms.

Our analysis proceeds in three stages. First, we examine the effectiveness of the fiscal rule using administrative data on municipal public finance between 1996 and 2018. We find that municipalities exposed to the reform experience an average decrease of 32 percentage points (pp) in the overspending ratio, equivalent to 30% of the pre-reform sample mean. Accordingly, the probability of a current deficit decreases by 31 pp, which corresponds to 45% of the sample mean. These effects reflect widespread compliance with the rule among affected municipalities and persist until the end of the sample period. A large reduction in personnel and procurement expenditures (20% decrease) is the main driver of the fiscal adjustment, with a much smaller increase in revenue (4-8% depending on specification).

Former mayors from the implementation period confirm that cutting spending was easier than increasing revenue due to limitations in state capacity. We find no meaningful change in the level or the sectoral allocation of capital expenditure, which corresponds to local public goods, and we observe a 10 pp decrease in the probability of an overall deficit. This shows that affected municipalities did not strategically shift operating expenditures into the capital account through creative accounting, but also suggests that the fiscal surplus generated by the reform failed to translate into higher spending on public goods.

We then study the effects of the fiscal rule on public goods and living standards. We find no change in various measures of education or health, nor in the provision of clean water or sanitation. There is also no change in property values or nighttime luminosity, which we use as a proxy for local economic activity (Henderson et al., 2012). We also find no change in the probability of sanctions for corruption against local public officials, nor in the incidence of civil conflict or the cultivation of coca. The impact of natural disasters is also unchanged, which suggests that local governments' ability to cope with emergencies is unaffected. Though information on outcomes more closely related to the administrative apparatus targeted by the fiscal rule is unavailable for the pre-reform period, we use granular data from recent years to show that administrative capacity is similar in exposed and non-exposed municipalities after the reform. On average, governments in both groups have a similar number of administrative employees, with the same qualifications and job experience. They are also equally efficient in the provision of bureaucratic services, as measured by time to completion or by the share of services offered online. Additionally, a higher share of public contracts in exposed municipalities correspond to tendered bids (i.e., non-discretionary) and these are also moderately less likely to incur in time or budget overruns. Survey responses suggest that residents of exposed municipalities are at least as happy with the functioning of their local governments as their counterparts in non-exposed municipalities.

These findings show that the fiscal rule is effective at reducing public spending without compromising the quality of local public services, which constitutes evidence of wasteful administrative spending before the reform. Our interviews with former mayors provide evidence of such waste (e.g., four drivers on payroll for one truck) and confirm that the operation of the municipal governments was largely unaffected by the fiscal adjustment.

Finally, we turn to the political consequences of the fiscal rule. First, we use hand-collected data on news reports from the largest newspaper in Colombia to show that the municipal fiscal crisis was highly salient to voters. Before the reform, there was one negative news story every 2.6 weeks on average and there were 60 negative stories for every positive one. After the reform, negative stories sharply decline and there are 1.5 positive stories for every negative one. We then focus on support for the party of the incumbent mayor, who

faces a one-term limit. Consistent with the fiscal crisis leading voters to update negatively on their local government, municipalities exposed to the fiscal rule have lower incumbent re-election rates before the reform. We find that the fiscal rule leads to a better electoral result for the incumbent party: the vote share for the incumbent party increases by 8 pp in municipalities exposed to the reform, equivalent to 16% of the pre-reform sample mean. This is associated with an increase of 6 pp in the probability of re-election for the incumbent party. These effects persist for several election cycles, suggesting that voters become more satisfied with their local government irrespective of the party in power. As a complementary measure of political behavior, we study the incidence of protests against the municipal government. We find no change in the overall probability of protests. There is, however, a reduction in protests motivated by labor disputes, in line with anecdotal evidence from former mayors and news reports about substantial delays in the payment of public salaries before the reform.

Taken together, our findings show that the fiscal rule reduces wasteful public spending that voters do not support, which allows incumbent parties to enjoy an electoral benefit in subsequent elections. Our additional findings showing that the fiscal adjustment takes place mostly via cuts to administrative spending and that it does not compromise public good provision lend support to this interpretation and are in line with recent survey evidence on attitudes towards austerity (Ardanaz et al., 2020; Bansak et al., 2021). A natural question is why did politicians not reap this benefit by implementing these cuts before the reform. We hypothesize that the one-term limit for mayors and the weak oversight from political parties create a misalignment of incentives between mayors on one side and their parties and voters on the other (Klašnja and Titiunik, 2017). Voters who read about growing deficits and observe strikes by municipal employees update negatively on the quality of future candidates from the same party. Absent re-election incentives or party oversight, mayors do not internalize the cost that their fiscal profligacy imposes on their party, but they do face the private costs of fiscal consolidation, such as having to assume additional duties or facing hostility from dismissed employees, as revealed by the former mayors we interviewed. In this environment, the fiscal rule ameliorates the agency problem by forcibly aligning fiscal policy with the preferences of voters, as we formalize in a simple model of political accountability.

Our paper's key contribution lies in its ability to credibly and simultaneously investigate the fiscal, welfare, and political impact of a fiscal rule. Providing a comprehensive assessment of a fiscal rule in these three domains is crucial to determine whether this policy tool is effective and sustainable. The existing literature is largely correlational and has thus far focused on the fiscal or political dimensions in isolation.

Our paper speaks to the empirical literature on the effectiveness of fiscal rules.[1] A

[1]In the theoretical literature, early work analyzed rules in the context of the optimal management of

recent meta-analysis by Heinemann et al. (2018) finds that fiscal rules seem to reduce public deficits, but acknowledges that the existing literature (mostly cross-country) has struggled to establish causality. A notable exception is the within-country study by Grembi et al. (2016) that uses a difference-in-discontinuities design to show that a broad fiscal rule leads to smaller deficits among Italian municipalities, but does not investigate its electoral or welfare consequences.[2] We make three contributions to this literature. First, we show that a fiscal rule can be effective at curbing deficits in the developing world, where soft budget constraints are pervasive and subnational governments are financially vulnerable (Rodden et al., 2003; Gadenne and Singhal, 2014). In the case of Colombia, the fiscal rule is introduced at a time when the central state is weak and struggling to uphold the monopoly of violence (Robinson, 2013). Second, we show that a golden rule that targets administrative expenditure can lower public deficits without affecting public good provision. In this regard, we contribute to a growing body of research studying policies that reduce waste in the public sector (Finan et al., 2017; Besley et al., 2022). Third, while previous work has mostly focused on short-term effects, our sample period comprises almost two decades after the introduction of the fiscal rule, which enables us to study potential long-run adaptation.[3]

Our paper also speaks to the literature on the political effects of fiscal consolidation. Most work in this area has focused on the electoral effects of large fiscal contractions (i.e., austerity), with mixed findings. Several studies find no evidence of political backlash (Alesina et al., 1998, 2013; Arias and Stasavage, 2019), while several others provide opposite findings (Fetzer, 2019; Ardanaz et al., 2020; Hübscher et al., 2020; Bojar et al., 2021; Wiedemann, 2022). Other studies also find that austerity leads to an increase in social unrest, including riots and protests (Passarelli and Tabellini, 2017; Ponticelli and Voth, 2020; Vegh and Vuletin, 2014; Genovese et al., 2016). This literature is mostly correlational, with the notable exception of the within-country studies by Fetzer (2019) and Wiedemann (2022), who show that large welfare cuts in the UK increased support for populist opposition party UKIP.[4]

We contribute to this literature by showing that a golden fiscal rule that lowers admin-

public debt (Barro, 1979; Lucas and Stokey, 1983), or as a way to rein in expansive governments (Brennan and Buchanan, 1980). More recent work has increasingly focused on political factors (e.g., Besley and Smart, 2007; Battaglini and Coate, 2008; Azzimonti et al., 2016; Halac and Yared, 2018; Bouton et al., 2020).

[2]Leveraging the same natural experiment, Daniele and Giommoni (2020), Gamalerio and Trombetta (2021), and Coviello et al. (2021) study the impact of fiscal rules on corruption, political selection, and procurement firms, respectively.

[3]Sánchez and Zenteno (2011) show that Colombian municipalities that comply with the fiscal rule have better fiscal outcomes. Their empirical strategy uses the lagged share of minor taxes (i.e., excluding property and gross receipts tax) in total tax revenue as an excluded instrument, which may fail to satisfy the exclusion restriction. Restrepo and Alvarez (2005) use a similar methodology to ours to show a positive impact of the Colombian fiscal rule on operating expenditures in the short run (2001-2003). Relative to that study, our sample includes many more municipalities and years, and we study welfare and political effects.

[4]Guriev and Papaioannou (2022) provide an overview of the literature on austerity and populism.

istrative expenditures leads voters to be more satisfied with their local government and to re-elect the incumbent party at higher rates. The discrepancy between our findings and those from Fetzer (2019) and Wiedemann (2022) suggests that voters support austerity when it concerns administrative expenditures and does not affect social spending, as shown by Ardanaz et al. (2020) and Bansak et al. (2021). These latter studies focus on survey responses to hypothetical questions, while we explore actual exposure to fiscal consolidation and we study high-stakes measures of political support. Our findings also highlight that fiscal policy can be systematically misaligned with the preferences of voters in settings with weak parties and limited individual incentives for politicians, which can help to explain the existence of an incumbency disadvantage in Latin America (Klašnja and Titiunik, 2017).

2 Institutional Background

2.1 Basic Information

Colombia is administratively divided into 32 departments and 1,103 municipalities. The mayor is the top municipal authority and is elected every four years using plurality rule.[5] These are partisan elections and most mayors are affiliated to a national political party. Mayors face a one-term limit, but can be re-elected after one term out of office. The municipal council (which varies in size depending on population) is elected concurrently with the mayor using proportional representation and provides oversight over the executive. Political parties are weak in Colombia, as in other countries in Latin America (Mainwaring, 2018). This is reflected in constant changes in the party affiliation of politicians, as well as in the existence of an incumbency *disadvantage* in mayoral elections (Klašnja and Titiunik, 2017).

Municipalities vary in their institutional complexity, based on a seven-tier categorization that depends on population and disposable current revenues. Categories range from 1 to 6, with larger numbers corresponding to smaller municipalities with less revenue, plus a special category for the largest cities.[6] All municipalities have a *personero* (ombudsman), who acts as a local representative of the Inspector General (Procuraduria General de la Nación, PGN). The municipal category determines the maximum salary of the mayor, which also serves as a cap on the remuneration of all other local public officials.

[5]Term length increased from two to three years in 1994, and to four years in 2003.

[6]Municipalities in the upper categories (i.e., larger and richer) have their own Comptroller (contraloría) to oversee local public finances, while those in lower categories are overseen by the Comptroller of their department. Municipalities in the upper categories also have elected neighborhood boards (Juntas Administradoras Locales, JAL) that provide additional oversight on the municipal government.

2.2 Municipal Public Finance

Municipalities rely on three main sources of revenue. These are tax revenue, non-tax revenue (i.e., fines and fees), and transfers from the central government. The main local taxes are the property tax and a tax on gross business receipts. Municipalities can issue fines for traffic violations or for the infringement of public ordinances, and can charge fees for public services such as energy or street cleaning, as well as for the use of public spaces such as slaughterhouses or market squares. Municipal governments enjoy almost complete discretion over the use of their own tax and non-tax revenue, with the exception of certain earmarks.[7]

The central government transfers money to the municipalities through a system called Sistema General de Participaciones (SGP). These transfers are entirely formula-determined and largely earmarked. The bulk of SGP transfers provides funding for service provision in the areas of education, health, water, sanitation, sports, and culture. Smaller municipalities (categories 4-6) also receive a share for fully discretionary spending (*libre destinación*), including operating expenditures. This share of SGP transfers, combined with municipal tax and non-tax revenue (net of earmarks), constitutes disposable current revenue.

Spending by municipal governments can be disaggregated into current and capital spending. Current spending is the sum of operating expenditures and debt interest payments. Operating expenditures ensure the proper functioning of the municipal government and are spread across three bodies: (i) the central administration, (ii) the municipal council and (iii) the office of the *personero* (ombudsman). The central administration corresponds to all bureaucrats and administrators working in 'city hall', including the office of the mayor and subsidiary dependencies (e.g., Secretary of Education). The central administration accounts for 84% of operating expenditures on average in recent years, while the council and ombudsman account for roughly 9% and 7% respectively, as shown in Appendix Table I.1.

For each of these bodies, there are three subcategories of operating expenditures. The first is called *personnel* and corresponds to the payroll of permanent and temporary bureaucrats, as well as elected officials. Personnel expenditures constitute the majority of spending across all municipal bodies and represent 65% of total operating expenditures on average (Appendix Table I.1). The second subcategory is called *general* and includes purchases of goods and services (i.e., procurement), insurance premiums, and upkeep of municipal property (rent, maintenance, utilities). This component also includes travel and training for bureaucrats and elected officials. The final subcategory is called *paid transfers* and includes pensions for qualifying former municipal employees and payments mandated by legal sentences.

Operating expenditures do not include personnel expenditures for any frontline service

[7]For instance, a share of property tax revenue must be transferred to a regional environmental agency.

providers, except for citizen-facing bureaucrats at city hall. All expenditures associated to the provision of local public goods, including personnel, equipment and other inputs, fall under capital spending. This category also includes the construction and maintenance of infrastructure related to public goods. These public goods correspond to a wide range of responsibilities of the municipal government, including education, health, water, sanitation, transport, housing, police, etc. Appendix I provides a detailed account of the composition of municipal spending, using disaggregate data for the period 2010-2018.

In sum, operating expenditures largely correspond to payroll and procurement of the municipality's bureaucratic apparatus (i.e., administrative capacity). These expenditures are quantitatively important, representing on average 30% of total spending in the years before the introduction of the fiscal rule. They also affect local public goods, as they finance the organizational machinery that is responsible for the design and implementation of a wide range of municipal public policies. For instance, while operating expenditures do not include the salaries of health care providers, they do cover the salaries of the bureaucrats in charge of designing and implementing municipal health policy (e.g., vaccination campaigns). Even though a reduction in operating expenditures does not affect social spending, cuts to administrative personnel and related expenses can negatively impact public goods provision and may ultimately weaken state capacity (Besley and Persson, 2011).

2.3 Fiscal Reform

The subnational government structure just described was created through a series of decentralization reforms that began with the introduction of local elections for mayors in 1988. Colombia's new constitution, approved in 1991, was pivotal in this effort. The constitution made subnational governments responsible for the provision of education and health, and created the system of intergovernmental transfers that would become SGP. Over the following years, several laws further developed this decentralized institutional framework (e.g., Law 60 of 1993). Appendix I provides additional information on this process.

Endowed with substantial new powers and resources, spending by municipal governments grew dramatically throughout the 1990s. The rapid increase in the size of local bureaucracies and other administrative expenses meant that operating expenditures soon exceeded current revenues in many municipalities. Moreover, high economic growth and a large inflow of transfers provided little incentive for the development of local taxation. By 1999, the fiscal outlook for most subnational governments was dire, with a total subnational deficit (municipalities and departments) equal to 0.6% of GDP, three times larger than in 1990 (MHCP, 2009). For the municipalities in our sample, the aggregate current deficit between 1996 and

2000 amounted to almost 2 trillion COP, equivalent to 1.7% of the central government's total budget for 2000. Frequent current deficits were reflected in long delays in the payment of salaries, pensions, and other obligations, which led to strikes and to a rising number of lawsuits and legal rulings against municipal governments (El Tiempo, 1998, 1999).

To address the growing fiscal imbalance, the national government introduced a subnational fiscal rule that set a cap on operating expenditures as a share of disposable current revenues (Law 617 of 2000).[8] For municipalities, this cap ranges from 50% to 80% depending on the municipal category, with those in the upper categories (i.e., larger, richer) facing a more stringent limit.[9] To facilitate compliance, the law (i) overturned previous legislation requiring the existence of certain dependencies within municipal governments (e.g., environmental protection office), (ii) eliminated the office of the municipal comptroller in smaller municipalities, (iii) set limits on the operating expenditures of the municipal council and the office of the ombudsman, and (iv) set more stringent requirements for the creation of new municipalities. We examine below the contribution of some of these additional margins of reform to our findings. Municipalities were also granted a four-year transition period (2001-2004), with the cap on operating expenditures becoming more stringent every year.

The Comptroller General (Contraloría General de la República, CGR), the country's fiscal watchdog, is charged with verifying yearly compliance with the fiscal rule. A non-compliant municipality faces several sanctions. First, it loses access to financial support from the national government, including co-financing for investment projects and guarantees on credit operations, unless it enters a financial restructuring program. Second, non-compliance is considered a serious disciplinary offense, which can be punished by the Inspector General (PGN) with sanctions against the mayor, including fines, unpaid suspensions and removal from office.[10] Third, the municipality can be reclassified downward, which negatively affects the remuneration of all local public officials.[11] Fourth, a municipality that repeatedly fails to comply with the fiscal rule can be deemed unsustainable and may be annexed by neighboring municipalities. On the other hand, municipalities with growing local tax revenue are rewarded with higher SGP transfers. Since 2007, SGP transfers also increase with the difference between the cap set by the rule and realized operating expenditures.

[8]This reform was part of a broader effort at improving subnational public finances. Law 358 of 1997 regulated credit operations by subnational governments. Law 550 of 1999 facilitated the restructuring of liabilities for entities declaring bankruptcy, including public agencies. Law 715 of 2001 modified the formula used to allocate transfers and reassigned responsibilities across levels of government in the areas of education and health. Although none of these reforms explicitly targeted municipalities with high operating expenses, we rule out their potential confounding effects as part of our robustness checks below.

[9]For departments, the cap on operating expenditures set by the fiscal rule ranges from 50% to 70%. The department-year fixed effects that we include in all regressions account for changes at this level.

[10]For example, a former mayor of Mitu was barred from office for 10 years in 2018 for breaking the rule.

[11]Municipalities in our sample belong to the lowest category (6) and cannot be classified downwards.

We use data on compliance and audits from CGR for the period 2010-2018 to shed light on the enforcement of the fiscal rule. Appendix Figure III.1 shows event-study plots based on the year of non-compliance. We find that non-compliance is associated with short-term increases (decreases) in operating expenditures (disposable current revenue), which quickly adjust in a corrective fashion. The probability of an audit by CGR significantly increases following non-compliance, while SGP transfers decrease. There is no change in co-financing or net credit inflows, which suggests that non-complying municipalities on average adhere to the financial restructuring requirements of the national government.

3 Empirical Strategy

3.1 Data

In this section, we provide an overview of our data sources. Online Appendix II provides information on variable definitions, sample availability and sources for all variables in the paper. Appendix Table II.1 provides summary statistics.

The National Department for Planning (DNP) publishes yearly fiscal data for all municipalities. This administrative dataset is available for 1996-2018 and includes information on revenue and spending, each disaggregated into current and capital accounts. Current revenue sub-accounts include tax revenue (property, gross receipts, other), non-tax revenue, and disposable transfers from the central government. Current spending includes operating expenditures and debt interest payments, with the former being disaggregated into personnel, general expenses, and paid transfers. The data includes the current and total surplus, credit inflows and outflows (principal repayments) and changes in wealth.[12] DNP also provides disaggregate data on SGP transfers since 1994. We use these datasets to construct our measure of exposure to the fiscal rule (which we discuss below) and our fiscal outcomes of interest. We express all monetary values in 2010 Colombian Pesos (COP).

The *Centro de Estudios sobre Desarrollo Económico (CEDE)*, a research center at Universidad de los Andes, provides data on all mayoral elections between 1990 and 2019, based on records from the National Civil Registry.[13] Until 1994, the data only includes the name and

[12]More disaggregate fiscal data for our period of analysis is not publicly available, but was kindly provided by DNP and Zelda Brutti. Unfortunately, data inconsistencies and changes in the level of granularity over time prevent us from making systematic use of this information, except for disaggregate results on (i) operating expenditures by municipal body and (ii) the sectoral allocation of capital spending. In Appendix I, we use highly granular fiscal data that is publicly available for the post-reform period (2010-2018) to characterize the composition of municipal public spending.

[13]We use the most recent vintage of this dataset, which was released in 2021 after a careful cleaning process. Elections took place in 1990, 1992, 1994, 1997, 2000, 2003, 2007, 2011, 2015, and 2019.

the party of the winning candidate, while for later years we observe votes for all candidates. Unfortunately, the data does not include any individual characteristics of the candidates. To complement our political outcomes, we use proprietary event-based data on social mobilizations for the period 1995-2015 from *Centro de Investigación y Educación Popular (CINEP)*. The data includes information on the cause of each protest, which allows us to study different aspects of local governance that may be changing due to the fiscal rule, including public goods and labor relations. To shed light on the availability of information about municipal public finance and the fiscal rule, we manually collected data on news stories from the country's largest newspaper (El Tiempo) between 1995 and 2010.

Information on public goods and living standards comes from various sources. The Ministry of Health provides data on coverage of poor population with subsidized health insurance and infant vaccination rates. We use microdata from the vital statistics to construct additional health outcomes, including the average number of pre-natal checks and the share of newborn with low birth weight. Information on firms providing garbage collection, water, or sewage disposal comes from the regulatory agency for public services (Superintendencia de Servicios Públicos). The number of people affected by natural disasters is provided by the Ministry of the Interior. CEDE provides information on educational outcomes, including educational enrollment and the number of teachers and schools, and coca cultivation. As a broad proxy for economic activity, we construct a measure of nighttime luminosity based on data from the US Air Force's Defense Meteorological Satellite Program (DMSP). As a complementary measure, we also use the cadastral value of all properties in the municipality provided by the National Geographic Institute (IGAC). We measure conflict incidence using an event-based dataset from Universidad del Rosario. We construct measures of corruption based on quarterly reports of sanctions for the misuse of public funds provided by CGR.

There is no available information on municipal administrative employees or services for the pre-reform period. We use data from the Department for Civil Service (DAFP) for 2021 to study these outcomes post-reform. This data includes individual information on education and job tenure for local bureaucrats. DAFP also provides information on the institutional complexity of municipal governments (i.e., number of agencies) and on the administrative services that they provide (e.g. request for construction license), including whether the service is available online and the average time for completion. We also use administrative data from the online platform SECOP for the period 2015-2018, which contains information on the universe of public contracts in Colombia, to measure the share of contracts awarded through tendered bids (i.e., non-discretionary) and their quality (time and money overruns). We use five waves from the LAPOP survey between 2004-2008 to gauge the attitudes of local residents towards the functioning of their municipal government and public good provision.

We examine municipalities' ability to cope with emergencies by measuring the vaccination rate for Covid-19 based on administrative records from the Ministry of Health.

We complement our quantitative analysis by conducting qualitative interviews with 20 former municipal mayors. We focus on mayors who were in office during the period 2001-2003 and oversaw the initial implementation of the fiscal rule. Online Appendix IV describes the recruitment process and sample attrition, and summarizes the findings from these interviews.

3.2 Research Design

We use a difference-in-differences research design to study the effects of the subnational fiscal rule in Colombia. Our design compares the change in our outcomes of interest (fiscal, economic, political) before and after the introduction of the fiscal rule in 2000, between municipalities with varying exposure to it. We base our measure of exposure on the average value of the overspending ratio (i.e., operating expenditures/disposable current revenue) in the years before the reform. Intuitively, while the fiscal rule applies *de jure* to all municipalities, *de facto* it represents a sudden shock only for those that were spending above the limit in the pre-reform period and had to adjust their finances to comply with the rule.

We construct the overspending ratio by dividing operating expenditures by current revenue using the fiscal data from DNP.[14] We winsorize operating expenditures, current revenue and the overspending ratio (the latter after calculating with the unadjusted data) to minimize the impact of reporting errors, but we verify that the results are robust to omitting this winsorization.[15] Our preferred measure of exposure to the fiscal rule is an indicator equal to one if the average value of the overspending ratio in the last five years before the start of the transition period (1996-2000) takes a value of one or higher. Even though the steady-state cap for the overspending ratio is 0.8, we opt for a larger baseline cut-off because less than 12% of municipalities in the sample meet the 0.8 cap for the pre-reform average, while 42% meet the cap of 1. This allows for a more balanced composition of the exposed and non-exposed groups. We show below that our results are robust to using different thresholds, using the continuous measure, or restricting the sample to a shorter window around the threshold. We also verify that our results are robust to using alternative (shorter) combinations of pre-reform years to construct the exposure measure, but we prefer the five-year average because

[14]Current revenue in the DNP data is equal to tax revenue, non-tax revenue and current transfers. Our preferred measure of *disposable* current revenue replaces the latter with the SGP transfers for discretionary spending (*libre destinación*). Results are robust to only using data from the original DNP data.

[15]Even though the data does not distinguish the earmarked shares of current revenues and operating expenditures, the measurement errors in the numerator and the denominator of the estimated overspending ratio have similar sign and magnitude. A comparison of our measure with the actual amounts reported to CGR in recent years indicates that overall measurement error is small (4 pp on average). Appendix Figure III.2 shows the large overlap in the yearly distribution of the overspending ratios from both sources.

it reduces the impact of volatility in the overspending ratio in any one year.[16]

To ensure that our sample only includes a comparable set of municipalities, we only include those in category six, which is the lowest category and encompasses almost 90% of municipalities in the country. Hence, the municipalities in our sample share a common institutional framework and face the same fiscal rule.[17] Our final estimation sample is a slightly unbalanced panel of 920 municipalities (84% of the total).

Appendix Figure III.3 shows the geographic distribution of the municipalities that we deem as exposed (531 municipalities) and not exposed (391 municipalities) to the fiscal rule. There is no evidence of spatial clustering in our exposure measure. However, exposed municipalities are likely to differ from those non-exposed in several other dimensions, such as economic structure, political competition, or state capacity. As described in detail in Appendix IV, the former mayors that we interviewed attribute the variation in administrative overspending before the reform to a combination of active and passive waste - i.e., patronage and lack of administrative expertise (Bandiera et al., 2009). Table 1 shows results from cross-sectional regressions comparing multiple predetermined characteristics across these groups. Focusing on the results with department fixed effects in columns 3-4, we find that municipalities exposed to the fiscal rule are located at lower altitude and are farther away from Bogotá. They were more likely to have a school or a branch of the Agricultural Bank in 1996, and were also less likely to have presence of paramilitary groups between 1996 and 2000.

We address the potential confounding effect of these differences in observable characteristics, as well as unobservable time-invariant differences, by including municipality fixed effects in all our regressions. We also include department by year fixed effects in all regressions, which means that the counterfactual for municipalities exposed to the fiscal rule is always provided by non-exposed municipalities located within the same department. The department-year fixed effects capture the impact of macroeconomic shocks and of other concurrent reforms, allowing them to differ across departments.

Our main econometric specification is as follows:

$$y_{mt} = \alpha_m + \delta_{d(m)t} + \beta(\text{Affected}_m \times \mathbb{1}[t > 2000]) + \sum_{\tau \neq 2000} \gamma_\tau(\mathbb{1}[t = \tau] \times X_m) + \varepsilon_{mt} \qquad (1)$$

[16]For example, a longer average reduces the impact of the 1999 recession in Colombia. Our results are robust to excluding the years 1999-2000 from the construction of the exposure measure or from the sample .

[17]We allow municipalities to not be in category six at most twice in the 16-year period (2003-2018) for which data is available from CGR. Our results are robust to using a more stringent criterion or imputing the category based on pre-reform criteria. We also drop 16 municipalities with missing fiscal data in the pre-reform period for which it is not possible to calculate the exposure measure.

where y_{mt} is an outcome of interest in municipality m in year t, while α_m and $\delta_{d(m)t}$ are the municipality and department-year fixed effects. We define Affected_m as an indicator taking value one if the average of the overspending ratio in municipality m during the pre-reform period (1996-2000) was above one. We interact this measure of exposure with an indicator equal to one for all years on or after 2001 ($\mathbb{1}[t > 2000]_t$), which is the year when the fiscal rule came into effect (i.e., start of transition period).[18] The coefficient of interest, β, captures the average difference in the outcome between affected and non-affected municipalities after the reform, relative to the difference in the pre-reform period. In our preferred specification, X_m is a vector of predetermined characteristics that we interact with year fixed effects to account for time-varying effects of cross-sectional differences across municipalities with varying exposure to the fiscal rule.[19] As a complementary strategy, we also estimate propensity-score weighted regressions, following Hirano and Imbens (2001).[20] ε_{mt} is an error term that we cluster two-way by municipality and department-year following Cameron et al. (2011). This clustering structure allows for idiosyncratic autocorrelation of the error term within each municipality and for spatial correlation within the same department and year.

The identifying assumption for β is that the difference in outcomes between municipalities exposed and non-exposed to the fiscal rule would not have changed after 2000 in the absence of the reform, conditional on the fixed effects and controls. We provide indirect evidence in support of the parallel trends assumption by estimating an event-study specification, which flexibly tracks the difference in the outcome y_{mt} relative to the year before the reform came into effect (i.e., the omitted category):

$$y_{mt} = \alpha_m + \delta_{d(m)t} + \sum_{\tau \neq 2000} \beta_\tau (\text{Affected}_m \times \mathbb{1}[t = \tau]) + \sum_{\tau \neq 2000} \gamma_\tau (\mathbb{1}[t = \tau] \times X_m) + \varepsilon_{mt} \quad (2)$$

If the coefficients β_τ corresponding to pre-reform years are close to zero, this suggests that the parallel trends assumption is satisfied. Such a finding would also suggest the absence of anticipatory effects, which we expect given the high level of uncertainty regarding the approval of any piece of legislation by Congress. The β_τ coefficients for the post-reform

[18] Fiscal year 2000 was almost over when Law 617 was approved (October 06), making a contemporary effect unlikely. Similarly, the elections of 2000 took place only three weeks after the approval (October 29). The event study plots for our main outcomes further suggest that effects only materialize starting in 2001.

[19] We focus on those covariates that show significant differences in columns 3-4 of Table 1: Altitude, Distance to Bogotá, separate indicators for presence of school or branch of Agricultural Bank in 1996, and an indicator for any paramilitary presence between 1996 and 2000.

[20] We first estimate a Probit regression of our measure of exposure to the fiscal rule on all available municipal characteristics shown in Table 1. We then re-estimate equation 1 (i) restricting the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and (ii) weighting the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). Appendix Table A1 shows that this procedure largely eliminates the differences in observables.

period also allow us to track the effect of the reform over different time horizons, ranging from the initial transition period to more than a decade after the fiscal rule came into effect.

4 Results: Public Finance

In this section, we provide evidence on the effect of the fiscal rule on the main municipal fiscal outcomes. We focus our attention on the overspending ratio (i.e., the targeted variable) and an indicator for current deficit. We then use disaggregate data on the sub-components of the overspending ratio and other fiscal outcomes to shed light on mechanisms.

4.1 Raw Data

Figures 1 and 2 provide preliminary visual evidence on compliance with the fiscal rule. This evidence suggests that the results that follow are not due to mean reversion, nor an artifact of the additional structure imposed by the econometric analysis.

Figure 1 plots the distribution of the overspending ratio in selected years before and after the reform (Appendix Figure III.4 provides results for other years). Panels (a) and (b) show that almost 80% of municipalities had operating expenditures that exceeded 80% of disposable current revenue (i.e., overspending ratios above the cap of 0.8) before the introduction of the fiscal rule. By 2002, shortly after the reform, panel (c) shows that the distribution starts to compress and shifts to the left, with 63% of municipalities exceeding the cap. Panel (d) shows that compliance rapidly increases after the end of the transition period, with only 26% of municipalities breaking the rule in 2005. Panels (e)-(h) show that compliance further increases and remains high for the rest of the sample period. For instance, only 5% of municipalities have overspending ratios that exceed the legal cap of 0.8 in 2017.

Figure 2 plots the average of the overspending ratio among affected and non-affected municipalities for each year between 1996 and 2018. In the pre-reform period, municipalities exposed to the fiscal rule were spending more than 120% of current revenue on operating expenditures, while non-exposed municipalities were averaging 85%, only slightly above the 80% cap. Affected municipalities on average could not cover their operating expenditures with current revenue. After the fiscal rule is introduced, the mean overspending ratio declines dramatically for the affected group and quickly converges to that of the non-affected group. The average municipality in both groups complies with the fiscal rule in all years after 2004, with the overspending ratio declining to a common average of approximately 60% in 2018, which is consistent with the additional incentive from SGP transfers mentioned in section 2.3. The fact that the overspending ratio follows a common downward trajectory for both

groups of municipalities in the almost two decades after the reform suggests that we are not simply capturing mean reversion for municipalities that were overspending in the late 1990s.

4.2 Estimation Results

Figure 3 shows point estimates and 95% confidence intervals for β_τ in equation 2, using the overspending ratio as dependent variable in panel (a) and an indicator for current deficit in panel (b). Panel (a) shows that the overspending ratio increases slightly in exposed municipalities in the years before the reform, but decreases sharply right after the introduction of the fiscal rule, in line with the evidence in Figure 2. The graph suggests a persistent decrease in operating expenditures as a share of current revenues of more than 30 percentage points. Panel (b) shows that the probability of a current deficit is stable in the years before the reform, but also decreases sharply in affected municipalities afterwards. The fiscal rule leads to a long-run reduction in the probability of a current deficit of also more than 30 pp.

Table 2 provides estimates of equation 1 for these outcomes. The dependent variable in columns 1-2 is the overspending ratio, while in columns 3-4 it is the current deficit indicator. Odd-numbered columns correspond to the baseline specification with municipality and department-year fixed effects. Even-numbered columns also include the additional controls for imbalance in covariates. Column 1 shows that the fiscal rule leads to an average reduction of 32 pp in the overspending ratio. This effect is precisely estimated (statistically significant at the 1% level) and is equivalent to 30% of the pre-reform mean. Column 3 shows that the probability of a current deficit decreases by 32 pp on average after the reform. This effect is also sizable and precisely estimated, equivalent to 48% of the pre-reform mean. The results hardly change with the additional controls in columns 2 and 4.[21] Appendix Table A2 shows that the results are likewise unaffected if we use propensity-score weights instead.

4.3 Components of the Fiscal Adjustment

The previous results suggest that the fiscal rule is highly effective at reducing overspending in public administration by municipal governments in Colombia. We turn now to the subcomponents of the overspending ratio to explore the underlying mechanisms. Table 3 shows estimates of equation 1, while Appendix Figure III.5 provides the corresponding event study plots. For this analysis, we focus on our preferred specification with additional controls.

Column 1 shows that the fiscal rule leads to an average decrease of 20% in operating

[21] Appendix Table B1 shows that the results are robust to the inclusion of all the predetermined covariates from Table 1 interacted with an indicator for the post-reform period.

expenditures. All of its sub-components contribute to this reduction.[22] The largest fall is observed in the two main components: personnel, which includes salaries of bureaucrats and elected officials, and general expenses, which includes procurement for the municipal administration, training, travel, rent, maintenance and utilities. Personnel expenditure falls 16% on average, corresponding to 113 million COP per year based on the pre-reform sample mean, while general expenditure decreases 24%, corresponding to approximately 114 million COP. As described in detail in Appendix IV, former mayors report cuts in personnel of as much as 50% of the pre-reform staff during the implementation of the fiscal rule. These cuts predominantly affected clerical staff (e.g., assistants) and manual workers (e.g., handymen).[23] Column 4 shows that paid transfers decrease by 14% on average. This component includes pensions of qualifying municipal employees and payments dictated by legal sentences, which likely decrease due to the fiscal consolidation. The event study graphs in Figure III.5 provide visual evidence of this reduction in operating expenditures and all of its sub-components.

Column 5 shows that current revenue increases 8% on average after the introduction of the fiscal rule, mostly driven by non-tax revenue (i.e., fines and fees), which increases 31%. Local tax revenue and disposable transfers from the central government increase at the lower rates of 14% and 10% respectively. This increase in transfers is a mechanical response that rewards higher tax revenue and compliance with the fiscal rule.[24] The event study graph in panel (g) of Figure III.5 shows a clear increase in non-tax revenue after the reform, while the evidence for tax revenue and transfers in panels (f) and (h) is less conclusive. Tax revenue is on a downward trajectory in the years before the reform, arguably due to weak incentives for the generation of own revenue and a recession in 1999, but recovers to its level from the mid-1990s after the reform. To probe the potential impact of mean reversion on these results, Appendix Table B4 replicates the analysis excluding the years 1999 and 2000 from the sample.[25] The estimates for tax revenue, transfers, and total current revenue become 50% smaller, but the effect on non-tax revenue remains largely unchanged. The coefficients for operating expenditure and its sub-components do not change either.

[22]Operating expenditure is winsorized, while its sub-components are not. The same applies for current revenue and its sub-components in columns 5-8. Appendix Table B2 shows that the results are robust to winsorizing each sub-component and using these estimates to calculate the totals. Appendix Table B3 shows that the results are robust to using an inverse hyperbolic sine transformation instead of the logarithm.

[23]The constitution awards mayors discretion over public employment in their municipalities (article 315). Reductions in personnel were also facilitated by the public sector's high reliance on fixed-term contracts.

[24]Appendix Table III.1 and Figure III.6 show that the increase in tax revenue is not driven by the property or gross receipts taxes, the main local taxes. Relatedly, we find no change in the probability of a cadastral update (i.e., the base for the property tax). Other tax revenue increases roughly 30% (e.g., gasoline surcharge).

[25]Appendix Table B5 shows that our main results are robust to this modification in the sample period. More generally, we use the methodology developed by Rambachan and Roth (2022) to show in Appendix Figure B1 that our main results are robust to violations of the parallel trends assumption.

The previous results show that the fiscal rule has a much larger impact on operating expenditures (the numerator in the overspending ratio) than on current revenue (the denominator). This result stands in contrast to the findings by Grembi et al. (2016) for Italy, where the fiscal rule mostly affects municipal public finance via taxation. This discrepancy may reflect that voters in Latin America prefer spending-based fiscal adjustments to taxation-based ones, as shown by Ardanaz et al. (2020). The larger increase in non-tax revenue than in tax revenue in our setting lends support to this interpretation. A complementary explanation is that weak state capacity hinders efforts to raise public revenue in developing countries (Besley and Persson, 2011). As described in detail in Appendix IV, former mayors mention cuts in spending rather than increases in revenue as their main strategy to comply with the fiscal rule. These mayors also highlight major challenges for tax collection, including weak property rights, poor information systems, and low tax morale.

A frequent concern regarding fiscal rules is the possibility that governments artificially comply using creative accounting (Alesina and Perotti, 1996; Milesi-Ferretti, 2004). In our setting, local governments could strategically classify some of their operating expenditures as capital expenditure in order to bring down the overspending ratio. We look into this possibility in Table 4, with the corresponding event study graphs in Appendix Figure III.7.[26] The dependent variable in column 1 is log capital revenue, which includes most SGP transfers, co-financing of projects by higher levels of government, and natural resource royalties. The estimated β is very small (1% increase) and not statistically significant.[27] The estimate for capital expenditures in column 2 indicates a 4% increase, but is imprecise and also not significant. Based on the point estimates and the pre-reform sample means, the average municipality exposed to the fiscal rule reduces operating expenditures by 278 million COP and increases capital spending by 155 million COP (i.e., substitution rate of 56%). This suggests that the large reduction in operating expenditures is only partly offset by higher capital expenditures, which leads to a 4% decrease in total spending (p=0.006, not reported). Importantly, the increase in capital spending could also reflect the reallocation of public revenue towards local public goods. In this regard, while the null result in column 2 is reassuring in terms of creative accounting, it also indicates that the introduction of the fiscal

[26]We study data misreporting as another form of artificial compliance using the actual values reported to CGR. Pooling data for 2010-2018, Appendix Figure III.8 shows a discontinuity in the distribution of the overspending ratio at the legal limit of 80%, which is suggestive of misreporting. Borrowing tools from the *bunching* literature (Kleven, 2016), Appendix Table III.3 shows that the difference between missing and excess mass across the threshold is minimized for a bunching window of 0.71-0.88. This implies a very low rate of data manipulation (1.3% of observations). Appendix Table B6 shows that our results are robust to excluding the handful of municipalities that report overspending ratios in the region 0.78-0.80 for more than two years.

[27]Appendix Table III.2 shows that total SGP transfers remain unchanged in affected municipalities.

rule failed to translate into higher social spending. This is a shortcoming of the reform that plausibly relates to limitations in the planning and managerial capacities of municipal governments according to the former mayors that we interviewed.

We explore the broader fiscal impact of the reform in the rest of Table 4. Column 3 shows that the probability of a total deficit (i.e., current plus capital accounts) decreases 10 pp. This large effect, equivalent to 18% of the pre-reform mean, provides further proof of a real impact of the fiscal rule, as the total deficit is immune to the reshuffling of expenditures across accounting categories.[28] Columns 4-5 show that the fiscal rule has a negligible impact on the probability of net credit inflows or interest payments. This indicates that affected municipalities do not predominantly finance their deficits by issuing debt. Column 6 shows that the probability of a positive change in wealth increases 11 pp (23% of the sample mean), in line with reports that subnational governments had amassed several trillion COP in bank accounts and treasury bonds in the post-reform period (El Tiempo, 2009).

4.4 Robustness Checks

We provide a large battery of robustness tests for all our main results in Appendix B. Regarding our measure of exposure to the fiscal rule, Figure B2 shows that the results remain of a similar magnitude and precision for any threshold value between 0.8 and 1.1. The results are also robust to excluding outliers (i.e., tighter bandwidth around the threshold), which constitutes evidence against mean reversion as an alternative explanation (Figure B3). We further address concerns related to mean reversion in Table B7 by showing that the results are unaffected if we change the pre-reform years used to construct our exposure measure (e.g., omit recession period 1999-2000) or if we use the continuous pre-reform average instead. Tables B8-B9 additionally show that the results look very similar if we study the fiscal outcomes in per capita terms or if we do not winsorize the main fiscal variables.

Regarding the composition of the sample, Table B10 shows that the results are unaffected if we only use municipalities belonging to category six before the reform, while Table B11 verifies that the results are robust to imposing a stricter limit on deviations from category six. The results are also robust to dropping municipalities with missing data (Table B12). Figure B4 shows that the results hardly change if we exclude any department from the sample.

Even though the timing of our treatment is not staggered and our baseline measure of exposure is dichotomous, a recent literature suggests that our difference-in-differences estimator

[28] The long post-reform period in our sample allows us to further rule out that creative accounting is taking place through the intertemporal reallocation of expenditure. The relatively simple institutional structure of the municipalities in our sample also limits governments' ability to shift spending to off-budget entities.

could be biased when controls are included, as in our preferred specification (de Chaisemartin and D'Haultfoeuille, 2020; Borusyak et al., 2021; Callaway and Sant'Anna, 2021; Sun and Abraham, 2021). This bias seems unlikely in our setting, given the negligible impact of the controls, but nonetheless we verify in Figure B5 that our results are robust to the implementation of several of the alternative estimators suggested by this literature.

Table B13 verifies that our results are not confounded by the other fiscal reforms taking place concurrently with the introduction of the fiscal rule. Our results are robust to controlling for variables affected by the reform to the system of intergovernmental transfers (Law 715/2001), such as the yearly amount of SGP transfers or a time-varying indicator for municipalities that become *certified* to autonomously manage their education system. Our results are also unaffected if we add as control a time-varying indicator for municipalities that declare bankruptcy and sign a financial restructuring agreement (Law 550/1999).

In Table B13 we also study the impact of other margins of reform contemplated in Law 617 of 2000. First, we verify that our results are robust to controlling with a time-varying indicator for the elimination of the municipal comptroller in some municipalities.[29] Second, Law 617 introduced more stringent requirements for the creation of new municipalities, but our results are unchanged if we exclude from the sample all the new municipalities created since 1986. Third, Law 617 also imposed additional limits on the expenses of the municipal council and the office of the ombudsman, but Table III.7 and Figure III.9 show that the reduction in operating expenditures is almost exclusively driven by the central administration.

5 Results: Public Goods

The previous results show that the introduction of the fiscal rule leads to a sizable reduction in operating expenditures and in the probability of a current deficit. This suggests that fiscal rules are effective at curbing overspending in public administration in developing countries. In this section, we investigate the effects of the fiscal rule on public good provision and living standards. Our finding of a null impact on capital spending in Table 4, which corresponds to expenditures related to local public goods, suggests an equally null effect on downstream outcomes.[30] However, the reduction in operating expenditures could affect the *quality* of public spending (e.g., deficient contracts, weak oversight) or the planning and implementa-

[29] Tables III.4-III.6 show that the rule has a larger fiscal impact in municipalities that (i) subscribe a financial restructuring agreement (Law 550/1999), (ii) eliminate the comptroller, or (iii) were in a deeper fiscal crisis.

[30] Appendix I provides a detailed account of public goods provided by municipal governments. Appendix Table III.8 shows that the allocation of capital spending across sectors is also unaffected by the fiscal rule.

tion of public policy more broadly. To shed light on the broader welfare effects of the fiscal consolidation, Table 5 provides estimates of β in equation 1 for a wide range of relevant outcomes. Appendix Figure III.10 shows the corresponding event studies.

Subnational governments (municipalities and departments) are responsible for the provision of services in the areas of education and health. Even though most related expenditures are funded with SGP transfers, which remain unchanged, municipal governments have discretion over non-pecuniary aspects of policy. For example, the provision of subsidized health insurance for the poor is the municipal government's main responsibility in the area of health.[31] The dependent variable in column 1 is the share of poor population enrolled in this program. We find a 1 pp decrease in enrollment (equivalent to 1.3% of sample mean), which is not statistically different from zero. The municipal government is also responsible for local policies concerning public health, including vaccinations and reproductive health. The dependent variable in column 2 is the average infant vaccination rate for the five vaccines mandated by the Ministry of Health. We find a 1 pp increase in the vaccination rate (equivalent to 1.8% of the pre-reform sample mean), but this estimate is also insignificant. In columns 3-4, we use information from the vital statistics to construct two measures of maternal-child health. The dependent variable in column 3 is the share of newborn with low birth weight, which is an important predictor of cognitive and labor market outcomes (Black et al., 2007). In column 4, the dependent variable is the average number of prenatal visits. We find no economically or statistically significant effect on these outcomes either.

We turn to education outcomes in columns 5-7. The dependent variable in column 5 is the number of public schools per 10,000 inhabitants. SGP transfers provide funding for most current expenditures in education, but municipalities can use their own resources for investments in educational infrastructure. However, column 5 shows that the fiscal rule has no impact on the number of schools. Municipal governments can also reallocate teachers and students across schools and are responsible for managing SGP transfers for materials, school maintenance, food and transportation (see Appendix I for details). The results in columns 6 and 7 show no changes in the teacher-pupil ratio or in the log number of students (primary and secondary). All the point estimates in columns 5-7 represent less than a 1% change relative to the sample mean and they are all statistically insignificant.

We examine the provision of water, sewage disposal, and sanitation (garbage collection and street cleaning) in columns 8-10. The dependent variable in these columns is an indicator for whether there is a provider of the corresponding service (public or private) based in the municipality. These outcomes should be interpreted with caution, as one same provider may

[31] Appendix Table I.2 shows that health spending is the largest component of capital spending, representing 43% on average in the period 2010-2018, mostly driven by the subsidized health insurance program.

serve multiple municipalities. We find a 4 pp decrease in the probability of an aqueduct company (9% of sample mean), but this estimate is imprecise and only significant at the 10% level. Panel (h) in Figure III.10 further suggests that this negative effect dissipates in the long run. The probability of having a sewage disposal or sanitation provider also decreases by approximately 3pp, but these estimates are not statistically significant.

Columns 11-16 provide evidence on broader measures of the quality of governance and living conditions. The dependent variable in column 11 is an indicator equal to one if the mayor is sanctioned by CGR for mishandling of public funds.[32] The smaller sample size is due to the fact that the unit of observation is municipality-mayoral term. The effect of the fiscal rule on corruption is theoretically unclear. On the one hand, corruption may decrease if the forgone expenditures correspond to a misuse of public funds (e.g., patronage, nepotism). On the other hand, corruption may increase if the spending cuts weaken oversight of public service delivery or public contracting. The estimate in column 11 is very small and not statistically significant, suggesting that the fiscal rule does not affect corruption. This result stands in contrast to the findings by Daniele and Giommoni (2020) for Italy. The difference arguably stems from the fact that the fiscal rule in Italy predominantly affects public investment, which is more prone to corruption than operating expenditures.

In column 12 we use nighttime lights (NTL) to study the effect of the fiscal rule on the local economy. Unfortunately, data on GDP is not available at the municipality level in Colombia, but NTL provide a useful proxy for local economic activity (Henderson et al., 2012). NTL can also pick up changes in certain public goods, such as street lighting or rural electrification. The dependent variable in column 12 is the logarithm of the NTL digital number (DN). The estimate for β is very close to zero and not statistically significant. As an alternative measure of local economic growth we use the cadastral value of all properties in the municipality in column 13. Again, $\hat{\beta}$ is very small and insignificant.

One concern about fiscal rules is that they may limit the government's ability to respond to unexpected needs. This concern is particularly salient in the case of national governments responsible for macroeconomic stability. While the municipal governments in our sample can hardly have a macroeconomic impact, the fiscal rule may reduce their ability to cope with emergencies. The dependent variable in column 14 is the share of population affected by natural disasters, which increases by 29 per 10,000 inhabitants (10% of sample mean),

[32]We construct this variable by matching the names of the mayors in the sample with those of all individuals sanctioned by CGR since 1990. We set a cut-off of 0.9 for the precision of the match, but the results are robust to different thresholds (Appendix Table B14). In our baseline analysis we focus on whether the mayor ever appears in the CGR bulletins, but the results are similar for sanctions occurring before or after the mayor's term in office (Table B15). Table B15 provides null results for corruption sanctions involving the municipality (i.e., place of occurrence), the party of the incumbent mayor, or any mayoral candidate.

but the estimate is very imprecise and not statistically significant.

The dependent variable in column 15 is an indicator taking value one if there are any violent events in the municipality (attacks, clashes) amid Colombia's civil conflict. Many of the former mayors that we interviewed mention the conflict as a major challenge for their administrations. Hence, conflict events can be interpreted as an inverse measure of local state capacity (Carreri and Dube, 2017; Ch et al., 2018). The estimated effect is small and insignificant. Column 16 shows an equally negligible impact on the cultivation of coca, the main input in the production of cocaine and an important driver of political violence.

We address concerns of multiple hypothesis testing in column 17 by introducing an inverse covariance-weighted index of our public goods outcomes for the period 1998-2010 (Anderson, 2008). We only exclude from this index the outcomes on health insurance, cadastral value, and coca cultivation (columns 1, 10, and 16) because of the much shorter sample period, as well as the corruption indicator (column 8) because of the different unit of observation. In the construction of the index we redefine variables such that positive values are always more desirable. Higher values of this index are thus associated with improved public goods and living standards. The estimate in column 17 is negligible (0.004 standard deviation increase above the mean) and not statistically significant, confirming that the introduction of the fiscal rule and the associated cuts in spending do not affect local public goods. Appendix B shows that this null result is robust to the battery of sensitivity tests discussed in section 4.4, while Appendix Table A3 shows robustness to the use of propensity-score weights.

Despite this null effect on downstream outcomes, the fiscal rule could affect the quality of the administrative services provided by the municipal government. Unfortunately, there is no available data on bureaucratic services for the pre-reform period. However, we can use fine-grained administrative and survey data from the post-reform period to provide suggestive evidence on the effect of the fiscal rule on bureaucratic performance.

Panel (a) in Figure 4 shows averages for measures of the size and quality of the bureaucracy in 2021. There are no significant differences between exposed and non-exposed municipalities in the number of government agencies or administrative employees, nor in their qualifications or job experience. Panel (b) then looks at the quantity and quality of the administrative services provided by municipal governments in 2021, such as obtaining a building permit. Affected municipalities provide slightly fewer services on average (6% reduction over sample mean, significant at 10% level), but there is no difference in time to completion or in the share offered online. As additional evidence on local governments' ability to cope with emergencies, panel (b) also shows that the vaccination rate for Covid-19 in 2022 is the same for both groups. Panel (c) studies the quality of public contracts in the period 2015-2018. We find that the share of contracts corresponding to tendered bids (i.e.,

non-discretionary) is higher in affected municipalities (23% increase over sample mean, significant at 1% level). Among these tendered bids, the share with time or money overruns is lower among affected municipalities, though the differences are mostly statistically insignificant. Finally, Panel (d) examines residents' perceptions about their municipal government. There is no difference in the share of survey respondents that describe their government as accountable nor in the level of satisfaction with local public goods. However, respondents in affected municipalities perceive their government as more open to consultation and more transparent in its operations (9% and 13% increases over mean, significant at 1% level).

The previous comparisons suggest that municipal governments affected by the fiscal rule provide administrative services on par with their unaffected counterparts. More broadly, our findings show that the fiscal rule leads to a sizable reduction in operating expenditures with no meaningful impact on local public goods. This suggests that the reform was successful at cutting wasteful administrative spending. Our interviews of former mayors lend support to this interpretation. Interviewed mayors repeatedly mention redundant personnel as a characteristic of municipal governments before the reform. Some examples include one municipality with four drivers for one truck and another that closed down the municipal jail but kept the guards as handymen. Duplication of duties among clerical staff was also prevalent, with excess hiring of assistants and temporary workers. Inflated remuneration for elected officials and unwarranted benefits for bureaucrats (e.g., educational subsidies for employees with no children) are also mentioned. As described in detail in Appendix IV, interviewed mayors mostly claim that the cuts in administrative spending do not affect the functioning of the municipal governments and often lead to sizable gains in efficiency.

6 Results: Local Politics

In this section, we investigate the political effects of the fiscal rule. As mentioned in the introduction, previous work has mostly focused on whether austerity causes an immediate political backlash and has provided mixed findings. In contrast, our sample period covers five subnational elections after the reform, which allows us to go beyond the immediate political impact of the fiscal rule. Existing studies have also typically focused either on elections or protests, while we provide results for both local elections and protests against the local government. This combination of outcomes is particularly important in weakly institutionalized settings like ours, as protests may provide evidence of political discontent that is confounded in the electoral data by countervailing political strategies, such as clientelism or vote-buying.

Voters' behavior is conditioned by the availability of information about relevant outcomes (Ferraz and Finan, 2008). To motivate the analysis that follows, we first provide suggestive

evidence on news reports concerning the municipal fiscal crisis and the impact of the fiscal rule. Figure 5 plots the number of weeks per year with news about the municipal fiscal deficit, based on hand-collected data from the country's largest newspaper (El Tiempo) for the period 1995-2010. On average, there were 20.3 weeks per year with at least one negative story in the pre-reform period and only 0.3 weeks with positive stories (i.e., one negative news story every 2.6 weeks and 60 negative stories for every positive one). News coverage drastically changes with the introduction of the fiscal rule. After the end of the transition period, the average number of weeks per year with negative news content is 3.4, while the average for positive content is 5.1 (i.e., 1.5 positive stories for every negative one). This suggests that information about the municipal fiscal deficit was available in national media and that this crisis and the subsequent recovery were salient in public discourse.

We turn next to electoral outcomes. In Table 6, we provide estimates of equation 1 for two measures of electoral support for the party of the incumbent mayor (which can vary over time). We focus on the incumbent party because mayors in Colombia cannot be re-elected. Odd-numbered columns correspond to our basic specification with municipality and department-year fixed effects (in this case, election years), while even-numbered columns correspond to our preferred specification with additional controls. The dependent variable in columns 1-2 is the vote share for the incumbent party in the following mayoral election. Unfortunately, data on vote shares for all parties competing in the election is only available since 1997, which leaves us with only two elections before the reform (1997 and 2000). We find that incumbent parties experience an 8 pp increase in the vote share of their candidate for mayor after the reform, which is equivalent to 16% of the sample mean. This suggests that local voters become increasingly satisfied with their local government after the introduction of the fiscal rule. The event study plot in panel (a) of Figure 6 shows a persistent increase in the incumbent party's vote share in all elections after the introduction of the fiscal rule.[33]

Elections for mayor usually involve more than two candidates (average of 4.1) and the winner is determined using plurality rule. Hence, a higher vote share may not translate into a greater probability of winning the election. In columns 3-4, we use as dependent variable an indicator equal to one if the party of the incumbent mayor wins the next mayoral race. We find that the probability of re-election increases by 6 pp in affected municipalities after the reform (12% of the sample mean). Panel (b) in Figure 6 provides visual evidence of the higher re-election rate in affected municipalities after the reform.

We study several measures of the competitiveness of mayoral elections in Appendix Table III.9 and find no evidence of change after the introduction of the fiscal rule.[34] Appendix

[33]Appendix B shows that this result is also robust to the battery of sensitivity tests discussed in section 4.4, while Appendix Table A4 shows robustness to the use of propensity-score weights.

[34]The fiscal rule may also affect political selection, as Gamalerio and Trombetta (2021) show for Italy.

Table III.10 then looks at party vote shares. As mentioned above, parties are weak and in constant flux in Colombia (Mainwaring, 2018). We focus on the two main parties (Liberal and Conservative) because these are the only ones that we can consistently track throughout the sample period. We find that the vote share for the Conservative party (President's party at the time of the reform) remains unchanged, while the Liberal vote share increases 2 pp (14% increase over the sample mean, significant at 5% level). We also find that the vote share of the party of the mayor that was in power during the initial implementation of the fiscal rule (2001-2003 period) increases 3pp (5% of sample mean, significant at 10% level), which could reflect that voters reward the specific party responsible for the fiscal adjustment. To verify that our previous findings on incumbent re-election are not driven by specific parties, Table III.10 also shows that the results are robust to including incumbent party fixed effects.

As a complementary measure of political behavior, we study the incidence of protests against the municipal government in Table 7. Appendix Figure III.12 shows the event study plots. The dependent variable in columns 1-2 is an indicator for incidence of protests against the municipal government. Column 1 shows results from the basic specification, while column 2 includes the additional controls. We find no effect of the fiscal rule on the overall probability of protests. In columns 3-5, we disaggregate protests into three main causes: public services (column 3), labor disputes (column 4), and other causes (e.g., human rights violations, column 5). We find a statistically significant decrease of 0.5 pp in the probability of protests related to labor disputes (equivalent to 100% of the sample mean), but no change in the probability of protests related to public services (in line with the null effect on public goods) or to other causes. These results are consistent with anecdotal evidence suggesting long delays in the payment of salaries and pensions in affected municipalities before the reform (El Tiempo, 1998, 1999). Several of the former mayors we interviewed confirm these delays and claim that they led to tense labor relations within municipal governments.

7 Discussion

The previous results show that the fiscal rule increases electoral support for local incumbent parties. This suggests that local public finances were misaligned with the preferences of voters before the reform. This misalignment was presumably larger in municipalities exposed to the reform, which had a lower incumbent re-election rate before the reform, as we show in Appendix Figure III.13. While overspending in public administration may not be immediately observable to voters, regular news reports in the national media raised the alarm about the mounting municipal fiscal deficit before the reform and applauded municipalities

Unfortunately, individual-level data on local candidates is not available for our sample period.

for the fiscal consolidation afterwards. Salient and recurrent events, such as strikes by unpaid municipal employees, provided first-hand evidence to residents on the dire state of local public finance before the reform, but became less likely after the introduction of the fiscal rule. Insofar as the fiscal rule permanently solved the municipal fiscal crisis, voters stopped observing these negative outcomes and became persistently more satisfied with their local incumbent.

The misalignment between voters and their local government concerns the operating expenditures targeted by the fiscal rule. Voters plausibly prefer more and better public goods, but would like to minimize the underlying administrative spending. To the extent that the fiscal rule reduces such spending without compromising public good provision, voters welcome the resulting fiscal consolidation. In contrast, evidence from other settings shows that cuts to welfare and social spending trigger a sizable political backlash (Fetzer, 2019; Wiedemann, 2022).[35] Hence, the discrepancy between our results and those from previous work arguably hinges on the null effect on public goods that we document in our setting. The specific measures adopted by Colombian municipal governments to implement the fiscal rule arguably also contribute to its popularity, namely reductions in operating expenditures rather than increases in taxation. Previous survey studies suggest that voters support austerity measures along these lines (Ardanaz et al., 2020; Bansak et al., 2021).

Our finding of a reduction in operating expenditures with no impact on local public goods suggests that municipal governments engaged in wasteful administrative spending before the introduction of the fiscal rule. As further discussed in Appendix IV, the former mayors we interviewed report that administrative overspending was partly driven by corruption and clientelism, often associated with a traditional and hegemonic local political class (Bardhan, 2002). Former mayors also attribute the overspending to a lack of expertise in public administration among local officials. These two drivers of the agency problem between voters and their local government broadly correspond to the concepts of active and passive waste, as defined by Bandiera et al. (2009). Even though the presence of active waste suggests that there were losers from the reform (interviewed mayors mention disgruntled former employees and growing animosity from city council members in some cases), our findings on elections and protests suggest a net positive effective of the fiscal rule on the welfare of local residents.

Electoral incentives should arguably help to ameliorate this agency problem (Ashworth, 2012). In fact, aligning public policy with the preferences of voters was one of the motivations for the introduction of mayoral elections in Colombia in 1988. However, these incentives were

[35]Fetzer (2019) shows, for instance, that the austerity measures introduced by the Conservative government in the UK after 2010 implied substantial welfare cuts, averaging around 24% lower spending per person. Areas more exposed to these measures exhibit higher support for populist opposition party UKIP.

seemingly ineffective before the reform for several reasons. First, mayors in Colombia face a one-term limit for consecutive terms, which weakens their incentive to implement policies favored by voters (Klašnja and Titiunik, 2017).[36] Second, even if political parties can internalize the electoral penalty from this misalignment, Colombian parties are weak and can only provide limited oversight over the performance of their elected representatives (Mainwaring, 2018). Third, mayors face personal costs from reducing waste in public administration. Former mayors report that they faced opposition from municipal employees that lost their jobs due to the cuts and that they often had to assume additional work themselves. Moreover, popular support for the fiscal adjustment required extensive communication with the local community to explain the need for reform and to assuage concerns about the scope of the spending cuts. Under these conditions, the fiscal rule was an effective way to ameliorate the agency problem affecting local public finance. In Appendix V we develop a simple model of political agency to formalize this argument.

8 Conclusion

In this paper, we study the introduction of a subnational fiscal rule in Colombia in 2000. This *golden* rule set a cap on the operating expenditures of municipal governments as a share of disposable current revenue. We study the effects of the fiscal rule on fiscal, economic, and political outcomes over a long time horizon by comparing municipalities with varying *de facto* exposure to the rule at the time of the reform. Our difference-in-differences analysis yields three main findings. First, the fiscal rule is highly effective at reducing operating costs and the probability of a current deficit, with no evidence of a strategic response through creative accounting. Second, there is no meaningful impact on local public goods or living standards, which suggests wasteful administrative spending before the reform. Third, the introduction of the fiscal rule leads to an increase in electoral support for the party of the incumbent mayor and to fewer protests against the municipal government. This suggests that local public finances were misaligned with the preferences of voters before the reform.

Our findings constitute new evidence on the effectiveness and sustainability of fiscal rules aimed at curbing wasteful administrative spending and provide valuable policy lessons for other settings in the developing world. Colombia was not alone in embracing decentralization in the 1990s as a way to improve local governance, nor in struggling to balance subnational public finances in the following years (Gadenne and Singhal, 2014). A report in 2018 by the IDB found that many countries in Latin America have experienced rapid growth in

[36] Appendix Figure III.14 shows that only 17% of former mayors run again in the first election in which they are eligible and only 7% win (unconditionally). These numbers become smaller in subsequent cycles.

current spending in recent decades, with the compensation of subnational public employees being an important contributor (Izquierdo et al., 2018). Our findings shed light on the challenges for successful fiscal and political decentralization in the presence of weak incentives for the generation of own revenues and low levels of political accountability. We show that institutional arrangements like a golden fiscal rule that targets operating expenditures can help to improve the health of subnational public finances without compromising public good provision and without causing a political backlash. In contrast, austerity measures that worsen public goods provision are likely to have different electoral consequences.

When thinking of extrapolating our findings to other settings, a natural question concerns the factors that contribute to the success of Colombia's subnational fiscal rule. We conjecture that easy verification of compliance and credible enforcement are crucial. Colombia's fiscal rule stands out because compliance is verified using information that the municipal governments routinely produce. It also stands out because of its multidimensional approach to enforcement, involving the national government and the fiscal and disciplinary watchdogs (CGR and PGN). The limited political leverage of the affected municipalities also seems important. In contrast to the Colombian experience, Rodden et al. (2003) attribute substantial responsibility for the failure of policies aimed at curbing overspending by state governments in Brazil to the large influence of regional elites over the national legislative assembly. Similarly, the unpunished violation of the EU's deficit ceiling by Germany and France in 2003 was plausibly the result of the large political clout held by these countries (Yared, 2019).

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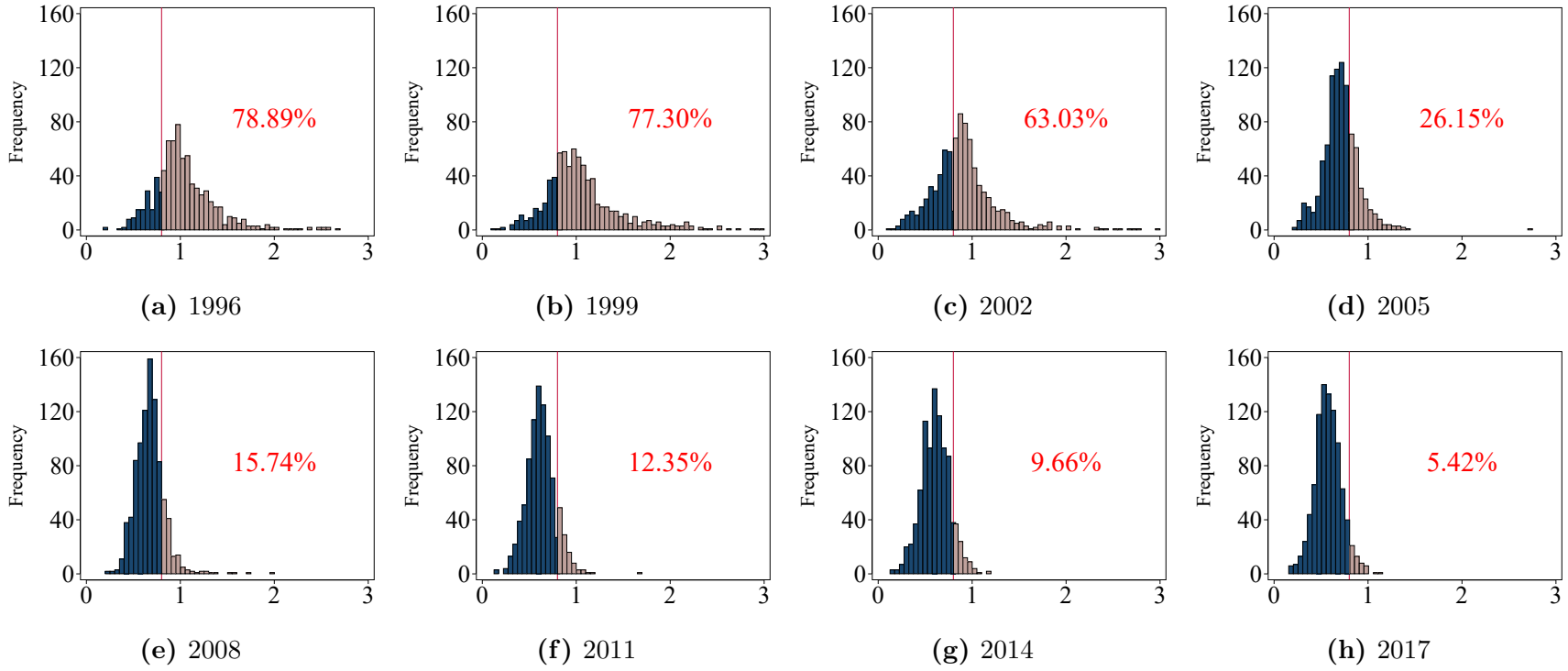
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Figure 1: Aggregate Compliance with the Fiscal Rule

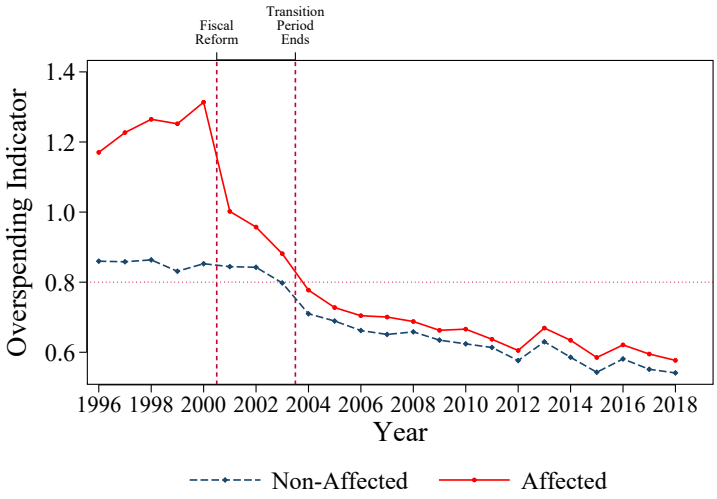


(a) 1996 **(b)** 1999 **(c)** 2002 **(d)** 2005

(e) 2008 **(f)** 2011 **(g)** 2014 **(h)** 2017

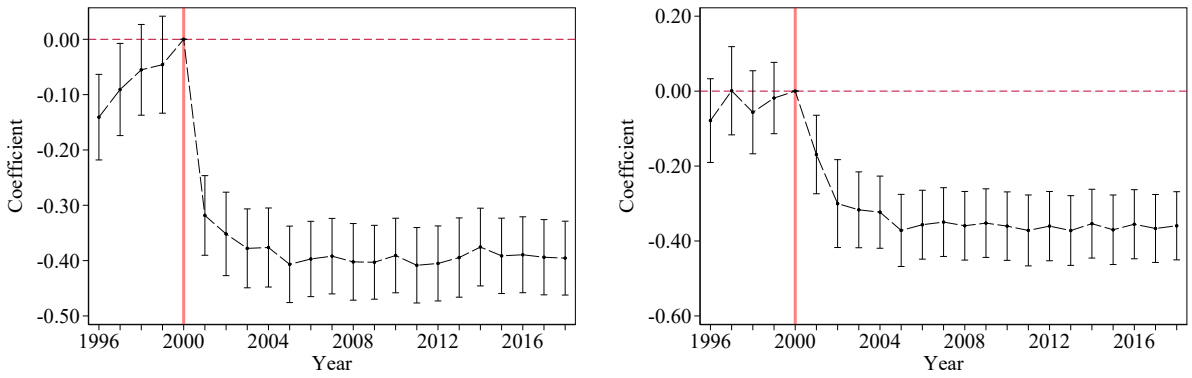
Notes: Each panel shows the distribution of the overspending ratio in the year in the caption. This ratio is defined as operating expenditures divided by disposable current revenue and is estimated using data from the municipal fiscal data published by DNP. The red vertical line denotes the 80% cap on the overspending ratio set by the fiscal rule, which became binding in 2004 (transition period: 2001-2003). The number in the box indicates the percentage of municipalities that exceed the legal cap. These are shaded in red in the graph.

Figure 2: Overspending Ratio: Yearly Average by Exposure to Fiscal Rule



Notes: The graph shows the average value of the overspending ratio in the affected and non-affected groups by year. The overspending ratio is defined as operating expenditures divided by disposable current revenue. The exposed group corresponds to those municipalities that had an average value of the overspending ratio between 1996 and 2000 larger than one. The dashed vertical lines correspond to the start and the end of the phase-in period for the fiscal rule in 2001 and 2003. The fiscal rule set a cap on the overspending ratio of 0.95 in 2001, 0.9 in 2002, 0.85 in 2003 and 0.8 from 2004 onward, as indicated by the dotted horizontal line.

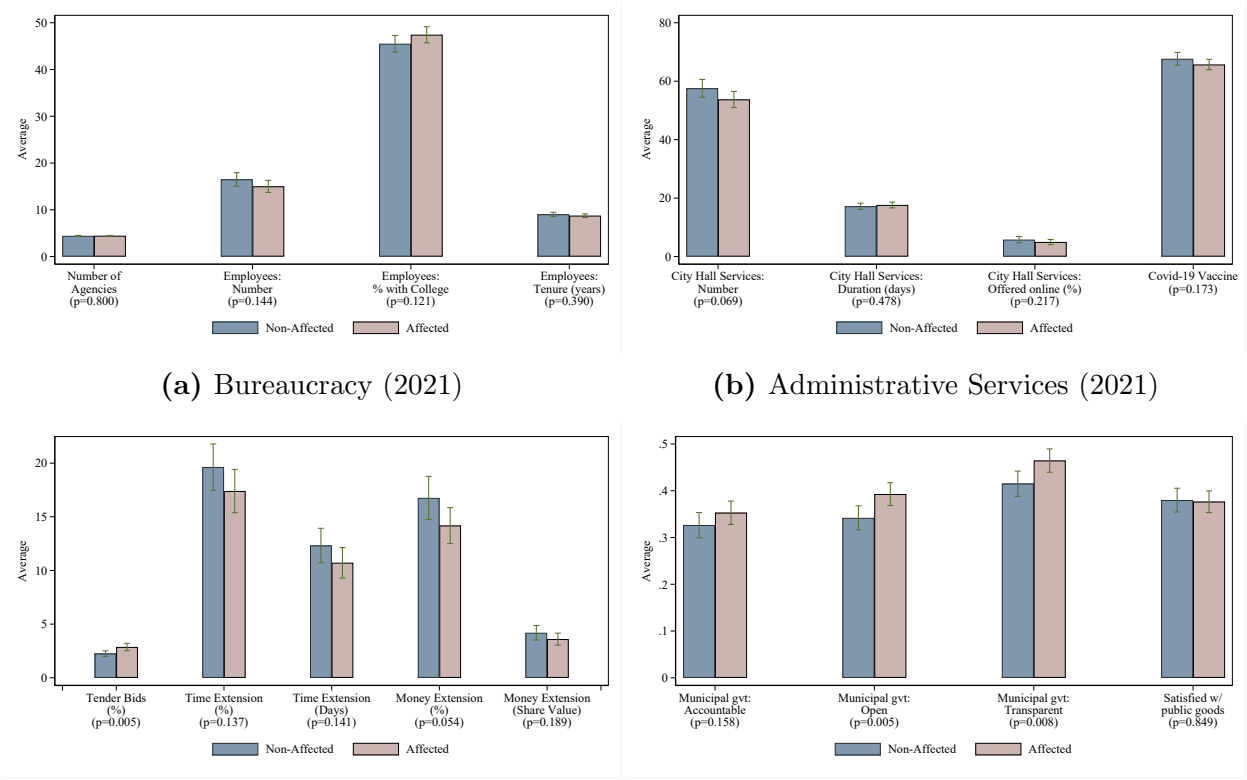
Figure 3: Main Fiscal Outcomes: Event Studies



(a) Overspending Ratio **(b)** Current Deficit (=1)

Notes: Figure shows point estimates and 95% confidence intervals of β_τ in equation 2 (N=20,151, Municipalities = 920). The dependent variable in panel (a) is the overspending ratio, defined as operating expenditures divided by disposable current revenue. In panel (b) it is an indicator equal to one if the municipality experiences a current deficit. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, indicator for school presence in 1996, indicator for Agricultural Bank office in 1996, and indicator for any paramilitary presence in 1996-2000. Standard errors clustered two-way by municipality and department-year.

Figure 4: Public Administration: Post-Reform Cross-Sectional Comparisons



(a) Bureaucracy (2021)

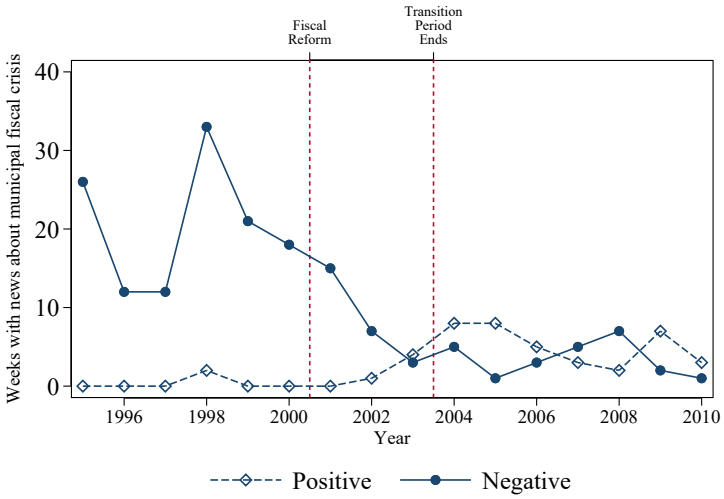
(b) Administrative Services (2021)

(c) Public Contracts (2015-2018)

(d) Citizen Perceptions (2004-2008)

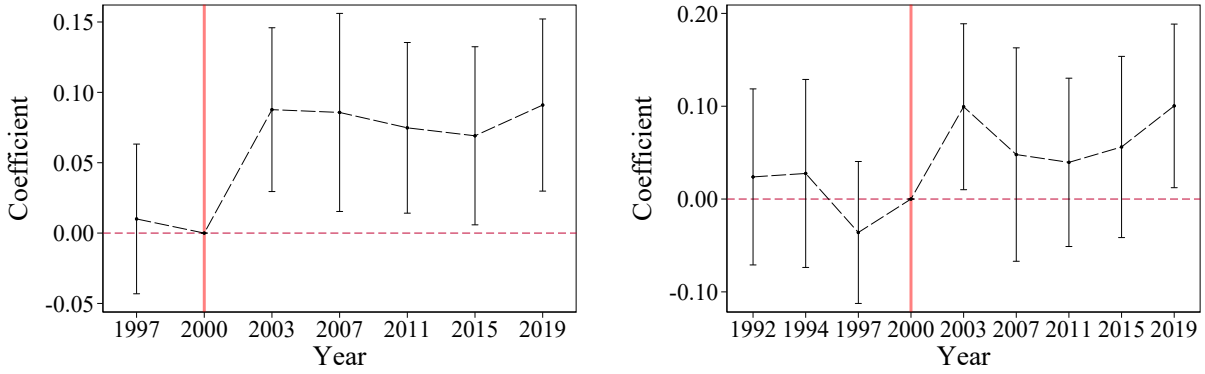
Notes: Each panel shows sample averages and corresponding 95% confidence intervals for variables measured in the post-reform period, disaggregated by exposure to the fiscal rule. Outcomes in panel (a) include the number of agencies in the municipal government, number of employees of the central municipal administration, as well as the share with college and their number of years on the job. Panel (b) shows the number of administrative services offered by the central municipal administration, the number of days for completion and the share that can be done online. This panel also shows the vaccination rate for Covid-19 as of February 2022. Panel (c) shows the percentage of public contracts corresponding to tendered bids (i.e., non-discretionary), as well as the percentage of these contracts (tender bids) that have time or money overruns, and their magnitude. Panel (d) shows the share of survey respondents that agree or strongly agree with the statement that their municipal government is accountable, open to consultation or transparent, as well as the share that is highly satisfied with the provision of local public goods. Panels (a) and (b) are based on administrative data from DAFP for 2021, except for the Covid vaccination rate, which is provided by the Ministry of Health. Panel (c) is based on administrative data from the online platform SECOP for 2015-2018. Panel (d) is based on five waves of the LAPOP survey between 2004-2008. Survey sample includes 3,133 respondents from 27 of our sample municipalities (15 affected, 12 non-affected).

Figure 5: News Coverage of Municipal Fiscal Crisis



Notes: Figure shows the number of weeks per year with news stories in *El Tiempo* newspaper on the municipal fiscal crisis, disaggregated by type of content (positive, negative). Final sample (N=275) is based on stories in the newspaper archive matching keywords 'municipality' and 'deficit' (N=2,132) and additional manual editing for relevance.

Figure 6: Main Political Outcomes: Event Studies



(a) Vote Share for the Incumbent Party **(b)** Incumbent Party Wins (=1)

Notes: Figure shows point estimates and 95% confidence intervals of β_τ in equation 2 . Dependent variable in panel (a) is the incumbent party's vote share in the following mayoral election (N=5,860, Municipalities = 919). In panel (b) it is an indicator equal to one if the incumbent party wins the election (N=5,860, Municipalities = 920). Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, indicator for school presence in 1996, indicator for Agricultural Bank office in 1996, and indicator for any paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year. Unit of observation is municipality-election (year). The sample period in panel (a) is shorter because data on vote shares for all parties competing in the mayoral election is only available since 1997.

Table 1: Predetermined Municipal Characteristics by Exposure to Fiscal Rule

		No Controls		Department FE	
	Mean	β	SE	β	SE
	(1)	(2)	(3)	(4)	(5)
Foundation year	1,873.739	22.003***	6.940	10.225	6.541
Foundation year $\geq$ 1980 (=1)	0.125	0.021	0.022	-0.005	0.020
Area (km^2)	815.500	9.110	224.202	19.334	107.209
Altitude (1,000 meters above sea level)	1.173	-0.338***	0.059	-0.081*	0.043
Distance to department capital (1,000 km)	0.081	0.003	0.004	-0.002	0.003
Distance to nearest market (1,000 km)	0.123	0.009	0.005	0.000	0.003
Distance to Bogotá (1,000 km)	0.310	0.057***	0.012	0.008**	0.004
Share of rural population (mean 1995-2000)	0.660	-0.016	0.013	0.019	0.012
Public schools in 1996 (=1)	0.960	0.006	0.013	0.021*	0.013
Unmet Basic Needs index in 1993	56.112	4.224***	1.211	0.727	0.934
Notary office in 1996 (=1)	0.392	0.000	0.033	-0.011	0.031
Agricultural Bank branch in 1996 (=1)	0.928	0.004	0.017	0.033**	0.017
Tax collection office in 1996 (=1)	0.420	0.054	0.033	0.026	0.034
Health center or hospital in 1996 (=1)	0.741	0.030	0.029	-0.005	0.029
FARC demilitarized zone and neighbors (=1)	0.021	-0.018*	0.010	-0.010	0.008
Guerrilla presence between 1996 and 2000 (=1)	0.656	0.065**	0.032	0.033	0.030
Paramilitary presence between 1996 and 2000 (=1)	0.362	0.065**	0.032	-0.046*	0.026
Coca crops between 1999 and 2000 (=1)	0.184	0.023	0.026	0.027	0.023
Mayor sanctioned for corruption (=1) (96-00)	0.358	0.023	0.033	-0.003	0.034
Political kidnappings (96-00)	0.190	0.014	0.026	-0.009	0.026
Population (1,000 inhabitants)	14.661	1.555*	0.818	-0.188	0.712
Share of votes for Liberal Party (mean 1997-2000)	0.134	0.004	0.011	-0.016	0.010
Share of votes for Conservative Party (mean 1997-2000)	0.082	-0.013	0.008	0.007	0.008
Mayoral elections HHI (mean 1997-2000)	0.372	0.004	0.008	0.009	0.008

Notes: Column 1 shows the sample mean of each variable. Columns 2-3 show point estimates and standard errors from univariate cross-sectional regressions of each variable on the indicator for exposure to the fiscal rule. Columns 4-5 provide the same information for specifications that additionally include department fixed effects. All dependent variables are measured before the introduction of the fiscal rule in 2001. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table 2: Main Fiscal Outcomes: Difference-in-Differences Estimates

	Overspending Ratio		Current Deficit (=1)	
	(1)	(2)	(3)	(4)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.32***	-0.32***	-0.32***	-0.31***
	(0.015)	(0.015)	(0.019)	(0.019)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls		✓		✓
Observations	20,151	20,151	20,151	20,151
Municipalities	920	920	920	920
Pre-Reform DV Mean	1.07	1.07	0.66	0.66
Pre-Reform DV Std. Dev.	0.38	0.38	0.47	0.47

Notes: This table shows estimates of β in equation 1. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. Regressions include municipality and department-year fixed effects. In columns 2 and 4 we also include year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table 3: Sub-Components of the Overspending Ratio: Difference-in-Differences Estimates

	Operating Expenses (Logs)				Disposable Current Revenue (Logs)			
	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected × $\mathbb{1}[t > 2000]$	-0.20***	-0.16***	-0.24***	-0.14**	0.08***	0.14***	0.31***	0.10***
	(0.018)	(0.020)	(0.030)	(0.057)	(0.017)	(0.036)	(0.054)	(0.030)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151
Municipalities	920	920	920	920	920	920	920	920
Pre-Reform DV Mean	1390.37	709.50	476.58	307.09	1384.44	465.49	280.52	640.10
Pre-Reform DV Std. Dev.	1030.18	2998.82	1126.69	528.29	1098.63	691.75	486.89	353.69

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures, while in column 5 it is disposable current revenue. Columns 2-4 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 6-8 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table 4: Other Fiscal Outcomes: Difference-in-Differences Estimates

	Capital Revenue	Capital Expenses	Total Deficit (=1)	Net Credit Inflows (=1)	Interest Payments	Positive Balance (=1)
	(1)	(2)	(3)	(4)	(5)	(6)
Affected × $\mathbb{1}[t > 2000]$	0.01	0.04	-0.10***	0.00	-0.05	0.11***
	(0.023)	(0.027)	(0.024)	(0.018)	(0.102)	(0.023)
Municipality FE	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151
Municipalities	920	920	920	920	920	920
Pre-Reform DV Mean	3889.82	3867.08	0.56	0.37	442.53	0.48
Pre-Reform DV Std. Dev.	3487.08	3187.40	0.50	0.48	13148.37	0.50

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is capital revenue, in column 2 it is capital expenditures, in column 3 it is an indicator equal to one if the municipal government experiences a total deficit, in column 4 it is an indicator equal to one if the municipal government experiences net credit inflows, in column 5 it is interest payments, and in column 7 it is an indicator equal to one if the municipal government experiences a net increase in wealth. All monetary outcomes correspond to the natural logarithm of the value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table 5: Public Goods and Living Standards: Difference-in-Differences Estimates

	Health Outcomes				Education Outcomes			Public Services			Other Outcomes						Public Goods Index
	Subsidized Health Insurance	Infant Vaccination Rate	Low Birth Weight	Average Prenatal Visits	Schools per 10,000 inh.	Teacher-Pupil Ratio	Student Enrollment	Aqueduct	Sewage Disposal	Public Sanitation	Corruption Sanctions (=1)	Night Lights	Cadastral Value	Emergency Victims	Conflict Events (=1)	Coca Crops (=1)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Affected × $1[t > 2000]$	-0.01	0.01	2.26	0.02	0.03	0.00	0.01	-0.04*	-0.03	-0.03	-0.00	0.00	-0.02	29.21	-0.02	0.01	0.00
	(0.008)	(0.010)	(1.830)	(0.036)	(0.396)	(0.000)	(0.032)	(0.022)	(0.021)	(0.021)	(0.016)	(0.009)	(0.017)	(52.752)	(0.015)	(0.011)	(0.037)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	6,440	11,953	12,874	12,869	16,441	16,478	16,478	21,160	21,160	21,160	8,639	16,560	11,466	19,305	17,480	18,400	11,867
Municipalities	920	920	920	920	920	920	920	920	920	920	920	920	821	920	920	920	920
Pre-Reform DV Mean	0.78	0.57	60.65	4.07	30.86	0.05	7.65	0.45	0.30	0.31	0.15	0.94	17.05	288.31	0.44	0.13	-0.08
Pre-Reform DV Std. Dev.	0.43	0.32	36.63	0.97	15.79	0.01	1.28	0.50	0.46	0.46	0.36	0.76	1.12	1373.90	0.50	0.34	1.02

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is the share of poor population receiving subsidized health insurance, while in column 2 is the average vaccination rate of children younger than one. In column 3, it is the share of newborn (per 1,000) with low birth weight (<2,500 grams), while in column 4 it is the average number of prenatal visits. The dependent variable in column 5 is the number of public schools in the municipality per 10,000 inhabitants, in column 6 it is the teacher-pupil ratio in the public sector and in column 7 it is the logarithm of the number of students in public education (primary and early secondary). The dependent variables in columns 8, 9, and 10 are indicators equal to 1 if the municipality has a provider of aqueduct, sewage disposal or public sanitation, respectively. In column 11, it is an indicator equal to 1 if the municipal mayor is ever sanctioned for corruption by CGR. The dependent variable in column 12 is the natural logarithm of the area-weighted average night lights Digital Number (DN), while in column 13 it is the natural logarithm of the total cadastral value of all properties in the municipality in constant 2010 Colombian pesos. In column 14, it is the number of victims of natural disasters per 10,000 inhabitants. In column 15, it is an indicator equal to 1 if there was at least one armed conflict event. In column 16, it is an indicator equal to 1 if the municipality has presence of coca crops. In column 17, it is an inverse-covariance weighted index of public goods (based on all previous columns except 1, 11, 13, 16). The unit of observation is municipality-year in all columns except column 8, where it is municipality-mayoral term. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table 6: Main Political Outcomes: Difference-in-Differences Estimates

	Incumbent Vote Share		Incumbent Wins (=1)	
	(1)	(2)	(3)	(4)
Affected $\times$ $\mathbb{1}[t > 2000]$	0.06**	0.08***	0.06**	0.06**
	(0.025)	(0.025)	(0.028)	(0.028)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls		✓		✓
Observations	5,860	5,860	7,557	7,557
Municipalities	919	919	920	920
Pre-Reform DV Mean	0.49	0.49	0.52	0.52
Pre-Reform DV Std. Dev.	0.39	0.39	0.50	0.50

Notes: This table shows estimates of β in equation 1. The dependent variable in columns 1-2 is the share of votes for the party of the incumbent mayor in the next election. In columns 3-4 it is an indicator equal to one if the incumbent party wins the election. Regressions include municipality and department-year fixed effects. Columns 2 and 4 also include year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The sample period in columns 1-2 is shorter because data on vote shares for all parties competing in the mayoral election is only available since 1997. The mean and standard deviation of the dependent variable correspond to the period 1997-2000 in columns 1-2 and 1992-2000 in columns 3-4. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table 7: Protests Against the Municipal Government: Difference-in-Differences Estimates

	Any Protest (=1)		Cause (=1)		
			Public Services	Labor Disputes	Other
	(1)	(2)	(3)	(4)	(5)
Affected × $\mathbb{1}[t > 2000]$	-0.003	-0.004	0.003	-0.005**	-0.002
	(0.0037)	(0.0037)	(0.0025)	(0.0024)	(0.0017)
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Controls		✓	✓	✓	✓
Observations	18,400	18,400	18,400	18,400	18,400
Municipalities	920	920	920	920	920
Pre-Reform DV Mean	0.009	0.009	0.004	0.005	0.001
Pre-Reform DV Std. Dev.	0.096	0.096	0.062	0.070	0.029

Notes: This table shows estimates of β in equation 1. The dependent variable in all columns is an indicator taking the value of one if protests take place against the municipal government. In columns 1-2, any protest against the municipal government. In columns 3-5, protests related to a specific cause: local public services, labor disputes or breach of agreements, other (e.g., human rights violations). Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

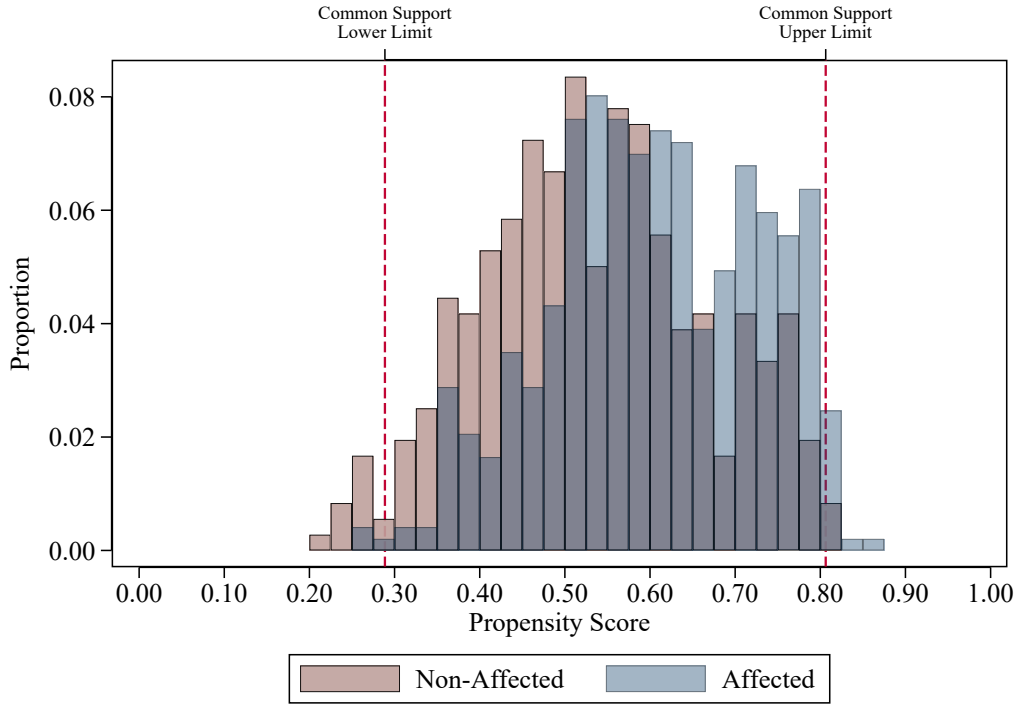
Appendix (for online publication)

Fiscal Rules, Austerity in Public Administration, and Political Accountability: Evidence from a Natural Experiment in Colombia

Authors: Maria Carreri and Luis R. Martínez

A Propensity Score Weighting

Figure A1: Common Support in the Propensity Score for Exposure to Fiscal Rule



Notes: This figure shows the distribution of propensity scores for fiscal rule exposure, disaggregated by actual exposure. Our exposure measure is an indicator equal to 1 for municipalities with an average value of the overspending ratio in 1996-2000 that exceeds 1. The overspending ratio is defined as operating expenditures divided by disposable current revenue. The propensity scores are fitted values from a Probit regression of fiscal rule exposure on the 24 pre-determined municipal characteristics in Table A1.

Table A1: Predetermined Municipal Characteristics by Exposure to Fiscal Rule (PSW)

		No Controls		Department FE	
	Mean	β	SE	β	SE
	(1)	(2)	(3)	(4)	(5)
Foundation year	1,873.739	-2.604	6.525	-2.473	6.384
Foundation year $\geq$ 1980 (=1)	0.125	0.015	0.023	0.022	0.020
Area (km^2)	815.500	113.718	168.715	12.014	99.357
Altitude (1,000 meters above sea level)	1.173	0.012	0.066	0.066	0.047
Distance to department capital (1,000 km)	0.081	-0.001	0.005	-0.006	0.005
Distance to nearest market (1,000 km)	0.123	0.002	0.006	-0.001	0.004
Distance to Bogota (1,000 km)	0.310	0.001	0.014	0.003	0.006
Share of rural population (mean 1995-2000)	0.660	-0.006	0.015	0.011	0.013
Public Schools in 1996 (=1)	0.960	-0.004	0.006	0.005	0.005
Unmet Basic Needs index in 1993	56.112	-0.626	1.411	-0.817	1.109
Notary office in 1996 (=1)	0.392	0.016	0.038	0.003	0.035
Agricultural Bank branch in 1996 (=1)	0.928	-0.003	0.013	0.006	0.011
Tax collection office in 1996 (=1)	0.420	0.007	0.039	-0.011	0.036
Health center or hospital in 1996 (=1)	0.741	-0.002	0.031	-0.018	0.027
FARC demilitarized zone and neighbors (=1)	0.021	-0.000	0.006	0.004	0.006
Guerrilla presence between 1996 and 2000 (=1)	0.656	-0.022	0.034	-0.024	0.031
Paramilitary presence between 1996 and 2000 (=1)	0.362	-0.026	0.039	-0.088***	0.029
Coca crops between 1999 and 2000 (=1)	0.184	-0.020	0.033	0.022	0.028
Mayor sanctioned for corruption (=1) (96-00)	0.358	0.008	0.038	-0.011	0.037
Political kidnappings (96-00)	0.190	-0.003	0.032	-0.012	0.033
Population (1,000 inhab.)	1.466	0.020	0.106	-0.012	0.098
Share of votes for Liberal Party (mean 1997-2000)	0.134	0.004	0.011	-0.012	0.010
Share of votes for Conservative Party (mean 1997-2000)	0.082	-0.001	0.008	0.006	0.008
Mayoral elections HHI (mean 1997-2000)	0.372	-0.007	0.009	-0.003	0.009

Notes: Column 1 shows the sample mean of each characteristic. Columns 2-3 show point estimates and standard errors from univariate cross-sectional regressions of each variable listed in the table on the indicator for exposure to the fiscal rule. Columns 4-5 additionally include department fixed effects. All variables considered are measured before the introduction of the fiscal rule in 2001. In each regression, we restrict the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and we weight the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table A2: Fiscal Outcomes: Difference-in-Differences Estimates (PSW)

	Main Outcomes		Operating Expenses (Log)				Disposable Current Revenue (Log)			
	Overspending Ratio	Current Deficit (=1)	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.33***	-0.31***	-0.22***	-0.17***	-0.25***	-0.16***	0.07***	0.11***	0.29***	0.07**
	(0.015)	(0.020)	(0.020)	(0.023)	(0.033)	(0.062)	(0.018)	(0.040)	(0.065)	(0.034)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Propensity Score Weighting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	18,031	18,031	18,031	18,031	18,031	18,031	18,031	18,031	18,031	18,031
Pre-Reform DV Mean	1.07	0.66	1390.37	709.50	476.58	307.09	1384.44	465.49	280.52	640.10
Pre-Reform DV Std. Dev.	0.38	0.47	1030.18	2998.82	1126.69	528.29	1098.63	691.75	486.89	353.69

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in column 2 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in column 3 is operating expenditures, while in column 7 it is disposable current revenue. Columns 4-6 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 8-10 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All monetary outcomes correspond to the natural logarithm of the value in constant 2010 Colombian pesos. In each regression, we restrict the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and we weight the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). Regressions include municipality and department-year fixed effects. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table A3: Public Goods and Living Standards: Difference-in-Differences Estimates (PSW)

	Health Outcomes				Education Outcomes			Public Services			Other Outcomes						Public Goods Index
	Subsidized Health Insurance	Infant Vaccination Rate	Low Birth Weight	Average Prenatal Visits	Schools per 10,000 inh.	Teacher-Pupil Ratio	Student Enrollment	Aqueduct	Sewage	Public Sanitation	Corruption Sanctions (=1)	Night Lights	Cadastral Value	Emergency Victims	Conflict Events (=1)	Coca Crops (=1)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.02	0.00	3.75**	-0.00	0.10	-0.00	-0.04	-0.04*	-0.03	-0.03	0.00	-0.00	-0.02	41.94	0.01	-0.00	-0.06
	(0.010)	(0.013)	(1.692)	(0.040)	(0.455)	(0.001)	(0.029)	(0.025)	(0.025)	(0.025)	(0.017)	(0.010)	(0.023)	(78.945)	(0.020)	(0.012)	(0.042)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Propensity Score Weighting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	5,733	10,646	11,465	11,464	14,701	14,699	14,699	18,837	18,837	18,837	7,964	14,742	10,105	17,196	15,561	16,380	10,593
Pre-Reform DV Mean	0.78	0.57	60.65	4.07	30.86	0.05	7.65	0.45	0.30	0.31	0.15	0.94	17.05	288.31	0.44	0.13	-0.08
Pre-Reform DV Std. Dev.	0.43	0.32	36.63	0.97	15.79	0.01	1.28	0.50	0.46	0.46	0.36	0.76	1.12	1373.90	0.50	0.34	1.02
Sample first year	1998	1998	1998	1998	1996	1996	1996	1996	1996	1996	1990	1996	2000	1998	1996	1999	1998
Sample final year	2004	2010	2011	2011	2013	2013	2013	2018	2018	2018	2019	2013	2013	2018	2014	2018	2010

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is the share of poor population receiving subsidized health insurance, while in column 2 is the average vaccination rate of children younger than one. In column 3, it is the share of newborn (per 1,000) with low birth weight (<2,500 grams), while in column 4 it is the average number of prenatal visits. The dependent variable in column 5 is the number of public schools in the municipality per 10,000 inhabitants, in column 6 it is the teacher-pupil ratio in the public sector and in column 7 it is the logarithm of the number of students in public education (primary and early secondary). The dependent variables in columns 8, 9, and 10 are indicators equal to 1 if the municipality has an aqueduct, swege and public sanitation provider, respectively. In column 11, it is an indicator equal to 1 if the municipal mayor is ever sanctioned for corruption by CGR. The dependent variable in column 12 is the natural logarithm of the area-weighted average night-time lights Digital Number (DN), while in column 13 it is the natural logarithm of the total cadastral value of all properties in the municipality in constant 2010 Colombian pesos. In column 14, it is the total number of natural emergencies victims per 10,000 inhabitants. In column 15, it is an indicator equal to 1 if there was at least one armed conflict event. In column 16, it is an indicator equal to 1 if the municipality has presence of coca crops. In column 17, it is an inverse-covariance weighted index of public goods (based on all previous columns except 1, 11, 13, 16).Regressions include municipality and department-year fixed effects. In each regression, we restrict the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and we weight the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table A4: Main Political Outcomes: Difference-in-Differences Estimates (PSW)

	Incumbent Vote Share	Incumbent Wins (=1)
	(1)	(2)
Affected × $\mathbb{1}[t > 2000]$	0.06**	0.05*
	(0.026)	(0.030)
Municipality FE	✓	✓
Department-year FE	✓	✓
Propensity Score Weighting	✓	✓
Observations	5,467	7,037
Pre-Reform DV Mean	0.49	0.52
Pre-Reform DV Std. Dev.	0.39	0.50

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is the share of votes for the party of the incumbent mayor in the following election, while in column 2 it is an indicator equal to one if the incumbent party wins the election. Regressions include municipality and department-year fixed effects. In each regression, we restrict the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and we weight the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). Regressions include municipality and department-year fixed effects. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1997-2000 in column 1 and 1992-2000 in column2. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

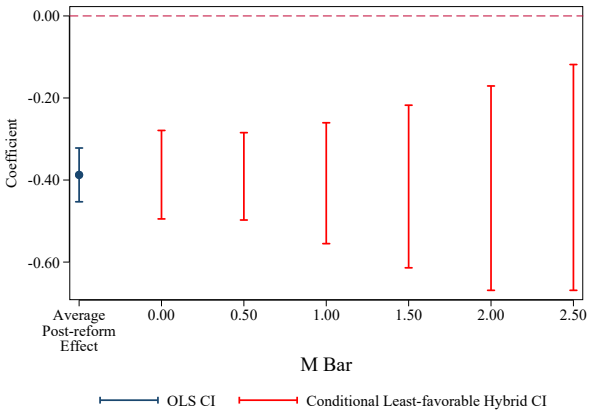
Table A5: Protests Against the Municipal Government: Difference-in-Differences Estimates (PSW)

	Any Protest (=1)	Cause (=1)		
		Public Services	Labor Disputes	Other
	(1)	(2)	(3)	(4)
Affected × $\mathbb{1}[t > 2000]$	-0.005	0.005	-0.008***	-0.002
	(0.0044)	(0.0034)	(0.0029)	(0.0020)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Propensity Score Weighting	✓	✓	✓	✓
Observations	16,380	16,380	16,380	16,380
Pre-Reform DV Mean	0.009	0.004	0.005	0.001
Pre-Reform DV Std. Dev.	0.096	0.062	0.070	0.029

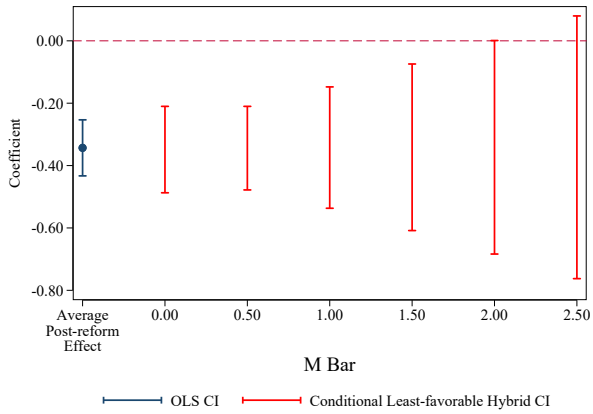
Notes: This table shows estimates of β in equation 1. The dependent variable in all columns is an indicator taking the value of one if protests against the municipal government took place in the municipality-year. In column 1, any protest. In columns 2-4, protests related to a specific cause: local public services, labor disputes or breach of agreements, other (e.g., human rights violations). Regressions include municipality and department-year fixed effects. In each regression, we restrict the sample to municipalities in the common support of the propensity score (shown in Appendix Figure A1), and we weight the control observations by a non-parametric function of the propensity score (Hirano et al., 2003). Regressions include municipality and department-year fixed effects. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

B Robustness Checks

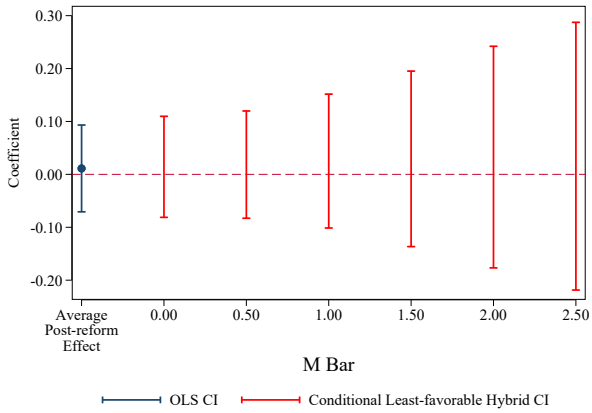
Figure B1: Partial Identification in the Presence of Non-Parallel Trends



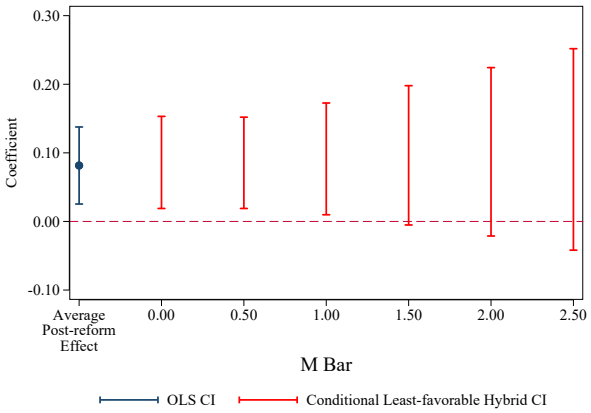
(a) Overspending Ratio



(b) Current Deficit (=1)



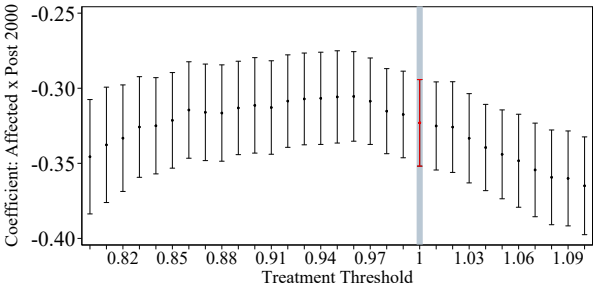
(c) Public Goods Index



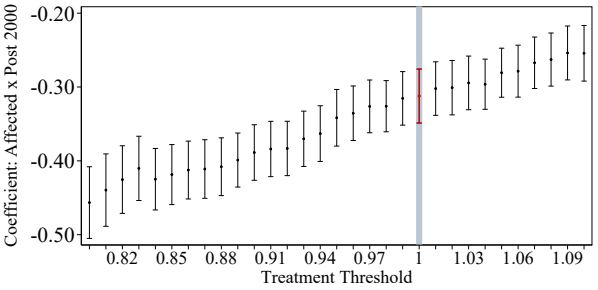
(d) Vote Share Incumbent

Notes: Each panel shows a series of confidence sets for the estimate of β in equation 1 for the dependent variable in the caption, as well as our baseline estimate and its 95% confidence interval. These confidence sets are obtained using the methodology developed by Rambachan and Roth (2022) to allow for deviations from the parallel trends assumption. The different values of M-Bar in the x-axis correspond to different magnitudes of the post-reform violation of the parallel trends assumption, expressed as a share of the maximal pre-reform violation of parallel trends. These estimates are based on our baseline specification with municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors in the baseline regression are clustered two-way by municipality and department-year.

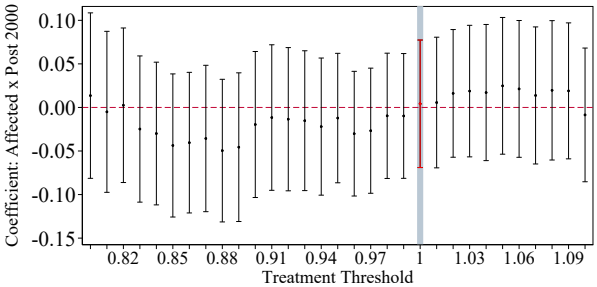
Figure B2: Different Thresholds for Discrete Measure of Exposure to Fiscal Rule



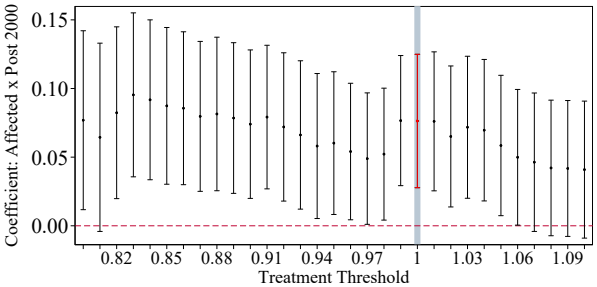
(a) Overspending Ratio



(b) Current Deficit (=1)



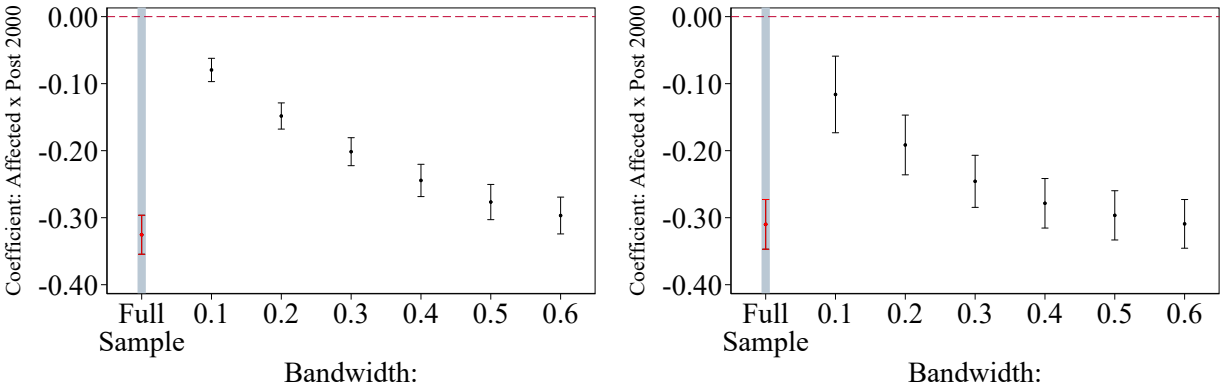
(c) Public Goods Index



(d) Vote Share Incumbent

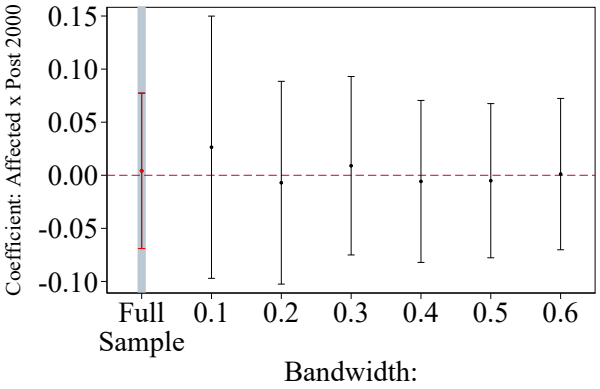
Notes: Each panel shows point estimates and 95% confidence intervals for β in equation 1 for the dependent variable in the caption as we change the threshold value of the overspending ratio used to define exposure to the fiscal rule. This ratio is defined as operating expenditures divided by disposable current revenue. Our baseline definition of exposure relies on the average value of the overspending ratio in the pre-reform period (1996-2000) being larger than one (highlighted estimate). The dependent variable in panel (a) is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in panel (b) it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in panel (c) is an inverse covariance-weighted index of public goods outcomes, while in panel (d) it is the share of votes for the incumbent party in the mayoral election. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure B3: Different Bandwidths in Continuous Measure of Exposure to Fiscal Rule

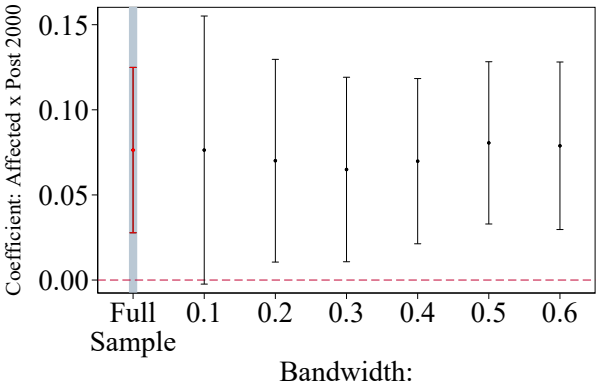


(a) Overspending Ratio

(b) Current Deficit (=1)



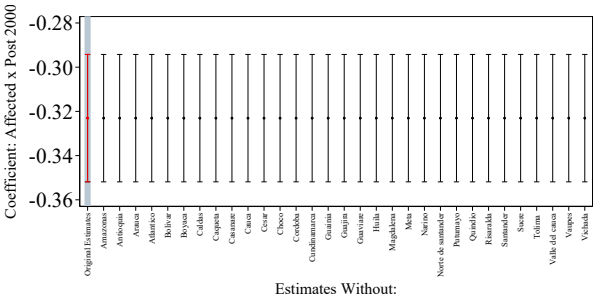
(c) Public Goods Index



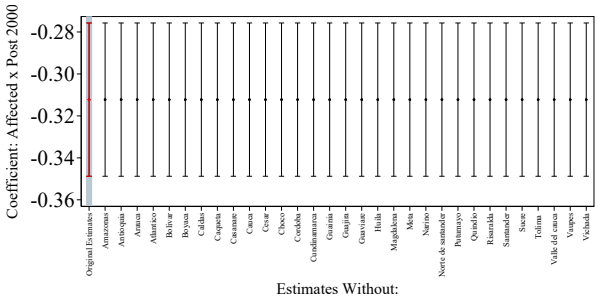
(d) Vote Share Incumbent

Notes: Figures show point estimates and 95% confidence intervals of β in equation 1. We estimate each coefficient by restricting the sample to municipalities within a certain distance from the exposure cutoff (i.e., average overspending ratio 96-00 of 1). For example, a bandwidth of 0.1 means that we only include in the estimating sample those municipalities with average 96-00 overspending ratios between 0.9 and 1.1. The dependent variable in panel (a) is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in panel (b) it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in panel (c) is an inverse covariance-weighted index of public goods outcomes, while in panel (d) it is the share of votes for the incumbent party in the mayoral election. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

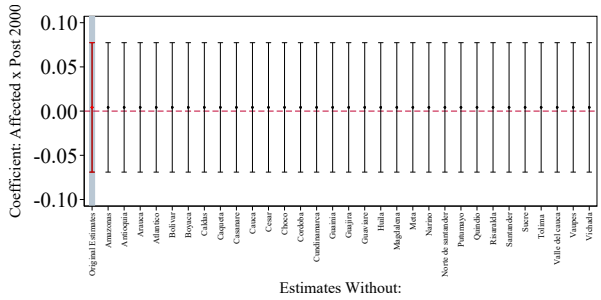
Figure B4: Exclusion of Departments from the Sample



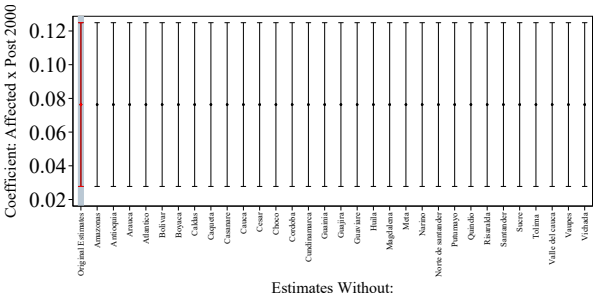
(a) Overspending Ratio



(b) Current Deficit (=1)



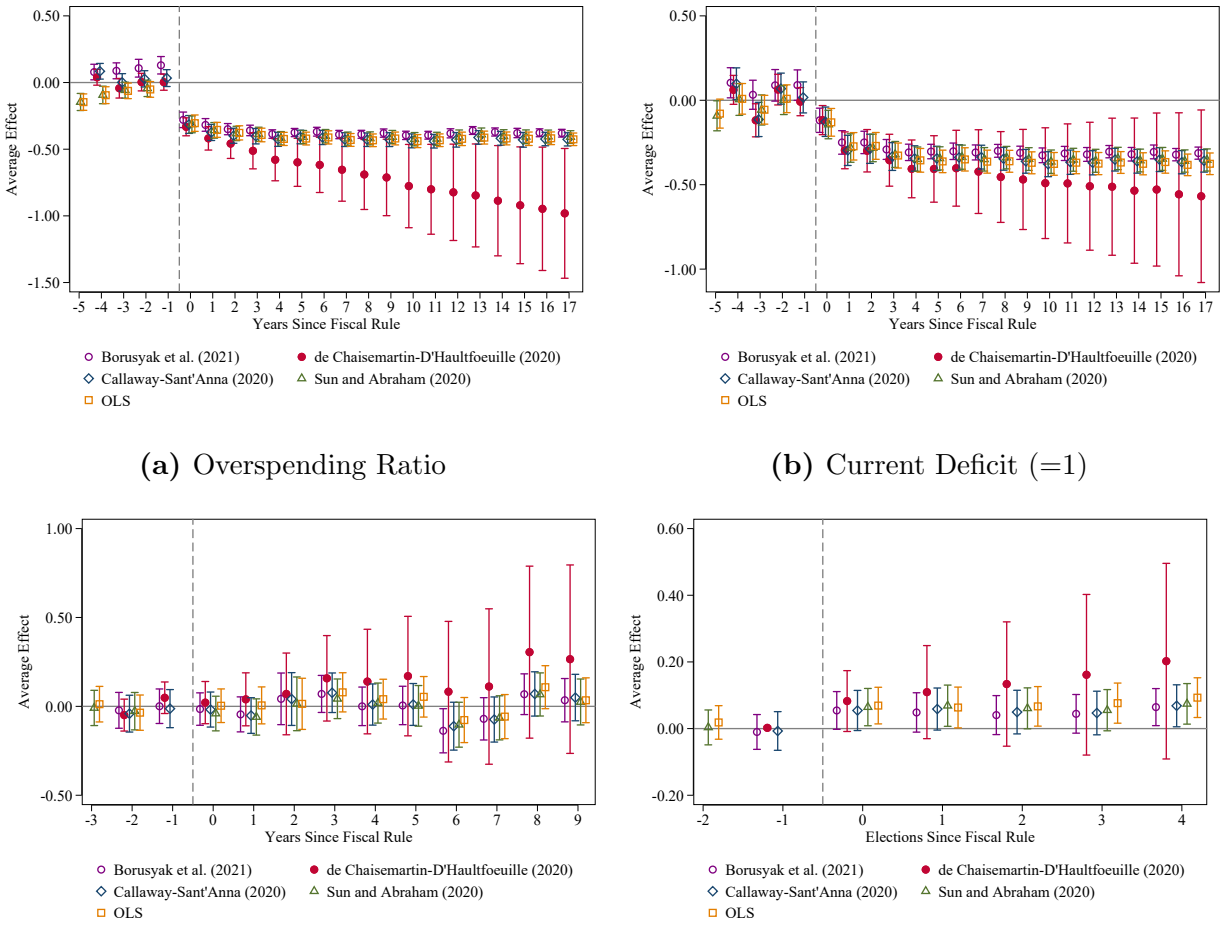
(c) Public Goods Index



(d) Vote Share Incumbent

Notes: Each panel shows point estimates and 95% confidence intervals for β in equation 1 for the dependent variable in the caption as we exclude the department listed in the x-axis from the sample. The dependent variable in panel (a) is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in panel (b) it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in panel (c) is an inverse covariance-weighted index of public goods outcomes, while in panel (d) it is the share of votes for the incumbent party in the mayoral election. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure B5: Alternative Difference-in-Differences Estimators



(a) Overspending Ratio

(b) Current Deficit (=1)

(c) Public Goods Index

(d) Vote Share Incumbent

Notes: Each panel shows five sets of point estimates and 95% confidence intervals for β_τ in equation 2 for the dependent variable in the caption. These estimates correspond to the alternative difference-in-differences estimators developed by de Chaisemartin and D'Haultfoeuille (2020); Borusyak et al. (2021); Callaway and Sant'Anna (2021); Sun and Abraham (2021). We also include our baseline estimates (OLS). The dependent variable in panel (a) is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in panel (b) it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in panel (c) is an inverse covariance-weighted index of public goods outcomes, while in panel (d) it is the share of votes for the incumbent party in the mayoral election. Regressions include municipality and year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered by municipality.

Table B1: Main Outcomes: Additional controls

	Baseline	Basic Municipal Controls	(2) + Institutions Controls	(3) + Conflict Controls	(4) + Electoral Controls
	(1)	(2)	(3)	(4)	(5)
			Panel A: Overspending Ratio		
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.33***	-0.32***	-0.32***	-0.32***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Observations	20,151	20,151	20,132	20,132	18,523
Pre-Reform DV Mean	1.07	1.07	1.07	1.07	1.07
Pre-Reform DV Std. Dev.	0.38	0.38	0.38	0.38	0.38
			Panel B: Current Deficit (=1)		
Affected × $\mathbb{1}[t > 2000]$	-0.31***	-0.31***	-0.31***	-0.31***	-0.32***
	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)
Observations	20,151	20,151	20,132	20,132	18,523
Pre-Reform DV Mean	0.66	0.66	0.66	0.66	0.66
Pre-Reform DV Std. Dev.	0.47	0.47	0.47	0.47	0.47
			Panel C: Public Goods Index		
Affected × $\mathbb{1}[t > 2000]$	0.00	0.01	0.01	0.01	-0.01
	(0.037)	(0.038)	(0.037)	(0.038)	(0.037)
Observations	11,867	11,867	11,857	11,857	10,888
Pre-Reform DV Mean	-0.08	-0.08	-0.08	-0.08	-0.08
Pre-Reform DV Std. Dev.	1.02	1.02	1.02	1.02	1.02
			Panel D: Incumbent's Vote Share		
Affected × $\mathbb{1}[t > 2000]$	0.08***	0.08***	0.08***	0.07***	0.05***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.017)
Observations	5,860	5,860	5,857	5,857	5,623
Pre-Reform DV Mean	0.49	0.49	0.49	0.49	0.49
Pre-Reform DV Std. Dev.	0.39	0.39	0.39	0.39	0.39
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Baseline Controls	✓	✓	✓	✓	✓

Notes: This table shows estimates of β in equation 1. The dependent variable in Panel A is the overspending ratio, while in Panel B it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in Panel C is the public goods index, while in Panel D it is the vote share for the party of the incumbent mayor. All regressions include municipality and department-year fixed effects, as well as an indicator for years after 2000 interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Columns 2-5 include additional interactions of the post-2000 indicator with the additional predetermined characteristics from Table 1 (column 5 includes all controls). Standard errors clustered two-way by municipality and department-year in brackets.The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B2: Sub-Components of the Overspending Ratio: Winsorized Sub-Components

	Operating Expenses (Logs)				Disposable Current Revenue (Logs)			
	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.20***	-0.14***	-0.22***	-0.13**	0.08***	0.13***	0.31***	0.06***
	(0.018)	(0.019)	(0.028)	(0.057)	(0.017)	(0.033)	(0.054)	(0.020)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151
DV Mean	1374.24	650.86	436.20	287.18	1362.29	463.02	263.12	636.14
DV Std. Dev.	997.84	501.73	338.99	344.32	1030.69	656.08	361.49	323.20

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures, while in column 5 it is disposable current revenue. Columns 2-4 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 6-8 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Variables in columns 2-4 and 6-8 have been winsorized at the 1% and 99% levels and the totals in columns 1 and 5 have been calculated as the sum of these adjusted sub-components. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets.The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table B3: Sub-Components of the Overspending Ratio: Inverse Hyperbolic Sine Transformation

	Operating Expenses (IHS)				Disposable Current Revenue (IHS)			
	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected × $\mathbb{1}[t > 2000]$	-0.20***	-0.16***	-0.24***	-0.13**	0.08***	0.14***	0.33***	0.11***
	(0.018)	(0.021)	(0.030)	(0.062)	(0.017)	(0.037)	(0.057)	(0.032)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151
DV Mean	1390.37	709.50	476.58	307.09	1384.44	465.49	280.52	640.10
DV Std. Dev.	1030.18	2998.82	1126.69	528.29	1098.63	691.75	486.89	353.69

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures, while in column 5 it is disposable current revenue. Columns 2-4 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 6-8 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All outcomes correspond to the inverse hyperbolic sine transformation of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets.The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B4: Sub-Components of the Overspending Ratio: Excluding 1999 and 2000 from Sample Period

	Operating Expenses (Logs)				Disposable Current Revenue (Logs)			
	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.22***	-0.17***	-0.28***	-0.08	0.04**	0.07*	0.26***	0.05*
	(0.020)	(0.023)	(0.030)	(0.068)	(0.018)	(0.037)	(0.065)	(0.025)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	17,972	17,972	17,972	17,972	17,972	17,972	17,972	17,972
Pre-Reform DV Mean	1386.05	649.67	483.00	293.40	1372.22	397.90	266.75	708.11
Pre-Reform DV Std. Dev.	1038.47	562.22	511.11	428.73	1064.29	602.63	450.87	387.96

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures, while in column 5 it is disposable current revenue. Columns 2-4 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 6-8 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Sample period: 1996-1998 and 2001-2018. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B5: Main Outcomes: Excluding 1999 and 2000 from Sample Period

	Overspending Ratio		Current Deficit (=1)		Incumbent Vote Share		Public Goods Index	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected × $\mathbb{1}[t > 2000]$	-0.34***	-0.34***	-0.33***	-0.33***	0.03	0.05*	-0.04	-0.03
	(0.019)	(0.019)	(0.021)	(0.021)	(0.031)	(0.029)	(0.050)	(0.050)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls		✓		✓		✓		✓
Observations	17,972	17,972	17,972	17,972	4,938	4,938	9,699	9,699
Pre-Reform DV Mean	1.06	1.06	0.69	0.69	0.53	0.53	-0.27	-0.27
Pre-Reform DV Std. Dev.	0.36	0.36	0.46	0.46	0.39	0.39	0.97	0.97

Notes: This table shows estimates of β in equation 1 as we exclude years 1999 and 2000 from the sample. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in columns 5-6 is the share of votes for the incumbent party in the mayoral election, while in columns 7-8 it is a positive inverse-covariance weighted index of public goods provision. Regressions include municipality and department-year fixed effects. Sample period: 1996-1998 and 2001-2018. In columns 2 and 4 we also include year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B6: Fiscal Outcomes: Excluding Municipalities Suspicious of Misreporting

	Main Outcomes		Operating Expenses (Log)				Disposable Current Revenue (Log)			
	Overspending Ratio	Current Deficit (=1)	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.32***	-0.31***	-0.21***	-0.15***	-0.25***	-0.13**	0.07***	0.14***	0.29***	0.09***
	(0.015)	(0.020)	(0.019)	(0.022)	(0.032)	(0.063)	(0.018)	(0.039)	(0.057)	(0.029)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	17,403	17,403	17,403	17,403	17,403	17,403	17,403	17,403	17,403	17,403
Pre-Reform DV Mean	1.07	0.65	1363.36	698.68	476.09	303.66	1365.54	466.91	274.21	626.03
Pre-Reform DV Std. Dev.	0.38	0.48	1030.73	3206.21	1197.85	546.23	1113.01	713.93	468.71	348.74

Notes: This table shows estimates of β in equation 1. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in column 5-6 is disposable current revenue, while in column 5-8 it is operating expenditures. The outcome in columns 5-8 corresponds to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Sample excludes municipalities that report overspending ratios in the region(0.78-0.80) for more than two years in the period 2010-2018. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table B7: Main Results: Alternative Measures of Exposure to Fiscal Rule

	Baseline	Excluding one year from calculation					1996 - 1998	60% rule	Continuous measure
		1996	1997	1998	1999	2000			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Panel A: Overspending Indicator				
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.30***	-0.31***	-0.30***	-0.30***	-0.30***	-0.27***	-0.24***	-0.89***
	(0.015)	(0.021)	(0.016)	(0.017)	(0.018)	(0.014)	(0.018)	(0.016)	(0.024)
Observations	20,151	19,950	20,116	20,021	20,098	19,815	19,510	20,151	20,151
Pre-Reform DV Mean	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Pre-Reform DV Std. Dev.	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
					Panel B: Current Deficit (=1)				
Affected × $\mathbb{1}[t > 2000]$	-0.31***	-0.31***	-0.29***	-0.30***	-0.27***	-0.29***	-0.25***	-0.28***	-0.66***
	(0.019)	(0.021)	(0.019)	(0.020)	(0.021)	(0.019)	(0.022)	(0.018)	(0.041)
Observations	20,151	19,950	20,116	20,021	20,098	19,815	19,510	20,151	20,151
Pre-Reform DV Mean	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Pre-Reform DV Std. Dev.	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
					Panel C: Public Goods Index				
Affected × $\mathbb{1}[t > 2000]$	0.00	-0.01	0.01	-0.00	-0.04	-0.03	-0.01	0.04	-0.02
	(0.037)	(0.039)	(0.037)	(0.036)	(0.036)	(0.036)	(0.036)	(0.038)	(0.066)
Observations	11,867	11,724	11,841	11,776	11,832	11,657	11,468	11,867	11,867
Pre-Reform DV Mean	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08
Pre-Reform DV Std. Dev.	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
					Panel D: Incumbent's Vote Share				
Affected × $\mathbb{1}[t > 2000]$	0.08***	0.07***	0.07***	0.07***	0.08***	0.05**	0.06**	0.08***	0.11**
	(0.025)	(0.024)	(0.024)	(0.025)	(0.024)	(0.025)	(0.025)	(0.024)	(0.046)
Observations	5,860	5,796	5,846	5,819	5,844	5,776	5,699	5,860	5,860
Pre-Reform DV Mean	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Pre-Reform DV Std. Dev.	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This table shows estimates of β in equation 1 for different versions of our measure of exposure to the fiscal rule. In all cases, our measure is based on the average value of the overspending ratio in the pre-reform period. In column 1 we define exposure as an indicator equal to one if the average value of the overspending ratio between 1996 and 2000 takes a value of one or higher (i.e., baseline measure). In columns 2-6, we replicate the analysis excluding the year in the header from the construction of the average. In column 7 we define exposure as an indicator equal to one if the average value of the overspending ratio between 1996 and 1998 takes a value of one or higher. In column 8, we defined municipalities as exposed if the overspending ratio takes a value larger than 1 in at least three of the five pre-reform years (i.e. 60%), while in column 9 we use the continuous measure instead (i.e., actual value of the 1996-2000 average of overspending ratio). The dependent variable in Panel A is the overspending ratio, while in Panel B it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in Panel C is the public goods index, while in Panel D it is the vote share for the party of the incumbent mayor. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B8: Sub-Components of the Overspending Ratio: Per Capitas

	Operating Expenses (Logs)				Disposable Current Revenue (Logs)			
	Total	Personnel	General	Paid Transfers	Total	Tax Revenue	Non-Tax Revenue	Disposable Transfers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.17***	-0.12***	-0.20***	-0.11*	0.11***	0.18***	0.35***	0.13***
	(0.020)	(0.022)	(0.030)	(0.060)	(0.017)	(0.036)	(0.055)	(0.030)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151
Pre-Reform DV Mean	1181.28	562.84	415.85	240.05	1173.63	338.87	236.73	590.12
Pre-Reform DV Std. Dev.	764.89	1461.81	636.83	390.03	762.60	474.38	406.95	311.31

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures, while in column 5 it is disposable current revenue. Columns 2-4 correspond to the sub-components of operating expenditures: personnel expenditures, general expenditures (i.e., procurement), and paid transfers (mostly pensions and payments from legal rulings). Columns 6-8 correspond to the sub-components of disposable current revenue: Tax revenue, Non-tax revenue (i.e., fees and fines), and disposable SGP transfers from the central government. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos per 10,000 inhabitants. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table B9: Fiscal Outcomes: Omitting Winsorization

	Overspending Ratio	Operating Expenses	Freely Disposable Revenue
	(1)	(2)	(3)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.63***	-0.22***	0.08***
	(0.198)	(0.018)	(0.018)
Municipality FE	✓	✓	✓
Department-year FE	✓	✓	✓
Controls	✓	✓	✓
Observations	20,151	20,151	20,151
Pre-Reform DV Mean	1.24	1493.17	1386.12
Pre-Reform DV Std. Dev.	6.52	4439.66	1132.70

Notes: This table shows estimates of β in equation 1 when we do not winsorize the main fiscal outcomes. The dependent variable in columns 1 is the overspending ratio, defined as operating expenditures divided by disposable current revenue. The dependent variable in column 2 is operating expenditures, while in column 3 it is disposable current revenue. Outcomes in columns 2-3 correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. Mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B10: Main Outcomes: Pre-Reform Categorization

	Baseline	1996	1997	1998	1999	2000	Mode
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Panel A: Overspending Ratio			
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.31***	-0.27***	-0.29***	-0.29***	-0.26***	-0.30***
	(0.015)	(0.027)	(0.030)	(0.026)	(0.031)	(0.024)	(0.027)
Observations	20,151	5,943	4,019	6,217	4,180	3,994	5,835
Municipalities	920	265	178	280	189	181	268
Pre-Reform DV Mean	1.07	1.07	1.08	1.08	1.09	1.10	1.11
Pre-Reform DV Std. Dev.	0.38	0.37	0.35	0.36	0.35	0.34	0.37
				Panel B: Current Deficit (=1)			
Affected × $\mathbb{1}[t > 2000]$	-0.31***	-0.32***	-0.26***	-0.29***	-0.26***	-0.25***	-0.25***
	(0.019)	(0.030)	(0.039)	(0.027)	(0.036)	(0.043)	(0.031)
Observations	20,195	5,949	4,021	6,227	4,186	3,999	5,843
Municipalities	920	265	178	280	189	181	268
Pre-Reform DV Mean	0.65	0.66	0.70	0.68	0.68	0.69	0.69
Pre-Reform DV Std. Dev.	0.48	0.47	0.46	0.47	0.47	0.46	0.46
				Panel C: Public Goods Index			
Affected × $\mathbb{1}[t > 2000]$	0.00	0.13*	0.10	0.18**	0.04	-0.08	0.18**
	(0.037)	(0.073)	(0.091)	(0.076)	(0.112)	(0.090)	(0.092)
Observations	11,867	3,415	2,294	3,605	2,419	2,306	3,416
# Municipalities	920	265	178	280	189	181	268
Pre-Reform DV Mean	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08
Pre-Reform DV Std. Dev.	1.02	1.02	1.02	1.02	1.02	1.02	1.02
				Panel D: Incumbent's Vote Share			
Affected × $\mathbb{1}[t > 2000]$	0.08***	0.13**	0.11*	0.10*	0.08	0.18***	0.13***
	(0.025)	(0.052)	(0.062)	(0.050)	(0.052)	(0.060)	(0.050)
Observations	5,860	1,750	1,188	1,815	1,204	1,159	1,703
Municipalities	919	264	178	280	189	181	268
Pre-Reform DV Mean	0.49	0.52	0.52	0.51	0.51	0.53	0.52
Pre-Reform DV Std. Dev.	0.39	0.40	0.40	0.40	0.40	0.39	0.40
Municipality FE	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓

Notes: *Notes:* This table shows estimates of β in equation 1 as we impose more stringent restrictions on the composition of the sample. In column 1, we report our baseline estimates including all municipalities continuously classified in category six between 2003 and 2018 (with at most two deviations). In columns 2-6, we only include in the sample those municipalities classified in category six in the year in the header. Before Law 617/2000, these municipalities had population below 7,000 inhabitants and yearly revenue below 5,000 times the monthly minimum wage. In column 7, we only include in the sample those municipalities for which the modal category between 1996 and 2000 was six. The dependent variable in Panel A is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in Panel B it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in Panel C is the public goods index, while in Panel D it is the vote share for the party of the incumbent mayor. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Table B11: Main Outcomes: Excluding Non-Category 6 Municipalities

	Overspending Ratio		Current Deficit (=1)		Incumbent's Vote Share		Public Goods Index	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A: Not category 6 one time				
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.32***	-0.31***	-0.31***	0.06**	0.08***	0.01	0.03
	(0.015)	(0.015)	(0.020)	(0.020)	(0.026)	(0.026)	(0.041)	(0.041)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls		✓		✓		✓		✓
Observations	17,570	17,570	17,570	17,570	4,325	4,325	10,296	10,296
Pre-Reform DV Mean	1.07	1.07	0.65	0.65	0.48	0.48	-0.05	-0.05
Pre-Reform DV Std. Dev.	0.38	0.38	0.48	0.48	0.39	0.39	1.01	1.01
				Panel B: Always category 6				
Affected × $\mathbb{1}[t > 2000]$	-0.31***	-0.31***	-0.32***	-0.32***	0.01	0.03	0.01	0.03
	(0.017)	(0.017)	(0.023)	(0.023)	(0.032)	(0.032)	(0.048)	(0.049)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls		✓		✓		✓		✓
Observations	10,584	10,584	10,584	10,584	2,607	2,607	6,166	6,166
Pre-Reform DV Mean	1.07	1.07	0.65	0.65	0.49	0.49	-0.04	-0.04
Pre-Reform DV Std. Dev.	0.37	0.37	0.48	0.48	0.39	0.39	1.00	1.00

Notes: *Notes:* This table shows estimates of β in equation 1 as we impose more stringent restrictions on the composition of the sample. Our baseline sample includes municipalities that do not fall in category 6 no more than twice in the period 2003-2018. Panel A replicates the main analysis excluding municipalities that do not fall in category 6 more than once, while panel B excludes municipalities that do not fall in category six at any point between 2003 and 2018. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in columns 5-6 is the share of votes for the incumbent party in the mayoral election, while in columns 7-8 it is a positive inverse-covariance weighted index of public goods provision. Regressions include municipality and department-year fixed effects. In columns 2 and 4 we also include year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B12: Main Outcomes: Excluding Municipalities with Missing Data

	Baseline	Balanced Panel		Imputation	
		Regression	All	Year Avg.	Dpt-Year Avg.
	(1)	(2)	(3)	(4)	(5)
			Panel A: Overspending Ratio		
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.30***	-0.30***	-0.27***	-0.27***
	(0.015)	(0.018)	(0.020)	(0.013)	(0.013)
Observations	20,151	10,810	8,717	21,160	21,160
# Municipalities	920	470	379	920	920
Pre-Reform DV Mean	1.07	1.04	1.04	1.08	1.08
Pre-Reform DV Std. Dev.	0.38	0.36	0.36	0.36	0.35
			Panel B: Current Deficit (=1)		
Affected × $\mathbb{1}[t > 2000]$	-0.31***	-0.31***	-0.35***	-0.26***	-0.26***
	(0.019)	(0.025)	(0.026)	(0.017)	(0.017)
Observations	20,151	10,787	8,717	21,160	21,160
# Municipalities	920	469	379	920	920
Pre-Reform DV Mean	0.66	0.63	0.63	0.71	0.71
Pre-Reform DV Std. Dev.	0.47	0.48	0.48	0.44	0.45
			Panel C: Public Goods Index		
Affected × $\mathbb{1}[t > 2000]$	0.00	-0.01	-0.02	0.01	0.01
	(0.037)	(0.037)	(0.043)	(0.037)	(0.036)
Observations	11,867	11,089	4,927	11,960	11,960
# Municipalities	920	853	379	920	920
Pre-Reform DV Mean	-0.08	-0.06	-0.01	-0.06	-0.06
Pre-Reform DV Std. Dev.	1.02	0.99	0.90	1.01	1.02
			Panel D: Incumbent's Vote Share		
Affected × $\mathbb{1}[t > 2000]$	0.08***	0.08***	0.10***	0.07***	0.07***
	(0.025)	(0.026)	(0.034)	(0.021)	(0.021)
Observations	5,860	5,103	2,653	6,439	6,439
# Municipalities	919	729	379	920	920
Pre-Reform DV Mean	0.49	0.49	0.52	0.54	0.54
Pre-Reform DV Std. Dev.	0.39	0.39	0.39	0.36	0.39
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓

Notes: *Notes:* This table shows estimates of β in equation 1 as we impose more stringent restrictions on the composition of the sample. The dependent variable in Panel A is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in Panel B it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in Panel C is the public goods index, while in Panel D it is the vote share for the party of the incumbent mayor. Column 1 shows results for our baseline sample, corresponding to an unbalanced panel. Column 2 ensures a balanced panel for the respective regression, while column 3 ensures a balanced panel for all main outcomes. Column 4 imputes missing values using the year-specific average for the non-affected group, while column 5 imputes missing values using the year and department-specific average for the non-affected group. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B13: Main Outcomes: Controls for Other Fiscal Reforms

	Baseline	Total SGP	Education Certified	No New Municipalities	Restructured Liabilities	Removed Comptroller
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Overspending Ratio			
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.32***	-0.32***	-0.32***	-0.32***	-0.32***	-0.32***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Observations	20,151	20,151	20,151	18,852	20,151	20,151
Pre-Reform DV Mean	1.07	1.07	1.07	1.07	1.07	1.07
Pre-Reform DV Std. Dev.	0.38	0.38	0.38	0.38	0.38	0.38
			Panel B: Current Deficit (=1)			
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.31***	-0.31***	-0.31***	-0.31***	-0.31***	-0.31***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Observations	20,151	20,151	20,151	18,852	20,151	20,151
Pre-Reform DV Mean	0.66	0.66	0.66	0.66	0.66	0.66
Pre-Reform DV Std. Dev.	0.47	0.47	0.47	0.47	0.47	0.47
			Panel C: Public Goods Index			
Affected $\times$ $\mathbb{1}[t > 2000]$	0.00	0.00	0.00	-0.04	0.01	0.01
	(0.037)	(0.037)	(0.037)	(0.035)	(0.038)	(0.037)
Observations	11,867	11,866	11,867	11,088	11,867	11,867
Pre-Reform DV Mean	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08
Pre-Reform DV Std. Dev.	1.02	1.02	1.02	1.02	1.02	1.02
			Panel D: Incumbent's Vote Share			
Affected $\times$ $\mathbb{1}[t > 2000]$	0.08***	0.07***	0.08***	0.07***	0.08***	0.08***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Observations	5,860	4,943	5,860	5,563	5,860	5,860
Pre-Reform DV Mean	0.49	0.49	0.49	0.49	0.49	0.49
Pre-Reform DV Std. Dev.	0.39	0.39	0.39	0.39	0.39	0.39
Municipality FE	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Notes: This table shows estimates of β in equation 1. The dependent variable in Panel A is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in Panel B it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in Panel C is the public goods index, while in Panel D it is the vote share for the party of the incumbent mayor. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Column 1 replicates our baseline analysis. In column 2 we also control for total SGP transfers per capita. Column 3 includes as additional control an indicator equal one after the municipality becomes certified to manage its own SGP transfers for education. In column 4 we exclude all municipalities created between 1986 and 2018 from the sample. Column 5 includes as an additional control an indicator that turns on when a municipality starts a restructuring of liabilities process, in the context of Law 550/1999. Column 6 includes as an additional control an indicator that turns on after the municipal comptroller was eliminated. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B14: Corruption Sanctions: Different Precision Thresholds for Fuzzy Merge

	Matching Scores			
	70/100	80/100	90/100	100/100
	(1)	(2)	(3)	(4)
Affected × $\mathbb{1}[t > 2000]$	-0.01	-0.00	-0.00	0.01
	(0.014)	(0.013)	(0.011)	(0.011)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	8,639	8,639	8,639	8,639
Pre-Reform DV Mean	0.22	0.19	0.15	0.11
Pre-Reform DV Std. Dev.	0.42	0.39	0.36	0.32

Notes: This table shows estimates of β in equation 1. The dependent variable is an indicator equal to 1 if the mayor is ever sanctioned for corruption by CGR. We construct this outcome by matching the names of mayors with those in the list of sanctioned individuals in the bulletins published by CGR. In each column, we change the threshold value of the precision score used to determine a match. Unit of observation is municipality-mayoral term. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table B15: Corruption Sanctions: Alternative Measures

	Mayor Corruption After (=1)	Mayor Corruption Before (=1)	Party Corruption (=1)	Municipality Corruption (=1)	Candidate Corruption (=1)
	(1)	(2)	(3)	(4)	(5)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.00	0.00	0.01	0.01	-0.01
	(0.016)	(0.007)	(0.022)	(0.008)	(0.023)
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Observations	8,639	8,639	8,638	24,707	8,639
Pre-Reform DV Mean	0.14	0.01	0.41	0.05	0.19
Pre-Reform DV Std. Dev.	0.35	0.08	0.49	0.21	0.39

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is an indicator equal to 1 if the mayor was sanctioned for corruption by CGR before his/her term in office, while in column 2 it is an indicator equal to 1 if the mayor was sanctioned for corruption by CGR after this term. The dependent variable in column 3 is an indicator equal to 1 if the party in office has been implicated in a corruption case in that municipality ever, in column 4 it is an indicator equal to 1 if any member of the municipal government was sanctioned for corruption by CGR, and in column 5 it is an indicator equal to 1 if the any candidate for mayor was sanctioned for corruption by CGR. Unit of observation is municipality-mayoral term, except in column 4 (municipality-year). Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

Supplementary materials (not for publication)

Fiscal Rules, Austerity in Public Administration, and Political Accountability: Evidence from a Natural Experiment in Colombia

Authors: Maria Carreri and Luis R. Martínez

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I Additional Background Information

Decentralization in Colombia

Before 1988, the national government appointed the governor of each department in the country. In turn, governors appointed municipal mayors. The popular election of mayors was introduced in 1988, followed by the election of other subnational officials (governors, state assemblies, municipal councils) in 1991. The latter changes were introduced as part of the country's new constitution that was approved in that year.

The 1991 constitution also awarded greater responsibilities to subnational governments (municipalities and departments) in the provision of public goods (articles 356 and 357). The subsequent Law 60 of 1993 created a formula-based system of intergovernmental transfers through which the central government provided funding for these expenditures. The original system consisted of two funds called *situado fiscal* and *participaciones municipales*. The *situado* was used to transfer earmarked resources to the departments for the provision of education and health. The *participaciones* were used to provide earmarked resources to the municipalities for expenditures in various areas, also including education and health, as well as water and sanitation, transportation, housing, etc. Importantly, both of these funds were entirely formula-based and non-partisan.

The system was largely overhauled by Law 715 of 2001, with additional minor changes introduced in Law 1176 of 2007. The new system unified the *situado* and *participaciones* into the Sistema General de Participaciones (SGP). However, the three main features of the transfer system remained unchanged: (i) earmarked, (ii) formula-based, (iii) non-partisan. SGP transfers are highly regulated and funds must be kept in a separate account from other sources of municipal revenue. The vast majority of SGP transfers (96%) are sectorial, with a small residual share allocated mostly to pensions and support for native indigenous communities. The sectorial share is divided between education (59%), health (25%), water and sanitation (5%), general purpose (11%). The funds for education, health and water are allocated between departments and municipalities based on competences. For instance, only larger 'certified' municipalities have full autonomy over their education systems. The allocation of resources within sectors varies across localities based on current levels of provision and unsatisfied needs.

In the case of the general purpose category, municipalities in categories 4-6 can spend up to 42% of the received transfers at their full discretion (*libre destinación*), including operating expenditures. The remaining amount must go to capital spending at the discretion of the municipality (*libre inversión*), with the exception of fixed percentages assigned to sports (8%) and culture (6%). The allocation of transfers in the general purpose category is a function of population and poverty levels, but it also rewards municipalities for raising more local tax revenue. Since 2007, municipalities also receive additional transfers in this component for meeting the cap on operating expenditures set by Law 617 of 2000 (i.e., the fiscal rule that we study). In particular, transfers increase in the difference between the cap and the actual value of the overspending ratio (operating expenditures/current revenue).

Composition of Municipal Spending

In this section, we provide a more detailed account of the composition of municipal spending described in section 2.2. At the end, we leverage highly detailed budget data for the period 2010-2018 to characterize municipal public spending by exposure to the fiscal rule.

Operating Expenditures

Municipal current spending is the sum of operating expenditures and debt interest payments. Operating expenditures, which represent on average 30% of total spending, are those deemed necessary for the normal functioning of a government agency. In the case of municipal governments, these expenditures cover three agencies: (i) the central administration, (ii) the municipal council and (iii) the office of the *personero* (ombudsman).[37] The central administration, which accounts for the majority of operating expenditures, corresponds to all bureaucrats and administrators working in 'city hall', also including the office of the mayor and subsidiary dependencies (e.g., Secretary of Education).[38] Municipal operating expenditures are disaggregated into three large categories. These are:

1. **Personnel:** Salaries and benefits of all municipal bureaucrats - both career bureaucrats and temporary ones - directly employed by any of the three agencies in the municipal government (central administration, council, personero). This category also includes the remuneration of the mayor and personero, as well as the honorariums of members of the council. Importantly, it does not include any frontline service providers in areas such as health, education, agriculture, transportation, sanitation, security and more, as outlined in the section on Capital Expenditures below.

2. **General:** Purchase of goods and services, taxes and fees, rent, utilities, hiring, travel, maintenance and repairs. Services include publishing of printed materials, as well as regular training for bureaucrats. Insurance payments, including life insurance for top officials (mayor, council members), are included in this category, but health insurance payments fall under personnel expenditures.

3. **Transfers:** Pensions for which the municipality is directly responsible, earmarked contributions to other agencies (universities, environmental agencies, firefighters), payments originating from legal sentences.

Capital Expenditures

Besides current spending, the other component of total spending is capital spending. Colombian law defines capital expenditures as those *"prone to provide a benefit or to be economically productive, or that correspond to durable goods"* (Decree 2467 of 2018, article 38, our

[37] For those municipalities that have a municipal Comptroller (i.e., larger municipalities classified in lower categories), operating expenditures will also include this additional agency.

[38] Expenditures for the central administration account on average for 81.4% of operating expenditures across the municipalities in our sample during the period 2010-2018 as shown in Appendix Table I.1. Depending on the level of institutional complexity some municipalities report disaggregate information for certain subsidiary dependencies of the mayor's office (e.g., Secretary of Public Works).

own translation).The central government provides earmarked funding for some of the largest categories of capital spending (e.g., education, health) through the SGP system of intergovernmental transfers, as outlined above. Capital spending is disaggregated into 18 different categories. These are:

1. **Education:** The provision of public education in Colombia (pre-school to high school) is a joint responsibility of departments and municipalities. All but four of the municipalities in our sample are "non-certified".[39] Educational personnel in non-certified municipalities (administrative, teachers, staff) is managed and paid for by the department government. The central government provides funding for these expenditures (directly to the department or to the certified municipality) via SGP transfers. Municipal governments can, however, relocate teachers and students across different schools in the municipality. Non-certified municipalities receive additional SGP transfers for other educational expenditures. These include construction and maintenance of infrastructure, inputs (materials, books, computers, etc.), utilities, training, school transportation and meals. Municipalities can also use their own funds for expenditures in these categories. Municipalities also get additional SGP transfers that cover school fees (i.e., free schooling). Expenditure of these funds is regulated and roughly corresponds to the categories just listed, plus school trips and special activities.

2. **Health:** Municipal governments are responsible for the management of Colombia's subsidized health insurance system (regimen subsidiado) in their municipalities (see also institutional capacity below). The national government provides funding for these subsidies via SGP transfers, but municipal government are responsible for the disbursement of these funds to insurance companies. In general, municipalities are forbidden from direct provision of health services, except for basic services in a small set of "certified" municipalities. Public provision of health services corresponds to departments and mostly takes place through highly-regulated state-owned enterprises. Municipal governments are also responsible for public health policy. This includes vaccination campaigns, work safety, food safety, maternal-child health, and policies and programs that promote healthy lifestyles, nutrition and sexual health, among other things. The central government also provides funding for public health via SGP transfers.

3. **Water and Sanitation:** Municipal governments must ensure adequate provision of clean water, sewerage, and garbage collection. The central government provides funding for these expenditures via SGP transfers. Municipal governments can directly provide these services, but can also provide targeted subsidies for the poor in the case of private provision. This category includes administrative expenditures and personnel in the case of direct provision. Investments in infrastructure, including studies, designs, and oversight are also included in this category.

[39]These are Quibdo, Sahagun, Magangue and Lorica.

4. **Sports:** This category includes policies and programs that promote sports and physical exercise (e.g., after-school classes), construction and maintenance of infrastructure (sports fields), supplies, and payment of instructors.

5. **Culture:** This category includes policies and programs that promote culture (e.g., artistic events or showcases), construction and maintenance of infrastructure (theaters, libraries), supplies, and payment of instructors.

6. **Other Public Services:** Municipalities must ensure adequate provision of public services, including energy and telephone. Spending in this category also includes cooking fuels and rural electrification. The municipal government can directly provide these services, and can spend on construction or maintenance of infrastructure. Municipalities are responsible for classifying properties for differential pricing and can also provide targeted subsidies for the poor.

7. **Housing:** Municipal governments can provide subsidies to poor households for the purchase of a home. They can also develop policies and programs that facilitate home construction or improvement as well as land titling. They may as well relocate households living in high risk areas (e.g., flooding).

8. **Agriculture:** Municipal governments conduct three main types of agriculture policy. First, they can implement policies for the development of agriculture, including experimental farms, irrigation districts, land improvement. Second, they can provide technical assistance. This category includes administrative expenditures and personnel for this purpose. Third, they can implement policies and programs that promote associations of agricultural producers.

9. **Transport:** Municipalities are responsible for construction, improvement and maintenance of transport infrastructure (roads, ports, terminals, bike paths), except for roads that belong to the national highway system. The purchase of machinery and equipment for this purpose is included in this category. Also included is the development of programs for road safety and traffic management.

10. **Environment:** This category includes policies related to environmental conservation, including land purchases for water reserve or other environmental purpose. Also cleaning of water sources, control of air and water pollution, environmental education (outside of schools), technical assistance for the adoption of environmentally-friendly technologies, or policies related to waterways and flood prevention. Municipalities can also implement policies that promote eco-friendly businesses or that help to mitigate or adapt to climate change.

11. **Detention Centers:** Municipalities can spend on the construction, improvement and maintenance of detention centers (jails, penitentiaries). This category also includes personnel expenditures (administrative, guards) and procurement (food, equipment). Also included are educational programs for inmates.

12. **Disaster Prevention and Relief:** Municipalities can spend on the development of emergency plans, data collection and analysis for purposes of risk assessment and monitoring (including installation and operation of equipment), relocation of individuals from high risk areas, disaster relief (food and shelter), educational campaigns, investments in infrastructure for increased resistance, insurance of public property against disasters. This category also includes purchase of equipment and service provision contracts with units of firefighters.

13. **Economic Development:** To promote economic development, municipal governments can facilitate coordination among local producers and the creation of associations. They can also implement training programs for workers and provide technical assistance throughout the value chain, including technology adoption and R&D. Investment in physical infrastructure that improves productivity (including purchase of equipment and machinery) is included in this category, as well as promotion of tourism.

14. **Vulnerable Groups:** These groups include children (with special focus on early childhood) and young adults, the elderly, people with disabilities, victims of forced displacement, demobilized former members of armed groups, indigenous groups and ethnic minorities, LGBT community, and women (with special focus on single mothers). Municipal governments can directly provide services or may outsource them to private providers (e.g., daycare). Expenditures in this area include personnel, infrastructure, materials, training, etc.

15. **Urban Infrastructure:** Investments in this area include design, construction and maintenance of offices and other buildings of the municipal government, markets, slaughterhouses, cemeteries, green areas, parks, squares. This category also includes urban furniture (e.g., benches, trash cans, etc.). Personnel hired for investments in this area are included in this category.

16. **Community Building:** Investments in this area are meant to promote and facilitate political participation of local residents. One important aspect is the development of mechanisms for the involvement of the community in the design of the budget of the municipal government (i.e., prioritization of investments). Also included in this category are policies and campaigns for community oversight of government performance (i.e., grassroots monitoring). Policies that help local organizations are also included.

17. **Institutional Capacity:** This category includes investments in information systems and long-term planning. These include regular updating of the list of beneficiaries of social welfare programs, which corresponds to people deemed as poor through the country's proxy means testing system, called SISBEN. It also includes updates to the socioeconomic stratification used for the differentiation of fees for public services (e.g., water), as well as updates to the municipal cadastre (used for the property tax) and the municipal land-use plan (Plan de Ordenamiento Territorial). This category also includes payments related to the initial adjustment to the fiscal rule (Law 617/2000), such as severance pay for dismissed employees, as well as payments related to the restructuring of liabilities (Law 550/1999).

18. **Justice and Security:** This category includes all expenditures related to the functioning of the police in the municipality. These include personnel, inputs (food, weapons, communication equipment, uniforms), construction and maintenance of infrastructure, and rewards for civilians that provide valuable information. This category also includes expenditures related to the functioning of local justice units that address family conflict (Comisarías de Familia), including personnel expenditures (judges, doctors, psychologists). It also includes policies and programs that contribute to greater security, peace and respect for human rights.

Table I.1: Composition of Operating Expenditures by Exposure to Fiscal Rule: 2010-2018

		No Controls		Department FE	
	Mean	β	SE	β	SE
	(1)	(2)	(3)	(4)	(5)
Central Administration: Total	84.39	0.002	0.373	-1.262***	0.310
Central Administration: Personnel	50.67	-0.917**	0.404	-1.280***	0.377
Central Administration: General	19.39	-0.746**	0.341	-1.006***	0.331
Central Administration: Other	14.68	1.699***	0.553	1.033**	0.494
Council: Total	8.67	0.012	0.179	0.549***	0.150
Council: Personnel	7.82	0.085	0.166	0.588***	0.138
Council: General	0.82	-0.056	0.043	-0.005	0.045
Council: Other	0.60	-0.064	0.134	-0.049	0.147
Ombudsman's Office: Total	6.94	-0.014	0.207	0.706***	0.172
Ombudsman's Office: Personnel	6.00	-0.028	0.177	0.614***	0.146
Ombudsman's Office: General	0.91	-0.000	0.046	0.082*	0.044
Ombudsman's Office: Other	0.72	0.145	0.160	0.250	0.179

Notes: The table shows the average share of total operating expenditures that each category represents in affected and non-affected municipalities, pooling information from 2010 to 2018. Column 1 shows the sample mean of each variables. Columns 2-3 show point estimates and standard errors from univariate cross-sectional regressions of each variable listed in the table on the indicator for exposure to the fiscal rule. Columns 4-5 additionally include department fixed effects. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table I.2: Composition of Capital Expenditures by Exposure to Fiscal Rule: 2010-2018

		No Controls		Department FE	
	Mean	β	SE	β	SE
	(1)	(2)	(3)	(4)	(5)
Education	8.43	0.112	0.223	-0.151	0.203
Health	43.35	1.197	0.826	0.146	0.665
Water and Sanitation	9.52	-0.050	0.215	0.008	0.203
Sports	2.90	-0.144	0.110	-0.038	0.111
Culture	2.37	-0.378***	0.093	-0.216**	0.090
Other Public Services	1.70	-0.075	0.084	-0.084	0.082
Housing	2.87	-0.256*	0.149	0.038	0.147
Agriculture	1.73	-0.193**	0.078	-0.037	0.069
Transport	11.05	-0.277	0.339	0.264	0.286
Environment	1.67	-0.133	0.105	-0.132	0.101
Detention Centers	0.09	0.017	0.011	0.001	0.011
Disaster Prevention and Relief	1.00	0.029	0.061	-0.054	0.062
Economic Development	0.55	-0.015	0.044	0.016	0.045
Vulnerable Groups	3.96	-0.087	0.108	-0.082	0.093
Urban Infrastructure	2.58	-0.217*	0.122	-0.058	0.121
Community Building	0.34	0.061**	0.029	0.044	0.031
Institutional Capacity	3.45	0.431***	0.137	0.273**	0.134
Justice and Security	2.45	-0.062	0.078	0.040	0.073
Royalties Oversight	1.15	0.156	0.194	0.081	0.223

Notes: Column 1 shows the the average share of total capital expenditures that each category represents in affected and non-affected municipalities, pooling information from 2010 to 2018. Columns 2-3 show point estimates and standard errors from univariate cross-sectional regressions of each variable listed in the table on the indicator for exposure to the fiscal rule. Columns 4-5 additionally include department fixed effects. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

II Data Appendix

This appendix provides detailed information on data sources, sample availability and other details for the different variables used in the paper.

Fiscal variables

- *Overspending ratio*: Defined as operating expenditures divided by disposable current revenue. We construct this variable for all years between 1996 and 2018 by dividing (total) operating expenditures by (total, not disposable) current revenue, based on the data in the municipal fiscal data provided yearly by DNP.

- *Current Deficit (=1)*: Indicator that equals one if the municipality experiences a current deficit (i.e., current revenue below current expenditures). Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Operating expenditures*: Measured in millions of 2010 COP. This variable measures each municipality-year total operating expenditures. It is equal to the sum of personnel expenditures, general expenditures and paid transfers. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Personnel expenditures*: Measured in millions of 2010 COP. This variable measures each municipality-year personnel expenditures (i.e., payroll of permanent and temporary employees of the municipal government). It is a sub-component of operating expenditures. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *General expenditures*: Measured in millions of 2010 COP. This variable measures general expenditures in each municipality-year (i.e., procurement, insurance premiums, publications, rent, maintenance and utility payments for municipal property). It is a sub-component of operating expenditures. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Paid Transfers*: Measured in millions of 2010 COP. This variable measures each municipality-year paid transfers (i.e., pension payments for qualifying former municipal employees and payments mandated by legal sentences). It is a sub-component of operating expenditures. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Disposable Current Revenue*: Measured in millions of 2010 COP. This variable measures each municipality-year disposable current revenue: the sum of tax and non-tax revenue, and SGP transfers specifically designated for this purpose (*libre destinación*). Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data and SGP transfers provided yearly by DNP.

- *Tax Revenue*: Measured in millions of 2010 COP. This variable measures tax revenue in each municipality-year (property tax, a tax on gross business receipts, surcharge on the price of gasoline, other taxes). It is a sub-component of disposable current revenue. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Cadastral Update (=1)*: Indicator equal to one if the municipality had a cadastral update in a given year. These updates are performed by IGAC and involve a reassessment of the value of all properties in the municipality (urban, rural or both depending on the scope). Data was provided by the National Geographic Institute (IGAC) and is available between 1996 and 2012.

- *Non-Tax Revenue*: Measured in millions of 2010 COP. This variable measures each municipality-year non-tax revenue (i.e., fines and fees issued by the municipality). It is a sub-component of disposable current revenue. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Disposable Transfers*: Measured in millions of 2010 COP. This variable measures each municipality-year disposable transfers from the central government. It is a sub-component of disposable current revenue. Information is available for all municipalities between 1996 and 2018, based on the data on SGP transfers provided yearly by DNP.

- *Capital Revenue*: Measured in millions of 2010 COP. This variable measures each municipality-year capital revenue, which includes SGP transfers, co-financing, and natural resource royalties. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Capital expenditures*: Measured in millions of 2010 COP. This variable measures each municipality-year capital expenditures (i.e., investment). Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Total Deficit (=1)*: Indicator that equals one if total spending in the municipality-year (current plus capital) exceeds total revenue. By construction, total deficit is also equal to net credit inflows plus change in balance. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Net Credit Inflows (=1)*: Indicator that equals one if new inflows of credit exceed outflows (i.e., payment of principal) in the municipality-year. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Interest Payments*: Measured in millions of 2010 COP. This variable measures each municipality-year interest payments. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

- *Positive balance (=1)*: Indicator equal to 1 if the municipality experiences a positive change in wealth. Information is available for all municipalities between 1996 and 2018, based on the data in the municipal fiscal data provided yearly by DNP.

Political variables

- *Vote Share for the Incumbent*: Votes for the party of the incumbent mayor as proportion of the total votes at the municipality-election level. Since we do not observe the number of votes for each candidate previous to 1997, we are only able to construct this measure for elections in 1997, 2000, 2003, 2007, 2011, and 2015. Electoral information was provided by CEDE at Universidad de los Andes. It is based on official electoral records from Colombia's electoral office (*Registraduría Nacional del Estado Civil*) and it was carefully revised by CEDE in 2021.

- *Incumbent Wins (=1)*: Indicator equal to 1 if the incumbent party wins the subsequent mayoral election. We are able to construct this indicator variable for all elections between 1992 and 2015 (i.e., 1992, 1994, 1997, 2000, 2007, 2011, 2015). Electoral information was provided by CEDE at Universidad de los Andes. It is based on official electoral records from Colombia's electoral office (*Registraduría Nacional del Estado Civil*) and it was carefully revised by CEDE in 2021.

- *Share of votes for Liberal Party (mean 1997-2000)*: Average share of votes for the Liberal Party (i.e., votes for the Liberal Party as proportion of the total votes) in 1997 and 2000 mayoral elections at the municipality level. Since we do not observe the number of votes for each party previous to 1997, for elections before the reform, we are only able to construct the vote share for elections in 1997 and 2000. Electoral information was provided by CEDE at Universidad de los Andes and it is based on official electoral records from Colombia's electoral office (*Registraduría Nacional del Estado Civil*).

- *Share of votes for Conservative Party (mean 1997-2000)*: Average share of votes for the Conservative Party (i.e., votes for the Conservative Party as proportion of the total votes) in 1997 and 2000 mayoral elections at the municipality level. Since we do not observe the number of votes for each party previous to 1997, for elections before the reform, we are only able to construct the vote share for elections in 1997 and 2000. Electoral information was provided by CEDE at Universidad de los Andes and it is based on official electoral records from Colombia's electoral office (*Registraduría Nacional del Estado Civil*).

- *Mayoral elections HHI (mean 1997-2000)*: Average Herfindahl–Hirschman Index in 1997 and 2000 mayoral elections at the municipality level. For each election we calculate the normalized HHI as:

$$\text{HHI} = \frac{\sum_{i=1}^{N} s_i^2 - 1/N}{1 - 1/N}$$

where s_i is the vote share of party i in the mayoral election and N is the number of parties competing. This normalized HHI ranges from 0 to 1, with larger values indicating greater concentration.

- *Any Protest (=1)*: Indicator equal to one if there was a protest against the municipality's local government in a given year, based on a proprietary event-based dataset provided by CINEP (*Centro de Investigación y Educación Popular*) for the period 1996-2015.

- *Public Services Protests (=1)*: Indicator equal to one if there was a protest against the municipality's local government related to public services in a given year, based on a proprietary event-based dataset provided by CINEP (*Centro de Investigación y Educación Popular*) for the period 1996-2015. CINEP directly classifies protests by cause.

- *Labor Disputes Protests (=1)*: Indicator equal to one if there was a protest against the municipality's local government related to labor disputes or breach of agreements in a given year, based on a proprietary event-based dataset provided by CINEP (*Centro de Investigación y Educación Popular*) for the period 1996-2015. CINEP directly classifies protests by cause.

- *Other Protests Causes (=1)*: Indicator equal to one if there was a protest against the municipality's local government that is not related to public services or labor disputes in a given year, based on a proprietary event-based dataset provided by CINEP (*Centro de Investigación y Educación Popular*) for the period 1996-2015. CINEP directly classifies protests by cause.

Public goods

- *Subsidized Health Insurance*: Define as the number of people enrolled in the government's subsidized health insurance (regimen subsidiado) at the municipality-year level, expressed as a share of the number of people with Unmet Basic Needs (UBN) in the 1993 census. The data is provided by the Ministry of Health and is available between 1998 and 2004. Enrollment for later years is expressed as a share of the number of people classified as poor by Colombia's proxy means testing system (SISBEN) and is not comparable.

- *Vaccination Rate*: Defined as the average share of children younger than one fully vaccinated for polio, DPT (Diphtheria, Pertussis and Tetanus), tuberculosis (Bacille Calmette-Guerin's vaccine), hepatitis B, and haemophilus influenzae type B. The data is provided by the Ministry of Health and is available between 1998 and 2010.

- *Low Birth-Weight*: Defined as the number of newborn (per 1,000) with low birth weight (<2,500 grams), expressed as a share of the total number of births at the municipality-year level. Vital statistics are provided by the National Department of Statistics (DANE) and are available between 1998 and 2011.

- *Average Prenatal Visits*: Defined as the average number of prenatal visits for each birth at the municipality-year level. Vital statistics are provided by the National Department of Statistics and are available between 1998 and 2011.

- *Schools per 10,000 inh*: Defined as total number of public schools in the municipality per 10,000 inhabitants. Data was provided by CEDE at Universidad de los Andes and it is based on official records from the Ministry of Education, available between 1996 and 2013.

- *Teacher-Pupil Ratio*: Defined as the number of teachers per student in the public sector. Data was provided by CEDE at Universidad de los Andes and it is based on official records from the Ministry of Education, available between 1996 and 2013.

- *Student Enrollment*: Defined as the number of students in public education (primary and early secondary). Data was provided by CEDE at Universidad de los Andes and it is based on official records from the Ministry of Education, available between 1996 and 2013.

- *Aqueduct (=1)*: Indicator equal to one if the municipality has an aqueduct company. We use data from the Public Convenience Superintendence on the universe of companies providing aqueduct services. We use the main mailing address to match companies to municipalities.

- *Sewage (=1)*: Indicator equal to one if the municipality has a sewage company. We use data from the Public Convenience Superintendence on the universe of companies providing aqueduct services. We use the main mailing address to match companies to municipalities.

- *Public Sanitation (=1)*: Indicator equal to one if the municipality has a public sanitation company. We use data from the Public Convenience Superintendence on the universe of companies providing aqueduct services. We use the main mailing address to match companies to municipalities.

- *Corruption Sanctions (=1)*: Indicator equal to one if the mayor has been sanctioned for mishandling public funds. We construct this variable by matching the names of the mayors in the sample with those of all individuals sanctioned by CGR since 1990. This variable is coded at the municipality - mayoral term level.

- *Night-time Lights*: Original data comes from the US Air Force's Defense Meteorological Satellite Program (DMSP), which records night-time lights (NTL) originating from the earth using the Operational Linescan System (OLS) sensor. The National Oceanic and Atmospheric Administration (NOAA) cleaned and processed raw data. NOAA provides composite images of NTL at the grid-cell level (roughly one squared kilometer at the Equator) for each year between 1992 and 2013. The variable of interest is an NTL Digital Number (DN) that ranges from 0 to 63, with larger values corresponding to increased luminosity. We combine the DMSP data with a shapefile of Colombian municipalities and calculate an area-weighted average of NTL DN per municipality-year.

- *Cadastral Value*: Measured in millions of 2010 COP. This variable measures each municipality-year total cadastral value. The National Geographic Institute (IGAC) provided the data on the value of all municipal properties (urban, rural or both, depending on the scope). Data was provided by the IGAC and was available between 2000 and 2013.

- *Emergencies Victims*: Total number of natural emergencies victims per 10,000 inhabitants. The National Unit for Disaster Risk Management (UNGRD) provides detailed information on victims of natural disasters at the event level. We use the disaster location to match it with the municipality and aggregate at the municipality-year level, and data is available between 1998 and 2018.

- *Armed Conflict Events (=1)*: Indicator equal to 1 if there was at least one armed conflict event at the municipality-year level. Data was provided by the Universidad del Rosario (UR) and is available between 1996 and 2014.

- *Coca Crops (=1)*: Indicator equal to one if there is the presence of coca cultivation at the municipality level. Data was provided by CEDE at Universidad de los Andes, and it is based on official records from the Ministry of Justice, available between 1999 and 2018.

- *Public Goods Index*: We constructed a summary measure of public goods provision using inverse covariance weighting (Anderson, 2008). This is an index of the Vaccination Rate, Low Birth-Weight, Average Prenatal Visits, Schools per 10,000 inh., Teacher-Pupil Ratio, Student Enrollment, Aqueduct indicator, Sewage indicator, Public Sanitation indicator, Night-time Lights, Emergency Victims, and an indicator for conflict events. Higher values of this index suggest more public goods.

Municipality characteristics

- *Foundation Year*: Year of foundation for each municipality. Information was provided by CEDE at Universidad de los Andes.

- *Area*: Municipality's total area in square kilometers. Information was provided by CEDE at Universidad de los Andes.

- *Altitude*: Municipality's average area-weighted altitude in meters above the sea level. Information was provided by CEDE at Universidad de los Andes.

- *Distance to the Department's Capital*: Shortest geodesic distance to the department's capital in kilometers. Information was provided by CEDE at Universidad de los Andes.

- *Distance to Bogotá*: Shortest geodesic distance to Colombia's capital, Bogotá D.C., measured in kilometers. Information was provided by CEDE at Universidad de los Andes.

- *Share of Rural Population (mean 1995-2000)*: Defined as inhabitants living in rural areas of the municipality as a proportion of the total number of inhabitants. Measured as the average between 1995 and 2000 at the municipality level. Information was provided by CEDE at Universidad de los Andes.

- *Schools in 1996 (=1)*: Indicator equal to one if the municipality had at least one public school in 1996. Information was provided by CEDE at Universidad de los Andes.

- *Unmet Basic Needs index in 1993*: Defined as the average Unmet Basic Needs index across in each municipality in the 1993 General Census. Information was provided by CEDE at Universidad de los Andes.

- *Notary office in 1996 (=1)*: Indicator equal to one if the municipality had at least one notary office in 1996. Information was provided by CEDE at Universidad de los Andes.

- *Agricultural bank office in 1996 (=1)*: Indicator equal to one if the municipality had at least one agricultural bank office (*Banco Agrario de Colombia*) in 1996. Information was provided by CEDE at Universidad de los Andes.

- *Tax collection office in 1996 (=1)*: Indicator equal to one if the municipality had at least one tax collection office in 1996. Information was provided by CEDE at Universidad de los Andes.

- *Health center or hospital in 1996 (=1)*: Indicator equal to one if the municipality had at least one health center or hospital in 1996. Information was provided by CEDE at Universidad de los Andes.

- *FARC demilitarized zone and neighbors (=1)*: Indicator equal to one if the municipality was part of the demilitarized zone awarded to insurgent group FARC between 1999 and 2002, or a neighboring municipality. Information was provided by CEDE at Universidad de los Andes.

- *Guerrilla presence between 1996 and 2000 (=1)*: Indicator equal to one for municipalities with at least one conflict event involving FARC between 1996 and 2000. Information was provided by Universidad del Rosario's Conflict Data Base.

- *Paramilitary presence between 1996 and 2000 (=1)*: Indicator equal to one for municipalities with at least one conflict event involving right-wing paramilitary groups between 1996 and 2000. Information was provided by the Universidad del Rosario's Conflict Data Base.

- *Coca crops between 1999 and 2000 (=1)*: Indicator equal to one for municipalities with at least one hectare of coca crops between 1999 and 2000. Data was provided by CEDE at Universidad de los Andes and is based on official records from the United Nations Office on Drugs and Crime.

Administrative Services

- *Number of Agencies:* Number of agencies in the central administration (e.g., "secretary of education"). Data was provided by Colombia's Department for Civil Service and is based on the department's official directory of public agencies.

- *Employees*:

  - *Number (2021)*: Total number of employees in each municipality by November 2021. Data was provided by Colombia's Department for Civil Service and is based on the department's official directory of public servers.

  - *With College*: Percentage of employees in each municipality with a college degree by November 2021. Data was provided by Colombia's Department for Civil Service and is based on the department's official directory of public servers.

  - *Job Tenure*: Average years of employment as a public server in each municipality by November 2021. Data was provided by Colombia's Department for Civil Service and is based on the department's official directory of public servers.

- *Services*:

  - *Number*: Number of administrative services provided by the municipality by November 2021. Examples of these services include obtaining a construction permit or paying a municipal tax. Data was provided by Colombia's Department for Civil Service and is based on the department's official record of public services.

  - *Offered Online*: Percentage of services provided available online by the municipality by November 2021. Examples of these services include obtaining a construction permit or paying a municipal tax. Data was provided by Colombia's Department for Civil Service and is based on the department's official record of public services.

  - *Duration*: Average time to completion of services provided by the municipality by November 2021. Examples of these services include obtaining a construction permit or paying a municipal tax. Data was provided by Colombia's Department for Civil Service and is based on the department's official record of public services.

- *Covid-19 Vaccine*: Population share fully vaccinated against COVID-19 by February 2022. Data was provided by Colombia's Ministry of Health and is based on vaccination records aggregated at the municipality level.

Public Contracts

- *Tender Bids*: Percentage of public contracts corresponding to tendered bids (i.e., non-discretionary) between 2015 and 2018. Data was provided by Colombia's National Public Procurement Agency and is based on the Electronic System for Public Procurement (SECOP). Since 2014, all public contracting must be registered in SECOP. We calculated the share of tender bid contracts at the municipality level.

- *Time Extensions*:

  - *Percent*: Percentage of public contracts corresponding to tendered bids (i.e., non-discretionary) between 2015 and 2018 that have time extensions. Data was provided by Colombia's National Public Procurement Agency and is based on SECOP. We code a contract as having time extensions if the effective duration in days is higher than the initial estimated execution time.
  - *Days*: Days differences between the effective duration in days and the initial estimated execution time. Data was provided by Colombia's National Public Procurement Agency and is based on SECOP between 2015 and 2018.

- *Money Extensions*:
  - *Percent*: Percentage of public contracts corresponding to tendered bids (i.e., non-discretionary) between 2015 and 2018 that have money extensions. Data was provided by Colombia's National Public Procurement Agency and is based on SECOP. We code a contract as having money extensions if the final paid value is higher than the initial estimated cost
  - *Share Value*: Total value of money additions of public contracts corresponding to tendered bids (i.e., non-discretionary) between 2015 and 2018. Data was provided by Colombia's National Public Procurement Agency and is based on SECOP. We code a contract as having money extensions if the final paid value is higher than the initial estimated cost and measure this variable as a share of the final total value of the contract (i.e., over cost divided by final value) aggregated at the municipality level.

Citizens Perceptions

- *Municipal Government Accountable*: Indicator equal to one if survey respondents agree to the phrase *"Do you consider that your municipality is accountable for the management of the resources it administers?"*. DAta was provided by the LAPOP survey between 2004-2008. The survey sample includes 3,133 respondents from 27 of our sample municipalities (15 affected, 12 non-affected).

- *Municipal Government Open*: Indicator equal to one if survey respondents answer sometimes, almost every time, or every time to the question *"In your opinion, does your municipality consult citizens before making a decision?"*. Data was provided by the LAPOP survey between 2004-2008. The survey sample includes 3,133 respondents from 27 of our sample municipalities (15 affected, 12 non-affected).

- *Municipal Government Transparent*: Indicator equal to one if survey respondents answer sometimes, almost every time, or every time to the question *"In his opinion, your municipality makes its plans and decisions public?"*. Data was provided by the LAPOP survey between 2004-2008. The survey sample includes 3,133 respondents from 27 of our sample municipalities (15 affected, 12 non-affected).

- *Satisfied with Public Goods*: Indicator equal to one if survey respondents answer good or very good to the question *"Would you say that the services that the municipality*

is providing to the people are...". Data was provided by the LAPOP survey between 2004-2008. The survey sample includes 3,133 respondents from 27 of our sample municipalities (15 affected, 12 non-affected).

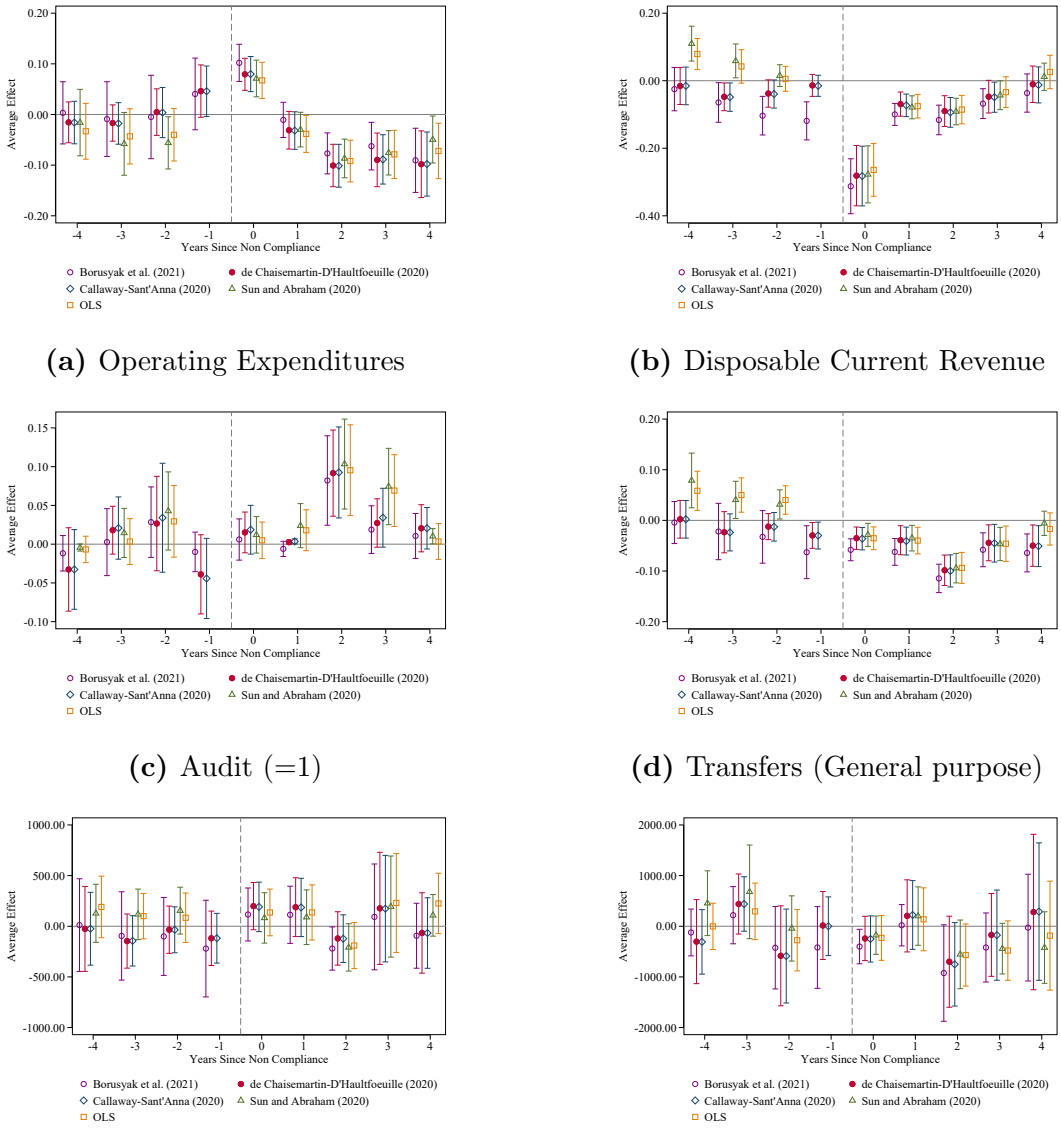
Table II.1: Summary Statistics

	Obs	Mean	SD	Min	Max
	(1)	(2)	(3)	(4)	(5)
Panel A: Exposure					
Affected (=1)	922	0.58	0.49	0.00	1.00
Mean Overspending Ratio (1996-2000)	922	1.10	0.29	0.27	2.14
Panel B: Covariates					
Foundation year	922	1,873.74	102.75	1,534.00	2,000.00
Area (km^2)	922	815.50	3,064.70	20.00	65,674.00
Altitude (meters above sea level)	922	1,172.84	893.67	2.00	3,087.00
Distance to department capital (km)	922	81.37	54.38	0.00	376.12
Distance to nearest market (km)	922	122.75	83.90	9.61	926.47
Distance to Bogota (km)	922	309.82	179.93	12.49	997.99
Share of rural population (mean 1995-2000)	922	0.66	0.19	0.04	0.98
Public Schools in 1996 (=1)	922	0.96	0.20	0.00	1.00
Unmet Basic Needs index in 1993	921	56.11	18.11	17.58	100.00
Notary office in 1996 (=1)	922	0.39	0.49	0.00	1.00
Agricultural Bank branch in 1996 (=1)	922	0.93	0.26	0.00	1.00
Tax collection office in 1996 (=1)	922	0.42	0.49	0.00	1.00
Health center or hospital in 1996 (=1)	922	0.74	0.44	0.00	1.00
FARC demilitarized zone and neighbors (=1)	922	0.02	0.14	0.00	1.00
Guerrilla presence between 1996 and 2000 (=1)	922	0.24	0.25	0.00	1.00
Paramilitary presence between 1996 and 2000 (=1)	922	0.11	0.14	0.00	0.89
Coca crops between 1999 and 2000 (=1)	922	0.17	0.32	0.00	1.00
Mayor Sanctioned for Corruption (=1) (96-00)	847	0.36	0.48	0.00	1.00
Political kidnappings (96-00)	922	0.19	0.39	0.00	1.00
Population (1,000 inhab. - mean 1996-2000)	922	14.66	12.90	0.72	125.24
Share of votes for Liberal Party (mean 1997-2000)	845	0.13	0.15	0.00	0.57
Share of votes for Conservative Party (mean 1997-2000)	845	0.08	0.12	0.00	0.61
Mayoral elections HH index (mean 1997-2000)	845	0.37	0.11	0.14	0.92
Panel C: Outcomes					
Overspending Ratio	20,151	0.75	0.30	0.27	2.14
Current Deficit (=1)	20,151	0.19	0.39	0.00	1.00
Operating Expenses: Total	20,151	1,326	883	326	4,993
Operating Expenses: Personnel	20,151	754	1,469	0	182,236
Operating Expenses: General	20,151	359	547	0	63,544
Operating Expenses: Paid Transfers	20,151	242	372	0	19,338
Freely Disposable Revenue: Total	20,151	2,001	1,582	373	8,942
Freely Disposable Revenue: Tax Revenues	20,151	1,060	1,527	0	36,422
Cadastral Update (=1)	14,633	0.11	0.32	0.00	1.00
Freely Disposable Revenue: Non-Tax Revenues	20,151	254	475	0	24,574
Freely Disposable Revenue: Disposable Transfers	20,151	719	301	0	4,704
Capital Revenues	20,151	7,421	8,991	0	237,489
Capital Expenses	20,151	8,400	10,045	0	218,117
Total Deficit (=1)	20,151	0.55	0.50	0.00	1.00
Net Credit Inflows (=1)	20,151	0.24	0.43	0.00	1.00
Interest Payment	20,151	156	5,903	0	735,336
Positive Balance (=1)	20,265	0.49	0.50	0.00	1.00
Vote Share Incumbent	5,860	0.26	0.31	0.00	1.00
Incumbent Wins (=1)	7,557	0.33	0.47	0.00	1.00
% of Poor w/ Subsidized Health Insurance	6,440	0.87	0.44	0.00	3.13
Infant Vaccination Rate	11,953	0.74	0.29	0.00	2.02
Low Birth Weight per 1,000 Births	12,874	69	37	0	1,000
Average Prenatal Visits	12,869	4.99	1.08	0.00	8.00
Schools per 10,000 inhabitants	16,441	29	16	0	132
Teacher to Pupil Ratio	16,478	0.05	0.01	0.00	0.53
Students Enrollment	16,478	7.74	1.03	0.00	10.50
Aqueduct (=1)	21,160	0.71	0.45	0.00	1.00
Sewage (=1)	21,160	0.58	0.49	0.00	1.00
Public Sanitation (=1)	21,160	0.61	0.49	0.00	1.00
Mayor Sanctioned for Corruption (=1)	8,639	0.14	0.35	0.00	1.00
Night Lights	16,560	0.96	0.75	0.00	3.61
Cadastral Value	11,476	54.037	74.644	0	2,231.39
Emergency Victims	19,305	454	1,654	0	54,924
Armed Conflict Events (=1)	17,480	0.34	0.47	0.00	1.00
Coca Crops (=1)	18,400	0.16	0.37	0.00	1.00
Public Goods Index (ICW)	11,867	0.01	0.99	-7.49	16.71
Protest: Any (=1)	18,400	0.02	0.14	0.00	1.00
Protests: Public Services (=1)	18,400	0.01	0.11	0.00	1.00
Protests: Labor (=1)	18,400	0.00	0.07	0.00	1.00
Protests: Other (=1)	18,400	0.01	0.07	0.00	1.00
Protests: Demonstration (=1)	18,400	0.01	0.08	0.00	1.00
Protests: Strike (=1)	18,400	0.00	0.07	0.00	1.00
Protests: Road Blocks & Occupations (=1)	18,400	0.01	0.10	0.00	1.00

Notes: This table shows summary statistics for the main variables in the paper. Panel A summarizes the main measures of exposure to the fiscal rule, Panel B summarizes the pre-determined covariates considered in our analysis, and Panel C summarizes all outcome variables.

III Additional Figures and Tables

Figure III.1: Non-Compliance with the Fiscal Rule: Event Studies



(a) Operating Expenditures

(b) Disposable Current Revenue

(c) Audit (=1)

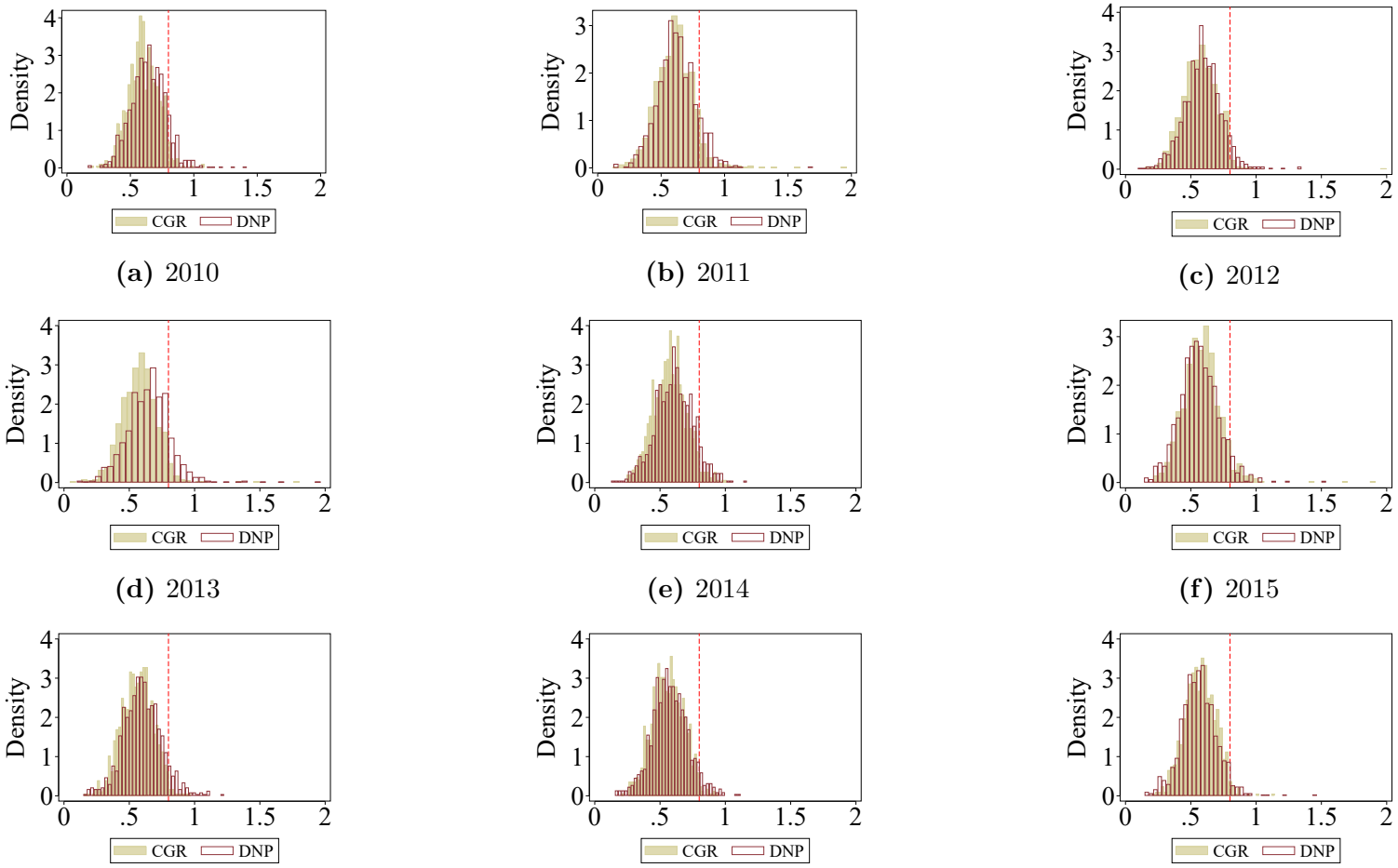
(d) Transfers (General purpose)

(e) Co-Financing

(f) Net Credit Inflows

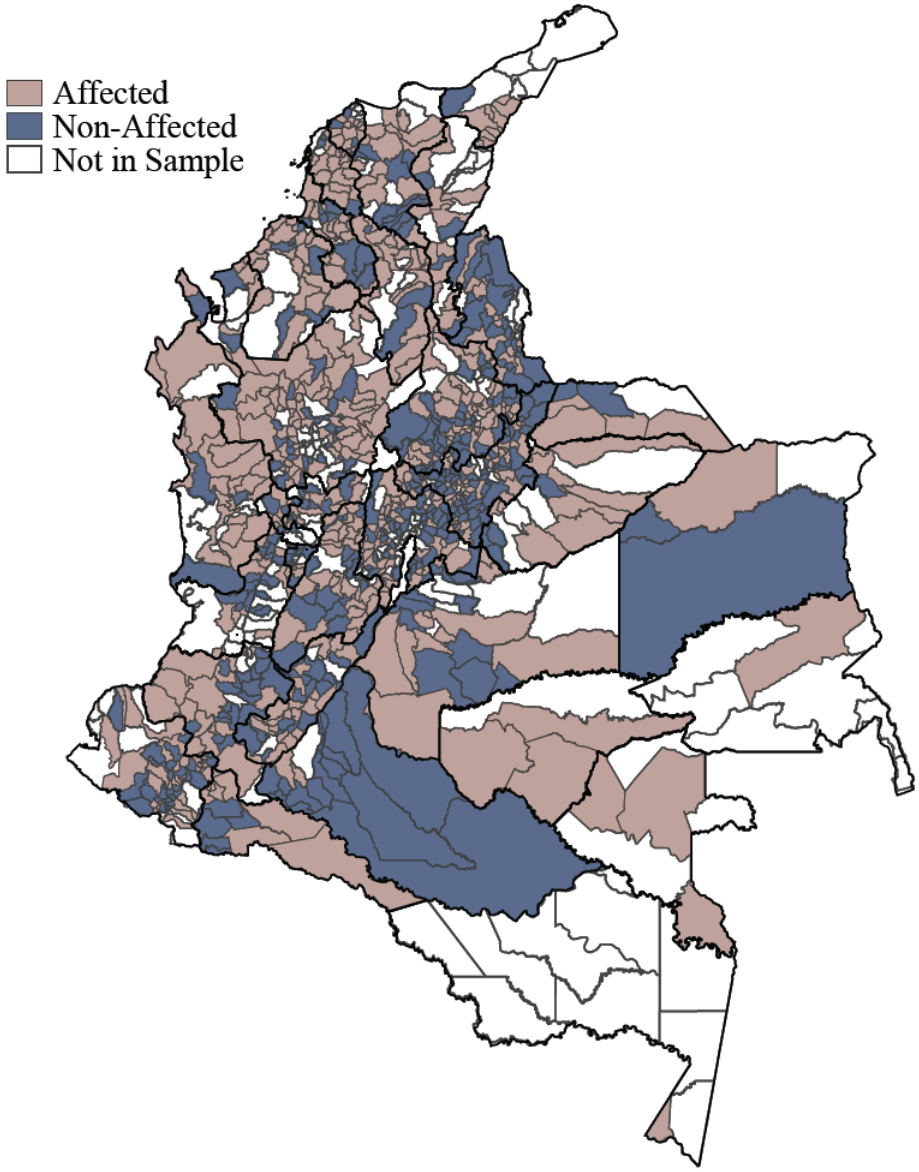
Notes: Each panel shows five sets of point estimates and 95% confidence intervals corresponding to an event study for the year in which a municipality exceeds the legal cap on operating expenses, based on administrative data from CGR for the period 2010-2018. These estimates correspond to the alternative difference-in-differences estimators developed by de Chaisemartin and D'Haultfoeuille (2020); Borusyak et al. (2021); Callaway and Sant'Anna (2021); Sun and Abraham (2021). We also include our baseline estimates (OLS). The dependent variable in each panel is indicated in the caption. In panel (c) the outcome is an indicator equal to one if the municipality is audited by CGR. In the remaining panels, outcomes correspond to the monetary value in constant 2010 Colombian pesos (in logs in panels (a), (b), and (d)). Regressions include municipality and year fixed effects. Standard errors clustered by municipality.

Figure III.2: Distribution of the Overspending Ratio: Alternative Sources Estimates



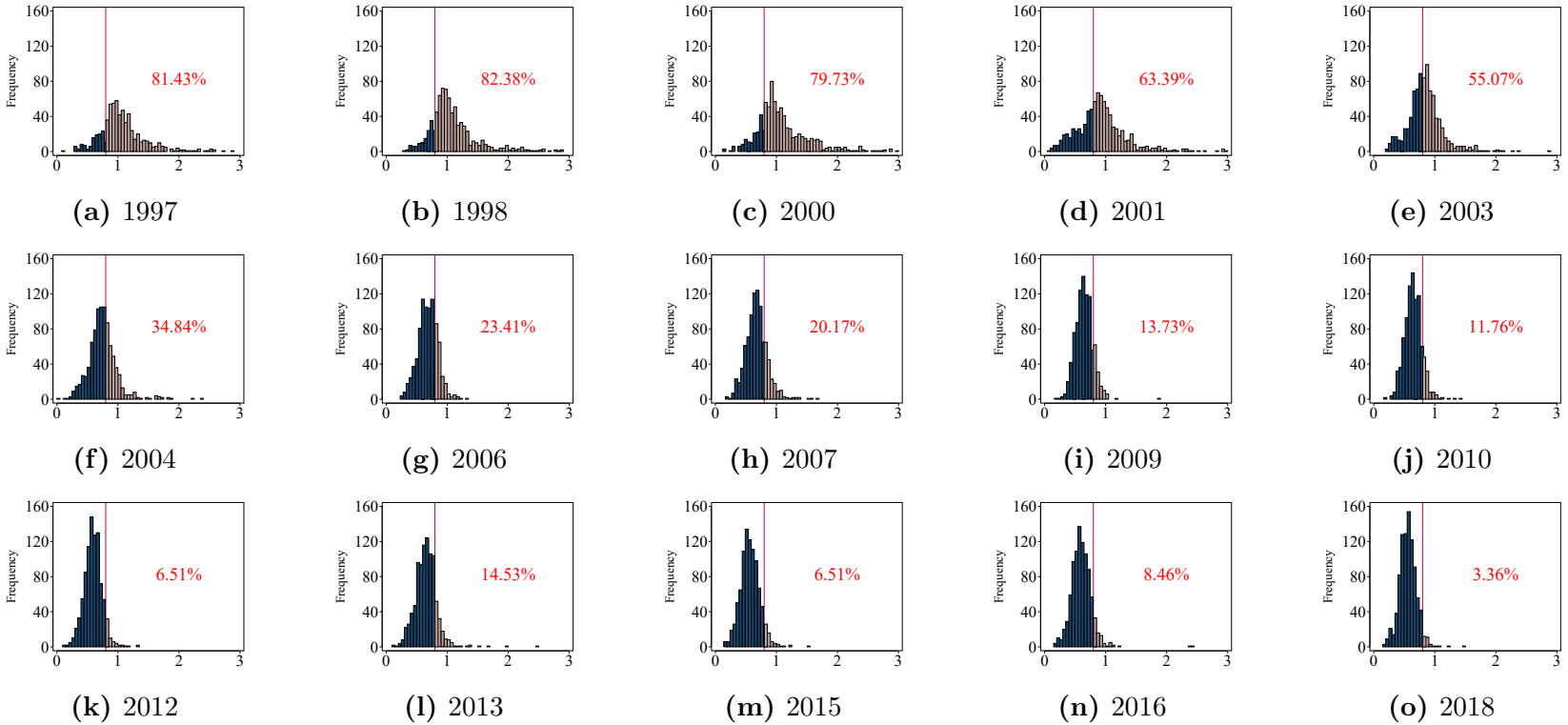
Notes: Each panel shows the distribution of the overspending ratio for the year in the caption based on data from DNP (transparent) and CGR (beige). The overspending ratio is defined as operating expenditures divided by disposable current revenue. The CGR version is based on the actual numbers that municipalities report to the fiscal watchdog for compliance. The DNP version is based on the municipal fiscal data published by this agency. The latter is a proxy, defined as operating expenditures divided by current revenue (i.e., without excluding earmarked revenues).

Figure III.3: Geographic Distribution of Exposure to Fiscal Rule



Notes: The map shows the discrete classification that constitutes our baseline measure of exposure to the fiscal rule for the 922 municipalities in our sample. Colored in red are the 531 municipalities that we deem as exposed to the rule because the average value of their overspending ratio between 1996 and 2000 was larger than one. Colored in blue are the remaining 391 municipalities whose average overspending ratio was less than one. Municipalities in white are excluded from the sample (i.e., larger cities not in category six). Darker lines correspond to department borders.

Figure III.4: Aggregate Compliance with the Fiscal Rule: Additional Years



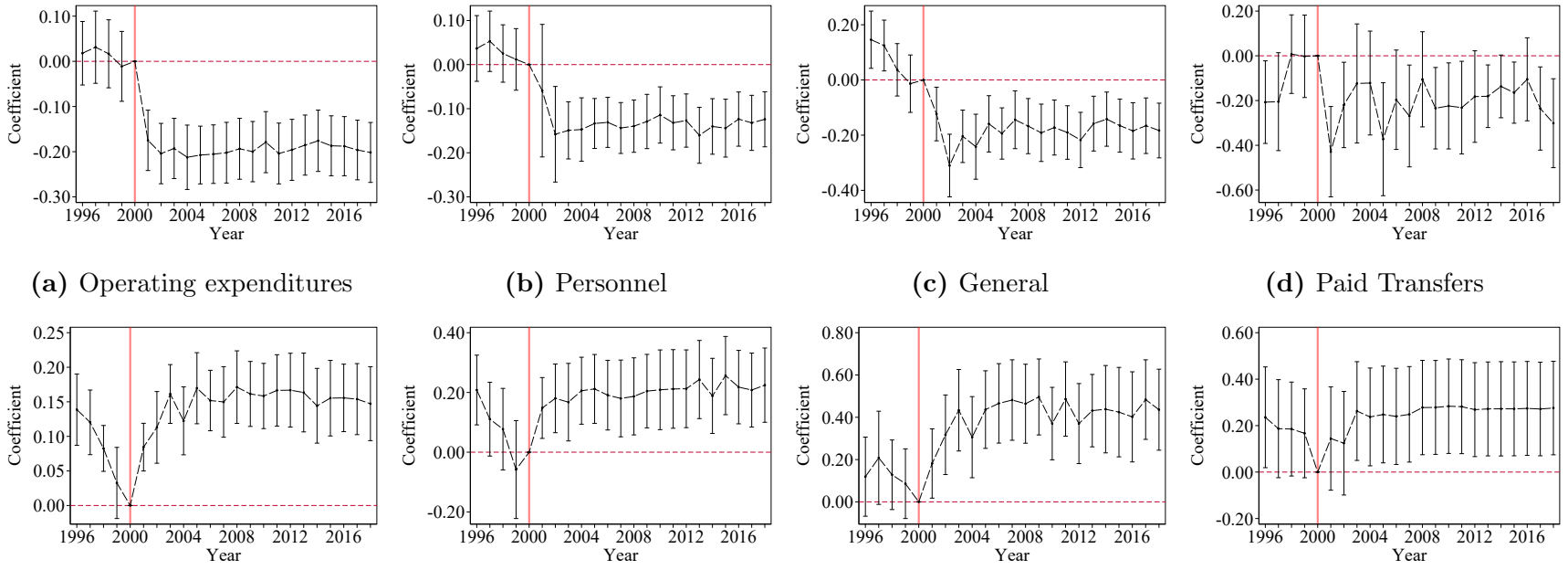
(a) 1997 **(b)** 1998 **(c)** 2000 **(d)** 2001 **(e)** 2003

(f) 2004 **(g)** 2006 **(h)** 2007 **(i)** 2009 **(j)** 2010

(k) 2012 **(l)** 2013 **(m)** 2015 **(n)** 2016 **(o)** 2018

Notes: Each panel shows the distribution of the overspending ratio in the year in the caption. This ratio is defined as operating expenditures divided by disposable current revenue and is estimated using data from the municipal fiscal data published by DNP. The red vertical line denotes the 80% cap on the overspending ratio set by the fiscal rule, which became binding in 2004 (transition period: 2001-2003). The number in the box indicates the percentage of municipalities that exceed the legal cap. These are shaded in red in the graph.

Figure III.5: Sub-Components of the Overspending Ratio: Event Studies

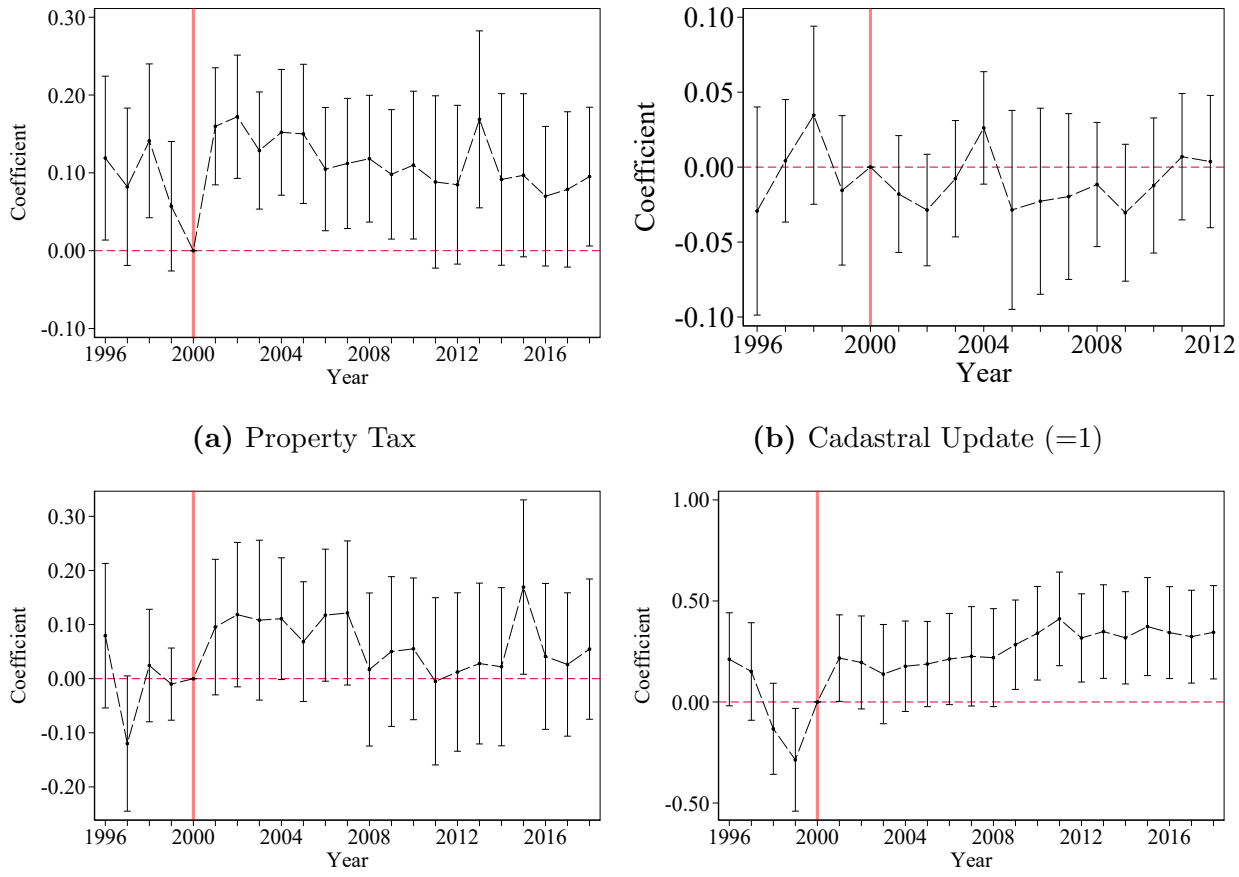


(a) Operating expenditures **(b)** Personnel **(c)** General **(d)** Paid Transfers

(e) Disposable Current Revenue **(f)** Tax Revenue **(g)** Non-Tax Revenue **(h)** Disposable Transfers

Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable in panel (a) is operating expenditures, while in panel (e) it is disposable current revenue. Panels (b)-(d) correspond to the sub-components of operating expenditures, while panels (f)-(h) correspond to the sub-components of disposable current revenue. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.6: Disaggregate Tax Revenue: Event Studies



(a) Property Tax

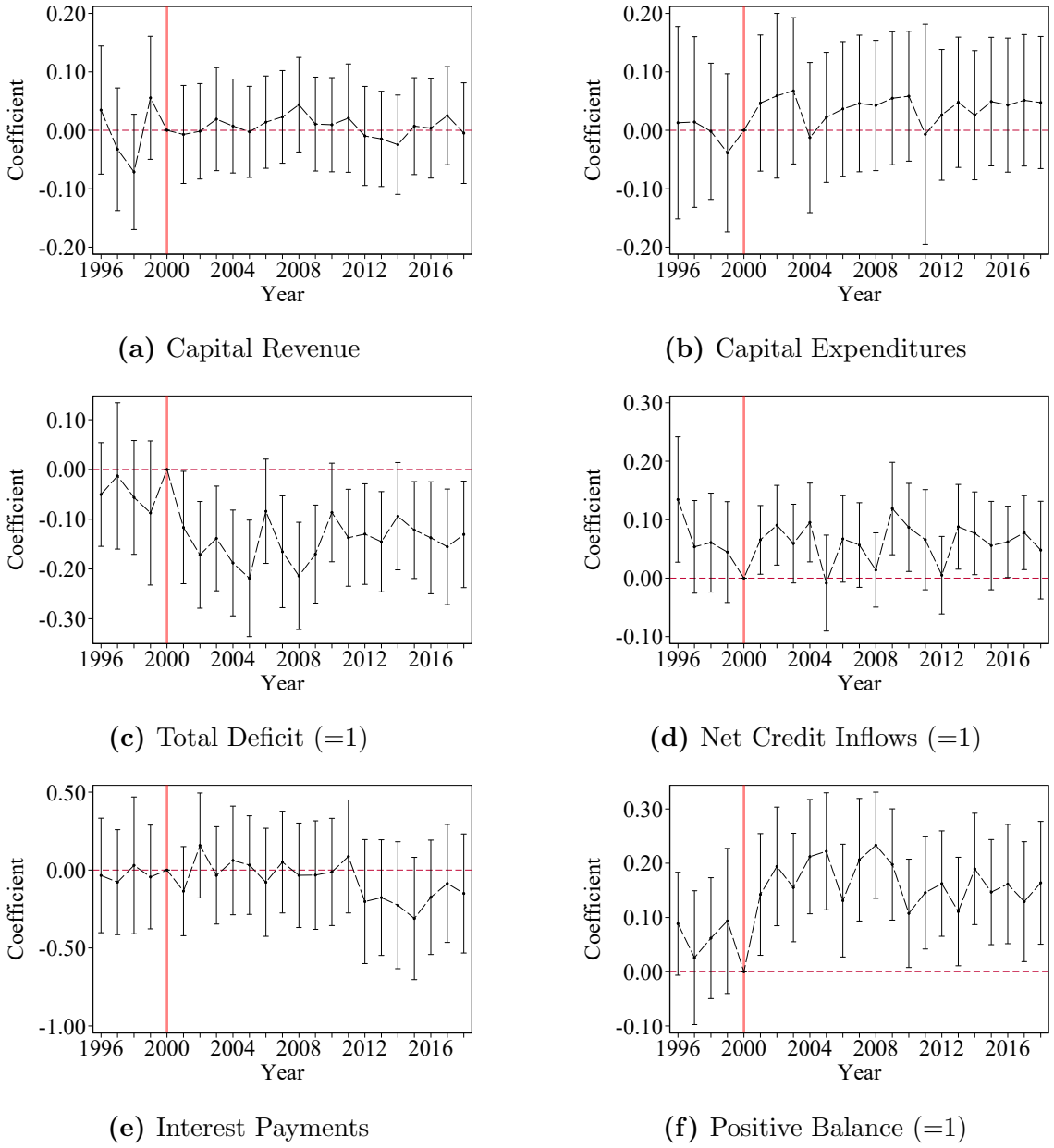
(b) Cadastral Update (=1)

(c) Gross Business Receipts Tax

(d) Other Taxes

Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable in panel (a) is property tax revenue, while in panel (b) is an indicator equal to 1 if the municipality had a cadastral update on that year. In panel (c) the dependent variable is gross business receipts tax revenue (ICA), while the dependent variable in panel (d) is revenue from other taxes (vehicles, spectacles, slaughtering, construction licences and tax arrears, among others). All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.7: Other Fiscal Outcomes: Event Studies



(a) Capital Revenue

(b) Capital Expenditures

(c) Total Deficit (=1)

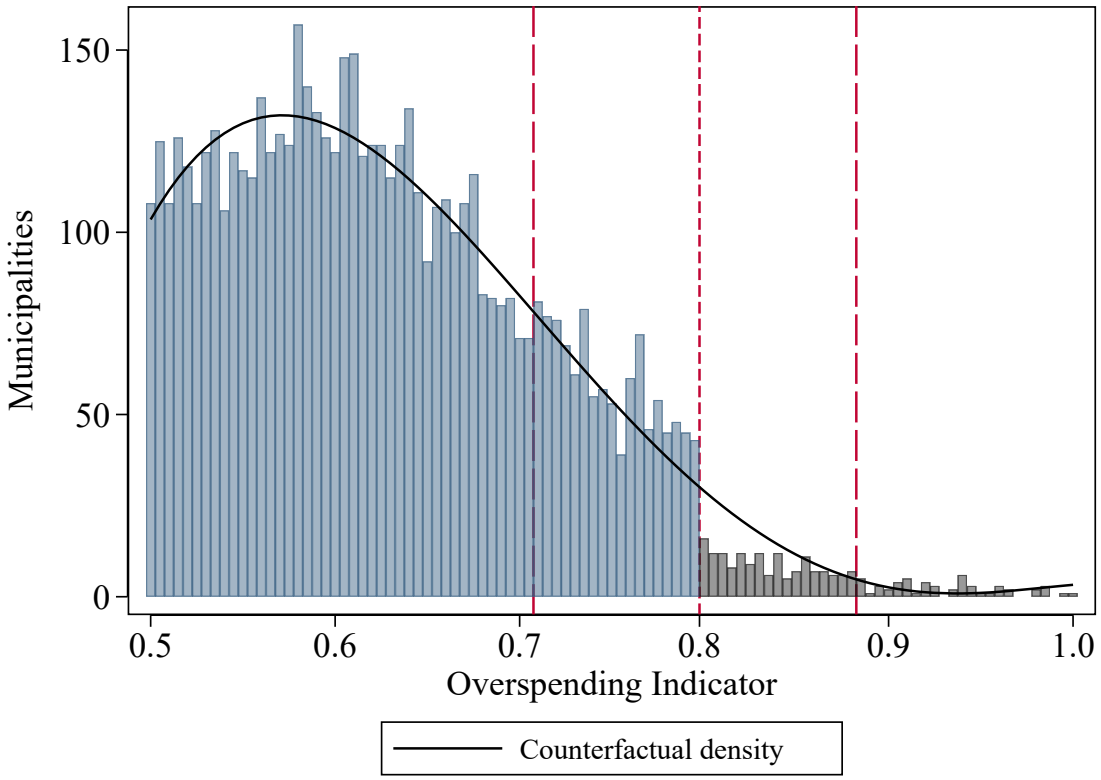
(d) Net Credit Inflows (=1)

(e) Interest Payments

(f) Positive Balance (=1)

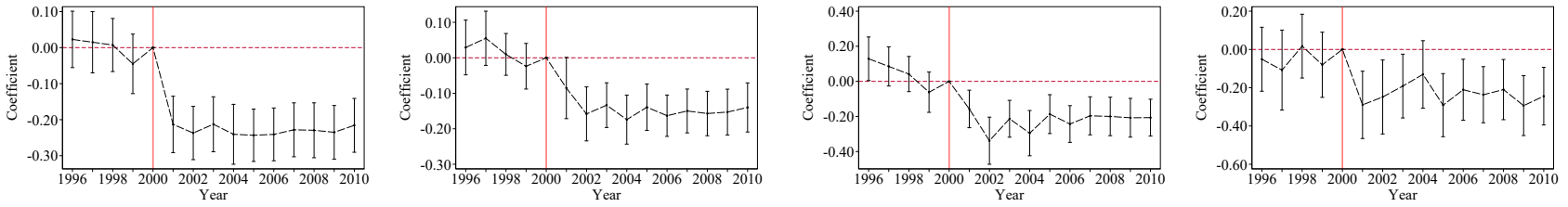
Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable in panel (a) is capital revenue, in panel (b) it is capital expenditures, in panel (c) it is an indicator equal to one if the municipal government experiences a total deficit, in panel (d) it is an indicator equal to one if the municipal government experiences positive net credit inflows, in panel (e) it is interest payments, and in panel (f) it is an indicator equal to one if the municipal government experiences a net increase in wealth. All monetary outcomes correspond to the natural logarithm of the value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.8: Distribution of the Reported Overspending Ratio: 2010-2018

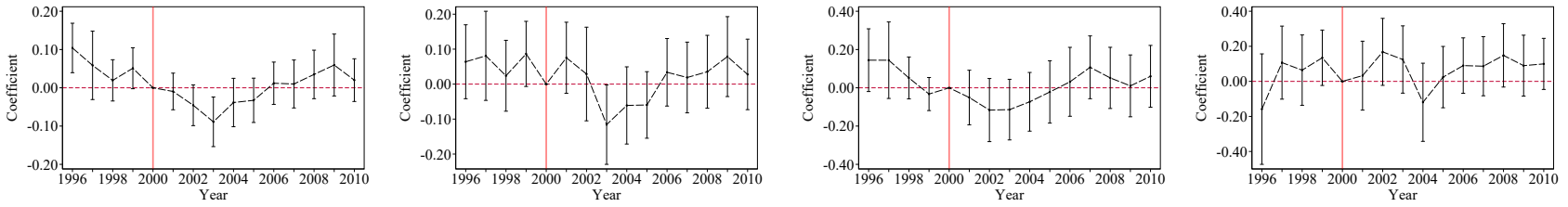


Notes: This figure shows the distribution of the overspending ratio based on the values reported by municipalities to CGR between 2010 and 2018. The continuous line shows the estimated counterfactual density without manipulation. This counterfactual density is estimated by fitting a high-order polynomial such that the excess mass and missing mass on each side of 0.8 (dotted line) between the dashed lines are equal. Table III.3 summarises the fitting process.

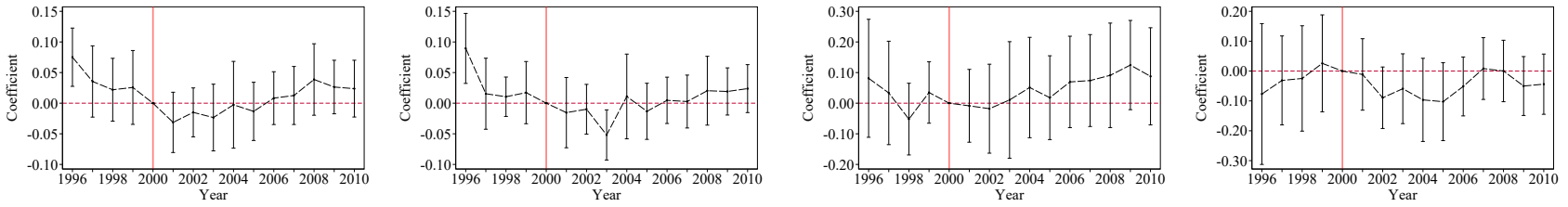
Figure III.9: Disaggregate Operating Expenditures by Municipal Body: Event Studies



(a) Central Admin: Total **(b)** Central Admin: Personnel **(c)** Central Admin: General **(d)** Central Admin: Paid Transfers



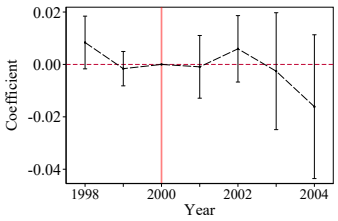
(e) Council: Total **(f)** Council: Personnel **(g)** Council: General **(h)** Council: Paid Transfers



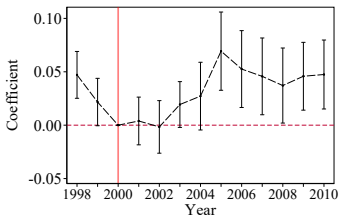
(i) Ombudsman: Total **(j)** Ombudsman: Personnel **(k)** Ombudsman: General **(l)** Ombudsman: Paid Transfers

Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable in panel (a) is the central administration's operating expenditures. Panels (b)-(d) correspond to the sub-components of the central administration's operating expenditures. The dependent variable in panel (e) is the city council's operating expenditures. Panels (f)-(h) correspond to the sub-components of the city council's operating expenditures. The dependent variable in panel (i) is the Ombudsman's operating expenditures. Panels (j)-(l) correspond to the sub-components of the Ombudsman's operating expenditures. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

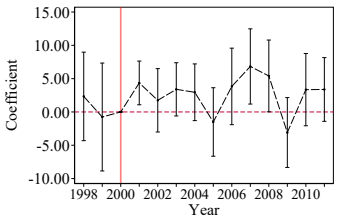
Figure III.10: Public Goods: Event Studies



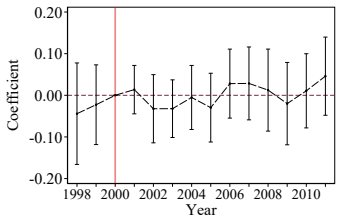
(a) Health Insurance



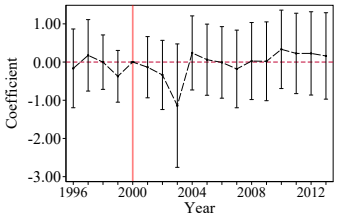
(b) Vaccination Rate



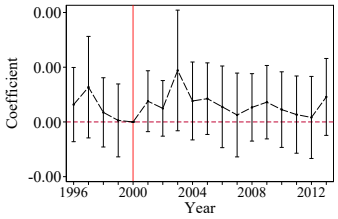
(c) Low Birth Weight



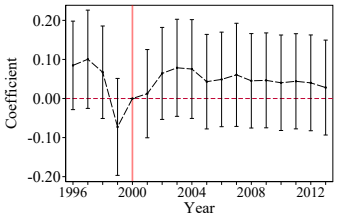
(d) Prenatal Visits



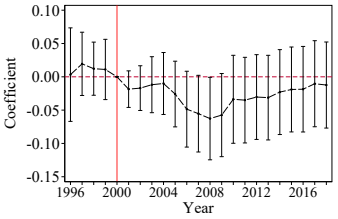
(e) Schools per 10,000 inh.



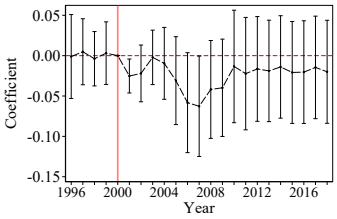
(f) Teacher-Pupil Ratio



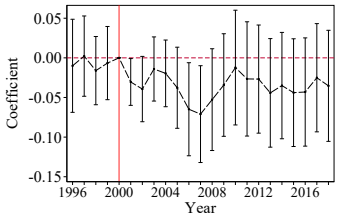
(g) Student Enrolment



(h) Aqueduct (=1)



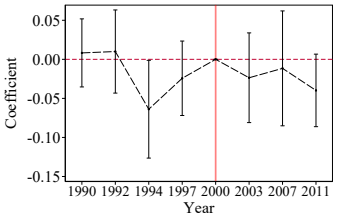
(i) Sewage (=1)



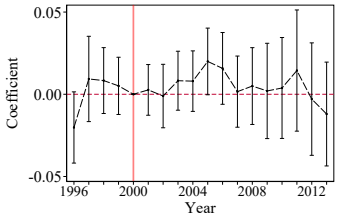
(j) Public Sanitation (=1)

Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable is indicated in the caption: (a) share of poor population receiving subsidized health insurance; (b) average vaccination rate of children younger than one; (c) share of newborn (per 1,000) with low birth weight (<2,500 grams); (d) average number of prenatal visits; (e) number of public schools in the municipality per 10,000 inhabitants; (f) teacher-pupil ratio in the public sector; (g) log number of students in public education (primary and early secondary). Unit of observation is municipality-year in all panels except panel (h), where it is municipality-mayoral term. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

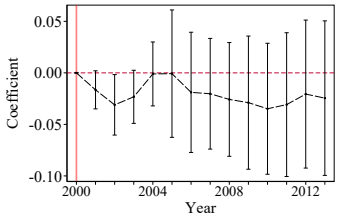
Figure III.10: Public Goods: Event Studies (continued)



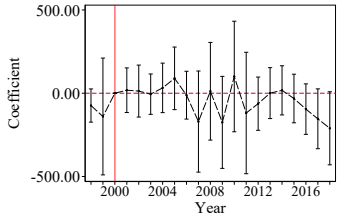
(k) Corruption Sanctions (=1)



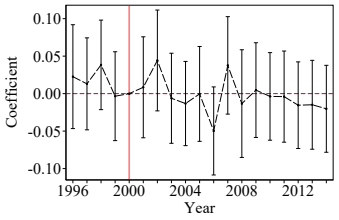
(l) Night Lights



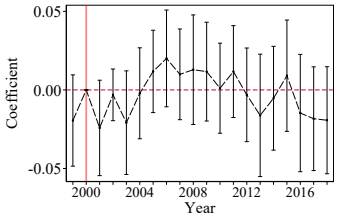
(m) Cadastral Value (Log)



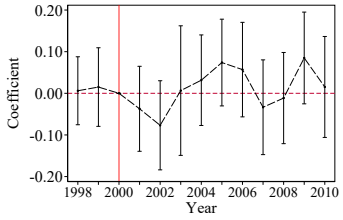
(n) Emergencies Victims



(o) Conflict Events (=1)



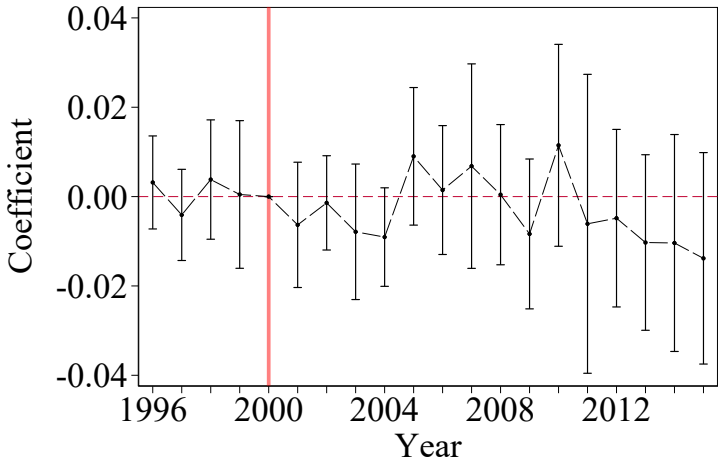
(p) Coca Crops (=1)



(q) Public Goods Index

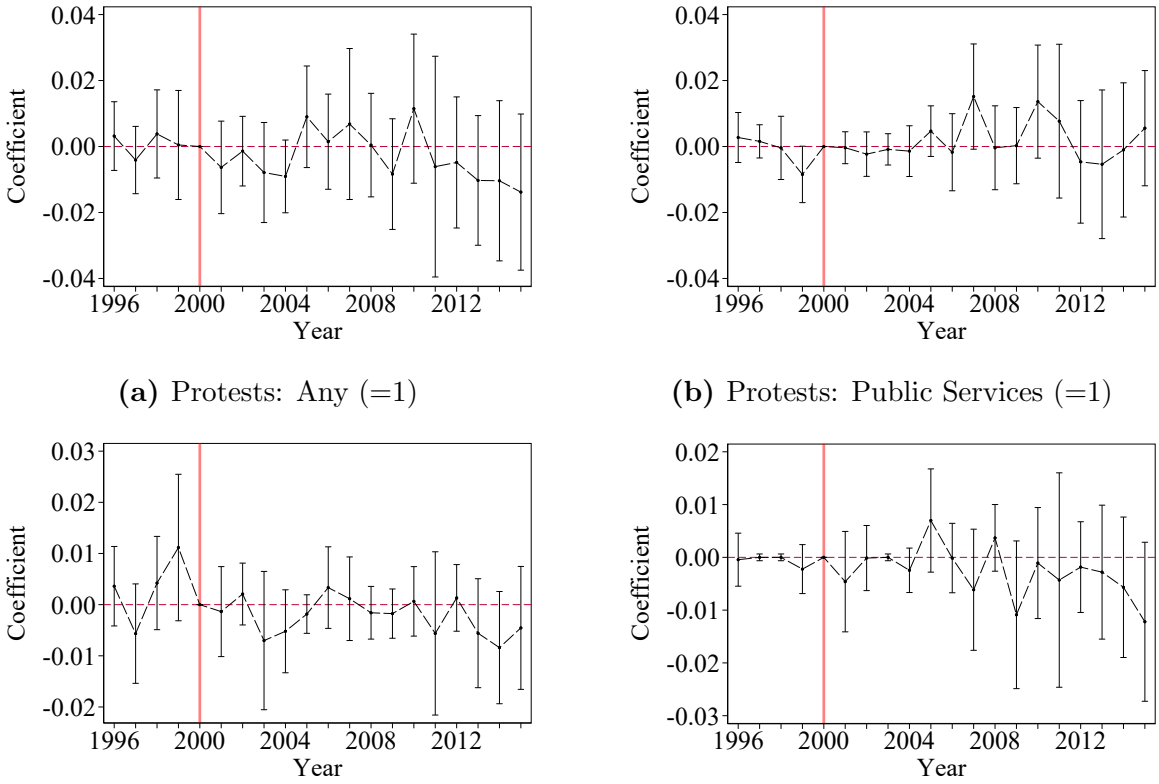
Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable is indicated in the caption: (k) indicator equal to 1 if the mayor is ever sanctioned for corruption by CGR; (l) log area-weighted average night-time lights Digital Number (DN); (m) log total cadastral value of properties in municipality; (n) total number of emergencies victims per 10,000 inhabitants; (o) indicator equal to 1 if there was at least one armed conflict event at the municipality-year level; (p) indicator equal to 1 if there was presence of coca crops in the municipality (q) inverse covariance weighted index of public goods. The latter is based on all previous outcomes, except (a), (k), (m), and (p). Unit of observation is municipality-year in all panels except panel (h), where it is municipality-mayoral term. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.11: Protests Against the Municipal Government: Event Study



Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable is an indicator taking value one for any protest against the municipal government. Regression includes municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.12: Protests: Event Studies



(a) Protests: Any (=1)

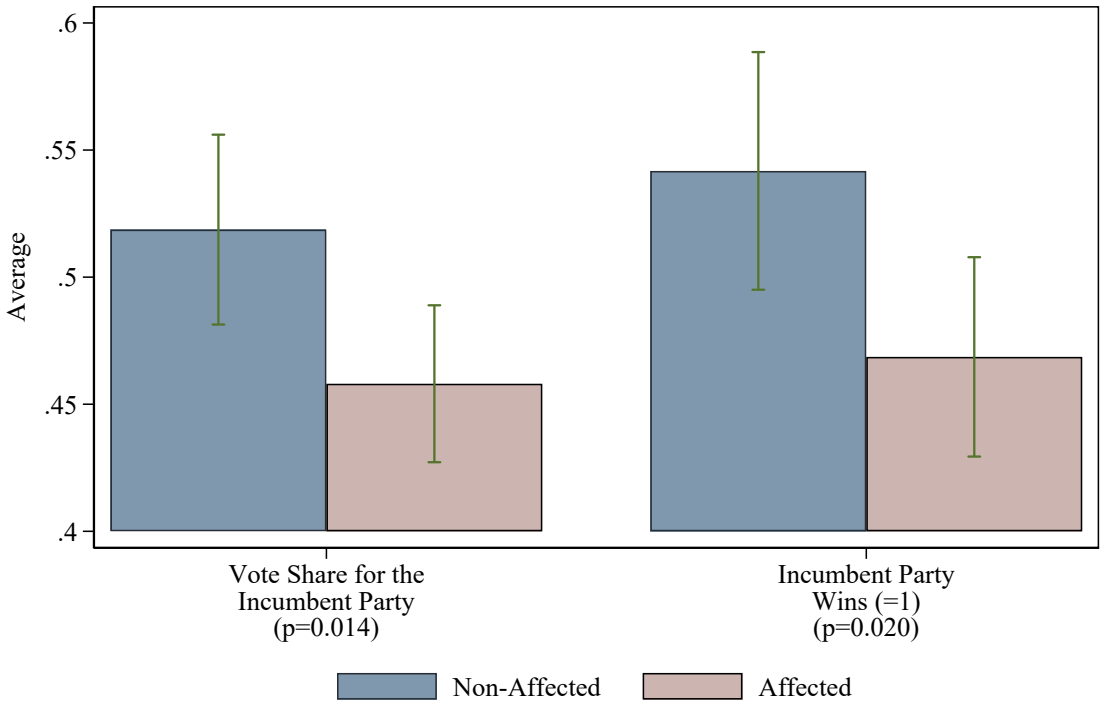
(b) Protests: Public Services (=1)

(c) Protests: Labor Disputes (=1)

(d) Protests: Other Causes (=1)

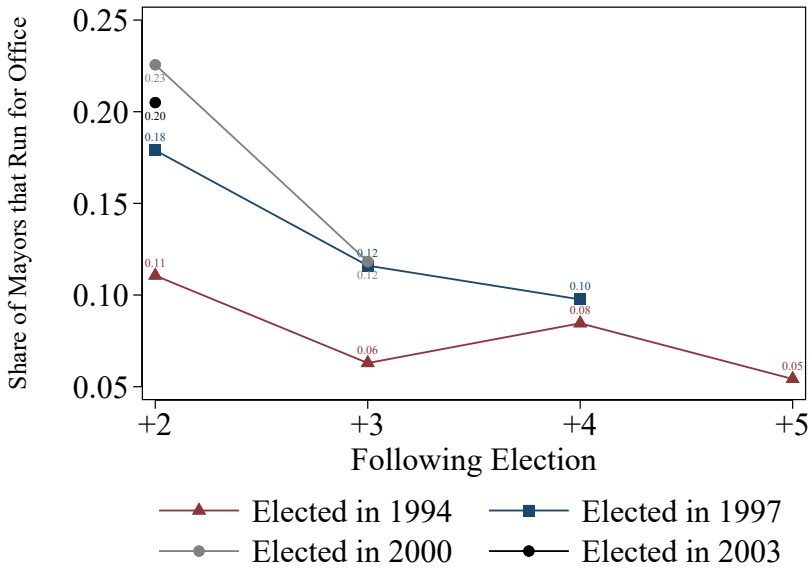
Notes: Figures show point estimates and 95% confidence intervals of β_τ in equation 2. The dependent variable in panel (a) is an indicator taking value one for any protest against the municipal government. In panels (b)-(d) we provide disaggregate estimates for protests motivated by issues in the provision of public services, labor disputes, or other causes. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year.

Figure III.13: Pre-Reform Support for the Party of the Incumbent Mayor by Exposure to Fiscal Rule

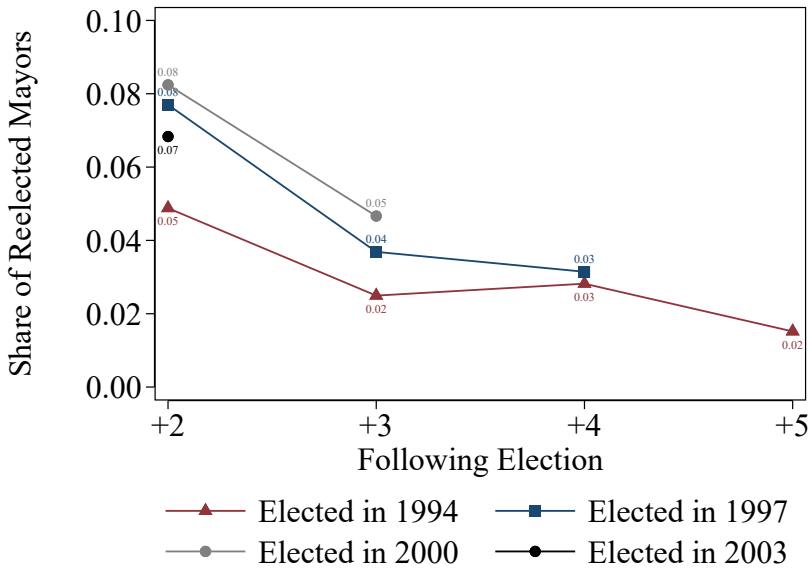


Notes: The figure shows the average vote share for the party of the incumbent mayor and an indicator equal to one if the incumbent party wins the election in affected and non-affected municipalities, pooling information from 1992 to 2000. Capped lines indicate the 95% confidence interval for the mean, while the p-values at the bottom correspond to the null hypothesis that the averages are equal across the two groups.

Figure III.14: Future Political Outcomes of Former Mayors



(a) Running



(b) Winning

Notes: Panel (a) shows the share of mayors that run for office in subsequent electoral cycles (no immediate re-election is possible because of one-term limit), disaggregated by the year in which they were elected, while panel (b) shows the share of mayors that are elected in these subsequent election cycles. To construct these shares, we take the list of the elected mayors for each cycle and merge it by name (i.e., fuzzy merge) with the list of candidates for mayor and council from the subsequent electoral cycles up to 2011. We set a precision threshold of 0.9 for these matches.

Table III.1: Disaggregate Tax Revenues: Difference-in-Differences Estimates

	Property Tax	Cadastral Update	Gross Receipts Tax	Other Taxes
	(1)	(2)	(3)	(4)
Affected $\times$ $\mathbb{1}[t > 2000]$	0.04	-0.01	0.07	0.29***
	(0.029)	(0.011)	(0.048)	(0.060)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	20,151	14,633	20,151	20,151
Pre-Reform DV Mean	218.65	0.13	98.46	148.36
Pre-Reform DV Std. Dev.	287.04	0.34	339.80	314.21

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is property tax revenue, while in column 2 it is an indicator equal to 1 if the municipality had a cadastral update on that year. In column 3 it is gross business receipts tax revenue, and in column 4 it is revenue from other taxes (e.g., gasoline surcharge). All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.2: SGP Transfers: Difference-in-Differences Estimates

	Total	Education	Health	General Purpose
	(1)	(2)	(3)	(4)
Affected $\times$ $\mathbb{1}[t > 2000]$	0.02	-0.04*	-0.02	0.06***
	(0.012)	(0.025)	(0.021)	(0.023)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151
Pre-Reform DV Mean	3347.71	786.78	655.65	1820.27
Pre-Reform DV Std. Dev.	2050.38	512.39	426.99	1042.20

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is the total SGP transfers, while in column 2 it is the education SGP transfers, in column 3 it is the health SGP transfers, and in column 4 it is general purpose SGP transfers. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.3: Fitting Process of Counterfactual Density of Reported Overspending Ratio

Lower Limit	Upper Limit	Excess Mass	Missing Mass	Difference	Bunching Munis (%)
(1)	(2)	(3)	(4)	(5)	(6)
79.00	80.00	24.38	-12.26	12.12	0.30
0.785	0.805	36.71	-26.41	10.30	0.45
0.780	0.810	42.87	-38.98	3.89	0.52
0.775	0.815	55.89	-53.42	2.47	0.68
0.770	0.820	56.97	-63.03	-6.06	0.69
0.765	0.825	88.15	-68.97	19.18	1.07
0.760	0.830	103.12	-71.25	31.86	1.25
0.755	0.835	81.96	-88.18	-6.22	1.00
0.750	0.840	78.81	-91.74	-12.93	0.96
0.745	0.845	73.62	-104.91	-31.29	0.89
0.740	0.850	60.16	-116.99	-56.83	0.73
0.735	0.855	90.15	-106.47	-16.31	1.10
0.730	0.860	78.18	-114.79	-36.61	0.95
0.725	0.865	76.73	-118.07	-41.34	0.93
0.720	0.870	85.32	-117.75	-32.43	1.04
0.715	0.875	91.57	-116.19	-24.61	1.11
0.710	0.880	105.46	-106.28	-0.82	1.28
0.705	0.885	77.43	-116.83	-39.39	0.94
0.700	0.890	25.05	-150.05	-125.00	0.30

Notes: This table summarises the fitting process of the counterfactual density in Figure III.8. To fit the high-order polynomial function we first pick a window of excluded data near the cutoff (e.g. 0.78 to 0.82), as shown in columns 1-2. We then estimate a fifth-order polynomial with the remaining data on each side and use those estimates to impute the counterfactual density for the excluded window. We measure the excess mass (column 3) and missing mass (column 4) on each side, and we repeat this process until excess mass equals missing mass (column 5). Column 6 shows the number of municipalities that are classified as engaging in manipulation of the reported data (i.e., bunching) in each iteration. The window that minimizes the difference between missing and excess mass is $[0.71, 0.88]$.

Table III.4: Heterogeneous Effects by Exposure to Law 550 of 1999: Difference-in-Differences Estimates

	Overspending Ratio		Current Deficit (=1)		Current Revenue		Operating Expenses		Incumbent's Vote Share		Public Goods Index	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.32***	-0.31***	-0.31***	0.08***	0.08***	-0.20***	-0.20***	0.08***	0.07***	0.00	-0.00
	(0.015)	(0.015)	(0.019)	(0.019)	(0.017)	(0.017)	(0.018)	(0.018)	(0.025)	(0.025)	(0.037)	(0.038)
Law 550 (=1)		-0.05		-0.08		-0.12**		-0.15**		-0.09		-0.37
		(0.037)		(0.050)		(0.053)		(0.064)		(0.059)		(0.250)
Affected × $\mathbb{1}[t > 2000]$ × Law 550 (=1)		-0.03		0.06		0.10*		0.05		0.10		0.39
		(0.044)		(0.053)		(0.056)		(0.070)		(0.066)		(0.255)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151	5,860	5,860	11,867	11,867
Pre-Reform DV Mean	1.07	1.07	0.66	0.66	1384.44	1384.44	1390.37	1390.37	0.49	0.49	-0.08	-0.08
Pre-Reform DV Std. Dev.	0.38	0.38	0.47	0.47	1098.63	1098.63	1030.18	1030.18	0.39	0.39	1.02	1.02

Notes: This table shows estimates of β in equation 1. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in column 5-6 is disposable current revenue, while in column 7-8 it is operating expenditures. The dependent variable in columns 9-10 is the share of votes for the incumbent party in the mayoral election, while in columns 11-12 it is a positive inverse-covariance weighted index of public goods. The outcome in columns 5-8 corresponds to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Even-numbered columns allow the effect of the fiscal rule in equation 1 to vary after a municipality subscribes a liability restructuring program, in the context of Law 550/1999. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.5: Heterogeneous Effects by Comptroller Removal: Difference-in-Differences Estimates

	Overspending Ratio		Current Deficit (=1)		Current Revenue		Operating Expenses		Incumbent's Vote Share		Public Goods Index	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Affected × $\mathbb{1}[t > 2000]$	-0.32***	-0.31***	-0.31***	-0.31***	0.08***	0.07***	-0.20***	-0.20***	0.08***	0.08***	0.00	0.01
	(0.015)	(0.015)	(0.019)	(0.019)	(0.017)	(0.017)	(0.018)	(0.018)	(0.025)	(0.026)	(0.037)	(0.038)
Contraloria Removed × $\mathbb{1}[t > 2000]$		-0.01		0.00		-0.16***		-0.14**		0.08		-0.06
		(0.023)		(0.044)		(0.063)		(0.059)		(0.083)		(0.112)
Affected × $\mathbb{1}[t > 2000]$ × Contraloria Removed (=1)		-0.14***		-0.01		0.10		-0.04		-0.09		0.00
		(0.043)		(0.059)		(0.073)		(0.067)		(0.092)		(0.128)
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151	5,860	5,860	11,867	11,867
Pre-Reform DV Mean	1.07	1.07	0.66	0.66	1384.44	1384.44	1390.37	1390.37	0.49	0.49	-0.08	-0.08
Pre-Reform DV Std. Dev.	0.38	0.38	0.47	0.47	1098.63	1098.63	1030.18	1030.18	0.39	0.39	1.02	1.02

Notes: This table shows estimates of β in equation 1. The dependent variable in columns 1-2 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in columns 3-4 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in column 5-6 is disposable current revenue, while in column 7-8 it is operating expenditures. The dependent variable in columns 9-10 is the share of votes for the incumbent party in the mayoral election, while in columns 11-12 it is a positive inverse-covariance weighted index of public goods provision. The outcome in columns 5-8 corresponds to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Even-numbered columns allow the effect of the fiscal rule in equation 1 to vary if the municipal comptroller was eliminated as part of the implementation of Law 617/2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.6: Heterogeneous Effects by Magnitude of Fiscal Crisis: Difference-in-Differences Estimates

	Overspending Ratio	Current Deficit (=1)	Incumbent's Vote Share	Public Goods Index
	(1)	(2)	(3)	(4)
Affected $\times$ $\mathbb{1}[t > 2000]$ $\times$ Low	-0.20***	-0.28***	0.08***	-0.00
	(0.011)	(0.021)	(0.027)	(0.045)
Affected $\times$ $\mathbb{1}[t > 2000]$ $\times$ High	-0.50***	-0.36***	0.07**	0.01
	(0.020)	(0.022)	(0.032)	(0.045)
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	20,151	20,151	5,860	11,867
p-val: Low = High	0.00	0.00	0.56	0.74
Pre-Reform DV Mean	1.07	0.66	0.49	-0.08
Pre-Reform DV Std. Dev.	0.38	0.47	0.39	1.02

Notes: This table shows separate estimates of β in equation 1 for municipalities that were more and less exposed to the fiscal rule (i.e., split up affected municipalities into two same-sized groups). The dependent variable in column 1 is the overspending ratio, defined as operating expenditures divided by disposable current revenue, while in column 2 it is an indicator equal to one if the municipal government experiences a current deficit. The dependent variable in column 3 is the share of votes for the incumbent party in the mayoral election, while in column 4 it is a positive inverse-covariance weighted index of public goods provision. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.7: Disaggregate Operating Expenditures by Municipal Body: Difference-in-Differences Estimates

	Total	Personnel	General	Transfers
	(1)	(2)	(3)	(4)
		Panel A: Central Administration		
Affected × $\mathbb{1}[t > 2000]$	-0.23***	-0.16***	-0.26***	-0.15***
	(0.020)	(0.022)	(0.034)	(0.053)
DV Mean	1243.72	532.32	404.75	279.92
DV Std. Dev.	1103.30	485.16	448.04	409.52
		Panel B: Council		
Affected × $\mathbb{1}[t > 2000]$	-0.06	-0.12**	-0.08	-0.00
	(0.038)	(0.056)	(0.063)	(0.051)
DV Mean	119.86	69.16	39.05	5.04
DV Std. Dev.	126.39	89.82	49.43	16.91
		Panel C: Ombudsman		
Affected × $\mathbb{1}[t > 2000]$	0.01	-0.06	-0.00	-0.03
	(0.037)	(0.051)	(0.056)	(0.061)
DV Mean	73.62	50.92	11.89	8.03
DV Std. Dev.	49.48	32.51	16.19	14.67
Municipality FE	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	12,801	12,801	12,801	12,801

Notes: This table shows estimates of β in equation 1. The dependent variable in column 1 is operating expenditures. Columns 2-4 correspond to the sub-components of operating expenditures: personnel, general, and paid transfers. All outcomes correspond to the natural logarithm of the monetary value in constant 2010 Colombian pesos. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.8: Composition of Capital Spending: Difference-in-Differences Estimates

	Education	Health	Water & Sewerage	Sports & Culture	Housing	Other
	(1)	(2)	(3)	(4)	(5)	(6)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.01***	0.00	0.00	-0.00	-0.00*	0.00
	(0.003)	(0.005)	(0.003)	(0.001)	(0.001)	(0.005)
Municipality FE	✓	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Observations	9,186	9,186	9,186	9,186	9,186	9,186
Pre-Reform DV Mean	0.25	0.23	0.17	0.05	0.02	0.28
Pre-Reform DV Std. Dev.	0.06	0.09	0.06	0.02	0.03	0.11

Notes: This table shows estimates of β in equation 1. The dependent variable in each column corresponds to the share of capital spending allocated to the sector in the heading. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable (in levels) correspond to the period 1996-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.9: Other Characteristics of Mayoral Elections: Difference-in-Differences Estimates

	Number of Candidates	Golosov Index	HHI	Margin of Victory	Share Winner
	(1)	(2)	(3)	(4)	(5)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.01	0.01	-0.01	-0.01	-0.00
	(0.012)	(0.012)	(0.006)	(0.008)	(0.004)
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Observations	6,059	6,054	6,054	6,053	8,633
Pre-Reform DV Mean	6.23	2.09	0.37	0.20	0.54
Pre-Reform DV Std. Dev.	1.45	0.65	0.14	0.20	0.13

Notes: This table shows estimates of β in equation 1. All outcomes correspond to mayoral elections. The dependent variable in column 1 is the number of candidates. In column 2, it is the Golosov index of effective parties, while in column 3 it is the Herfindahl–Hirschman concentration index. The dependent variable in column 4 is the margin of victory for the elected mayor, and in column 5 it is the vote share for the elected mayor. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1997-2000. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Table III.10: Party Vote Shares: Difference-in-Differences Estimates

	Vote Share Conservative	Vote Share Liberal	Vote Share Incumbent 01-03	Vote Share Incumbent	Incumbent Wins (=1)
	(1)	(2)	(3)	(4)	(5)
Affected $\times$ $\mathbb{1}[t > 2000]$	-0.00	0.02**	0.03*	0.06***	0.06**
	(0.007)	(0.009)	(0.017)	(0.020)	(0.023)
Municipality FE	✓	✓	✓	✓	✓
Department-year FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Incumbent Party FE				✓	✓
Observations	6,054	6,054	5,500	5,458	7,158
Pre-Reform DV Mean	0.08	0.14	0.56	0.49	0.52
Pre-Reform DV Std. Dev.	0.13	0.17	0.35	0.39	0.50

Notes: This table shows estimates of β in equation 1. All outcomes correspond to mayoral elections. The dependent variable in column 1 is the vote share for the Conservative Party, while in column 2 it is the vote share for the Liberal Party. In column 3, it is vote share for the party in office for the period 2001-2003, when the fiscal reform was implemented. The dependent variable in column 4 is the share of votes for the incumbent party in the mayoral election, while in column 5 it is an indicator equal to one if the incumbent party wins the election. Regressions include municipality and department-year fixed effects, as well as year fixed effects interacted with predetermined municipal characteristics: altitude, distance to Bogotá, presence of at least one school in 1996, presence of at least one agricultural bank office in 1996, and paramilitary presence between 1996 and 2000. Regressions in column 4 and 5 also include incumbent party fixed effects. Standard errors clustered two-way by municipality and department-year in brackets. The mean and standard deviation of the dependent variable correspond to the period 1997-2000. * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01.

IV Qualitative Interviews of Mayors

In 2022, we carried out qualitative phone interviews with individuals who served as mayors of municipalities in our sample. These interviews allow us to gain additional insights and to corroborate our interpretation of the findings. We focused on former mayors from the period 2001-2003, who were responsible for the initial implementation of the reform in their municipality. Based on publicly-available information on the name and municipality of each mayor, we searched online for contact information for all 922 of these mayors. Figure IV.1 describes the sample attrition. We were able to find some information for 318 mayors (34%), but we could only contact 162 of them (18%).[1] In our initial contact, we shared with each mayor the recruitment materials shown in Figure IV.2. We heard back from 43 of the mayors contacted (5%), and we were able to interview 20 of them.[2] At each stage, the number of mayors corresponding to municipalities that were affected and not affected by the reform remain roughly balanced. Figure IV.3 shows the geographical distribution of the 20 mayors interviewed, 13 of whom correspond to municipalities defined as affected by the fiscal rule. The municipalities in our interview sample are located in 11 different departments.

The phone interviews consisted of qualitative, unstructured interviews in which we asked respondents to describe *i)* the changes they implemented as mayors in order to make sure that their municipality would be in compliance with the reform, and *ii)* the main challenges that they faced (if any) in this process. These conversations lasted an average of 41 minutes. There are three common themes that emerge from the interviews.

First, consistent with our finding of a null effect of the fiscal rule on local public goods, mayors of affected municipalities describe wasteful administrative spending accumulated in the pre-reform period as the main driver of the fiscal imbalance in their municipalities. Redundant appointments in the administrative machine of the municipality are overwhelmingly cited as constituting the bulk of overspending. As for the causes of this phenomenon, mayors cite both clientelistic practices and politicians' and administrators' lack of expertise in administering the municipal finances during the implementation of the decentralization reforms.

Second, consistently with our fiscal results, mayors report having prioritized cuts in operating expenditures as the main strategy to meet the fiscal rule. In particular, cuts in personnel of the municipal administrative machine were often used as the main strategy to achieve lower operating expenditures. The interviews also elucidate that increasing local revenues was found to be a less feasible way to achieve compliance. Challenges for increased tax collection include weak property rights, poor information systems and low tax morale. Consistent with this strategy, mayors underscore that voters were satisfied with these cuts, while opposition came from a numerically small group of municipal employees who bore the cost of these cuts.

Third, the mayors mention several personal costs that they had to bear because of the implementation of the reform. This is consistent with mayors of affected municipalities not implementing cuts in operating expenditures before the reform despite the potential

[1] The main reasons why we could not contact the remaining mayors that we found were (i) that they were already deceased and (ii) restrictions on the volume of messages we could send on social media (Facebook).

[2] Some contacted mayors declined our invitation to participate in a phone interview, while in other cases it proved logistically impossible to conduct the interview.

popularity of these measures among voters. Prominent personal costs include time spent explaining the need for administrative reform to local residents, a higher workload from assuming tasks that were previously assigned to dismissed employees, and opposition to the reform from dismissed bureaucrats and members of the municipal council.

We describe these findings in greater detail and provide relevant examples of answers in the remainder of this Appendix.

Wasteful Spending

Mayors of affected municipalities consistently stated that the main sources of overspending in operating expenditures came from the excessive size of payrolls, which included many workers whose tasks were redundant. Among the most common redundant positions were an excess of drivers, staff from a municipal jail that had been disbanded or had no inmates at all, staff from a municipal library that did not exist, among others. In other cases, remuneration was excessive, with one mayor claiming that administrative staff with no children received unwarranted educational subsidies. Several mayors described delays of up to 19 months for the payment of salaries, and delays up to 5 years for pension contributions. This led to tensions with the municipal unions, which often protested against the labor situation they faced. In addition, it was common for incoming administrations to inherit balances of debts acquired in previous administrations for specific contracting of unfinished projects or for the payment of some public services neglected in the past.

> "For example, in the municipality there were 20 drivers for 5 dump trucks, with the excuse that they had to take turns. The truth is that none of them worked because the public works of the municipality were very few and only 2 or 3 drivers were required at most." (Garzon, Huila).

> "Excessive payrolls were an issue that had to be looked at with a magnifying glass. There were staff members who were underutilized because temporary contractors had been unnecessarily hired to help them. They could put whoever they wanted in any position in order to favor them. There were positions where people did not even attend, they would only appear on the payroll." (Alpujarra, Tolima).

> "There were no warehouse purchases in the municipality, but a warehouseman was on the payroll on a permanent basis. There were also a prison director and officers, even though the municipal prison had been closed. There was even a librarian hired and there was no municipal library." (Roncesvalles, Tolima).

> "Bad management of resources and bad planning were rampant. The fiscal deficit was very large and there was a series of contracts and appointments that did not follow a proper and legal order. There was very little control over expenditures and there was no real administrative awareness, not even of which of the criteria stipulated by law were not being complied with. The budget arrived in debt and we started the period 'scraping with our nails', and the debt came mainly from personnel expenditures, pension charges, FONPET (National Pension Fund for Territorial Entities) without accurate information from the municipality, etc.

> The diagnosis was not so clear. Compensation for the mayor and municipal councillors was also sky high." (La Celia, Risaralda)

With regards to the underlying causes of the pre-reform administrative overspending in affected municipalities, several mayors mentioned practices of clientelism and corruption in municipalities where there was a traditional and hegemonic political class. Several mayors used the term 'politicking' (politiquería) to describe the approach to government that characterised their municipalities before the reform, whereby excessive spending was incurred in order to give jobs in the municipal administration as a reward for electoral support and to pay for political favors from traditional regional politicians.

Several mayors also mentioned the lack of expertise in local administration as the main cause of the excessive spending in some municipalities during the immediate aftermath of decentralization. This phenomenon was attributed to a low level of human capital among local political candidates, which led to an inefficient accounting record, poor coordination among local administrative agencies, negligence due to lack of knowledge of municipal finances and their operation, lack of political and administrative vision, among others. These two drivers of administrative overspending broadly correspond to the concepts of active and passive waste, as defined by Bandiera et al. (2009).

> "The problem is not that they [municipal payroll workers] are recommended or handpicked, but that they are incompetent." (Alpujarra, Tolima)

> "In many regions, the way to grease the political wheels was to obtain political support through the construction of clientelist bureaucracies. Administrative popularity was then prioritized and financial flexibility for social investment was neglected." (La Vega, Cauca)

> "Municipal administrations were very folkloric. There was a tendency to non-professional administration, with candidates loved by the people and very well known, but who did not have the necessary preparation to run the local government. There was no awareness of policy splicing processes, fiscal trends, budgetary viability. They wanted to administer the municipalities as neighborhood stores, family stores, never as a large public organization." (Marsella, Risaralda)

> "Some of the individuals who had been elected did not have the slightest knowledge of how to manage in general, much less how to manage a large enterprise like a municipality. They must have knowledge in public administration and when the municipalities have never had a candidate of that type, a prolonged period of election of mayors without competence begins. This also implies a lack of knowledge about the search for resources, tax enforcement strategies, etc." (Fonseca, La Guajira)

According to the former mayor of Guayabetal, his municipality exemplifies how the absence of these two types of challenges allowed some municipalities not to incur in overspending in the pre-reform period. This mayor claimed that electoral contests in this municipality had been characterized by a high level of competition, which meant that candidates had

to prepare themselves (and not just be known) in order to win. This allowed Guayabetal to have well-behaved expenditures and an efficient coordination system between different administrations, even when representing opposing political parties:

> "This was a diverse municipality, with political figures without electoral fiefdoms, but diversity implies a legal opposition. Guayabetal is a very small municipality where the electoral control was always very high and the preparation of the candidates was also very high. It was a community based on diverse community participation and political competition. At the time, the municipality had 12 candidates and 2500 voters." (Guayabetal, Cundinamarca)

Compliance Through Expenditure Cuts

Given the generalized diagnosis on the size of payrolls, the main strategy followed by the municipalities to adjust operating expenditures was to cut payrolls, which in some municipalities was as much as 50% of the pre-reform staff. For this purpose, redundant employees were laid off, including drivers, staff from a non-operational municipal jail, auxiliary staff, handymen, doormen, etc. In cases in which the cuts compromised important functions, it was deemed feasible to assign the corresponding duties to retained staff, including the municipal mayor.

On the revenue side, a generalized culture of not paying taxes made it difficult to obtain additional resources to adjust to the requirements of the reform. For this reason, most municipalities followed a strategy of explaining ('socializing') Law 617 to local residents and raising awareness regarding the payment of the most important local taxes, such as the gross receipts tax, which was easier to collect than the property tax.

Regarding the consequences of these strategies, most mayors found that the local administration was not affected and in some cases even benefited from the efficiency gains resulting from the reduction of redundant and unproductive personnel. In municipalities such as Alpujarra, for example, fiscal reorganization liberated own resources for social spending but also caused an increase in SGP transfers. As a result, the size of the municipal budget rose from COP 917 million to COP 2,400 million by the end of the mayor's period. Some municipalities were further rewarded for their fiscal performance by the national government in the form of debt forgiveness.

> "There was no strategy on the revenue side, because the culture of non-payment prevented this from being effective. The idea was always to reduce spending, which would eventually allow access to benefits such as loans with creditors and thus boost the municipality economically after the budget adjustment. When that time came, we could play the game with taxes." (Jerico, Antioquia)

> "The resources of the property tax were the ones that financed the operation of the municipal administration. However, the culture of non-payment meant that we were in constant deficit. There was no strength in the cadastre nor in the legalization of property ownership, so the taxable base could not be increased. The only way to adjust was by reducing expenditures." (El Tambo, Cauca)

"The community approved the restructuring after the socialization of the law. The UMATA (Municipal Agency for Agricultural Technical Assistance) was dissolved, even though it could be very important for a very rural municipality like ours, because its officials were not efficient and the community did not trust them. The dissolution process was fully supported by the people." (Fuente de Oro, Meta)

Personal Costs for Mayors

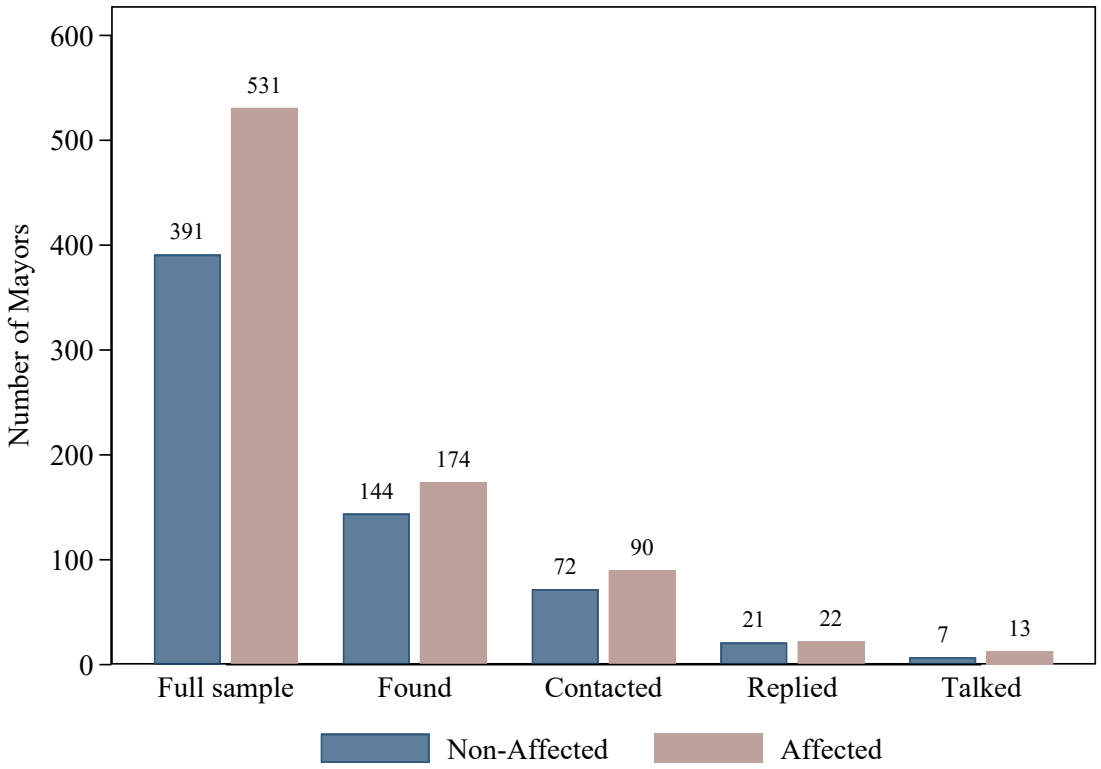
Mayors of exposed municipalities described conflicts with those employees who had to be dismissed as one of the main challenges that they had to face when implementing the fiscal rule. Several mayors also mentioned that these employees often filed lawsuits in response to their dismissal. However, these lawsuits were usually not successful, since the process of restructuring and reduction of municipal payrolls was always carried out following the law and with oversight from relevant agencies. Still, the demands of these legal proceedings were often taxing for the mayors both in terms of time and resources.

"There were a lot of tensions with the government and local administration. For instance, out of 11 councilors, we were left with only 2 supportive ones. I had to pay the price because the councilors did not agree with the salary and personnel cuts." (Marsella, Risaralda)

"If I had the opportunity, I would not restructure again. Firing so many people was very painful and I earned the hatred of several people in the municipality. One person in the UMATA (Municipal Agency for Agricultural Technical Assistance) staff became my bitter enemy. He even sued the municipality and sued me. This year the verdict was finally in my favor, but at the time the negligence of the judicial system decided a verdict against me and I was fined a lot of money. I had to start from zero. In 2012 I ran again for Mayor, but as you can imagine, I did very badly and I got almost no votes. People like me but they don't trust my version of a political figure." (Fuente de Oro, Meta)

"When I left, there was uneasiness: I was the person who collected taxes and would not award any rebates, and who also did not spend a penny. At first I was punished, as one of the regional politicians decided to remove me from any administrative position at the local level because of my low popularity. I was unemployed for a year and a half, which was very sad, until I got a competitive position at the departmental level. " (Alpujarra, Tolima)

Figure IV.1: Interviews of Former Mayors: Sample Attrition by Exposure to Fiscal Rule



Notes: The first set of bars shows the number of mayors in our main estimation sample (922 in total). The second set (Found) shows the number for whom we could find any information. The third set of bars (Contacted) shows the number of mayors that we were able to contact. The fourth set of bars (Replied) shows the number of mayors that replied to our initial contact, while the final set (Talked) shows the number that participated in our phone interviews.

Figure IV.2: Recruitment Letter





Dear Mayor,

We hope that this letter finds you well.

Our names are Maria Carreri and Luis R. Martinez and we are professors at the University of California San Diego and the University of Chicago, respectively. We are currently working on a research project about municipal public finance in Colombia. We are particularly interested in the impact of the reform to Colombia's fiscal decentralization that took place around the year 2000. In order to better understand the various ways in which municipal governments implemented this reform, we would find it extremely valuable to learn directly from the protagonists from this period. Therefore, we would like to invite you to join us for a telephone conversation, so that we can learn about your experience as mayor in the period 2001-2003.

Specifically, we would like to ask about how the fiscal adjustments required by the reform were implemented in your municipality and about the main challenges that you faced when implementing these changes.

We know that your time is very valuable, and we thank you in advance for your availability and your contribution to our research. If you agree to participate, we kindly ask that you let us know either by email or by phone [contact information]. Any information that you provide to us will be used exclusively for academic purposes.

Kind regards,

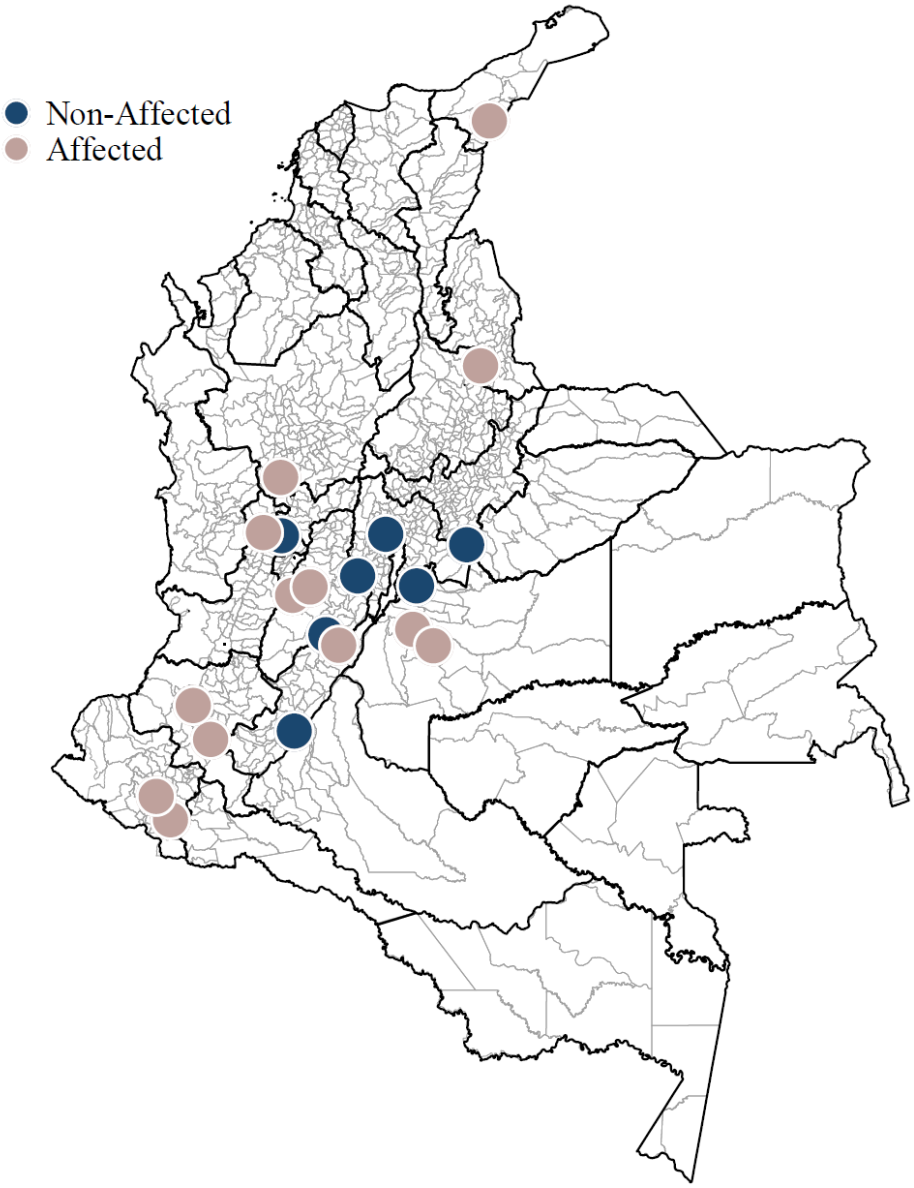
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Figure IV.3: Geographic Distribution of Interviewed Mayors



Notes: The map shows the location of the 20 former mayors that participated in our qualitative interviews, disaggregated by exposure to the fiscal rule. Darker lines correspond to department borders.

V A Model of Political Accountability

Introduction: In this section, we present a stylized model of political agency that helps to explain our findings on the political effects of the fiscal rule. In the model, an incumbent politician (i.e., the mayor) observes available revenue and makes a decision on public spending. A representative voter then observes the resulting combination of public revenue and spending and decides whether to re-elect the incumbent party. There are two types of politicians, congruent and dissonant, and we assume that different parties have varying shares of the two types. These shares are unknown to the voter, but she can update her beliefs by observing the performance of the incumbent. In the absence of the fiscal rule, the game has a semi-separating equilibrium that allows the voter to determine the type of the incumbent mayor, learn about party quality and potentially vote for the party that is not in power. The introduction of the fiscal rule leads to a pooling equilibrium. This prevents learning, but also eliminates the agency problem, thereby reducing the incentive to vote the incumbent out of office.

Our model mimics several important features of the Colombian context. First, individual politicians face a one-term limit in office, which drastically reduces the disciplining effect of elections (Ashworth, 2012). Second, and partly as a consequence of the previous point, parties are weak and cannot constrain the behavior of the incumbent (Klašnja and Titiunik, 2017). Third, we focus exclusively on fiscal outcomes and abstract away from the provision of public goods, in line with the idea that funding for public goods is earmarked and there is little room for discretion by the incumbent.

Set-up: This is a two-period model with an election in-between.[3] For tractability, we assume a very simple policy environment. Each period, public revenue (r) takes two possible values, $\{r_H, r_L\}$, such that $r_H > r_L$. The probability that revenue is high is given by $q \in (0, 1)$. Government spending (g) also takes two possible values, $\{g_H, g_L\}$, such that $r_H = g_H > g_L = r_L$. Government spending is chosen each period by the incumbent mayor after observing the available level of revenue. It is possible to spend less than the available revenue (i.e., $g_L < r_H$) or to spend beyond available resources ($g_H > r_L$) in which case the government incurs in a deficit.

At the end of the first period, the voter observes the outcome dyad (r,g) and decides whether to re-elect the incumbent party or to replace it. Importantly, there is a one-term limit at the individual level. We assume that the representative voter prefers high spending

[3]Due to its recursive nature (i.e. every period there is a new incumbent that faces a one-term limit), the model can be easily extended to $T > 1$ periods. The equilibria described below for the cases with and without fiscal rules remain unchanged, as long as we assume that the voter is not dynamically sophisticated and simply chooses the statically optimal strategy.

when revenue is high and low spending when revenue is low:

$$u(g_H|r_H) > u(g_L|r_H)$$
$$u(g_L|r_L) > u(g_H|r_L)$$

These preferences could reflect the fact that while the voter benefits from higher public spending, she internalizes the future cost of the fiscal adjustment necessary to remedy a deficit, which we do not explicitly include in the model.

There are two types of politicians: congruent and dissonant. Congruent politicians share the preferences of the voter. Dissonant politicians always prefer high spending to low spending, irrespective of the level of revenue. The incumbent derives a benefit $b > 0$ from being in office (e.g., ego rents). The type of each politician is known to him, but is unobservable to the voter. The share of congruent politicians differs across political parties and is given by $\theta_i \in (0, 1)$, where i denotes the party. This variation could reflect differences in the quality of screening across parties or in their ability to monitor or punish misbehavior. For simplicity, we assume that the number of parties is fixed and equal to two, which we denote as A and B. Each period, candidates are drawn i.i.d. from the Bernoulli distribution corresponding to their party, with respective parameters θ_A and θ_B. These parameters are not known by the voter. We assume that both parties only care about winning elections and are thus willing to implement policy in accordance with the preferences of the voter, but they are weak and unable to control the behavior of elected candidates once in office.

We assume that the voter's prior on θ_i follows a Beta distribution with hyperparameters $\alpha_i > 0$ and $\beta_i > 0$, for $i =$ A and B. As such, $E[\theta_i] = \frac{\alpha_i}{\alpha_i+\beta_i}$. This functional form has several advantages. First, it imposes very little structure and captures a wide range of possible beliefs. For instance, $\alpha_i = \beta_i = 1$ corresponds to a uniform prior, such that $E[\theta_i] = \frac{1}{2}$. Second, the Beta-distributed prior implies that the posterior distribution after the acquisition of information based on r and g will also follow a Beta distribution with hyperparameters α_i' and β_i'. In particular, if the realization is a success (i.e. the incumbent mayor revealed as congruent), then $\alpha_i' = \alpha_i + 1$, while if the incumbent is revealed as dissonant, then $\beta_i' = \beta_i + 1$. If no information is acquired, either because the party was not in power or because the policy outcome is uninformative about the type, then $\alpha_i = \alpha_i'$ and $\beta_i = \beta_i'$.

Equilibrium without fiscal rule: The equilibrium concept is Perfect Bayesian Equilibrium. Since the incumbent mayor has no re-election incentives, he chooses his most-preferred policy in both periods. The congruent mayor chooses high spending if revenue is high and low spending if revenue is low, in accordance with the preferences of the voter. The dissonant mayor chooses high spending irrespective of the amount of revenue. As a result, there are

three possible policy outcomes along the equilibrium path: $(r_H, g_H), (r_L, g_H), (r_L, g_L)$. If the outcome is (r_L, g_H), then the voter knows with certainty that the incumbent is dissonant and updates negatively about θ_I, the share of congruent politicians in the incumbent party, as described above. Likewise, if the outcome is (r_L, g_L), then the voter knows with certainty that the incumbent is congruent and updates positively on θ_I. Both types choose g_H if revenue is high, so there is no updating in this case. If the voter observes (r_H, g_L) (which never happens along the equilibrium path), we assume that the voter believes the incumbent to be dissonant. By construction, the voter prefers a congruent politician to a dissonant one. Hence, the voter chooses the party with the highest expected share of congruent politicians based on her posterior beliefs on θ_A and θ_B:

$$\text{Prob(vote for incumbent party)} = 1 \text{ if } E[\theta_I|r, g] \geq E[\theta_{-I}|r, g], 0 \text{ otherwise.}$$

If the priors are close enough, the equilibrium probability of re-election will be less than one, as a dissonant incumbent will lead to a switch in the ranking and will cause the incumbent party to lose power. For example, if the voter initially deems both parties to be of equal quality, then she will not re-elect the incumbent party if the mayor is revealed as dissonant.

Equilibrium with fiscal rule: Suppose now that a fiscal rule is introduced, such that it is no longer possible to have a deficit (i.e., (r_L, g_H) can't happen). The outcome space observed by the voter is now reduced to (r_H, g_H) and (r_L, g_L). For each level of revenue, both types of candidate are forced to choose the corresponding level of spending, so no information is revealed about the incumbent's type. This means that the fiscal rule solves the agency problem, as whichever party is in power always implements the level of spending that the voter prefers. Without any new information being acquired (nor any reason to complain about the performance of the incumbent), the voter is happy to re-elect the incumbent party with probability one in the modified equilibrium.