Corporate Campaign Donations and Firms

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This paper examines the relationship between corporate donations and market dynamics by investigating the effects of a nationwide ban on corporate contributions implemented in Brazil in 2015. Our analysis leverages detailed information on campaign contributions and matched employer-employee administrative data. Specifically, we exploit pre-reform variation in the degree of exposure to corporate donations across sector-municipalities to estimate the impact of the ban on local markets using a dynamic difference-in-differences approach. Our results show that sector-municipalities more exposed to corporate campaign contributions experienced a significant increase in the number of business establishments, accompanied by a reduction in market concentration. These effects are more pronounced in sectors more heavily dependent on corporate donations. Moreover, we show that the increase in the number of establishments is due to companies re-entering the market. Finally, using public contracts data from municipalities in the state of Sao Paulo, we find that the ban led to an increase in the number firms that had not previously transacted with the local government. Overall, our results suggest that the reform reduced barriers to entry, leading to new opportunities and a level playing field for businesses in the post-reform period. (JEL D72,G38,K16,O10)

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1 Introduction

Corporate campaign donations can significantly distort economic incentives and development. Although extensive research has examined their relationship with corruption and electoral outcomes, the impact on local markets remains less well understood. Additionally, establishing a causal link between corporate donations and tangible economic effects is complex. This paper aims to address this gap.

This paper explores a unique policy change in Brazil that in 2015 prohibited corporate campaign donations in local elections. We leverage the variation induced by this electoral reform, along with rich micro-data on Brazilian firms from *Relação Anual de Informações Sociais* (RAIS) to document its impact on the structure of local markets, particularly the number of business establishments and market concentration. Reforms that impose caps on donations have been shown to have the ability to increase electoral competition and the quality of the candidates (Avis et al. (2022), Dahis et al. (2024)). By exploiting the exogenous introduction of the corporate donation ban with heterogeneous sector-municipality exposure levels to these donations before its implementation, we identify the causal impact of the reform outcomes at the local economy level.

We start our analysis by gathering data from the 2012 municipal elections to assess the dependency on corporate donations before the ban implementation. We build a measure of exposure to campaign donations by computing the share of donations from each sector-municipality relative to the total contributions collected within that municipality. Therefore, although all municipalities were treated simultaneously, those with the larger index of our exposure measure would face a more pronounced treatment effect. Next, our data on Brazilian firms allows us to compute the number of firms that enter the market (new or dormant ones) and leave it permanently. We also compute the concentration of firms measured by the Herfindahl-Hirschman Index.

In the first part of the paper, we investigate the impact of the corporation donation ban on firms' market outcomes using a dynamic differences-in-differences strategy that compares more (to less) exposed sector-municipality units. We confirm the validity of our research design by parallel pre-trends in our outcomes of interest. Using all firms in the period, we observe an increase in the number of establishments for the top exposed to the campaign contribution in 2012. In addition, we find a decrease in the Herfindahl-Hirschman Index (HHI), indicating reduced market concentration. More importantly, the effects are significantly pronounced when we focus specifically on sectors most impacted by the reform— namely, those most dependent on corporate donations in 2012, identified as GD Donation sectors. Using sector-municipalities labeled as GD-Donation in the period, we observe an increase of 0.16% in the number of establishments for the top 90% exposed to the campaign contribution in 2012. In addition, we find a decrease in the Herfindahl-Hirschman Index (HHI) of 0.027% relative to the pre-period average for the

same group, indicating reduced market concentration.

Our analysis underscores the heightened responsiveness of industries that previously relied heavily on corporate contributions, highlighting the reform's impact on reducing market concentration and fostering a more competitive business environment.[1] The increase in the number of establishments stems away from the extensive margin related to businesses' entry or exit flows. Instead, our analysis of the detailed RAIS micro-data indicates that the growth is primarily driven by dormant companies that had ceased reporting to the Labor Department for several years and have re-entered the market. This finding highlights that these previously inactive businesses are reinstating their operations, contributing to increased establishment numbers due to reduced political connections. Doing business with municipal governments has become a viable option as companies that previously made donations are no longer favored. Consequently, these businesses are re-entering the formal economy, resuming RAIS reporting, and potentially paying taxes. Due to the existing bureaucratic requirements, it is less costly for established companies to engage in bidding/procurement processes. These companies are likely better equipped to navigate complex procurement procedures, giving them an advantage over new entrants in securing government contracts.[2]

The second part of the paper considers procurement data from the state of São Paulo to investigate a potential mechanism for our findings, the impact of the corporate donation ban on firms participating in public procurement. We explore a public database for all the procurements of Sao Paulo state during our period, containing data on participating firms. Using dynamic differences-in-differences for the Sao Paulo state data, we estimate a significant increase in the number of firms that had not previously engaged in transactions with the government before the reform, reinforcing an opening of the market for new players to participate. Additionally, there is an increase in the share of establishments per contract, indicating a broader distribution of contract opportunities among more firms. Moreover, we also find a notable reduction in the total expenditure on contracts. This reduction could indicate increased efficiency and competitiveness in public procurement processes, as more bidders may lead to more competitive pricing and better value for public spending.

This study is related to three bodies of literature. First, it is connected with the papers on campaign finance policy. While many papers explore the imposition of contribution limits in the US context on polarization (Barber (2016)) or local fiscal policy responses (Gaudette and de Benedictis-Kessner (2024)). The literature on developing economies usually focuses on electoral outcomes. Avis et al. (2022) investigates the ef-

[1]We also employ alternative dependence measures following Colonnelli et al. (2022) based on corruption and procurement exposure levels. We find that our results are robust only with our measure of donation dependence.

[2]We do not have information on the informality characteristics of the firms, and we cannot test whether these firms were operating a share of their production and jobs in this hidden economy.

fects of the individual campaign spending caps in Brazil on the electoral competition favoring wealthier candidates. Using different identification strategies, Tavares (2021) and Dahis et al. (2024) explore the effects of the corporate campaign donation ban in Brazil on electoral competition and political favoritism, respectively. Last, Baltrunaite (2020) analyses Lithuania and finds evidence that this ban lowers the awarding of procurement contracts to previous donors by five percentage points compared to non-donor firms. Although our work explores the 2015 corporate campaign donation in Brazil, our focus is on labor market outcomes; in particular, we focus on the effects of this policy on the number of firms in the exposed sectors and on the concentration of formal jobs in the sectors to the reform.

Second, this paper relates to the literature on political connections and firms. Faccio (2006) examines corporations in 47 countries, revealing a wide overlap of controlling owners and senior executives with ties to national legislatures or governments. This shows that these connections deteriorate as rules restrict official activity. Similarly, Akcigit et al. (2023) finds that market leaders are far more likely to be politically connected than their competitors but much less likely to innovate. A significant strand of this literature focuses on the link between political ties and capital misallocation. While Khwaja and Mian (2005) addresses the impact on the size as well as default of the connected firms' debt in Pakistan, Faccio et al. (2006) examines the likelihood of government bailouts of 450 politically linked enterprises from 35 nations and Balan et al. (2022) explores the favors reciprocity between family business and government players. Teso (2023) shows that when a politician is assigned to a commission engaging with policy problems pertinent to a firm, donations increase by 11%. In Brazil, Claessens et al. (2008) shows that corporations that contributed to elected federal representatives outperformed those that did not during the 1998 and 2002 elections.[3] Differently, our paper addresses how a corporate campaign ban affects competition in the affected markets. Although we explore the role of connected firms as a mechanism driving our main findings, we focus on the aggregated impact on the sectors exposed to the ban.

Lastly, our paper is related to the literature that explores the impact of breaks in political ties on firms' competition. González and Prem (2020) demonstrates that resource misallocations are eliminated after the dictatorship in Chile, where firms in the dictator's network boosted their productive capacity and experienced better profits. Different from previous literature Colonnelli et al. (2022) and Colonnelli and Prem (2022) uncovers the costs of corruption using random audits in Brazil to identify the impact of anti-corruption policies on competition (firms in the affected municipality) and firms implicated in illicit activities with the government rise in size following the random audits. We focus on corporate campaign donations that impact the exposed sectors in treated municipalities,

[3]See Arvate et al. (2016) for a definition of experience obtained through time spent in Congress as critical for corporations with political ties.

exploring the mechanism under which the competition is altered.

The rest of the paper is divided as follows: Section 2 presents our theoretical framework, and Section 3 introduces our institutional framework. Sections 4, 5, and 6 show our data analysis, empirical strategy, and empirical results. Section 7 discusses additional results, and Section 8 concludes.

2 Theoretical Framework

This section proposes a simple theoretical framework to study how political connections may influence competition and market structure. We consider a two-stage entry game with Cournot competition and two types of firms, politically connected (c) and unconnected (uc). We assume that the number of "active" politically connected firms is fixed and exogenously given by $\overline{n}_{\mathtt{c}} \in \mathbb{Z}_+$. Intuitively, we suppose that political connections are pre-determined, arising from a long-run relationship between firms and politicians, which we do not model explicitly here. At the entry stage, there is a large number of unconnected "potential" firms. All firms observe $\overline{n}_{\mathtt{c}}$ and decide simultaneously whether or not to enter the market. Each firm that enters pays a setup cost $\kappa > 0$.

Next, at the market competition stage, all "active" firms face the same inverse demand function, $p(Q)$, and have the same cost function, $c(q)$. For simplicity, we consider a linear model where $p(Q) = a - bQ$ and $c(q) = cq$, with $a > c > 0$ and $b > 0$. The number of politically connected and unconnected firms are denoted respectively by $\overline{n}_{\mathtt{c}}$ and $n_{\mathtt{uc}}$, with $n = \overline{n}_{\mathtt{c}} + n_{\mathtt{uc}}$. Given the set of all active firms N, total quantity is defined as $Q = \sum_{i \in N} q_i$, where q_i represents the production of firm i. Moreover, the profit function of a firm i of type $\theta \in \{\mathtt{c}, \mathtt{nc}\}$ is given by the following expression:

$$\pi_{i,\theta}(q_i, q_{-i}) = (1 + \tau_\theta)\, p(Q) q_i - c(q_i), \tag{1}$$

where we assume that politically connected firms receive a markup over market prices. Specifically, we suppose that $\tau_{\mathtt{c}} = \tau > 0$ to capture, in a reduced form fashion, the idea that these firms receive preferential treatment in their dealings with the public sector. Conversely, unconnected firms receive no markup, with $\tau_{\mathtt{uc}} = 0$.

We solve the model for a subgame perfect Nash equilibrium proceeding by backward induction. We start by deriving the optimal production of firms at the market competition stage, given the number of active firms of each type, $\overline{n}_{\mathtt{c}}$ and $n_{\mathtt{uc}}$. The first-order conditions for the profit maximization problems of politically connected and unconnected firms are, respectively, given by:

$$(1 + \tau) \left(a - b \left(\sum_{j \in N_{\mathtt{c}}} q_{j,\mathtt{c}} + \sum_{\ell \in N_{\mathtt{uc}}} q_{\ell,\mathtt{uc}} \right) - b q_{i,\mathtt{c}} \right) = c$$

and

$$a - b\left(\sum_{j\in N_{\mathtt{c}}} q_{j,\mathtt{c}} + \sum_{\ell\in N_{\mathtt{uc}}} q_{\ell,\mathtt{uc}}\right) - bq_{i,\mathtt{c}} = c$$

In a symmetric equilibrium where firms of the same type produce the same quantity, the optimal solution is given by:

$$q^*_{\mathtt{c}} = \frac{a\left(1+\tau\right) + c\left(\tau n_{\mathtt{uc}} - 1\right)}{b\left(n+1\right)\left(1+\tau\right)} \tag{2}$$

and

$$q^*_{\mathtt{uc}} = \frac{a\left(1+\tau\right) - c\left(1+\tau\left(1+\overline{n}_{\mathtt{c}}\right)\right)}{b\left(n+1\right)\left(1+\tau\right)} \tag{3}$$

Therefore, in equilibrium, we have that $q^*_{\mathtt{c}} > q^*_{\mathtt{uc}}$, with $q^*_{\mathtt{c}} - q^*_{\mathtt{uc}} = \frac{\tau c}{(1+\tau)b} > 0$, so that the difference between the production of connected and unconnected firms increases with the markup, τ. Moreover, aggregate production is given by:

$$Q^* = \frac{an\left(1+\tau\right) - c\left(n+\tau n_{\mathtt{uc}}\right)}{b\left(n+1\right)\left(1+\tau\right)} \tag{4}$$

At the entry stage, the equilibrium number of unconnected firms that enter the market must be such that the following zero profit condition is satisfied:

$$\left(a - c - b\frac{an\left(1+\tau\right) - c\left(n+\tau n_{\mathtt{uc}}\right)}{b\left(n+1\right)\left(1+\tau\right)}\right)\frac{a\left(1+\tau\right) - c\left(1+\tau\left(1+\overline{n}_{\mathtt{c}}\right)\right)}{b\left(n+1\right)\left(1+\tau\right)} = \kappa \tag{5}$$

Solving for $n_{\mathtt{uc}}$, we obtain:

$$n^*_{\mathtt{uc}} = \frac{a(1+\tau) - c(1+\tau(1+\overline{n}_{\mathtt{c}}))}{\sqrt{b\kappa}(1+\tau)} - (1+\overline{n}_{\mathtt{c}}) \tag{6}$$

Interestingly, this expression can be shown to be strictly decreasing in both $\overline{n}_{\mathtt{c}}$ and τ, so that the number of unconnected firms that enter the market is decreasing in the number of firms that have a prior political connection and in the markup paid to them. The next proposition summarizes the main results of our prior discussion.

Proposition 1. *For a given number of politically connected firms, $\overline{n}_{\mathtt{c}}$, and size of political markup, τ, the following properties hold in equilibrium:*

i. Politically connected firms produce larger quantities than politically unconnected firms, with $q^*_{\mathtt{c}} - q^*_{\mathtt{uc}} = \frac{\tau c}{(1+\tau)b} > 0$.

ii. Politically connected firms generate larger profits than politically unconnected firms.

iii. The total number of active firms in the market is given by:

$$n^* = \frac{a(1+\tau) - c(1+\tau(1+\overline{n}_c)) - \sqrt{b\kappa}(1+\tau)}{\sqrt{b\kappa}(1+\tau)} \tag{7}$$

which is decreasing in τ and $\overline{n}_c$.

Our model yields interesting implications about the effects of limiting the influence of corporate money on politics. Specifically, as we discussed above, a reduction in both the number of connected firms and the political markup leads to an increase in market competition, particularly in the number of active firms. To gain a better understanding of the main results of our model, let us consider the impact of a policy that reduces the markup paid to connected firms to zero. Intuitively, we can think of such policy as a crackdown on corruption or a ban on corporate campaign contributions.

Note that when $\tau \to 0$, the number of firms that enter the market is:

$$n^o = \frac{a - c - \sqrt{b\kappa}}{\sqrt{b\kappa}},$$

where $n^o > n^*$. Interestingly, it is possible to show that the increase in the number of active firms arising from a policy that reduces τ to zero is such that:

$$\frac{\partial(n^o - n^*)}{\partial \overline{n}_c} = \frac{c}{\sqrt{b\kappa}(1+\tau)^2} > 0 \tag{8}$$

Thus, a policy that limits political connections should be expected to have a greater impact on the entry of firms in markets where the presence of politically connected firms was larger prior to the policy. We state our results in more general terms in the following proposition.

Proposition 2. *A reduction in the political markup, τ, leads to an increase in the number of active firms in the market, $\partial n^*/\partial \tau < 0$. Moreover, the increase in entry is more pronounced the larger the number of politically connected firms prior to the reduction, $\partial^2 n^*/\partial \tau \partial \overline{n}_c < 0$.*

Our model yields interesting predictions about the joint dynamics between campaign donations and local market structures which we can test by studying the effects of the 2015 ban on corporate campaign contributions in Brazil.

3 Institutional Background

The Brazilian state is organized as a federal system, comprising three distinct levels of government: federal, state, and municipal. This tiered structure goes hand in hand with a

decentralized approach to fiscal management, whereby a significant proportion of revenues is allocated to municipalities through various transfer schemes. Municipalities, in turn, are vested with substantial autonomy to manage and direct public spending. They are charged with providing a significant portion of public goods and services, particularly in the areas of education, health, and small-scale infrastructure. Municipal governments play a crucial role in influencing the local economy, particularly in small municipalities, through public contracts and direct hiring (Vieira, 2009).

Municipal elections in Brazil are held every four years, with each municipality electing a single mayor to serve a four-year term. According to the Brazilian Constitution, municipalities with fewer than 200,000 registered voters are required to adopt a single ballot plurality system, while those above this threshold must use a dual ballot plurality system. The first round of elections is conducted nationwide, usually on the first Sunday of October, with campaigning restricted to a designated period.[4] The winning candidate takes office on January 1^{st} of the subsequent year.

Similar to other countries, political campaigns in Brazil entail substantial costs, even at the municipal level. Electoral campaign donations in Brazil can be directed either to candidates ("direct contributions"), or to parties ("indirect contributions"). Until 2015, private donations could be made by firms and individuals. Specifically, corporations were permitted to contribute up to 2% of their entire sales, while individuals could donate up to 10% of their annual income. Exceptions were made for individuals supporting their own campaigns, who were allowed to contribute up to 50% of their total wealth. Prior to 2015, a significant fraction of candidates' campaign spending was financed by corporate contributions.

The landscape dramatically shifted following the Operation Car Wash anti-corruption investigations, which unveiled widespread corruption involving high-profile politicians and major Brazilian corporations, especially in the construction sector. Following these revelations, the Brazilian Supreme Court, in September 2015, banned corporate contributions to electoral campaigns. This ban was subsequently codified into law by the 2015 Electoral Reform, Law 13,165/2015. This reform led to substantial changes in campaign finance legislation, most notably the prohibition of corporate donations. This overhaul significantly altered Brazil's electoral framework. The 2012 municipal elections represent the last electoral cycle before the reform, serving as the baseline for our analysis.

In addition to banning corporate donations, the reform also introduced municipal-level spending caps, stipulating that candidates may spend up to R$ 100,000.00 or 70% of the highest amount spent by any candidate in the same municipality during the 2012 election. Moreover, the reform shortened the campaign period from 90 to 45 days. Finally, to compensate the ban on corporate donations, it permitted unrestricted self-contributions.

[4]In municipalities where a second round is necessary, the runoff usually takes place on the last Sunday of October.

Political parties obtain funding not only through individual contributions but predominantly from the Federal Government via a public fund known as Partisan Fund (or "*Fundo Partidário*"). This arrangement underscores the significant role of governmental support in party financing, particularly in the context of the post-2015 Reform landscape. Resources from the Partisan Fund are primarily come from the federal budget and are supplemented by penalties levied for violations of the Electoral Code. Private contributions were also permitted, provided they were specifically earmarked and verifiable. The allocation of resources from the Partisan Fund are determined based on each party's share of seats in the federal legislature. Resources from the Partisan Fund are primarily used to cover administrative costs of party headquarters, personnel, and campaign expenses.

Since the 2015 electoral reform took place during a mayoral term, businesses that had contributed in the previous election cycle were no longer permitted to contribute to the 2016 elections. This restriction significantly altered the way firms can engage in political campaigns compared to previous years. Given that politicians' inclination to grant favors to contributors often hinges on the potential for future campaign donations, we believe that these changes are likely to reduce favoritism.

4 Data

4.1 Campaign Contribution Data

Our main source of data comes from Brazil's *Tribunal Superior Eleitoral* (TSE), which provides comprehensive information about the sources of campaign revenue and expenditures of candidates, committees, and party directories during the campaign period. The revenue data provides detailed information on general campaign donations and specifically on corporate contributions−the primary focus of this study. Information about corporate donations includes the firm's name, official registration number (CNPJ), sector code (CNAE), and the amount donated. Conveniently, the TSE database includes an identifier for donations originating from firms.

Since 2004, candidates in all elections have been required to provide detailed accounts of all campaign funds received as well as their utilization. However, the ability to trace corporate contributions to specific candidates only became possible starting with the 2012 municipal elections.[5] Consequently, the 2012 elections represented the first instance in which the amounts of public funding, corporate contributions, individual donations, and self-donations received by each mayoral candidate could be distinctly identified and analyzed.

[5]For earlier years, it is not possible to determine whether a firm directly donated to a candidate for mayor, or to a city council candidate or party, as the data lacks specificity regarding the exact recipient.

4.2 Exposure to Corporate Contributions

Our study leverages data on campaign donations in Brazil to propose a measure that captures the degree of exposure to corporate campaign contributions prior the 2015 Electoral Reform at the sector-municipality level. Using data from the 2012 elections−the last municipal election before the ban−we define our measure of exposure for sector s in municipality m as:

$$Exposure_{ms} = \frac{Corporate\ Contributions_{ms}}{Total\ Contributions_{m}} \tag{9}$$

where the denominator represents the sum of all campaign contributions received by candidates for mayor in the 2012 municipal election.

Intuitively, our measure captures the extent to which each sector within a municipality relied on corporate donations in 2012. Importantly, our localized approach enables us to identify which sectors within municipalities are most influenced by corporate money, and therefore more likely to be impacted by changes in the campaign finance legislation. Figure 3 presents a histogram with the distribution of the mean exposure across sectors, obtained by computing the average of $Exposure_{ms}$ for each sector s across municipalities m. Many sectors, such as municipal autarchies and extraterritorial institutions, are legally barred from contributing. Consequently, in our sample of 667 sectors, 93 did not participate in corporate donations.[6]

Given that the effects of the ban on corporate campaign contributions are likely to be more pronounced in sectors that heavily relied on corporate funds prior to the ban, we perform an heterogeneous effects analysis, focusing on sectors with the highest donation levels in 2012. To do so, we rank all sectors based on the sum of corporate donations received, normalized by the total number of establishments within each sector in order to account for sector size. The top 50 sectors displaying the highest dependence on corporate contributions are henceforth referreed to as "Government Dependent" or "GD-Donation sectors". Table 1 presents the sectors labeled as "GD-Donation" in alphabetical order. Note that the sectors most dependent on donations predominantly include metallurgy, infrastructure construction, manufacture of food products, and manufacture of paper and paper products.

The map illustrated in Figure 2 shows the spatial distribution of GD-Donation sectors across Brazilian municipalities, revealing that the majority of municipalities contain at least one business establishment categorized as GD-Donation. This broad coverage across states and municipalities provides a solid foundation for assessing the reform's effects at a national level, capturing variations in its impact due to local economic and political differences.

[6]Our analysis omits five sectors related to public administration because all the establishments in these sectors recorded in the RAIS database are public entities.

4.3 Matched Employer-Employee Data

Our analysis also utilizes data from the Brazilian Ministry of Labor's RAIS database (Relação Anual de Informações Sociais), a comprehensive census of the Brazilian formal labor market that includes detailed firm and worker-level information. Specifically, our primary data source is the RAIS Estabelecimentos dataset, which provides comprehensive information on all active formal sector establishments. This dataset includes specific details on the location, industry code, and number of employees for each establishment. Additionally, the confidential version of RAIS provides the unique tax identifiers (CNPJ) for both firms and establishments.[7]

To classify the industry, RAIS categorizes firms and establishments according to the National Classification of Economic Activities (CNAE) Code, a seven-digit number utilized by the Brazilian Statistical Institute (IBGE). Our main analysis is conducted using the four-digit CNAE code aggregation level. This level of detail is sufficient to distinguish, for example, between the cultivation of different crops and the wholesale and retail of the same product.

Our main analysis primarily utilizes RAIS data spanning from 2011 to 2021, while for analyses requiring confidential data from RAIS, our coverage extends only until 2017 due to data availability issues. We aggregate data on the number of establishments and firms at the sector-municipality levels. Throughout our main analyses, we maintain a balanced panel from 2011 to 2021, ensuring that our dataset consistently includes sector-municipalities with at least one active business establishment for every year of our study period.

4.4 Additional Data Sources

Our analysis also uses data on public contracts for municipalities in the state of São Paulo available since 2008. This dataset contains comprehensive records of all expenditures incurred by these municipalities, along with the tax identifier of the contracted firms. The data is sourced from Tribunal de Contas do Estado of São Paulo (TCE-SP). For firms whose sectors codes could not be determined through the merge with RAIS, we supplemented our database with information from the tax authority database ("CNPJ Receita Federal").

[7]The complete CNPJ acts as the unique identifier for each establishment, representing a distinct physical location where the main activity takes place. The first eight digits, referred to as the CNPJ Raiz, identify the parent firm, which may encompass either a single establishment or a group of establishments under the same ownership. Consequently, while two establishments from the same firm will share the same CNPJ Raiz, the remaining digits will differ, distinguishing the individual establishments.

4.5 Sample and Summary Statistics

Our final consists of a balanced panel of sector-municipalities, i.e. sector-municipalities with a strictly positive number of establishments throughout the entire period of our analysis from 2011 to 2021. This results in a total of 4,524,509 observations.[8] Table 2 provides descriptive statistics for the sector-municipalities in our sample. Panel A details campaign contributions at the sector-municipality level for 2012, showcasing the extent of corporate donations relative to total electoral contributions within each sector. Panel B utilizes RAIS data spanning 2011 to 2021 to provide an overview of the employment landscape in these sector-municipalities. Corporate donations, represented by the exposure measure, are relatively low on average. The RAIS data indicates a varied economic environment with a significant concentration of establishments in terms of employee numbers.

5 Empirical Strategy

Our empirical analysis examines the effects of the ban on corporate campaign contributions on the evolution of sector-municipality characteristics, specifically focusing on the number of business establishments and market concentration. We perform our analysis at the sector-municipality level, leveraging variation in corporate donations across industries and regions to identify the effect of the campaign financing reform on local market dynamics. Specifically, we compare sectors with high exposure to corporate donations against those with low exposure, using the measure of exposure to treatment defined in Equation (9). The granularity of our data allow us to control for both municipality-sector and year fixed effects.

As mentioned before, our analysis is based on a balanced panel with data aggregated at the four-digit CNAE code level, covering the period from 2011 to 2021. To estimate the effect of the ban on corporate contributions, we employ a dynamic difference-in-differences (DiD) approach by estimating the following specification:

$$y_{mst} = \alpha_{ms} + \alpha_t + \sum_{\substack{\tau=2011 \\ \tau \neq 2014}}^{2021} \beta_\tau \cdot \mathit{Exposure}_{ms} \times \mathbb{1}[t = \tau] + \varepsilon_{mst} \tag{10}$$

where y_{mst} represents the logarithm of the number of establishments and a measure of market concentration, calculated as the Herfindahl-Hirschman Index (HHI) of employment shares per establishment, within sector s, municipality m and year t.[9] Our analysis also includes sector-municipality and time fixed effects, denoted respectively by α_{ms}

[8] Our results remain robust regardless of whether we use a balanced panel from 2012 to 2021 or from 2010 to 2021.

[9] Note that since RAIS lacks balance sheet information, the HHI index will be constructed using the

and α_t. These fixed effects allow us to account for unobserved characteristics of sector-municipalities that remain constant over time, as well as for year-specific shocks that affect all sector-municipalites. The post-treatment period begins in 2015 and standard errors are clustered at the municipality level.

The identifying assumption for interpreting our estimates as the causal effect of the corporate campaign donation ban is that the exposure to the electoral reform is not systematically related to sector-municipality characteristics that could influence the evolution of market outcomes. In other words, in the absence of the 2015 reform, sector-municipalities would have evolved similarly in terms of number of establishments and market concentration, regardless of their exposure to corporate contributions in the 2012 elections. Conditional on this assumption being satisfied, any deviation from a parallel trend in the outcome of interest between the most and least exposed sector-municipalities after the reform is captured by our primary coefficients of interest, β_τ. Additionally, the dynamic nature of our main specification, allows us to indirectly test for pre-trends.

We also conduct heterogeneous effect analyses by focusing on sectors that were heavily dependent on corporate contributions relative to total donations prior to the reform. By concentrating on these sectors, we are able to closely examine how the ban affects economic activity in environments previously characterized by significant corporate-political entanglement. This approach allows us to evaluate whether the reduction in corporate donations leads to increased market competition and entry, as predicted by the model outlined in Section 2.

6 Main results

Our main analysis investigates the effects of the ban on corporate campaign donations, specifically focusing on the number of establishments and market concentration. We show that the ban significantly influenced economic outcomes at the sector-municipality level, with the most pronounced effects observed in sectors that had greater exposure to corporate donations prior to the reform. We then explore potential mechanisms, aiming to investigate whether the observed increase in the number of establishments is being driven by the entry of new establishments or the re-activation of existing ones. Finally, we conclude by presenting suggestive evidence that the ban has resulted in an increase in the number of new firms obtaining public contracts with local municipal governments.

share of employees of each establishment relative to the sector-municipality:

$$\text{HHI}_{ms} = \sum_{e=1}^{N} \left(\frac{l_{ems}}{\sum_{e=1}^{N} l_{ems}} \right)^2$$

where $l_{e,i,j}$ represents the number of employees in establishment e of sector j in municipality i. The Herfindahl-Hirschman Index (HHI) ranges from $\frac{1}{N}$ to 1, where N is the number of establishments in the sector-municipality, with lower values indicate less concentrated markets.

6.1 Effects on the Number of Establishments and Market Competition

Main Results. We begin our analysis by investigating the effects of the ban on corporate campaign contributions on number of establishments and market competition using our full sample of sector-municipalities. In Figure 4 we report the point estimates obtained from the estimation of our main specification in equation (10) for both the number of establishments and the HHI index. Our results suggest that the ban on corporate money led to a relative increase in the number of business establishments and a reduction in market concentration in sector-municipalities that were more exposed to corporate contributions prior to the reform. Interestingly, our findings indicate that the effects of the reform are progressively intensifying over time and may become even more pronounced in the long term. Importantly, our point estimates provide no evidence of the existence of differential pre-trends across sector-municipalities before the policy implementation.

To facilitate the interpretation of the results, we report in column 1 of Tables 3 and 4 the point estimates obtained from a static version of our main specification for both of our outcomes of interest. Our findings suggest that the ban on corporate donations in a sector-municipality that was completely dependent on corporate donations prior to the ban led to an increase of about 11.67% in the number of establishments and a reduction of approximately 0.06 points in the market concentration index.

Robustness Checks. We probe the robustness of our findings by incorporating additional fixed effects into our main specification to control for unobserved time-varying characteristics that may influence the evolution of outcomes in specific sectors and municipalities. Specifically, sector-year fixed effects allow us to account for differential trends that are specific to each sector, while municipality-year fixed effects control for differential trends specific to each municipality. The inclusion of this detailed set of fixed effects allows us to more credibly isolate the effects of the electoral reform from other broader shocks that may also be impacting firms within a particular industry or geographic region.

In Figure 5, we plot the point estimates associated with our main dynamic difference-in-differences specification for both outcomes of interest. The estimates with the inclusion of sector-year fixed effects are reported in panels (a) and (c), while those with municipality-year fixed effects are presented in panels (b) and (d). Our results remain largely unchanged, reinforcing our earlier finding that sector-municipalities more exposed to corporate donations experienced a gradual increase in the number of establishments after the ban, coupled with a persistent decline in market concentration. We complement these results by reporting in columns (2) and (3) of Tables 3 and 4 the point estimates obtained from a static difference-in-differences specification including each set of fixed effects separately. Note that the point estimates remain quite stable across all various

specifications.

Heterogeneity: Government-Dependent Sectors. A key prediction of the theoretical model outlined in Section 2 is that sectors more reliant on political connections will be more significantly affected by the ban on corporate contributions. To test this prediction, we conduct a heterogeneous effects analysis focusing on a specific subset of sectors, referred to as government-dependent (GD) sectors. Specifically, we hypothesize that the ban on corporate donations will have a more significant impact on sectors that were previously top donors. For this analysis, we define the "GD-Donation" sectors as the top 50 sectors that made the largest total donations, aggregated across municipalities and adjusted for industry size, during the 2012 local elections, as described in Section 4.

In Figure 6, we report the point estimates obtained from our main dynamic specification, focusing on GD-Donation sectors only. In panel (a), we find a significant increase in the number of establishments in more exposed sector-municipalities beginning in 2016, with the effect becoming more pronounced over time and reaching its peak around 2020. Moreover, the evidence presented in panel (b) indicates that more exposed sector-municipalities also experienced a consistent decline in the market concentration index following the ban. Interestingly, and as expected, the magnitude of the estimated effects is much larger within GD-Donation sectors. These results are corroborated by the estimates reported in column (4) of Tables 3 and Table 4, which suggest that the impact of the ban is much more pronounced in GD-Donation sectors. Importantly, these results are robust to the inclusion of sector-year and municipality-year fixed effects, as reported in columns (5) and (6) of Tables 3 and Table 4.[10]

To check the robustness of our findings to alternative ways of measuring government dependence (GD), we also employ the top 50 GD sectors as proposed by Colonnelli and Prem (2022). Their proposed categorization includes "GD-Procurement" and "GD-Corruption" sectors, which are characterized by high levels of participation in local government procurement procedures and involvement in corruption at the municipality level, respectively. Interestingly, the overlap among GD-Donation, GD-Corruption, and GD-Procurement sectors is minimal, with the correlation between GD-Donation and GD-Corruption at 0.088, and between GD-Donation and the GD-Procurement at 0.077.

Figures 7 and 8 plot the point estimates from our main specification in equation (10) for number of establishments and the HHI index, respectively. In each of these figures the estimates reported in panel (a) refer to GD-Corruption sectors, while those reported in panel (b) refer to GD-Procurement sectors. The results indicate a marked post-reform increase in the number of establishments, accompanied by a decline in the HHI index across both GD-Corruption and GD-Procurement sectors, with these effects intensifying

[10]We plot the point estimates for the dynamic effects in Figure A1.

particularly after 2016.[11] These findings provide additional robustness to our main results by exploiting alternative indicators of government dependence. They provide further evidence that diminishing favoritism is a likely mechanism behind our results and also suggest that the ban on corporate contributions may have curtailed political connections in sectors with the closest ties with local governments.

6.2 Dynamics of Entry, Exit, and Reactivation of Establishments

Next, to better understand the mechanisms underlying our main results, we investigate the dynamics of firms' entry, exit, and reactivation decisions. By examining these patterns, we aim to pinpoint the mechanisms driving the observed changes in the market structure, thereby providing a clearer understanding of how firms are responding to the post-reform regulatory environment.

Figure 11 plots coefficient estimates from our main dynamic specification, focusing on three distinct measures of entry from 2012 to 2017. The estimates are presented for both the full sample and GD-Donation sectors.[12] Panels (a) and (b) depict the trends of the natural logarithm of new establishments entering each sector-municipality plus one. In panel (a), representing the full sample, there is a slight, statistically insignificant decrease in the number of establishments entering. Conversely, panel (b) demonstrates an increase in entries beginning in 2014 for the GD-Donation sectors. Panels (1) and (5) of Table 5 report the static difference-in-differences coefficients for entry. For the full sample, there is a decrease in entry of 14.52%, while for the GD-Donation sectors, we observe a rise in the number of new firms by 15.91%.

Panels (c) and (d) illustrate the ratio of new entries to the total number of establishments within that year, serving as an indicator of the entry rate. Panels (e) and (f) depict the evolution of the ratio of new establishments to the baseline number established in 2012, thus providing a standardized measure of growth against a fixed reference point. Panels (2), (3), (6), and (7) of Table 5 present the static difference-in-differences coefficients for the entry ratio relative to the number of establishments in the current year and in 2012. Across both measures, we observe an increase in the number of firms, but this increase is significant only for the GD-Donation sectors. Both the full sample and the GD-Donation sectors exhibit relatively stable trends across the three measures, indicating that the entry of new establishments is not the primary driver of the observed increases

[11] In Table A1 we report the estimated effects obtained from a static differences-in-differences specification. Note that the point estimates for both outcomes obtained based on the samples from GD-Donation, GD-Corruption and GD-Procurement sectors are all very similar.

[12] For this exercise, we use information from the confidential RAIS database, to which we have access only for the period between 2012 and 2017. This dataset includes a specific variable named "entry" that records the date when a company entered the market.

in establishment numbers or the decreases in the HHI index. The analysis suggests that other factors may be influencing these changes across the sectors.

Figure 12 presents dynamic coefficients derived from the estimation of Equation 10, showing the point estimates of the exit of establishments up to 2017 for both the full sample and GD-Donation.[13] The data is segmented into three metrics, analogous to those utilized in the previous analysis. For panels (b) to (e) of Figure 12, we observe a stable pattern in exits that appears unaffected by the Electoral Reform. This observation is further corroborated by Table 13, where no significant effects are noted in columns (2) to (6). Although there is an observed increase in exits for the full sample in column (1) of table Table 13, this appears to be primarily driven by the pre-trend patterns illustrated in panel (a) of Figure 12.

To account for flows that do not match the typical patterns of firm entries and exits, we have proposed a measure of the residual number of firms, denoted by $\text{Residual}_t = \text{Estb}_t - \text{Entry}_t + \text{Exit}_{t-1}$.[14] Intuitively, this measure represents the number of establishments from the previous period adjusted for the current period's movements, thus acting as a stock variable. Figure 13 explores the trends for this variable. For both the full sample and the GD-Donation sectors, we observe an increase in the number of residual firms. Panels (4) and (8) of Table 5 report the results from the static version of Equation 10. For the full sample, there is an increase of 11.5% in the number of establishments, while for the GD-Donation sectors, there is an increase of 16%. Beyond mere entry movements, we find that the increase in the number of establishments occurs because firms that previously did not report to tax authorities have started to report again, thereby possibly paying taxes and complying with the law. This finding is particularly interesting because it highlights a broader compliance trend among firms that could have significant economic and regulatory implications.

6.3 The Electoral Reform and Public Procurement

To directly assess the reform's impact on public procurement at the sector-municipal level, we require detailed data on contracts between firms and municipalities, which is not available for all municipalities in our sample. However, we can provide supplementary evidence from the state of São Paulo, where local procurement contracts have been fully recorded across all municipalities since 2008.

Our findings, detailed in Table 7 and derived from estimating the static version of

[13] It is considered that a firm has exited when it declares that it has ceased its activities, which corresponds to the "date of closure" column in the RAIS database. Note that if a firm exits in year t, it is still listed in the RAIS data for that year, meaning that its exit will only be reflected in the data for year $t+1$.

[14] The number of establishments in t is determined by the flows of entry and exit, along with the residual flow: $\text{Estb}_t = \text{Estb}_{t-1} - \text{Exit}_{t-1} + \text{Entry}_t + \varepsilon_t$, in which ε_t represents the a change in the decision to report RAIS or not. Therefore, $\text{Residual}_t = \varepsilon_t + N_{t-1} = \text{Estb}_t - \text{Entry}_t + \text{Exit}_{t-1}$.

Equation 10, reveal in column (1) a positive and significant relative increase in the number of establishments awarded a contract per total number of contracts in that particular sector-municipality. This suggests a diversification in the procurement process, with more establishments able to participate in and win contracts, rather than a few establishments monopolizing the access to public sector contracts. This change could reflect an opening up of the market, promoting broader participation among businesses, possibly due to the reform's influence in reducing the leverage of larger, previously dominating firms who might have benefited from political donations to secure contracts. Column (2) of Table 7 suggests that the municipalities are spending less money on contracts following the implementation of the corporate campaign donation ban.

Columns (3) and (4) in Table 7 specifically track new participants in municipal procurement processes, focusing on establishments that have never been contracted since the recording of data began in 2008. In column (3), we find a increase in 146.1% on the number of new establishments that have secured at least one contract from a specific municipality for the first time after the reform. In Column (4), we find a relative increase on the number of establishments that, for the first time, engaged in procurement contracts within the entire state of Sao Paulo. By tracking establishments that have never previously won contracts, these metrics shine a light on the reform's role in democratizing access to public contracts. Moreover, columns (3) and (4) indicate the reform appears to have had a significant positive impact on the number of establishments engaging with a specific municipality for the first time, as well as on those firms that had not previously participated in local public procurement. The pre-trends, assessed in Figure 14, are stable before the intervention, with a notable increase in both metrics post-treatment.[15]

Column (5) of Table 7 shows a significant decrease in the number of contracts, indicating a substantial reduction in the opportunities available for firms to engage in municipal procurement. This drastic decrease likely impacts the number of establishments that can secure at least one procurement contract, as illustrated in column (6). These results suggest that existing connections to donors represent a substantial barrier for new firms entering the market for government contracts.

Overall, our analysis illustrates a reform environment where municipal procurement processes are not only becoming more inclusive but also more judicious in terms of spending. These changes are likely contributing to a healthier economic environment at the municipal level, promoting better governance and ultimately benefiting the public by ensuring more efficient use of resources. Although our analysis focuses on one state and thus may offer more indicative than conclusive evidence, it highlights a crucial aspect of the reform: the diminished role of political connections in local public procurement, which

[15]Eliminating the sector-municipality fixed effect results in the exclusion of data points prior to 2015 from our analysis. Estimates for the logarithm of new establishments at both the municipality and state levels (without adding one) are available upon request.

has enabled new firms to enter the procurement market to supply goods and services to municipalities.

7 Additional Results

In this section, we delve into additional results that enhance our understanding of the impacts from the reform on sector-municipalities, focusing on new variables and contexts. These analyses help clarify the dynamics of market concentration and the broader economic landscape.

7.1 Inactive establishments

RAIS Negativa refers to the annual reporting requirement for inactive companies, i.e., those that did not conduct any business activity throughout the year but maintained an active tax identifier. These companies file a specific type of RAIS, termed RAIS Negativa, which includes basic registration details like CNPJ, municipality, and sector, without any active employment records.[16] For analytical purposes, we aggregate the number of companies in each sector-municipality that filed RAIS Negativa, using the proportion of such establishments relative to the total number of establishments as the dependent variable in Equation 10.

Figure 15 plots the event study. The findings reveal no statistically significant change in the proportion of firms reporting RAIS Negativa for the full sample. However, a noticeable reduction in the share of inactive firms is observed within sectors heavily impacted by the reform (GD Donation). Table 8 presents results from a static difference-in-differences analysis of inactive establishments. The full sample also indicates general stability in the variable. For sectors classified under GD Donation, there's a significant decrease (13.32%) in the proportion of inactive establishments. This suggests a decrease in inactivity, which corresponds with the findings in Section 6, where we noted that the increase in the number of establishments is due to a reduction in 'dormant' firms.

7.2 Number of employees

In our study, we analyze workforce trends using two distinct datasets from the Relação Anual de Informações Sociais (RAIS): Vínculos and Estabelecimentos. The RAIS Vínculos dataset captures detailed employee-hours worked by establishment, which we convert into full-time equivalents (FTEs) based on a standard 40-hour work week. This allows us to estimate the number of FTEs active as of December 31 each year. We specifically balance and aggregate this data across sector-municipalities for the period from 2011 to 2021.

[16] In the RAIS dataset, this submission is indicated by a column where inactive establishments are marked with a value of one, while active establishments are marked as zero.

Figure 17 plots the coefficients of Equation 10 with the number of FTEs as dependent variable for the full sample and GD-Donation sectors. While the overall trend across the sample shows a decline in FTEs, a significant increase in employment is observed in sectors targeted by the GD-Donation reform, indicating that the reform may have had a stimulating effect on employment in these sectors.

Conversely, the RAIS Estabelecimentos dataset, which does not provide data on weekly working hours, is used to ensure consistency with our primary analysis framework. This dataset allows us to keep the sample consistent, particularly since using the RAIS Vínculos would require us to exclude establishments that do not maintain active links throughout the year. Figure 17 plots the coefficients of Equation 10 with the number of active employees on December 31 as dependent variable for the full sample and for GD-Donation sectors. Analysis using this dataset confirms the trends observed in the RAIS Vínculos, suggesting robustness in our findings.

Table 9 presents the static model estimates of Equation 10 for both the full sample and GD-Donation sectors, detailing the effects on employee numbers and full-time equivalents (FTE). It reveals significant positive effects of the reform on employment metrics for GD-Donation sectors. Given that the patterns are consistent across both datasets, this consistency helps confirm the robustness of our results and shows that the reform's impact on employment in the GD-Donation sectors is both significant and positive.

The similarity in results between the number of employees and full-time equivalents (FTE) in the table is noteworthy and shows the robustness of our findings. This consistency suggests that the reform's impact on employment is not merely a result of changes in part-time or contractual work but reflects a actual increase in full-time employment opportunities for GD-Donation sectors. The parallel trends across different employment metrics reinforce the validity of the findings, indicating that the effects observed are comprehensive and not specific to any particular type of employment calculation. This consistency helps to substantiate the positive influence of the reform on employment levels within the sectors analyzed.

7.3 Re-aggregating the sample: municipality level

A municipality-level analysis complements the sector-municipality insights by offering a broader perspective on the reform's impact, demonstrating its widespread effects across entire municipalities. We can compare municipalities that were more exposed to corporate contributions in the 2012 elections with the ones less exposed, so that our treatment will capture how reliant a municipality was on companies‘ contributions. The Exposure measure of a municipality m is given by:

$$\text{Exposure}_m = \frac{\text{Corporate contributions}_m}{\text{Total contributions}_m} \tag{11}$$

where *Total contributions* are all donations mayoral candidates received in the 2012 Election.

In order to estimate the effect of the ban on corporate donations on the number of establishments at the municipality level we use a dynamic differences-in-differences approach based on the following model:

$$y_{mt} = \alpha_m + \alpha_t + \sum_{\substack{\tau=2012 \\ \tau \neq 2014}}^{2020} \beta_\tau \cdot [\text{Exposure}_m \cdot \mathbb{1}_{\text{Periods}=\tau}] + \sum_{\substack{\tau=2012 \\ \tau \neq 2014}}^{2020} \lambda_\tau \cdot [X_m \cdot \mathbb{1}_{\text{Periods}=\tau}] + \varepsilon_{mt} \quad (12)$$

where y_{mt} represents the logarithm of the number of establishments (plus one) for municipality m in year t, obtained by aggregating the information from RAIS dataset at the municipality-year level. The pre-treatment periods go from 2012 to 2014, with 2014 being the omitted year. Municipality and time fixed effects α_m and α_t allow us to control for bias derived from unobservables that vary over time but remain constant across municipalities, and from variables that differ between municipalities but remain constant over time, respectively. We also account for the potential existence of municipality-specific trends by including the interaction between a number of municipality characteristics measured at the baseline, X_m, and the time dummies, $\mathbb{1}_{\text{Periods}=\tau}$. Specifically, from the 2010 Census we consider the per capita income (in logarithm), population (in logarithm), and the GINI index. Standard errors are clustered at the municipality level.

Besides GD-Donation sectors, we are also able to perform a robustness check on the sectors that did not donate in the 2012 elections, and, for this reason, we did not expect to observe a raise in the number of business establishments. There are 120 sectors that decided not to contribute, and we will call then GD-Non-Donation. We will filter this sectors and aggregate at the municipality level.

In Figure 18, the pre-trends analysis for Equation 12 shows stable trends up to 2014, indicating minimal confounding influences. Post-treatment, there is a notable increase in the number of establishments in sectors affected by GD Donation, suggesting a positive impact of the reform. In contrast, sectors not dependent on government (GD Non-Donation sectors) show no significant change, affirming the specificity of the reform's effects. This analysis underscores a sector-specific response to the reform at the municipality level, with precise gains in targeted sectors.

Even when aggregating at the municipal level, our results hold, as evidenced by Table 10, which estimates the static version of Equation 12. In this table, we observe that, for the entire sample, there is an increase of 2.84% in the number of establishments across all sectors. When focusing on sectors most exposed to the treatment, referred to as GD Donation, this effect increases to 9.12%. For GD-Non-Donation sectors, there is a insignificant decrease (0.0016%) in the number of establishments, again giving evidence

that the Electoral Reform did not cause an impact on groups that were not affected by it.

7.4 Including exiting sector-municipalities

Until now, our analysis has focused on the intensive margin, examining the number of establishments and the HHI for sector-municipalities that were continuously active from 2011 to 2021. We are now adopting a broader approach by including sector-municipalities that had no establishments during this period, assigning them a value of zero. This adjustment allows our sample to encompass all sector-municipalities from 2011 to 2021, enabling us to explore both the emergence of new establishments and the dynamics of sector openings and closures.[17]

The point estimates of Equation 10 for this sample is depicted in Figure 19, where we test for pre-trends in the expanded dataset using the logarithm of the number of establishments plus one as the dependent variable. While the hypothesis of pre-trends cannot be completely dismissed for the entire sample, there is a clearly observable and consistent increase in the number of establishments within the GD Donation sectors, indicating a positive response to the reform in these areas.

Table 11 further details these findings, showing a modest overall increase in the number of companies across all sectors, which is not statistically significant. However, for the GD Donation sectors, the increase is substantial, about 33%, underscoring the significant impact of the reform on these specifically targeted sectors. Including the entire population of sector-municipalities in the analysis is beneficial because it provides a more complete picture of the market dynamics. It allows us to capture not only the growth within existing sectors but also the creation of new sectors or the decline and exit of others.

7.5 Alternative explanations

Besides enhancing competition, the Electoral Reform may impact establishments via other mechanisms. We highlight three alternative explanations.

7.5.1 Operation Car Wash

A potential limitation of this study arises from the observation period coinciding with Operation Car Wash, an extensive anti-corruption campaign that predominantly affected the construction sector. This overlap suggests that some of the effects observed might be due to the weakening of corrupt construction firms, which could have indirectly facilitated

[17]This method does not allow for the analysis of HHI of employment, as it leads to indeterminate values for sectors with no active establishments.

the entry of new companies. To address this potential confounder, Figure 20 shows the analysis after excluding the construction sector, showing evidence that the results remain robust even when this sector is removed.

The graphs offer a clear depiction of pre-trend consistency in the GD Donation sectors, essential for validating the difference-in-differences approach. Prior to 2016, the trends in these sectors are relatively stable, which supports the assumption that the observed post-2016 increase in the number of establishments is attributable to the treatment effect. This increase is particularly pronounced in the GD Donation graph. Also, Table 12 exhibits the coefficients associated with the static version of Eqaution 10. All coefficients are significant at the 1% level and exhibit the same direction as our main specification. The only exception is the effect on the number of establishments for the full sample, which, although positive, reaches significance at the 10% level.

7.5.2 Establishments declaring RAIS for exiting

The Electoral Reform may have influenced the dynamics of firm entries and exits. A key observation is that the effect on the number of establishments might be partly due to 'dormant' firms reappearing in RAIS solely to exit the market permanently.[18] This phenomenon could skew the apparent stability and growth of firm numbers.

To robustly test the impact of the reform, Figure 21 displays coefficients from Equation 10 using dependent variables that account for exits and intermittent reporting—specifically, firms that report to RAIS only in their year of exit. This analysis confirms stable pre-trends for both the full sample and the GD-Donation sectors, indicating that the observed increase in the number of establishments remains consistent even when adjusting for these dormant firms.

Further, Table 13 presents the number of establishments, adjusted for exits, in panels (2) and (5). The findings continue to show significance for both sub-samples. Columns (3) and (6) provide results for establishments adjusted for firms that report to RAIS only in their year of exit, reinforcing that our results are robust, even considering these reporting anomalies. This evidence suggests that the reform's effects extend beyond increases due to exiting firms.

7.5.3 Growth of existing firms

It might be argued that the outcomes observed in this study stem from the expansion of pre-existing firms.[19] However, to address this, we aggregated our dataset at the level of

[18] About 2% of our sample reported RAIS only in the exit year.

[19] An "establishment" refers to a single physical location where business activities are conducted. A "firm," on the other hand, refers to the entire business entity under one ownership and control, which can include multiple establishments.

the primary firm identifier ('CNPJ Raiz'), and confirmed that our findings persist.[20]

Figure 22 displays pre-trends for both the full sample and the GD-Donation sectors, validating this assumption. Additionally, we note a continued increase in the number of firms and a decrease in market concentration for both the full sample and for the GD-Donation sectors. Table 14 presents the results from the static difference-in-differences (DiD) analysis related to Equation 10, which underscore a significant increase in firms by 15.4% for the full sample and 18.2% for the GD-Donation sectors. Moreover, the Herfindahl-Hirschman Index (HHI) shows a reduction of 6.59% for the full sample and 6.87% for the GD-Donation sectors.

Although the corporate composition of these firms was not examined, this robustness check suggests that the results are likely driven by an influx of new establishments, leading to increased market diversification and competition.

8 Conclusion

The 2015 ban on corporate electoral donations in Brazil marked a significant shift in campaign finance aimed at reducing corporate influence in local elections. Our paper focuses on analyzing the impact of this reform on sector-municipality economic indicators such as the number of business establishments and market concentration.

We observe an increase in the number of business establishments and a decrease in market concentration after the reform, particularly in sectors that were heavily reliant on corporate donations prior to the reform. These changes suggest reduced entry barriers and increased market competition, likely driven by decreased corporate-political entanglement.

Additionally, data from the São Paulo State Court of Accounts (TCE SP) indicates an increase in the number of firms engaging with the government for the first time post-reform, supporting the idea that the ban has made public procurement more accessible to previously non-participating firms. This result underscores the reform's effectiveness in opening up government business to a broader array of competitors, thereby enhancing transparency and reducing the monopolistic tendencies fostered by prior corporate donations.

[20]The "CNPJ" is the Brazilian National Registry of Legal Entities number, identifying each separate entity. "CNPJ Raiz" refers to the first eight digits of a CNPJ number, identifying the main corporate group to which individual entities or branches belong.

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Tables

Table 1: GD-Donation Sectors

Sector Description	Sector Description
Agricultural Services	Metallic Ore Mining
Animal Production	Metal Product Manufacturing
Beverage Manufacturing	Non-Metallic Mineral Manufacturing
Building Material Retail	Non-metallic Mineral Mining
Chemical Product Manufacturing	Oilseed and Grain Farming
Clothing Manufacturing	Other Crop Farming
Coal Mining	Other Food Manufacturing
Construction Material Wholesale	Other Manufacturing
Crop Production	Other Non-Metallic Mineral Mining
Dairy Product Manufacturing	Other Retail Sale
Electrical Equipment Manufacturing	Paper Manufacturing
Fabricated Metal Product Manufacturing	Petroleum and Coal Product Manufacturing
Fisheries	Pharmaceutical Preparation Manufacturing
Fishing	Plastics Product Manufacturing
Food Manufacturing	Poultry and Egg Production
Footwear Manufacturing	Pulp, Paper, and Paperboard Mills
Forestry	Rubber Product Manufacturing
Fruit and Tree Nut Farming	Seafood Product Preparation and Packaging
Furniture Manufacturing	Specialized Food Services
Grain and Oilseed Milling	Textile Mills
Health and Personal Care Stores	Textile Product Mills
Heavy and Civil Engineering Construction	Tobacco Product Manufacturing
Household Appliance Manufacturing	Vegetable and Melon Farming
Household Furniture Manufacturing	Vehicular Manufacturing
Leather and Allied Product Manufacturing	Water, Sewage and Other Systems
Lumber and Other Construction Materials Wholesale	Wearing Apparel Manufacturing
Machinery Manufacturing	Wood Product Manufacturing
Meat Product Manufacturing	
Metal Ore Mining	

Notes: This table lists the descriptions of the 50 sectors that donated the most in 2012 local elections, which defines their government dependence (GD-Donation). The sectors are presented in alphabetical order.

Table 2: Summary Statistics

	Mean	Stv. Dev.	N
Panel A: Campaign Contributions, sector-municipality level (2012)			
- Exposure to corporate donations	0.0011	0.0135	4524509
- Total contributions (in R$)	1853407	6599121	4524509
Panel B: RAIS, sector-municipality level (2011-2021)			
- Number of business establishments	18	171.7504	4524509
- Number of employees	85	897.8412	4524509
- Number of full time employees	90	924.1690	4524509
- HHI of employment	0.4556	0.3281	4524509
- Number of inactive establishments	9	106.0526	4524509

Notes: This table reports summary statistics for the main variables considered in our analysis. Panel A reports summary statistics for campaign contributions of the sector-municipalities in our sample based on information from the 2012 local elections provided by the Brazil's Tribunal Superior Eleitoral (TSE). Panel B provides descriptive statistics for selected characteristics of the business environment in our sample based on information from the Relação Anual de Informações Sociais (RAIS).

Table 3: TWFE: number of establishments

	Full Sample			GD-Donation		
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Post × Exposure$_{ms}$	0.1167***	0.1062**	0.0920**	0.4781***	0.3297***	0.3827***
	(0.0429)	(0.0418)	(0.0422)	(0.0804)	(0.0806)	(0.1069)
Fixed-effects						
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Sector-Year		Yes			Yes	
Municipality-Year			Yes			Yes
Fit statistics						
Observations	4,524,509	4,524,509	4,524,509	170,313	170,313	170,313
R^2	0.93201	0.93912	0.93449	0.91275	0.92130	0.93737
Within R^2	5.49×10^{-6}	4.95×10^{-6}	3.46×10^{-6}	0.00081	0.00042	0.00042

Notes: Columns (1) and (4) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform. The dependent variable is the number of establishments, and the RAIS dataset is aggregated at the sector-municipality level for all years. Standard errors are clustered at the municipality level. Columns (2) and (5) included sector-year (α_{st}) fixed effect, and columns (3) and (5) added municipality-year (α_{mt}) to the base specification. Standard-errors clustered at the municipality level in parentheses. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 4: TWFE: HHI of employment

	Full Sample			GD-Donation		
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
post × exp_quatro	-0.0588***	-0.0361**	-0.0479***	-0.1733***	-0.1206***	-0.1592***
	(0.0166)	(0.0167)	(0.0168)	(0.0323)	(0.0318)	(0.0457)
Fixed-effects						
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Sector-Year		Yes			Yes	
Municipality-Year			Yes			Yes
Fit statistics						
Observations	4,524,509	4,524,509	4,524,509	170,313	170,313	170,313
R^2	0.80548	0.81241	0.81017	0.83009	0.83948	0.88361
Within R^2	7.44×10^{-6}	2.83×10^{-6}	4.94×10^{-6}	0.00056	0.00028	0.00040

Notes: Columns (1) and (4) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform. The dependent variable is the number of establishments, and the RAIS dataset is aggregated at the sector-municipality level for all years. Standard errors are clustered at the municipality level. Columns (2) and (5) included sector-year (α_{st}) fixed effect, and columns (3) and (5) added municipality-year (α_{mt}) to the base specification. Standard-errors clustered at the municipality level in parentheses. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 5: Entry of establishments

	Full Sample				GD-Donation			
Dependent Variables:	Ln Entry	$\frac{\text{Entry}}{N}$	$\frac{\text{Entry}}{N_{2012}}$	Ln Residual	Ln Entry	$\frac{\text{Entry}}{N}$	$\frac{\text{Entry}}{N_{2012}}$	Ln Residual
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
post × Exposure$_{ms}$	-0.1452***	0.0008	0.0025	0.1242***	0.1591***	0.0296**	0.0411	0.1568***
	(0.0428)	(0.0098)	(0.0172)	(0.0295)	(0.0568)	(0.0167)	(0.0297)	(0.0481)
Fixed-effects								
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics								
Observations	2,066,346	2,066,346	2,066,346	2,066,346	81,216	81,216	81,216	81,216
R^2	0.76254	0.24293	0.28129	0.9647	0.55692	0.20229	0.22598	0.95826

Notes: Columns (1) to (8) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level. *Ln Entry* is defined as the logarithm of the total number of new establishments entering a specific sector-municipality within a year plus one. The ratio *Entry/N* quantifies the proportion of new establishments in relation to the total number of establishments in that year. *Entry/*N_{2012} is the fraction of establishments that entered during the year compared to the baseline number of establishments in the year 2012. *Ln Residual* represents the logarithm of residual change in the number of establishments (plus one), calculated as $N_t - \text{Entry}_t + \text{Exit}_{t-1}$. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.

Table 6: Exit of establishments

	Full Sample			GD-Donation		
Dependent Variables:	Ln Exit	$\frac{\text{Exit}}{N}$	$\frac{\text{Exit}}{N_{2012}}$	Ln Exit	$\frac{\text{Exit}}{N}$	$\frac{\text{Exit}}{N_{2012}}$
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Post × Exposure$_{ms}$	0.1678***	0.0194	0.0257	0.0318	0.0103	0.0175
	(0.0358)	(0.0134)	(0.0180)	(0.0374)	(0.0117)	(0.0190)
Fixed-effects						
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	2,066,346	2,066,346	2,066,346	81,216	81,216	81,2161
R^2	0.63129	0.28436	0.27077	0.39577	0.24359	0.22409

Notes: Columns (1) to (6) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level. *Ln Exit* is defined as the logarithm of the total number of establishments exiting a specific sector-municipality within a year plus one. The ratio *Exit/N* quantifies the proportion of exiting establishments in relation to the total number of establishments in that year. *Exit/*N_{2012} is the fraction of establishments that ceased operations during the year compared to the baseline number of establishments in the year 2012. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.

Table 7: Sao Paulo municipal public procurement

Dependent Variables:	Ln $\frac{\#Estb.}{\#Contracts}$	Ln Amount Contracts	Ln New Estb. Municipality	Ln New Estb. State	Ln Contracts	Ln Establishments
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Post × Exposure$_{ms}$	1.517***	-0.7737*	1.461***	1.312***	-1.9713***	-0.4542***
	(0.2547)	(0.4128)	(0.3615)	(0.2961)	(0.3196)	(0.1134)
Fixed-effects						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	1,472,795	1,472,795	1,472,795	1,472,795	1,472,795	1,472,795
R^2	0.63689	0.73774	0.63106	0.53647	0.72005	0.81117
Within R^2	0.00014	7.91×10^{-6}	0.00035	0.00039	1.644×10^{-4}	2.91×10^{-5}

Notes: Columns (1) to (6) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level. *Ln* $\frac{\#Estb.}{\#Contracts}$ is the share of contracts obtained by establishments. *Ln Amount Contracts* is the total amount (in Reais) contracted in municipal procurement. *Ln New Estb. Municipality* is the log of the total number of private sector establishments that obtain at least one contract from the municipality, and that never obtained any contract from that municipality prior to the reform plus one. *Ln New Estb. State* is the log of the total number of private sector establishments that obtain at least one contract from the municipality, and that never obtained any contract from any municipality prior to the reform plus one. *Ln Contracts* is the log of the number of contracts envolving the sector-municipality. *Ln Establishments* is the log of the total number of establishments contracted by the sector municipality. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 8: Inactive establishments

Dependent Variable:	Share of inactive establishments	
	Full Sample	GD Donation
Model:	(1)	(2)
Variables		
Post × Exposure$_{ms}$	0.0354	-0.1332***
	(0.0225)	(0.0406)
Fixed-effects		
Sector-Municipality	Yes	Yes
Year	Yes	Yes
Fit statistics		
Observations	4,524,509	170,313
R^2	0.71471	0.65054

Notes: This table report the dynamic coefficients obtained from the estimation of the static difference-in-differences version of Equation 10 together with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform. The dependent variable is the share of inactive establishments. Standard errors are clustered at the treatment level.

Table 9: Effect on employment

	Full Sample		GD-Donation	
Dependent Variables:	Employees	FTE	Employees	FTE
Model:	(1)	(2)	(3)	(4)
Variables				
Post × Exposure$_{sm}$	-0.4286***	-0.4489***	0.6408***	0.6600***
	(0.0996)	(0.1007)	(0.2009)	(0.2028)
Fixed-effects				
Sector-Municipality	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	4,524,509	4,524,509	170,313	170,313
R^2	0.90153	0.90029	0.88722	0.88616
Within R^2	2.55×10^{-5}	2.71×10^{-5}	0.00035	0.00036

Notes: This table report the dynamic coefficients obtained from the estimation of the static difference-in-differences version of Equation 10 together with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects, for both the full sample and GD-Donation sectors. The dependent variables are the log of the number of employees (plus one) and the log of the number of full time employees (FTE), plue one. Standard errors are clustered at the treatment level.

Table 10: TWFE: number of establishments at the municipality level

Dependent Variable:	Number of estb.		
Model:	All Sectors	GD Don	GD Non Don
Variables			
Post × Exposure$_m$	0.0284**	0.0912***	-0.0016
	(0.0118)	(0.0211)	(0.0348)
Post × Labor force	-0.0079	0.0777**	0.1024**
	(0.0159)	(0.0309)	(0.0450)
Post × Urban population	-0.1117***	-0.2738***	-0.0996***
	(0.0118)	(0.0232)	(0.0362)
Post × *Per capita* GDP	0.0137***	-0.0125	0.0357***
	(0.0039)	(0.0076)	(0.0117)
Post × Population	0.0246	-0.0184	-0.1023**
	(0.0160)	(0.0314)	(0.0461)
Post × GINI	0.1957***	0.3416***	0.3690***
	(0.0408)	(0.0738)	(0.1214)
Fixed-effects			
Sector-Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Fit statistics			
Observations	66,216	65,639	45,595
R^2	0.99114	0.95548	0.88565
Within R^2	0.01355	0.02795	0.00216

Notes: This table report the dynamic coefficients obtained from the estimation of a static difference-in-differences together with 95% confidence intervals. We estimate: $y_{mt} = \alpha_m + \alpha_t + \beta \times \text{Exposure}_m \times \text{Post}_{mt} + \gamma \times X_m \times \text{Post}_{mt} + \varepsilon_{mt}$, where α_m are municipality fixed effects, and α_t are time fixed effects. The variable Post_{mt} is a dummy that assumes one for periods after the reform. The vector of controls X_m includes the logarithm of the labor force, per capita GDP, population, the GINI index (level), and the percentage of the population living in the urban areas. The dependent variable is the number of establishments and the RAIS dataset is aggregated at the municipality level for all years. Standard errors are clustered at the treatment level.

Table 11: Effect on the number of establishments: extensive margin

Model:	Full Sample (1)	GD Don (2)
Variables		
Post × Exposure$_{ms}$	0.0285	0.3284***
	(0.0341)	(0.0586)
Fixed-effects		
Sector-Municipality	Yes	Yes
Year	Yes	Yes
Fit statistics		
Observations	12,268,116	482,292
R^2	0.90539	0.86520
Within R^2	1.83×10^{-7}	0.00020

Notes: Columns (1) and (2) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 12: Excluding the construction sector

	Full Sample		GD-Donation	
Dependent Variables:	Establishments	HHI	Establishments	HHI
Model:	(1)	(2)	(3)	(4)
Variables				
post × Exposure$_{ms}$	0.0836*	-0.0468***	0.4115***	-0.1506***
	(0.0432)	(0.0167)	(0.0768)	(0.0308)
Fixed-effects				
Sector-Municipality	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	4,351,292	4,351,292	146,531	146,531
R^2	0.93280	0.80924	0.92343	0.86048

Notes: Columns (1) and (4) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform. The dependent variable is the log of the number of establishments and the HHI of employment. Standard errors are clustered at the municipality level. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 13: Net number of establishments

	Full sample			GD-Donation		
Dependent Variables:	Establishments	Net of Exit	Net of Intermittent Reporters	Establishments	Net of Exit	Net of Intermittent Reporters
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Post × Exposure$_{ms}$	0.1586***	0.0988***	0.11485***	0.2329***	0.1709***	0.1740***
	(0.0372)	(0.0319)	(0.0292)	(0.0651)	(0.0489)	(0.0489)
Fixed-effects						
Sector-Municipality	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	2,066,346	2,066, 346	2,066, 346	81,216	81,216	81,216
R^2	0. 95697	0.96594	0.96703	0.95080	0.96000	0.96075

Notes: Columns (1) to (6) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level.*Establishments* refers to the logarithm of the total number of business establishments within a sector-municipality. *Net of Exit* removes firms that have ceased operations from the total count of establishments. *Net of Intermittent Reporters* omits firms that have not reported to RAIS since 2012, except in the year they discontinued operations. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.

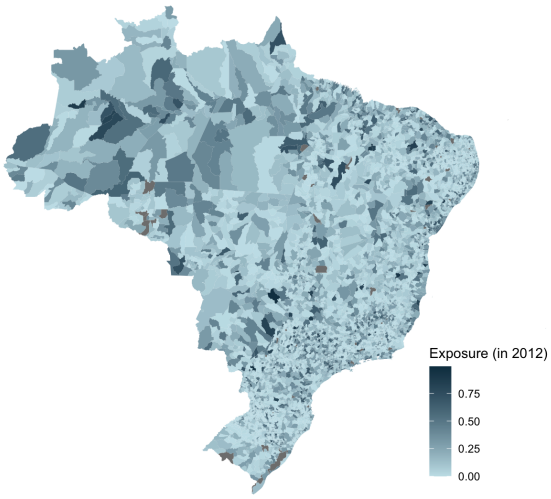
Table 14: Effect on the number of firms and on the HHI of firm employment

	Full sample		GD-Donation	
Dependent Variables:	Firms	HHI	Firms	HHI
Model:	(1)	(2)	(3)	(4)
Variables				
Post × Exposure$_{ms}$	0.1540***	-0.0659***	0.1817***	-0.0687***
	(0.0258)	(0.0345)	(0.0157)	(0.0579)
Fixed-effects				
Sector-Municipality	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	2,241,036	2,241,036	88,154	88,154
R^2	0.95692	0.86572	0.94922	0.89006

Notes: Columns (1) to (4) report the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform (i.e, after 2015). Standard errors are clustered at the municipality level. *Firms* is defined as the logarithm of the total number of firms. *HHI* is defined by the firm share of employment regarding the hole sector-municipality. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.

Figures

Figure 1: Corporate donations across municipalities



Notes: This figure reports the $\text{Exposure}_m = \frac{\text{Corporate contributions}_m}{\text{Total contributions}_m}$ across all the brazilian municipalities. $\text{Corporate contributions}_m$ represents all contributions raised by municipality m, while $\text{Total contributions}_m$ is the total amount raised by municipality m in 2012.

Figure 2: Presence of GD-Donation sectors across municipalities

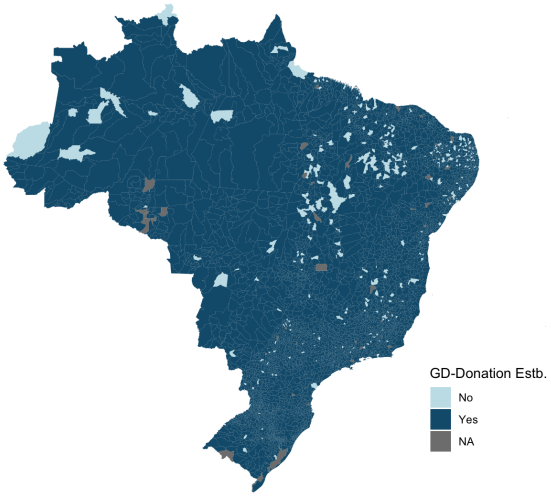
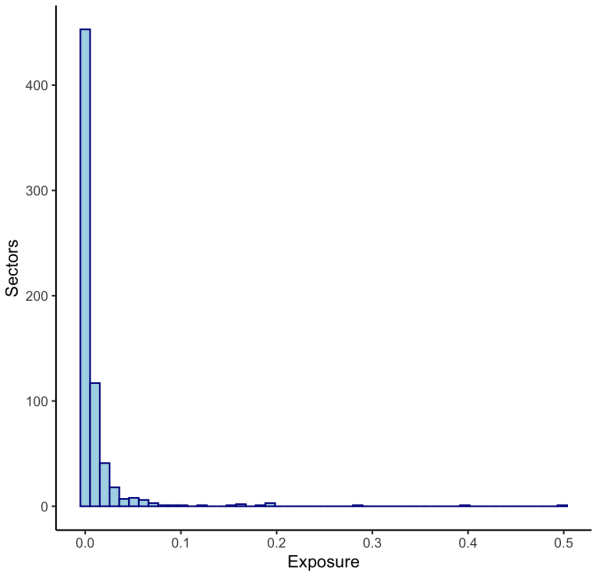


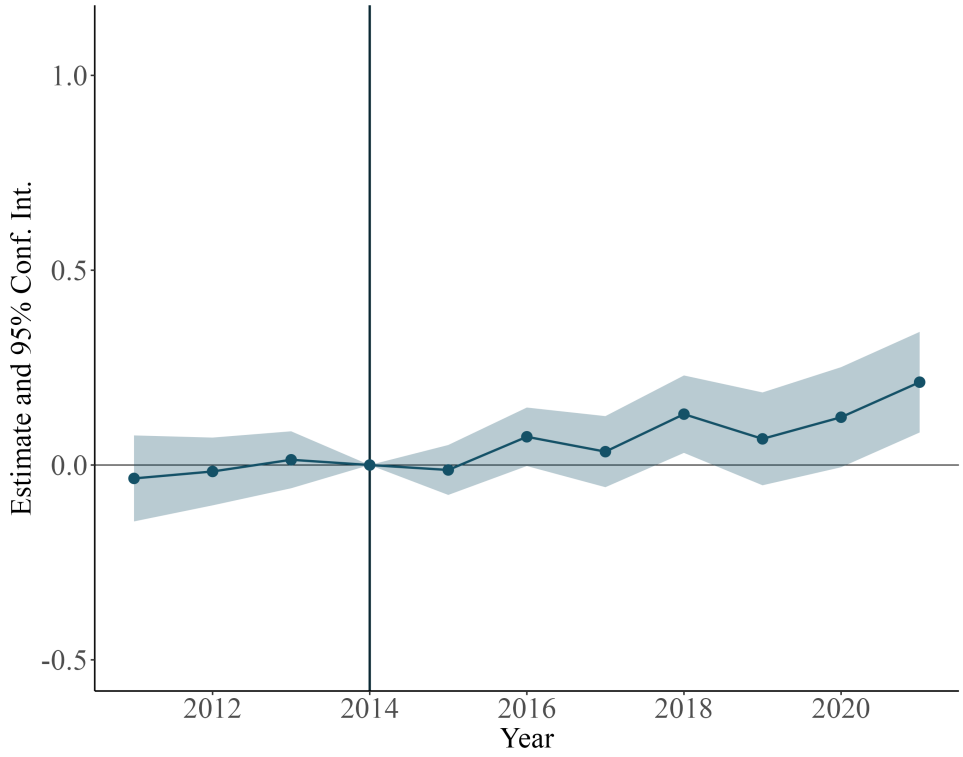
Figure 3: Exposure across sectors



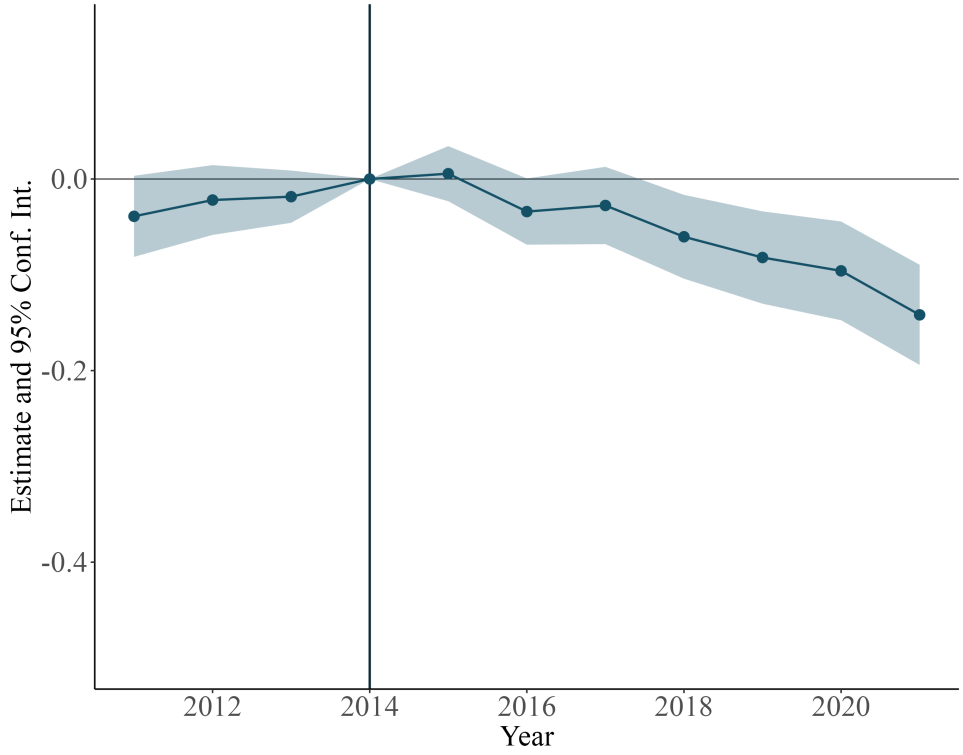
Notes: This figure reports the $\text{Exposure}_s = \frac{\text{Corporate contributions}_s}{\text{Corporate contributions}}$ across all the 667 sectos. $\text{Corporate contributions}_s$ represents all contributions made by sector s, while Corporate contributions is the amount raised by all sectors, i.e, $\text{Corporate contributions} = \sum_{s=1}^{667} \text{Corporate contributions}_s$.

Figure 4: Effect on the number of establishments and HHI index: Full sample

(a) Number



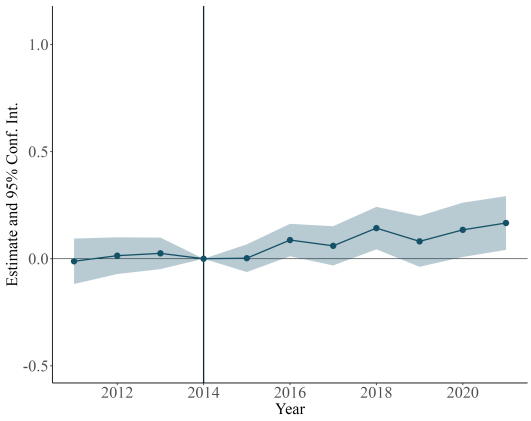
(b) HHI



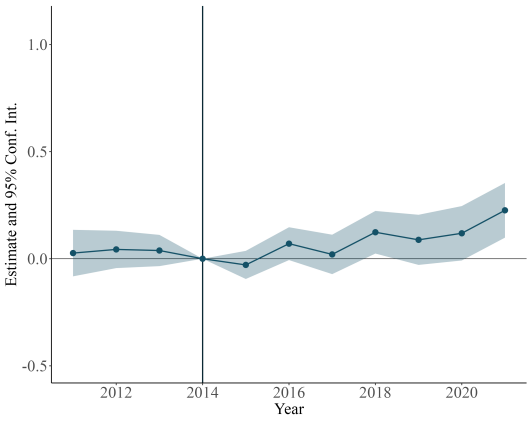
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable in each panel is the sum of the number of establishments and the HHI index.

Figure 5: Robustness checks: including fixed effects

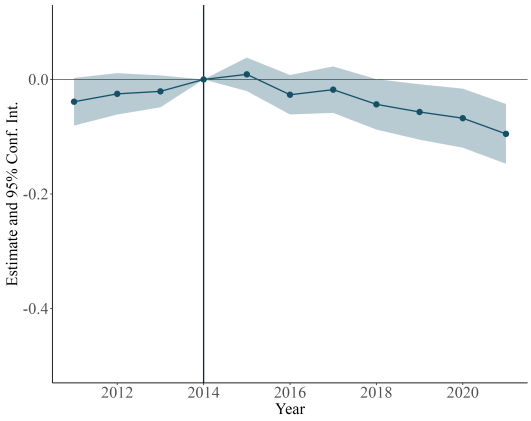
(a) Including sector-year fixed effects: number of establishments



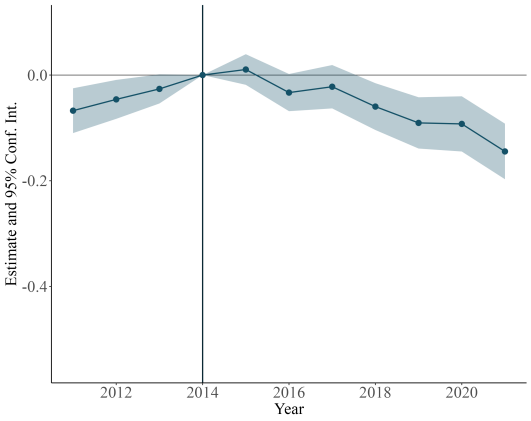
(b) Including municipality-year fixed effects: number of establishments



(c) Including sector-year fixed effects: HHI of employment



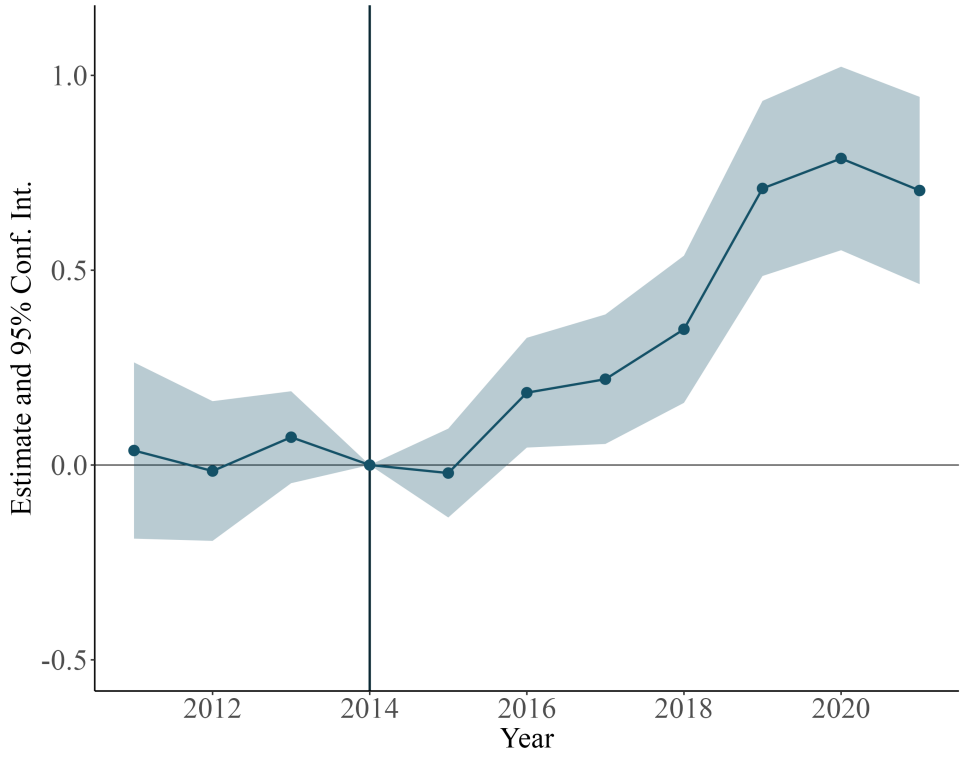
(d) Including municipality-year fixed effects: HHI of employment



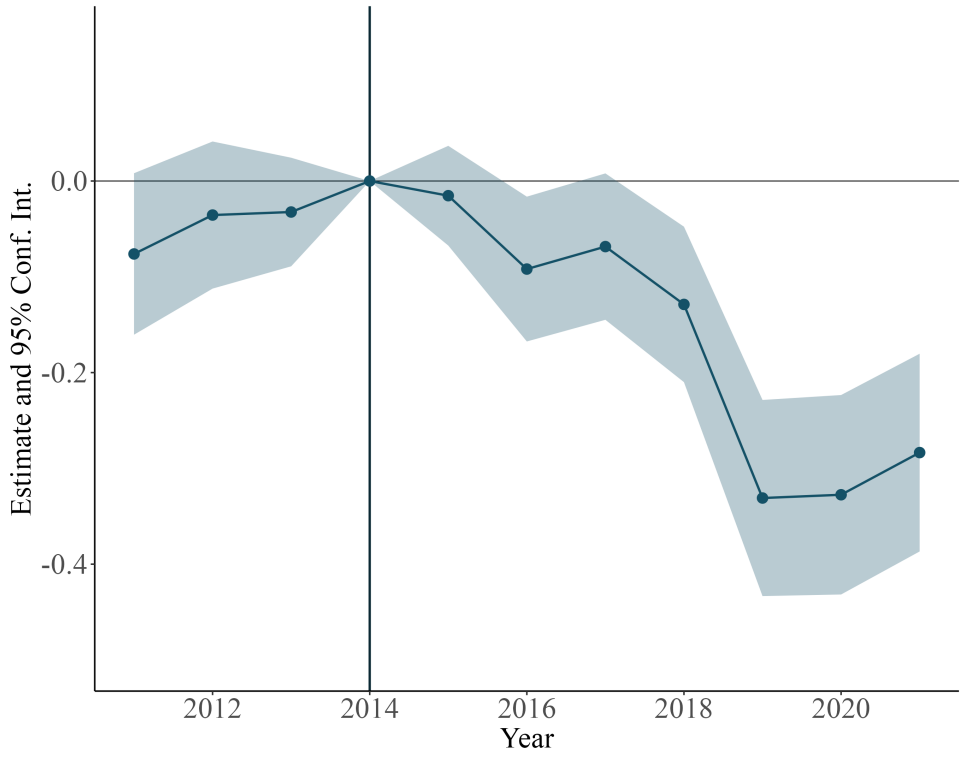
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10, incorporating two distinct layers of fixed effects together with 95% confidence intervals. Panels (a) and (b) show the estimates of $y_{mst} = \alpha_{ms} + \alpha_t + \alpha_{st} \sum_{\substack{\tau=2011 \\ \tau \neq 2014}}^{2021} \beta_\tau \cdot [\text{Exposure}_{ms} \cdot \mathbb{1}_{\text{Periods}=\tau}] + \varepsilon_{mst}$ for both the number of establishments (in log) and the HHI. Panels (c) and (d) plot the event studies of $y_{mst} = \alpha_{ms} + \alpha_t + \alpha_{mt} \sum_{\substack{\tau=2011 \\ \tau \neq 2014}}^{2021} \beta_\tau \cdot [\text{Exposure}_{ms} \cdot \mathbb{1}_{\text{Periods}=\tau}] + \varepsilon_{mst}$ for both the number of establishments (in log) and the HHI.

Figure 6: Effect on the number of establishments and HHI Index: GD Donation

(a) Number



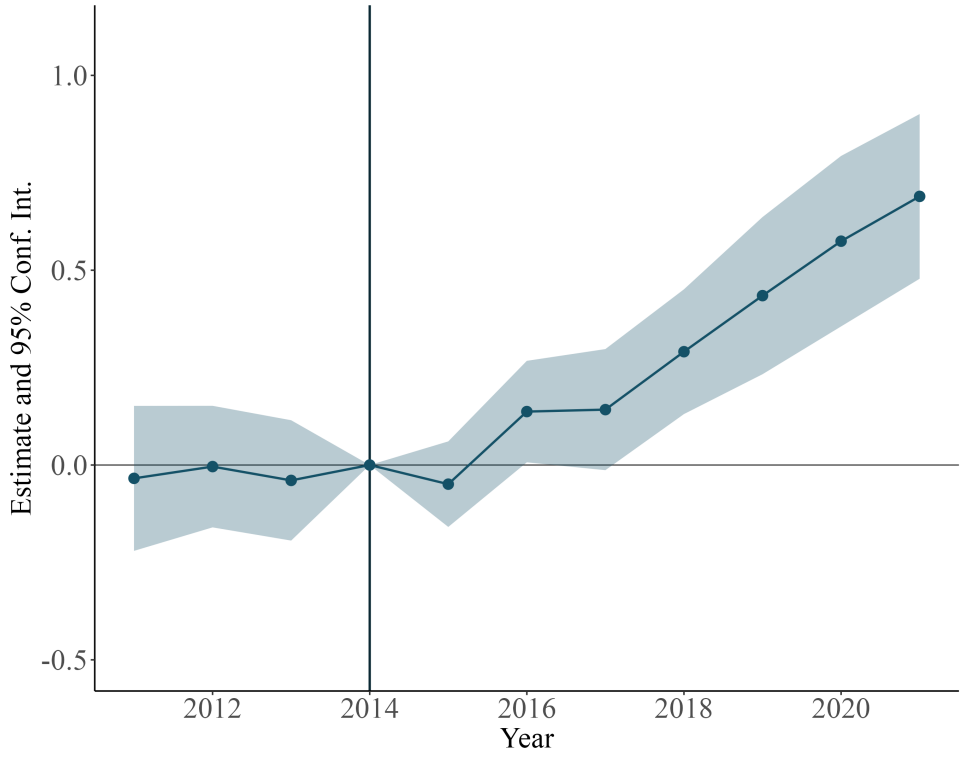
(b) HHI



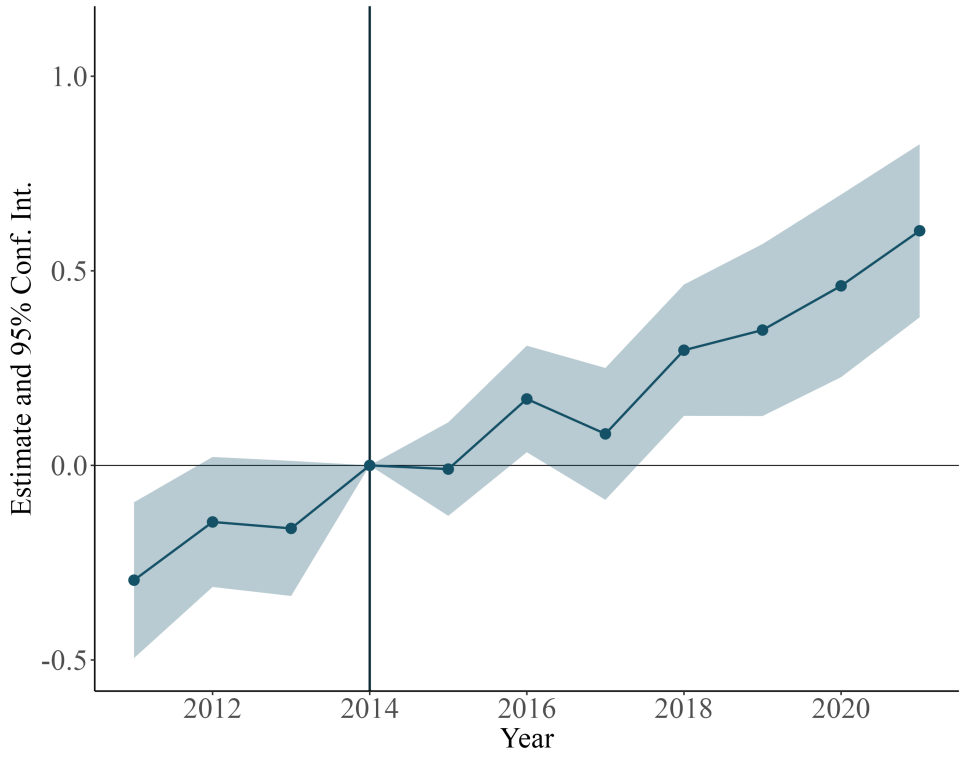
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable in each panel is the logarithm of the sum of the number of establishments and the HHI index.

Figure 7: Effect on the number of establishments: GD sectors

(a) Number of estb.: GD-Cor.



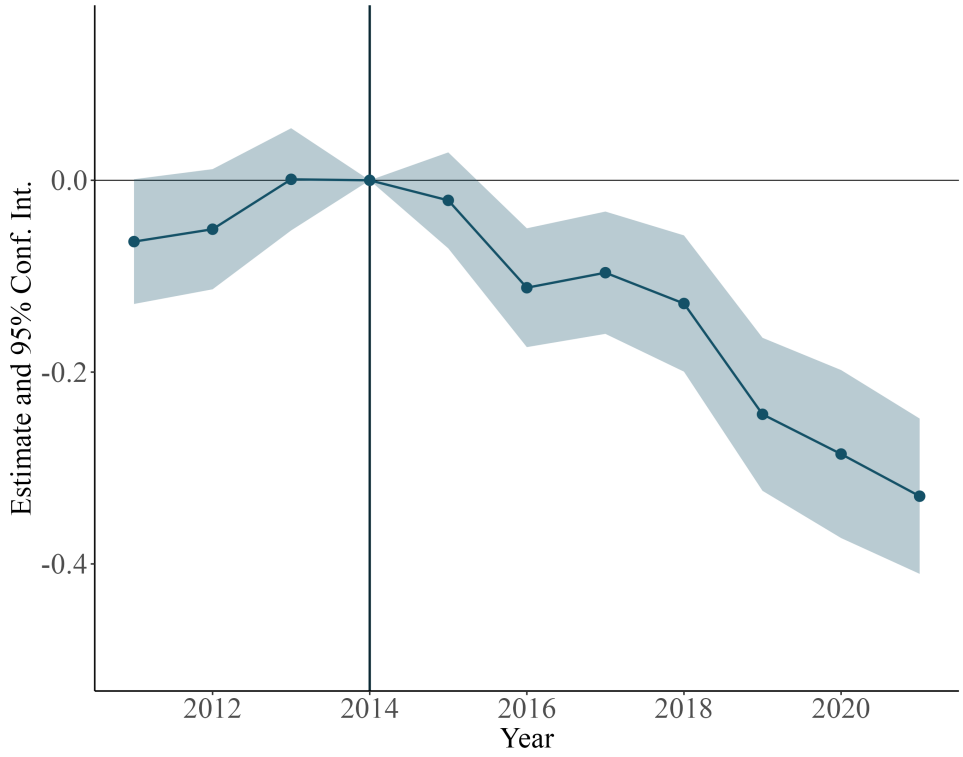
(b) Number of estb.: GD-Proc.



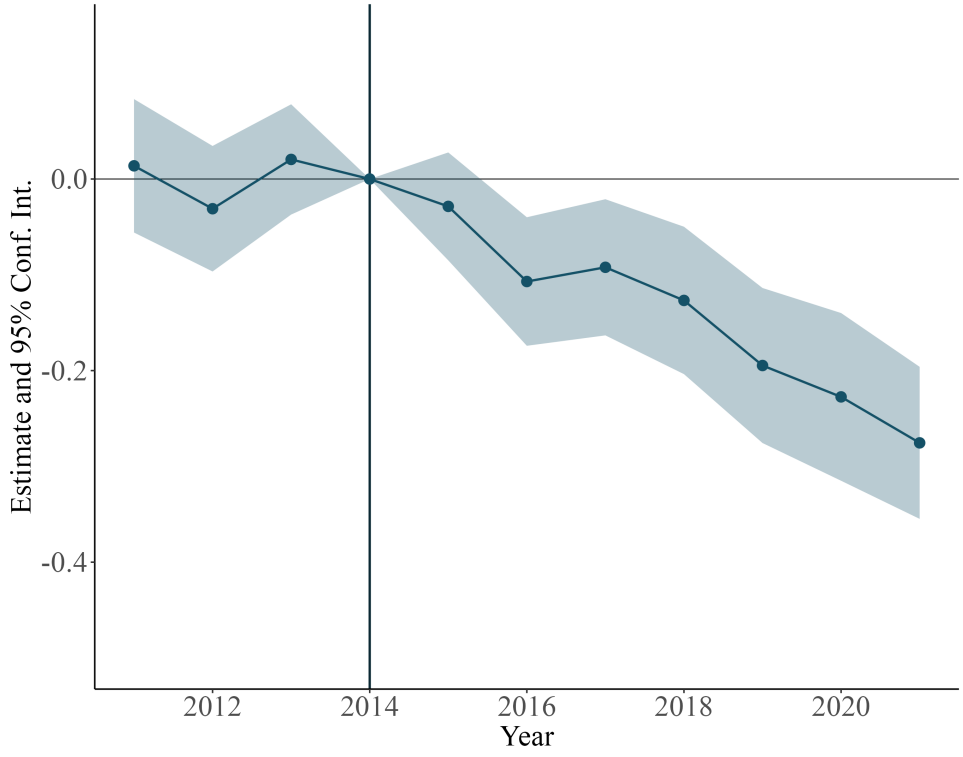
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable in each panel is the logarithm of the sum of the number of establishments.

Figure 8: Effect on the HHI index: GD sectors

(a) HHI: GD-Corruption



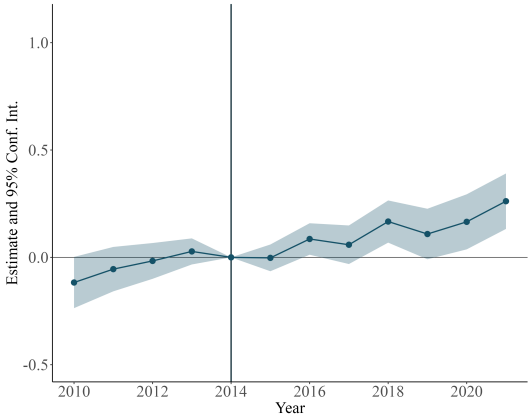
(b) HHI: GD-Procurement



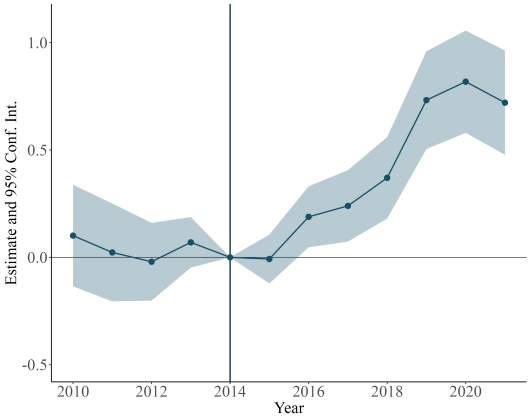
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable in each panel is the HHI index.

Figure 9: Effect on the number of establishments and on HHI since 2010

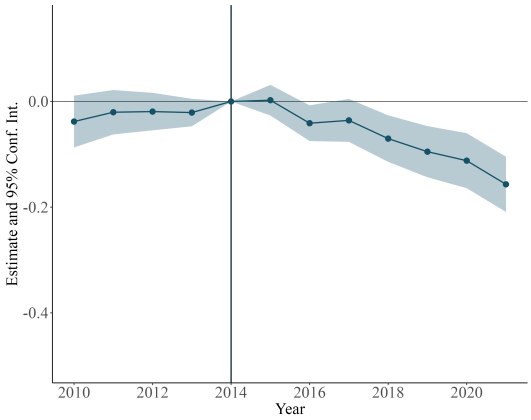
(a) Number of establishments: Full sample



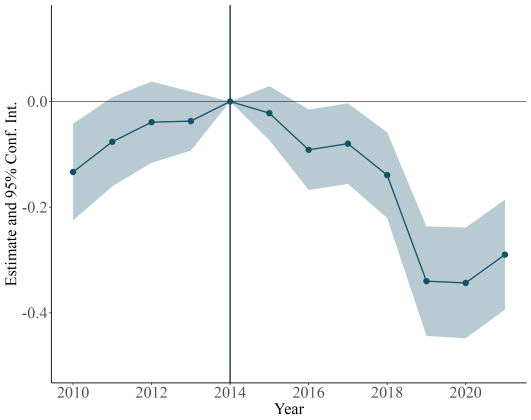
(b) Number of establishments: GD-Donation



(c) HHI: Full sample



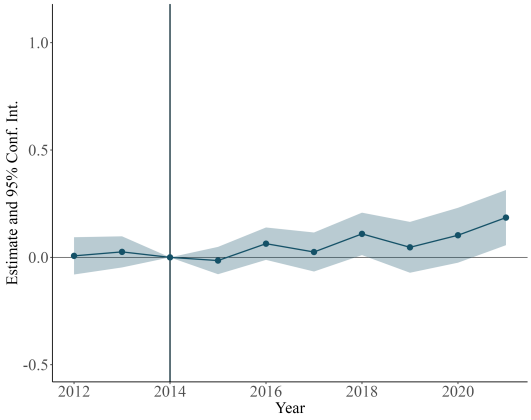
(d) HHI: GD-Donation



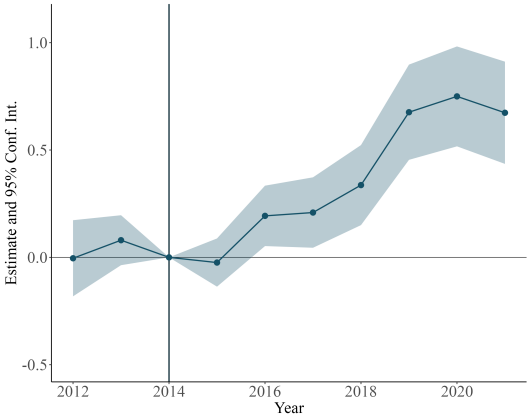
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. The dependent variables are the logarithm of the number of establishments and the HHI of employment at the establishment level since 2010.

Figure 10: Effect on the number of establishments and on HHI since 2012

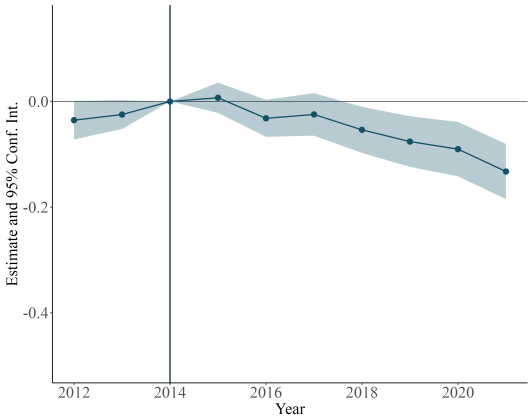
(a) Number of establishments: Full sample



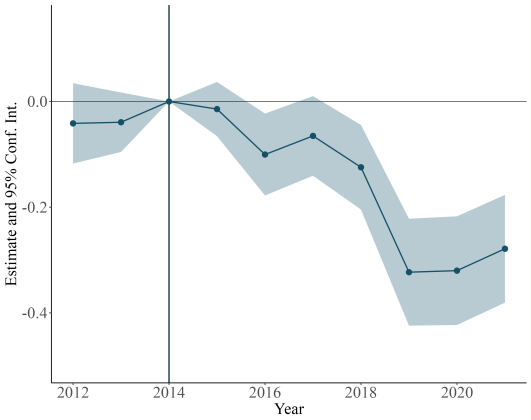
(b) Number of establishments: GD-Donation



(c) HHI: Full sample

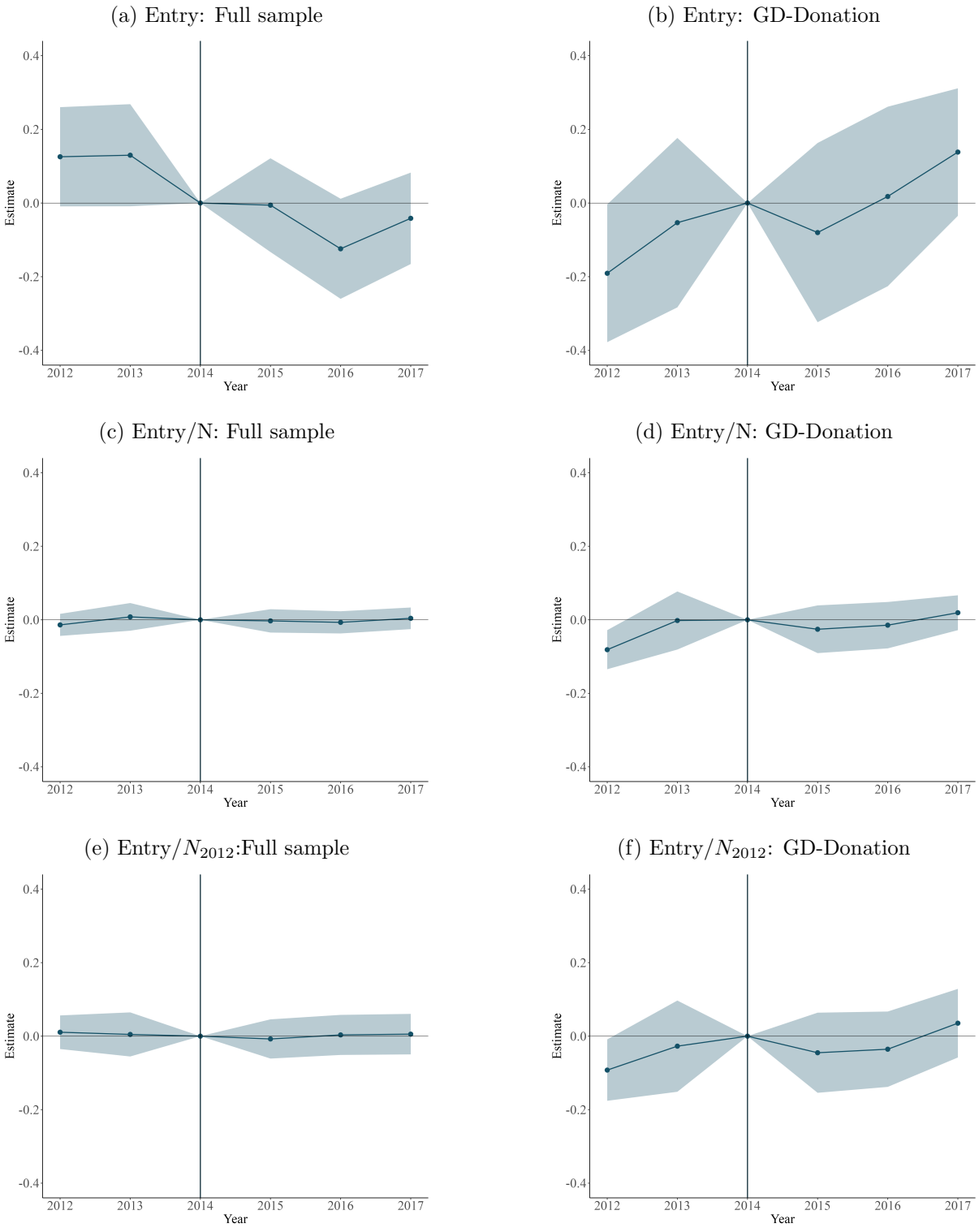


(d) HHI: GD-Donation



Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. The dependent variables are the logarithm of the number of establishments and the HHI of employment at the establishment level since 2012.

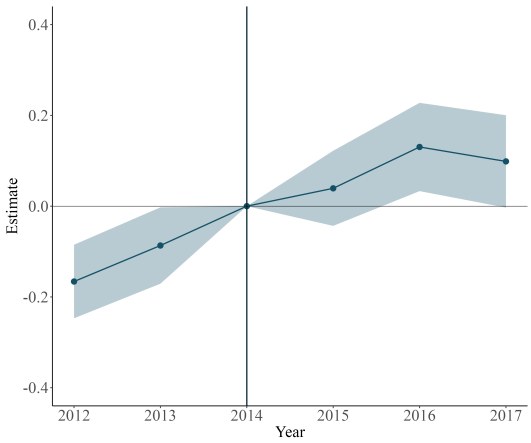
Figure 11: Entry of estblishments



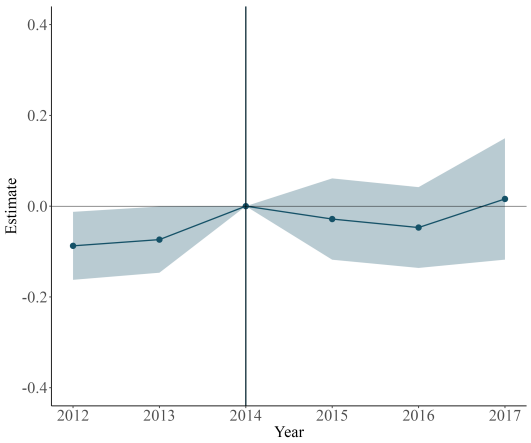
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. *Ln Entry* is defined as the logarithm of the total number of new establishments entering a specific sector-municipality within a year plus one. The ratio *Entry/N* quantifies the proportion of new establishments in relation to the total number of establishments in that year. *Entry/*N_{2012} is the fraction of establishments that entered during the year compared to the baseline number of establishments in the year 2012.

Figure 12: Exit of estbalishments

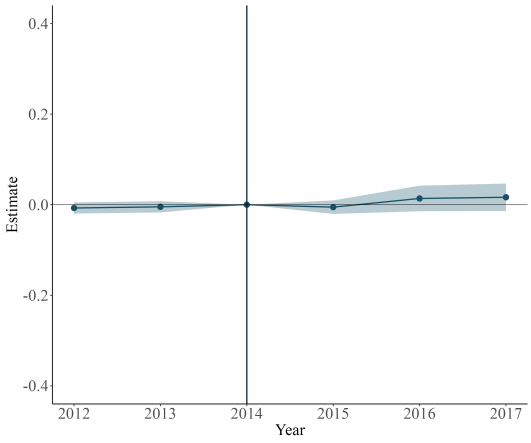
(a) Exit: Full sample



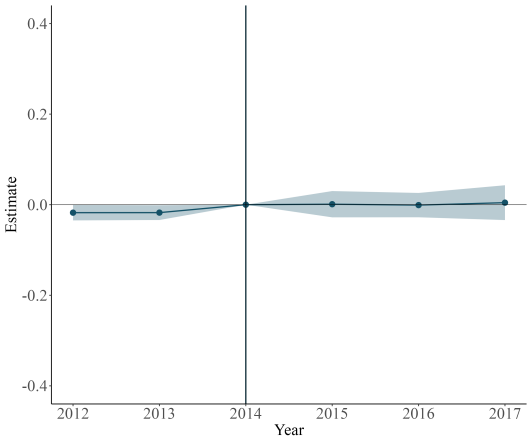
(b) Exit: GD-Donation



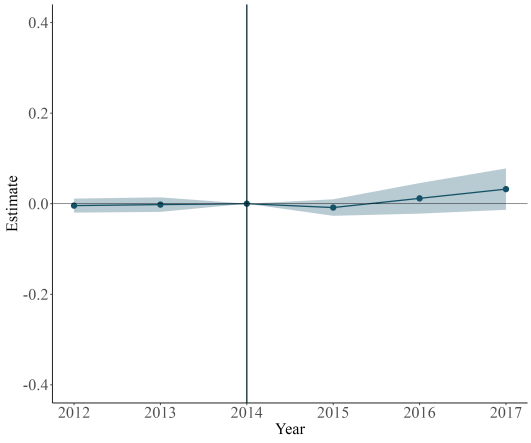
(c) Exit/N: Full sample



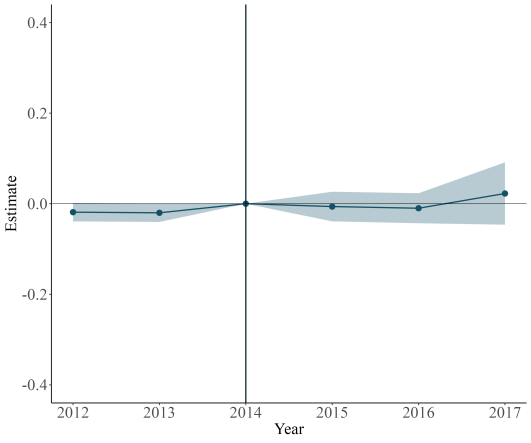
(d) Exit/N: GD-Donation



(e) Exit/N_{2012}:Full sample



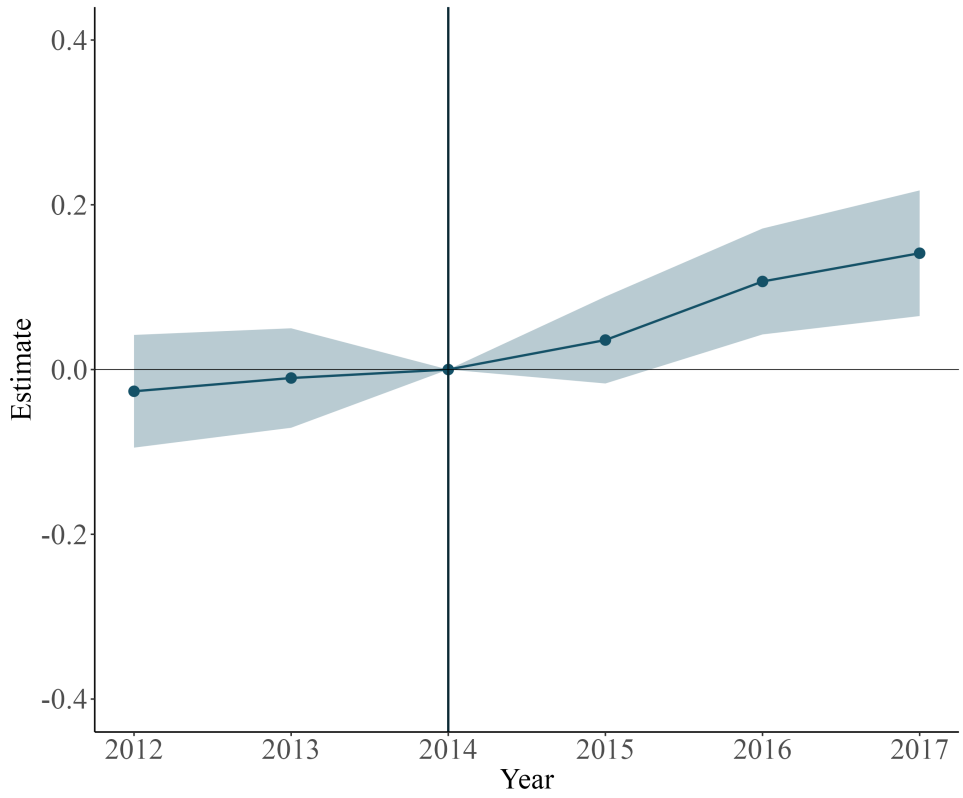
(f) Exit/N_{2012}: GD-Donation



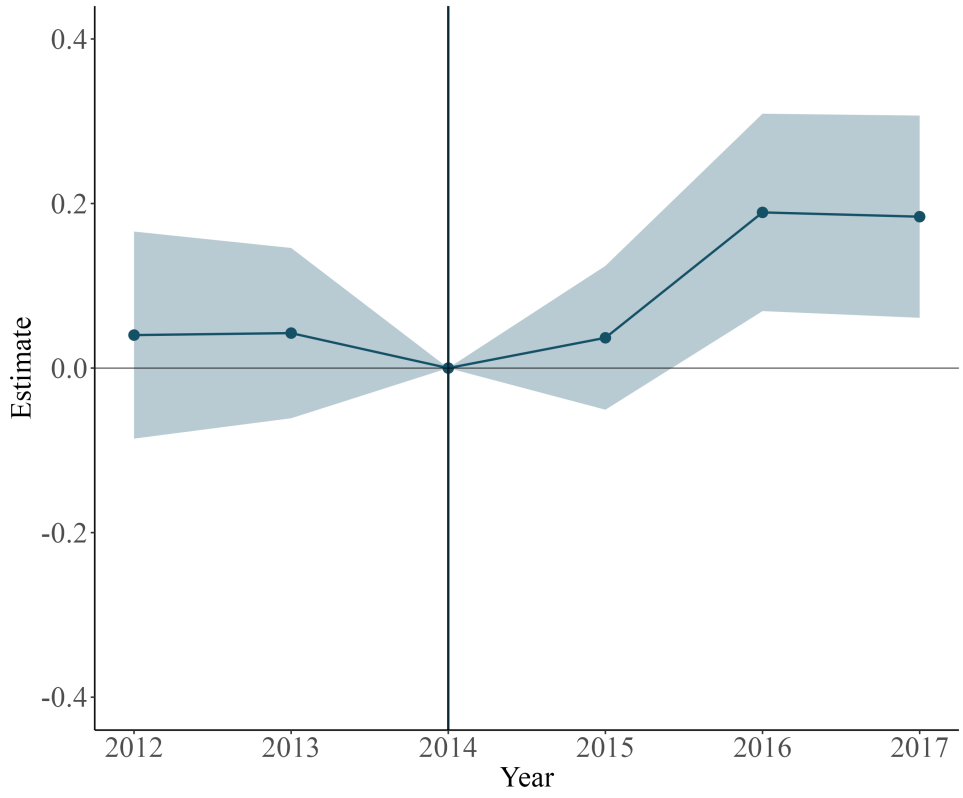
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. *Ln Exit* is defined as the logarithm of the total number of new establishments exiting a specific sector-municipality within a year plus one. The ratio *Exit/N* quantifies the proportion of establishments exiting in relation to the total number of establishments in that year. *Exit/*N_{2012} is the fraction of establishments that close during the year compared to the baseline number of establishments in the year 2012.

Figure 13: Effect on the residual number of establishments

(a) Full sample



(b) GD-Donation

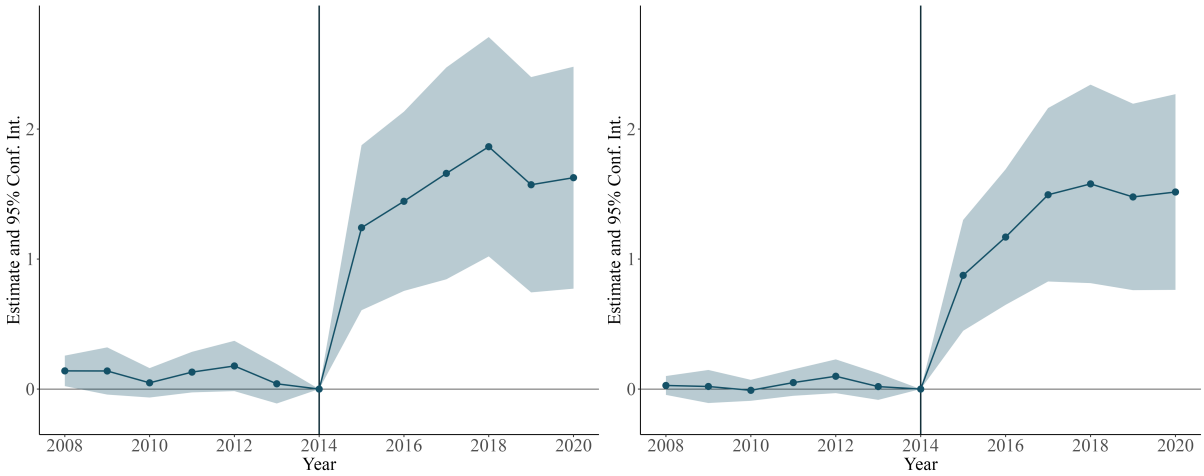


Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. *Ln Residual* represents the logarithm of residual change (plus one) in the number of establishments, calculated as $N_t - \text{Entry}_t + \text{Exit}_{t-1}$.

Figure 14: Sao Paulo municipal public procurement

(a) Estb. first time in municipality (+1)

(b) Estb. first time in the state (+1)

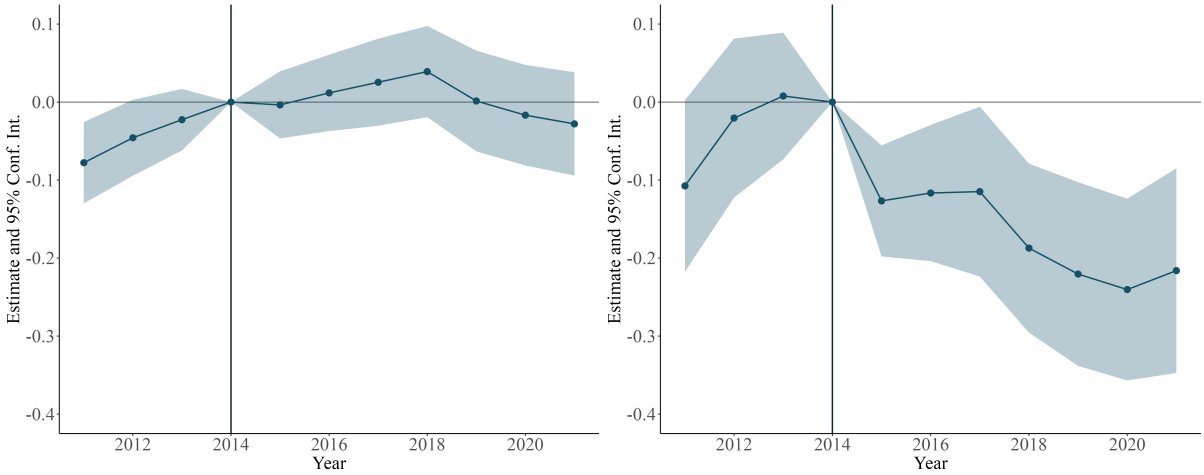


Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. *Estb. first time in municipality* is the log of the total number of establishments that receive at least one contract from *that* municipality, and that *never* obtained any contract from that municipality from 2008-2014 (plus one). *Estb. first time in the state* is the log of the total number of establishments that receive at least one contract from the municipality, and that never obtained a contract from *any* municipality from 2008-2014 (plus one).

Figure 15: Proportion of inactive firms

(a) Full sample

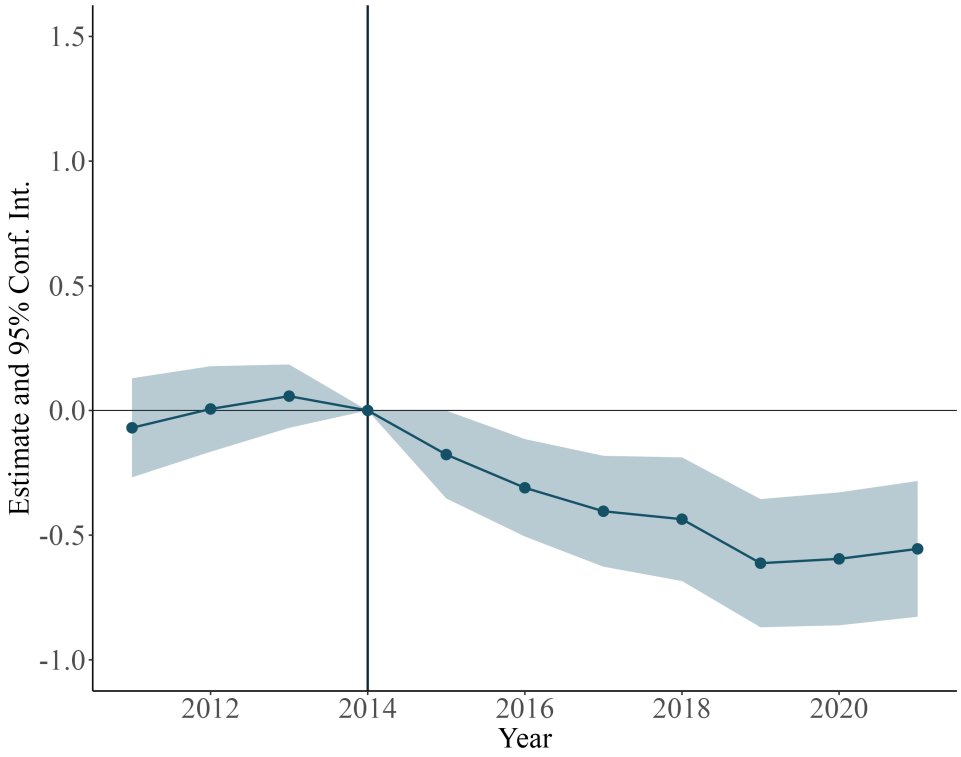
(b) GD-Donation



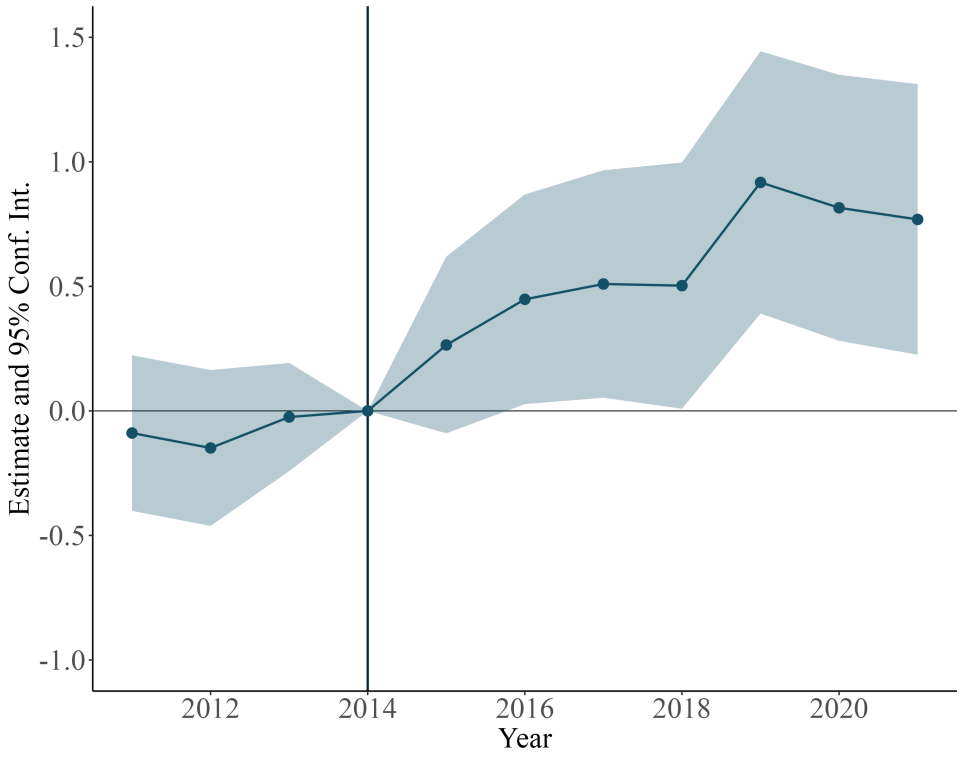
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals for both the full sample (panel (a)) and GD-Donation sectores (panel (b)). The dependent variable is the proportion of inactive firms, in relation the number of establishments.

Figure 16: Effect on FTE

(a) Full sample



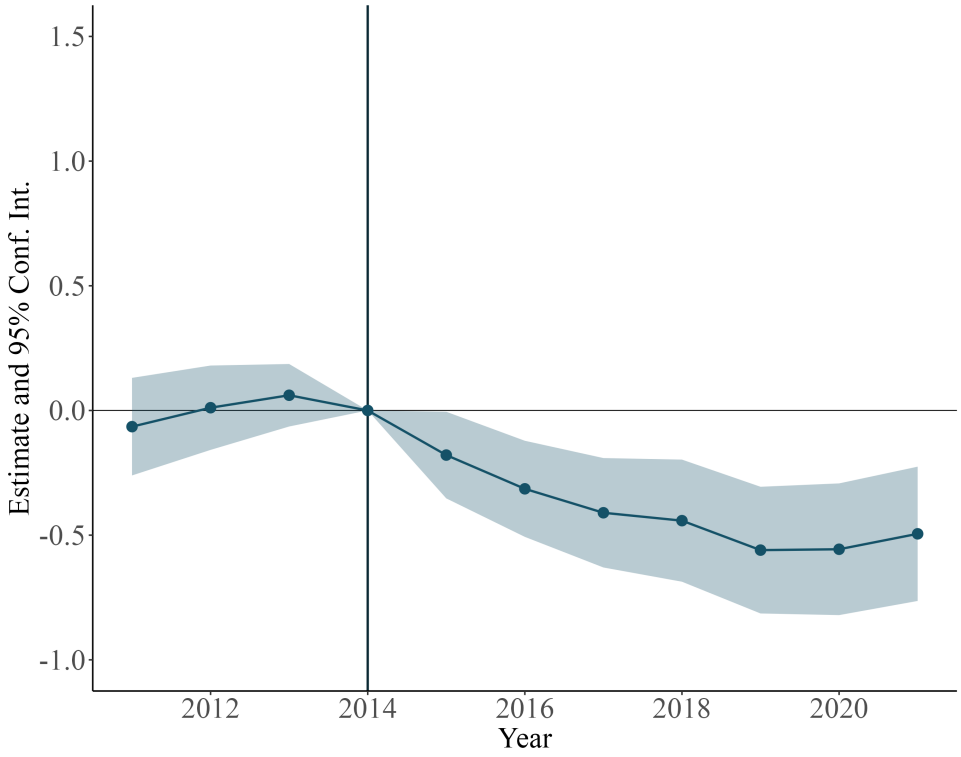
(b) GD-Donation



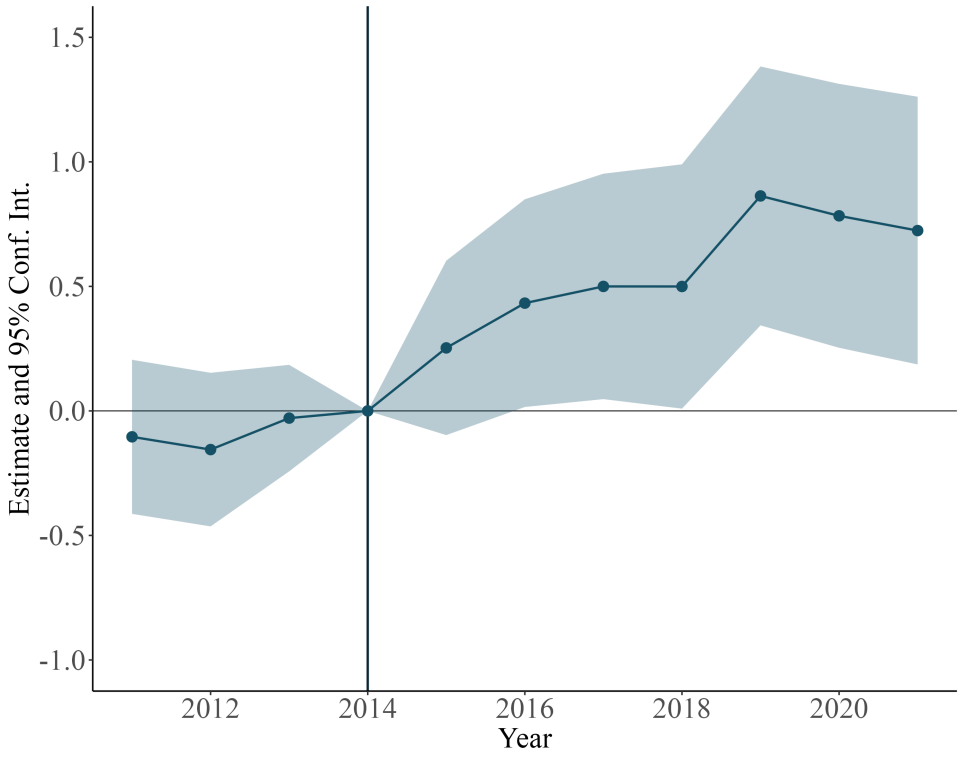
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable is the number of full time employees (FTE).

Figure 17: Effect on the number of employees

(a) Full sample



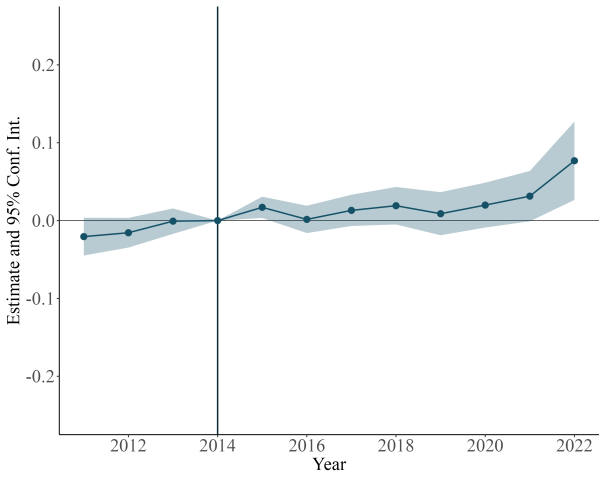
(b) GD-Donation



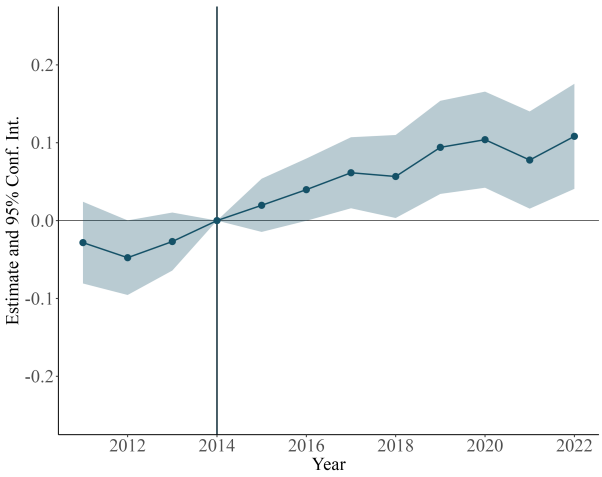
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. The dependent variable is the number of employees.

Figure 18: Effect on the number of establishments

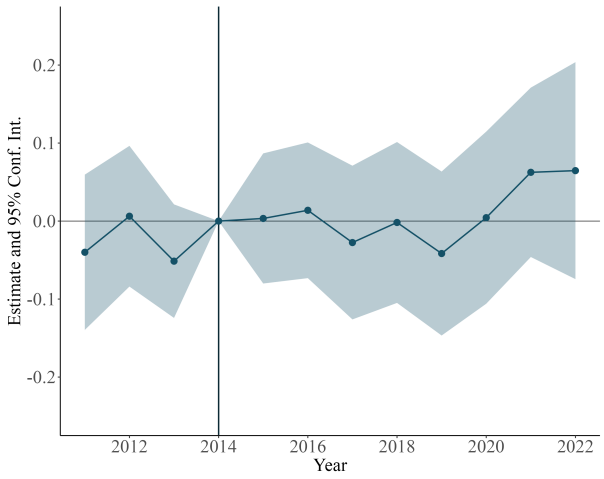
(a) Full sample



(b) GD-Donation



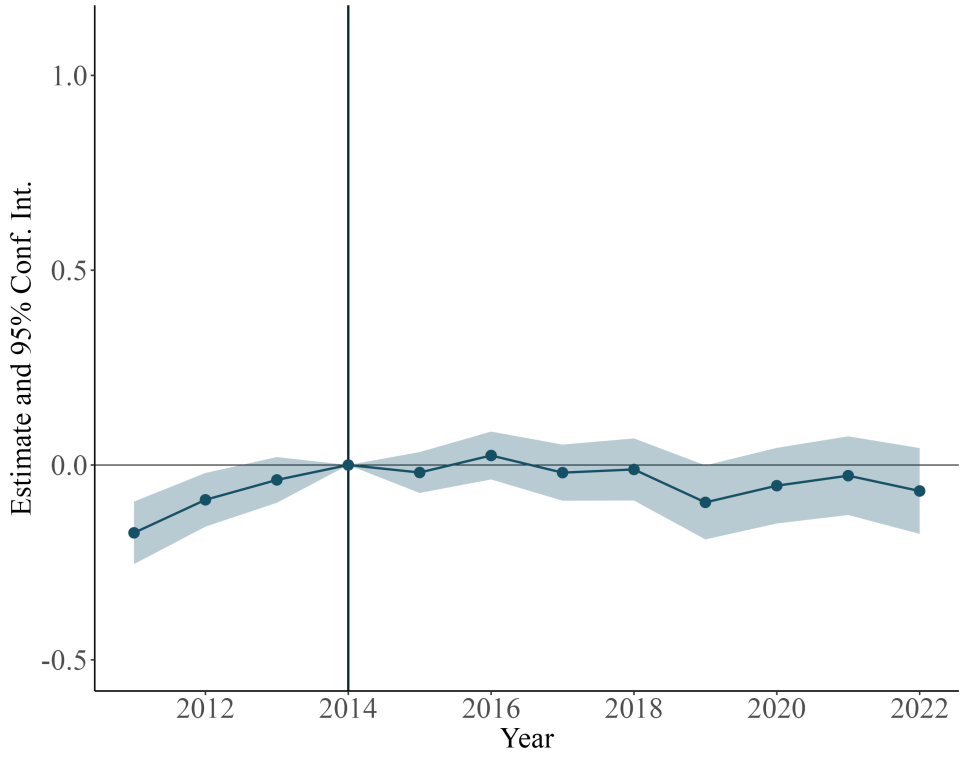
(c) GD-Non-Donation



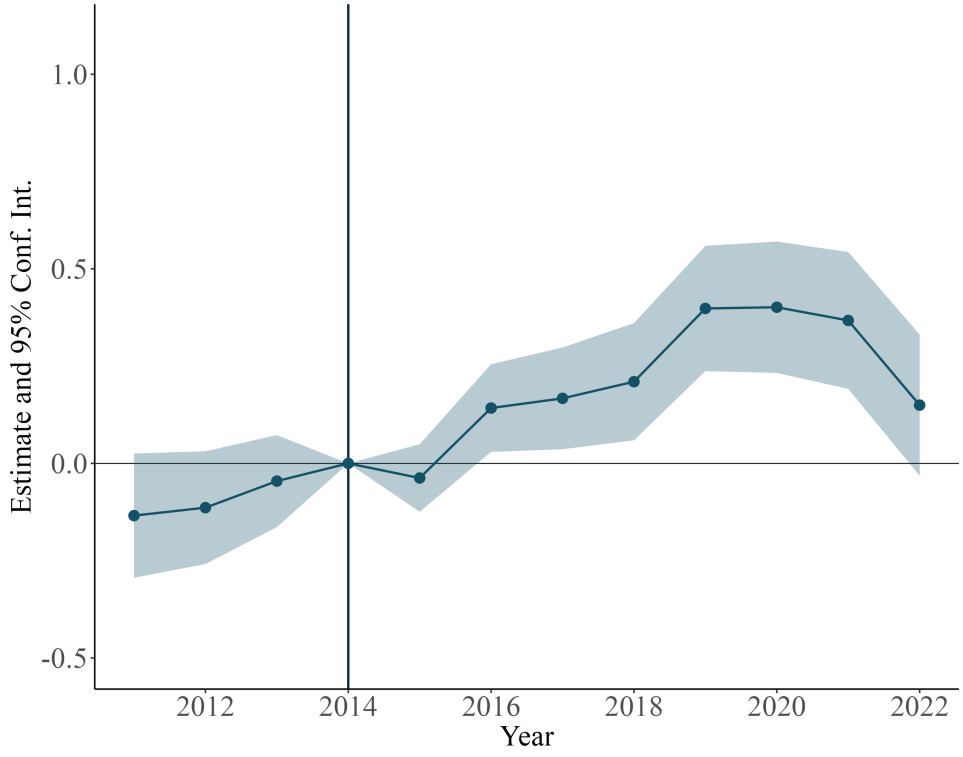
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 12 together with 95% confidence intervals. The dependent variable is the number of business establishments.

Figure 19: Including exiting sector-municipalities: effect on the number of establishments

(a) Full sample



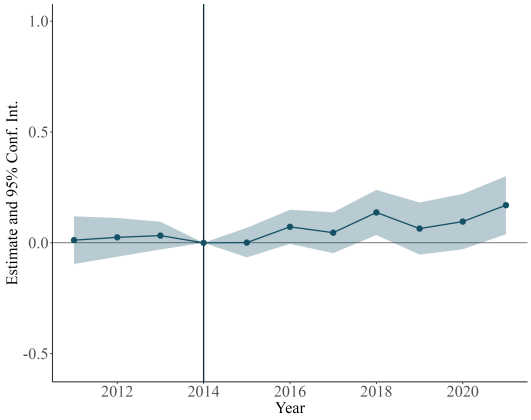
(b) GD-Donation



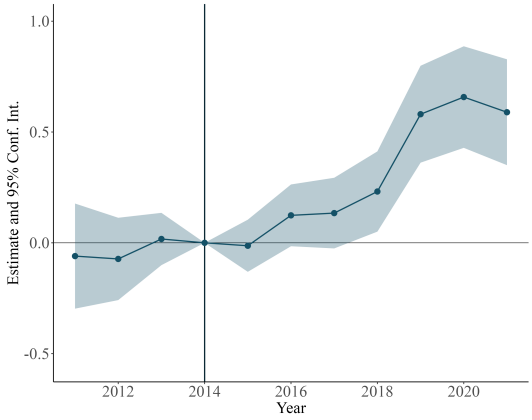
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 12 together with 95% confidence intervals. The dependent variable is the number of business establishments and the sample inputs zero for non-existing sectors.

Figure 20: Robustness check: Car Wash Operation

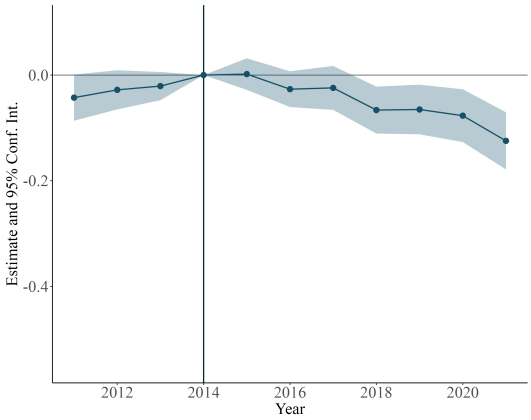
(a) Number of estb.: Full sample



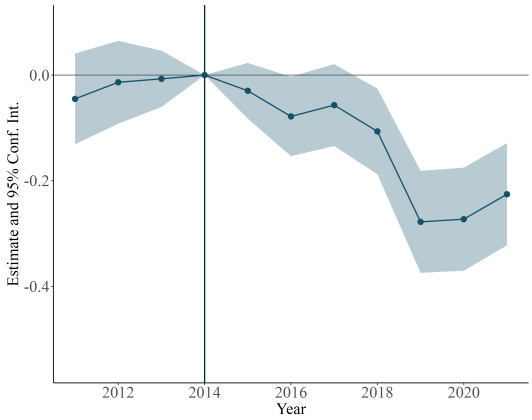
(b) Number of estb.: GD Donation



(c) HHI: Full sample



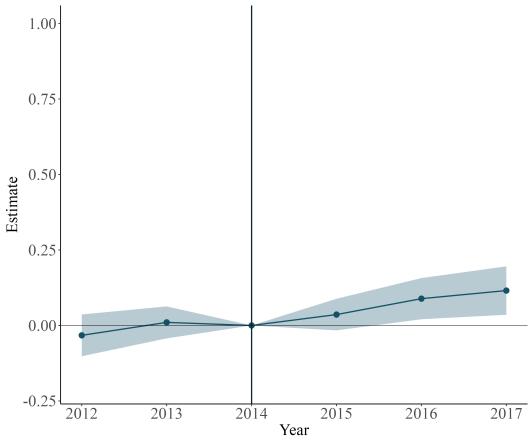
(d) HHI: GD Donation



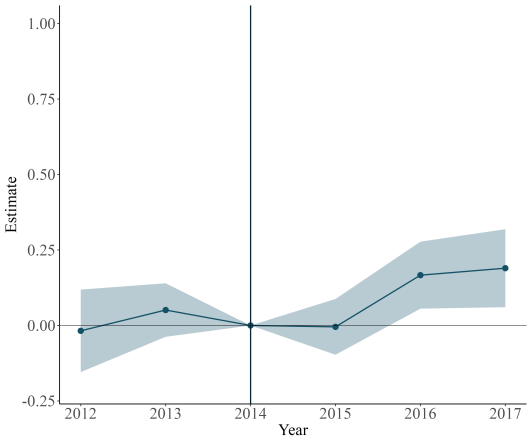
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals, excluding the construction sector. The dependent variables are the number of business establishments and the HHI of employment (plus one), for both the Full sample and the GD-Donation sectors.

Figure 21: Net number of establishments

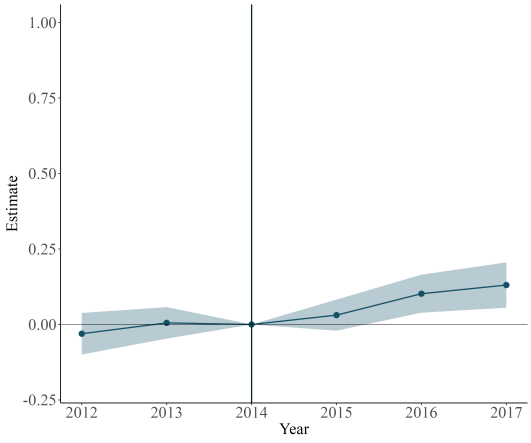
(a) Net of Exiting: Full sample



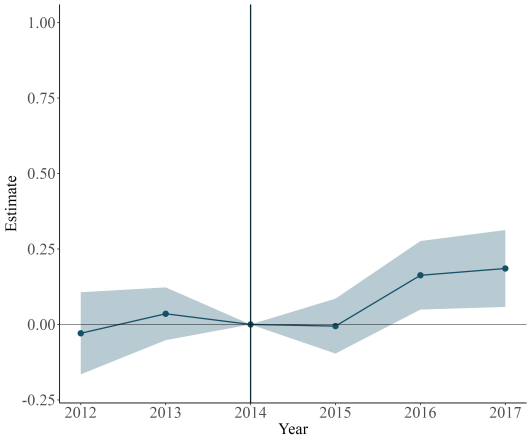
(b) Net of Exiting: GD Donation



(c) Net of Intermittent Reporting for Exit: Full sample



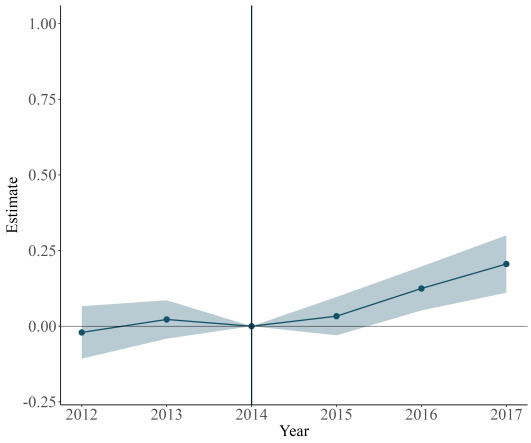
(d) Net of Intermittent Reporting for Exit: GD Donation



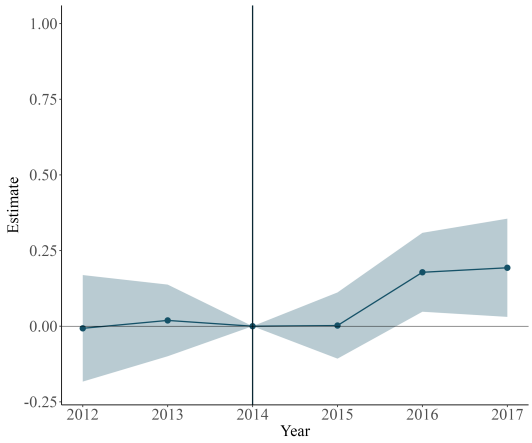
Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals, excluding the construction sector. *Net of Exit* removes firms that have ceased operations from the total count of establishments. *Net of Intermittent Reporters* omits firms that have not reported to RAIS since 2012, except in the year they discontinued operations.

Figure 22: Effect on the number of firms and HHI

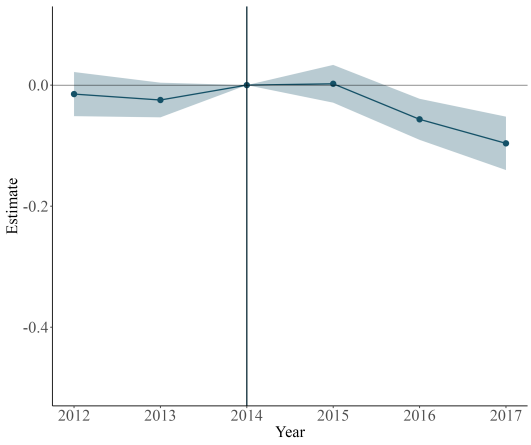
(a) Number of firms: Full sample



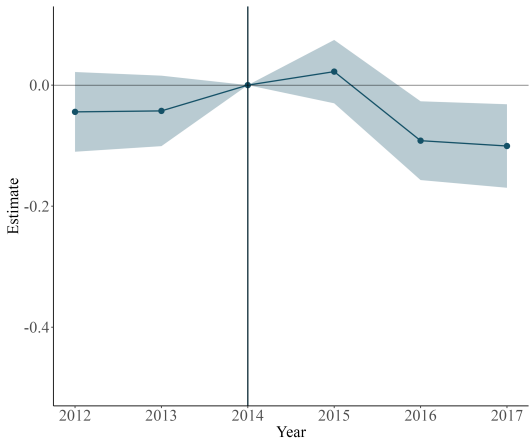
(b) Number of firms: GD-Donation



(c) HHI: Full sample



(d) HHI: GD-Donation



Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 together with 95% confidence intervals. Standard errors are clustered at the municipality level. The dependent variables are the logarithm of the number of firms ('CNPJ Raiz') and the HHI of employment at the firm level.

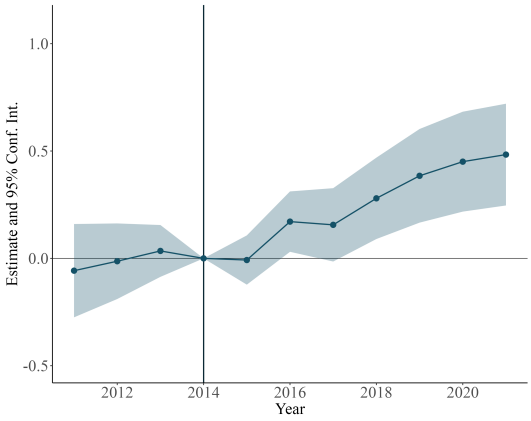
ONLINE APPENDIX
(NOT FOR PUBLICATION)

Corporate Campaign Donations and Firms: Evidence from Brazil

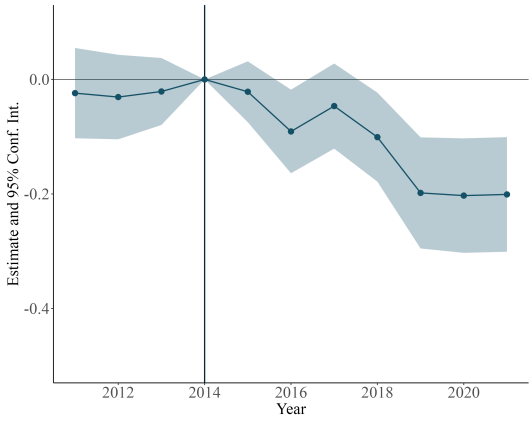
Lina Guerra, Enlinson Mattos and Marcos Y. Nakaguma

Figure A1: Including fixed effects for GD-Donation sectors

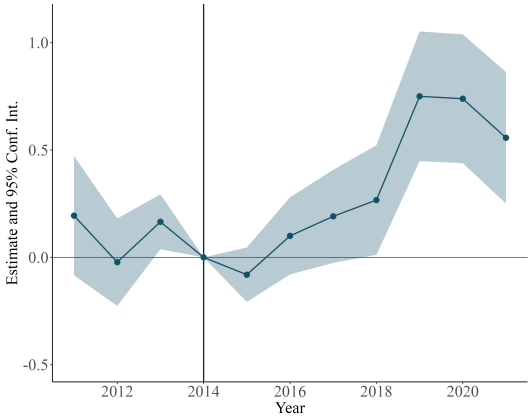
(a) Including sector-year fixed effects: number of establishments



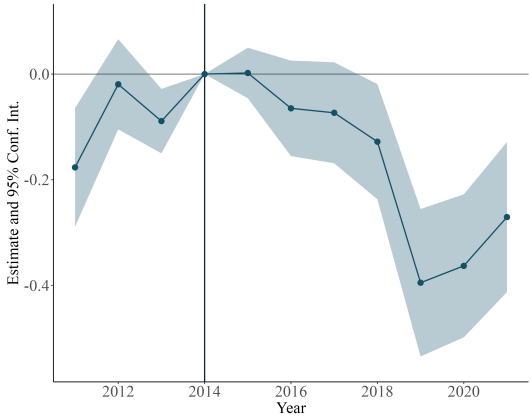
(b) Including sector-year fixed effects: HHI of employment



(c) Including municipality-year fixed effects: number of establishments



(d) Including municipality-year fixed effects: HHI of employment



Notes: This figure reports the dynamic coefficients obtained from the estimation of Equation 10 for GD-Donation sectors, incorporating two distinct layers of fixed effects together with 95% confidence intervals. Panels (a) and (b) show the estimates of $y_{mst} = \alpha_{ms} + \alpha_t + \alpha_{st} \sum_{\substack{\tau=2011 \\ \tau \neq 2014}}^{2021} \beta_\tau \cdot [\text{Exposure}_{ms} \cdot \mathbb{1}_{\text{Periods}=\tau}] + \varepsilon_{mst}$ for both the number of establishments (in log) and the HHI. Panels (c) and (d) plot the event studies of $y_{mst} = \alpha_{ms} + \alpha_t + \alpha_{mt} \sum_{\substack{\tau=2011 \\ \tau \neq 2014}}^{2021} \beta_\tau \cdot [\text{Exposure}_{ms} \cdot \mathbb{1}_{\text{Periods}=\tau}] + \varepsilon_{mst}$ for both the number of establishments (in log) and the HHI.

Table A1: TWFE: number of establishments and HHI of employment for GD-Corruption and GD-Procurement

	GD-Corruption		GD-Procurement	
Model:	Number of estb. (1)	HHI (2)	Number of estb. (3)	HHI (4)
Variables				
Post × Exposure$_{ms}$	0.4040***	-0.1734***	0.4494***	-0.1663***
	(0.0680)	(0.0255)	(0.0726)	(0.0260)
Fixed-effects				
Sector-Municipality	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	516,736	516,736	502,755	502,755
R^2	0.93232	0.79894	0.94141	0.80570
Within R^2	0.00023	0.00023	0.00027	0.00021

Notes: Columns (1) to (4) reports the coefficients obtained from the estimation of the static difference-in-differences of Equation 10 with 95% confidence intervals. We estimate: $y_{mst} = \alpha_{ms} + \alpha_t + \beta \times \text{Exposure}_{ms} \times \text{Post}_{mst} + \varepsilon_{mst}$, where α_{ms} are sector-municipality fixed effects, and α_t are time fixed effects. The variable Post_{mst} is a dummy that assumes one for periods after the reform. For Columns (1) and (3), the dependent variable is the number of establishments. For Columns (2) and (4), the dependent variable is the HHI of employment. Standard errors are clustered at the municipality level. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1