

## **Electoral Accountability with “Myopic” Voters: Evidence from Occupational Deaths in Brazil**

Democratic representation rests on the assumption that elections produce responsive governments. Yet a growing body of scientific evidence presents a considerably darker view of democratic politics. Recent scholarship notes that voters are frequently swayed by largely random events and are “myopic,” sanctioning elected officials only for bad outcomes that occur near Election Day. Short-sighted voters provide incentives for politicians to improve performance in the immediate run-up to elections; at other times, these studies suggest, incumbents should care little about their perceived performance. Instead I offer evidence from one of the world’s largest democracies of accountability working: voters punishing governments for bad outcomes and governments working to improve performance, even though, as I show, voters pay attention to late-term outcomes, ignoring those occurring earlier in the term. I argue that elected officials act responsively because performance at the end of the term often depends on incumbents building an infrastructure for good results throughout the term.

To support this claim, I look at the performance of Brazilian mayors on occupational health safety, using data on fatal workplace accidents. Brazil has the third highest rate of work-related fatalities in the world and local governments play a key role in shaping labor standards. To measure workplace deaths, I turn to original death certificates issued by doctors between 1996 and 2012 and, with the assistance of an epidemiologist, I code deaths as being either work-related or unrelated to work.

Using highly idiosyncratic, month-to-month variation in workplace deaths, I first show that Brazilian voters hold their mayors accountable for as-if random spikes in workplace deaths – but only if these take place close to election day. These dynamics, however, do not apply to officeholders from all political parties; as in the U.S., certain parties “own” issues and are uniquely held to account for bad outcomes in those issue areas. In particular, mayors from the Workers’ Party (PT) – a left-wing party with strong ties to unions and a consistent program of social change – suffer a large electoral penalty when accidents spike soon before Election Day. No similar impact is found for rightist, centrist, or non-ideological parties.

Hence, it would appear that PT mayors have a unique electoral incentive to improve workplace safety. My second key finding is that a PT victory at the polls is followed by a reduction in the number of workers killed in work-related accidents throughout the term. Using a close-election, regression-discontinuity design, I show that a PT victory at the local level causes a dramatic reduction in workplace deaths, even though, as I demonstrate, voters are myopic, punishing mayors for salient accidents occurring just before elections but not for ones happening in earlier periods.

The findings have implications for assessing the conditions under which electoral sanctions improve incumbent performance. I also contribute to the literature that examines the consequences of various facets of governance on the quality of labor standards. The mechanisms linking democracy, government partisanship, and labor standards in cross-national studies are often assumed rather than systematically examined. These studies also rely on highly aggregated indicators to measure the quality of democratic and labor standards, which conflate many dimensions into single indexes. Instead I provide causal evidence linking elections, partisanship, and a salient dimension of workplace standards: fatal workplace accidents.

# Electoral Accountability with “Myopic” Voters

## Evidence from Occupational Deaths in Brazil

Germán Feierherd\*

September 11, 2017

**(Please do not circulate)**

Recent scholarship argues that “myopic” voters – those who focus almost entirely on incumbent performance in the months just before the election – do not create incentives for elected officials to act responsively. Instead I use original data to show that myopic voters in Brazil hold their mayors accountable for spikes in workplace deaths; in turn, elected officials respond by minimizing fatal accidents throughout the term. These dynamics, however, do not apply to officeholders from all political parties; as in the U.S., certain parties “own” issues and are uniquely held to account for bad outcomes in those issue areas. The findings have implications for understanding the impact of democracy on labor standards, as well as for assessing the conditions under which electoral sanctions improve incumbent performance.

---

\*Yale University, Department of Political Science. Contact: [german.feierherd@yale.edu](mailto:german.feierherd@yale.edu).

Improvements in working conditions and workplace safety have often come in the wake of many lost human lives. Large industrial disasters sometimes usher in improvements in labor standards. An example is the fire at the Triangle Shirtwaist Factory in New York City. In the evening of March 25, 1911, 146 garment workers – mostly poor immigrant women, working nine hours a day, six days a week – died from the fire, smoke inhalation, or jumped to their deaths. Before the fire, the local Democratic Party had supported the real estate and manufacturing industries in their resistance to workplace safety improvements. After the fire, the Tammany Hall machine shifted to supporting laws mandating occupational safety protections, minimum wages, maximum hours, and the end of child labor. Key to this about-face by the Democratic Party was the fear of electoral defeat. Should widespread outrage accelerate, working-class voters might defect to the socialists, and middle-class voters to Roosevelt’s Progressives.<sup>1</sup>

Several recent studies question the capacity of voters to influence party programs and government policy. In their recent book, [Achen and Bartels \(2016\)](#) note that voters are frequently swayed by largely random events and are “myopic,” sanctioning elected officials only for bad outcomes that occur near Election Day. Even if voters are willing to sanction incumbents for disasters like the Triangle fire, this retrospection is often *blind*: “myopia makes retrospective judgments idiosyncratic and often arbitrary” (p. 175). Short-sighted voters may provide incentives for politicians to improve performance in the immediate run-up to elections; at other times, however, incumbents might care little about their perceived performance (see also [Healy and Lenz 2014](#) and [Huber, Hill and Lenz 2012](#)).

Yet even if voters are myopic, they can, under some circumstances, produce responsive governments. This will be true if performance at the end of the term is improved when incumbents build an infrastructure for good results during the term. For instance, to lower unemployment by the end of their terms, incumbents may

---

<sup>1</sup> See [Von Drehle \(2004\)](#).

need to implement structural reforms early on to attract private investment. Similarly, governments that aim to forestall fatal workplace accidents occurring at the end of the term may need to work with unions and management to promote safe practices throughout the term.

To examine the effect of elections on incumbent performance on occupational safety, I gather original data on fatal workplace accidents in Brazil, the country with the third highest rate of work-related fatalities in the world ([Giuffrida, Iunes and Savedoff 2002](#)). Current labor conditions in developing countries do not differ much from those in New York City at the turn of the twentieth century. Worldwide, 270 million workplace accidents occur annually, according to estimates from the International Labour Organization. Roughly two million of these result in death ([ILO 2002](#)). I ask two questions: (1) Are fatal workplace accidents an electorally salient issue in a developing country context?; and (2) do governments react to electoral sanctions by improving workplace conditions?

Using data on work-related accidents occurring between 1996 and 2012, I compare the performance of incumbent mayors in places where the number of deaths among workers increases sharply in the months preceding the election (“treated” municipalities), over the same months one year before the election, to places that do not experience a spike in workplace deaths (“control” municipalities). These “spikes” in workplace deaths are plausibly random once we account for baseline conditions and time trends. Using a difference-in-differences design, I show that a sudden increase in fatal workplace accidents sharply reduces incumbent reelection chances. Yet there are a number of caveats: voters are “myopic,” paying attention to late-term accidents and ignoring those occurring earlier in the term. Also, as in the U.S., certain parties “own” issues in Brazil and are uniquely held to account for bad outcomes in those issue areas ([Petrocik 1996](#)). In particular, mayors from the Workers’ Party (PT) – a left-wing party with strong ties to unions and a consistent program of social change – suffer a large electoral penalty when

accidents spike soon before Election Day. No similar impact is found for rightist, centrist, or non-ideological parties.

Hence, it would appear that PT mayors have an electoral incentive to improve workplace safety. Indeed, my second key finding is that a PT victory at the polls is followed by a reduction in the number of workers killed in work-related accidents throughout the term – despite the party being punished only for its end-of term performance on workplace safety. Using a Regression Discontinuity (RD) design in close elections, I show that a PT victory reduces workplace deaths by almost 30% over the entire mayoral term.

The paper makes three contributions. First, against the idea that blind retrospection undermines government accountability, I offer evidence from one of the world’s largest democracies of accountability working: voters punishing governments for bad outcomes and governments working to improve performance. In Brazil, myopic voters (at least those who vote for leftist candidates) employ a sanctioning rule that induces responsiveness among incumbents. I do not contend that myopic judgments by voters create incentives for good performance under *all* circumstances; but across many issue areas, incumbent competence during the election season depends on his or her performance throughout the term.

A second contribution is to present evidence of “issue ownership” in a developing-country setting. Voters often believe certain parties to be better at handling certain problems that their country or community faces ([Petrocik 1996](#)). The implication is that parties emphasize issues on which they are advantaged in the eyes of voters. But their efforts in their advantaged areas may carry risks: They may lose “bragging rights” on areas in which they typically outperform other parties when they perform below expectations in those areas. Voters may also feel disappointment with the party if the expectations set by politicians affect how voters judge incumbents’ subsequent performances in office ([Malhotra and Margalit 2014](#)).

Lastly, my findings are relevant to debates about the quality of labor standards in developing countries. Several studies show a positive correlation between levels of democracy, left partisanship, and labor standards (e.g., [Berliner et al. 2015](#); [Cingranelli and Tsai 2003](#); [Mosley and Uno 2007](#)). The explanation they offer is that unions are more successful in pressing for improvements in working conditions when they operate in democratic regimes and when the left is in power. But it may also be the case that public outrage, fueled by the dissemination of news about workers' deaths, is the real link between democracy, leftist governments, and robust labor standards. Whereas earlier studies deal with possible confounders with statistical controls, I provide evidence of a causal effect of workplace accidents on electoral performance and government partisanship on workplace deaths.

## **Electoral Accountability in Developing Labor Markets**

Though discussions of labor standards rarely dominate political campaigns, a sudden deterioration in workplace conditions may increase the electoral saliency of labor standards and incumbent incentives to improve workplace conditions. A dramatic spike in the number of workers killed at work may grab voters' attention and be taken as a sign of incumbents' lack of commitment to promoting workers' interests. Voters may substitute hard-to-get information (e.g., what is my government doing to improve labor standards) for more easily available information (e.g., have I observed large numbers of workplace accidents recently). And it is not implausible that they view local governments as capable of reducing accidents, aggressively fining violators, tightening safety regulations, and increasing the role of inspections.

Yet, it has been argued, myopic voters – those who overweight incumbent performance in the final stage of a campaign – undermine incumbents' incentives to perform well in office ([Achen and Bartels 2016](#); [Healy and Lenz 2014](#); [Huber, Hill and Lenz 2012](#)). But is this invariably true? The main claim I put forward in this paper is that

the effect of myopic retrospection on incumbent responsiveness depends on the specific issue area that shapes voter behavior. For many outcomes, end-of-term performance depends on government performance throughout the term. Clearly, short-termism pervades political life; as former United Kingdom's Prime Minister Harold Wilson put it, "a week in politics is a long time." But politicians often pursue policies that have upfront costs and long-term benefits (e.g., [Spiller, Stein and Tommasi 2008](#)). Similarly, avoiding bad outcomes at the end of the term in some policy areas may require working ahead of time to improve outcomes in advance.

Whether voter myopia invariably undermines incumbent accountability can be tested in the context of occupational health and safety. Governments can take several steps to reduce workplace accidents and illnesses. But most of these measures require planning, investment, and longer time horizons than just a few weeks before Election Day. Workplace accidents are probabilistic events of underlying hazards that require continuous efforts by governments if they are to be addressed effectively (e.g., [ILO 1999](#)). Thus, it takes time for stakeholders (workers, management, government officials) to learn about workplace dangers. Some injuries and illnesses have long latency periods (e.g., health hazards resulting from exposure to dangerous chemicals) and accidents frequently have multiple causes (e.g., explosions at oil refineries). Tracking them requires that governments work with unions and firms in a continuous fashion. Similarly, building institutional capacity to deal with workplace hazards takes time and effort (for a discussion, see [Huber 2007](#), pp. 84–91).

For instance, most governments reduce hazards through workplace inspections. Inspections have the dual effect of deterring businesses from endangering workers and informing managers and workers about best practices. Governments can intensify inspections during the election season, but to do so they need, earlier, to build a bureaucracy capable of visiting hundreds or thousands of work sites. If governments

increase enforcement efforts in short-term spurts, they are unlikely to address underlying hazards effectively (see, for instance, [Gray and Scholz 1993](#)).

If voter myopia does not necessarily undermine electoral accountability, other factors may prevent workers from using workplace deaths to sanction incumbents, creating differential incentives among incumbents as to how much effort to invest in improving workplace standards. Below I consider the most relevant factors in a developing-country setting.

**Partisan preferences.** Typical economic voting models treat the economy, inflation, crime, and unemployment, among other things, as valence issues ([Stokes 1963](#); [Enelow and Hinich 1984](#)). But partisan differences in the management of public affairs may lead voters to expect different things from different parties ([Hibbs 1977](#); [Powell Jr and Whitten 1993](#)). Because labor accidents hurt workers the most, parties with a strong footing among the working classes may see their electoral prospects rise or fall with changes in workplace conditions. The other side of the coin is that right-wing incumbents may escape electoral punishment, simply because voters do not expect them to improve working conditions.

**Media coverage.** Retrospective voting also depends on contextual factors such as the media environment. Sanction models require that voters have retrospective information about the performance of incumbents and that they punish or reward incumbents in a fashion that credibly signals to candidates the electoral costs of under-performing in office ([Fearon 1999](#)). Hence, I expect voters to sanction or reward incumbents in contexts where they have at least some level of information about the local labor markets. More dense local media environments will increase the saliency of local issues and the information voters have on local labor markets.

**Clientelism and term limits.** Other factors may also prevent voters from holding incumbents accountable. In developing countries, clientelism – defined here as the contingent exchange of votes for private favors – may undermine the ability of voters



to keep politicians accountable ([Stokes 2005](#)). Weak party discipline and term limits also limit the capacity of voters to punish under-performing politicians ([Klašnja and Titiunik 2017](#)).

For fatal workplace accidents to induce incumbent responsiveness, a number of conditions must be met: voters must perceive a connection between incumbent performance and labor accidents; also, voters must care enough about these accidents to change their votes. And incumbents must be able to act to minimize accidents. They might work to improve infrastructure or increase controls over less compliant industries if they feel voters will sanction them for a deterioration of working conditions. In the following sections, I describe the role that local governments play in enforcing health and safety rules in Brazil; the electoral rules and party system; and the main dependent variables to be used in this part of the paper. Then, I describe the data on workplace accidents and the identification strategy.

## **Can Mayors Improve Workplace Safety?**

Brazil is a presidential democracy with 26 states and one federal district. It also has 5,564 local governments led by mayors who are directly elected. Municipal governments collect taxes and provide public goods and services, including education and basic healthcare services. They play a key role in shaping labor standards. All businesses and firms must register with the municipal tax agency and obtain an operating permit. In the process, local governments examine practical and facility aspects, issue equipment-operation permits, and check that construction projects conform to municipal legislation, zoning laws, and municipal building codes. The jurisdiction of local governments over building codes and construction projects makes them key players in the enforcement of occupational health and safety. According to official data, the service sector, which includes workers in retail, hotel, restaurant and hospitality industries, has

the most accidents in the country. Civil construction is second among sectors of the economy in terms of the number of workers killed on the job ([AEPS 2015](#)).

Mayors also influence occupational health and safety through their impact on health care. Local governments are responsible for administering low and medium complexity health care and are required to spend at least 15% of their annual budget in this area. Many local governments actively try to improve occupational health and safety. For instance, in the city of Piracicaba, in São Paulo State, a PT-held local government in 2003–2004 implemented a real-time information-feed system covering all work-related accidents in the municipality. Health care facilities – eight in total, at the time the program was launched – are required to file an electronic report on the provision of care to any worker injured on the job. This information is used to identify fatal injuries, multiple traumas, amputations, second or third degree burns, and the like. These events trigger on-site inspections, aimed at identifying underlying hazards and risking activities. The information is also used to promote health initiatives at the sector or industry level. The information gathered by this system is available to local, state, and federal agencies.<sup>2</sup>

Mayors have influence in the Federal System of Labor Inspection (SFIT), a federal government agency charged with the enforcement of labor regulations. SFIT is an understaffed labor agency (2,800 inspectors for a workforce of 90 million). So it sees municipalities as an invaluable source of resources and information. Local agencies give access to information tools – like the information system just described – for labor inspectors to plan operations to enforce health and safety regulations, collect labor taxes and build “maps” of regions and economic sectors with more informal workers and a greater propensity for child labor.<sup>3</sup> Municipalities also sign *parcerias* (cooperation agreements) with the enforcement agency. Through these agreements, municipalities

---

<sup>2</sup> Interviews SP4, SP5.

<sup>3</sup> Interviews BH3, RGDS1, SP1.

provide resources for enforcement (e.g., a building to set up a local inspection office) and participate in national programs to promote employment and “decent work.”<sup>4</sup>

## **Are voters informed about local governments’ role in workplace safety?**

Newspapers and talk radio programs typically report on local governments’ responses to fatal workplace accidents. Mayors release statements, declare official mourning days, aid victims, and promise full investigations. For instance, one article describes the death of a worker after an explosion in a firework factory, reporting that “the mayor released a statement saying he’s sorry for the loss and that [the firework enterprise] had a permit to operate and was doing everything within the realm of law.”<sup>5</sup> Another article cites a local-level official, after an accident that killed three workers, saying that “we are all saddened by this accident” and that “given the social upheaval, the mayor... has called for three days of official mourning.” The article also mentions that the local government would start an inquiry on the causes of the accident.<sup>6</sup> The media also covers the social protests and picket lines that result from workplace accidents. In Araucária, in the State of Paraná, workers mobilized after an outsourced worker fell to his death when fixing a chemical reactor.<sup>7</sup> Social protests also sparked after nine fishermen went missing after two tugboats crashed on the Amazon River.<sup>8</sup> In sum, local government do shape occupational health and safety in Brazil, and there is press coverage allowing voters to become aware of local governments’ responsibility for workplace safety.

---

<sup>4</sup> On the concept of “decent work,” see [ILO \(2016\)](#).

<sup>5</sup> “Trabalhador morre em explosão em fábrica de fogos de artifício em MG,” 3/28/2016, retrieved from [www.globo.com](http://www.globo.com) on 9/6/2016.

<sup>6</sup> “Desmoronamento deixa mortos no aterro sanitário de Engenheiro Beltrão,” 5/23/2016, retrieved from [www.globo.com](http://www.globo.com) on 9/6/2016.

<sup>7</sup> “Morte de terceirizado na Fafen-PR gera protestos contra insegurança na Petrobras,” 10/18/2016, retrieved from [www.brasildefato.com.br](http://www.brasildefato.com.br) on 8/29/2017.

<sup>8</sup> “Rebocador de balsa afunda após bater com navio no rio Amazonas; 9 estão desaparecidos,” 08/02/2017, retrieved from [www.globo.com](http://www.globo.com) on 8/29/2017.

## Electoral data en the Brazilian party system

Do workplace accidents influence local electoral outcomes? To find out, I studied five rounds of mayoral elections: 1996, 2000, 2004, 2008, and 2012. Mayors in Brazil are elected by popular vote every four years. Elections typically take place in the first or second week of October.<sup>9</sup> Because parties in Brazil do not file mayoral candidates in every municipality in every election, I focus on whether the incumbent party wins the next election. Yet, it could be that when incumbent parties preside over a deterioration in labor market conditions they anticipate a bad electoral performance and decide not to run – what the incumbency advantage literature in the U.S. calls a “scare-off” effect. Therefore, when the incumbent party does not run, I code the variable as zero – i.e., the party loses.

I study all municipalities pooled across parties (I call this the incumbent sample) and then replicate the analysis for the PT and the Brazilian Party for Social Democracy (PSDB) separately (I call this the PT and PSDB samples, respectively). Doing so allows me to evaluate whether these parties do better or worse in places with and without a sudden change in fatal workplace accidents when they are the incumbent. That is, in the party-specific samples, comparisons are made among co-partisan incumbents and candidates. In the incumbent sample, comparisons are made among incumbents of different parties.

In Brazil, parties at the local level are typically portrayed as weak, patronage-oriented, and personalistic organizations, with the PT and, to some extent, the PSDB, being the two exceptions. These two parties have broad participation in local elections and relatively consistent ideological stances, with the PT tilting toward a pro-worker center-left position and the PSDB toward a technocratic center-right (Celso 2006; Samuels and Zucco 2013). Particular interest centers on the PT. The party is the archetypal strong organization – a

---

<sup>9</sup> If a district has more than 200,000 voters, the election is held under a runoff system (this also applies to state and national executive elections). Otherwise, mayors are elected by plurality rule.

party with a coherent program for social change, a disciplined membership, and deep roots in civil society. The party's strong organization and clear programmatic goals provide some level of uniformity in PT-held governments, despite the heterogeneity of Brazil's municipalities (see [Hunter 2010](#), p. 83). Given its embrace of policies to help workers and the poor – the *modo petista de governar* (PT way of governing) – a change in labor conditions may affect the electoral fortune of the party the most. The PSDB, in turn, has a middle- and upper-class following and less clear programmatic goals. Therefore, I do not expect the politicization of workplace accidents to hurt PSDB incumbents as much as they do PT mayors.<sup>10</sup>

## Health and Safety Data

Official statistics on work-related accidents and fatalities in Brazil come from the Social Security Agency (INSS). These data are available at the municipal level for every year since 2002 and cover accidents suffered by *insured* workers in the *formal* sector. For the purpose of this study, this data has two problems: available data excludes public employees, informal-sector workers, and the self-employed. About half of the workers in Brazil are in the informal sector and are not counted for social security benefits. Also, the data are aggregated by year. In Brazil, elections typically occur in October; therefore, annual counts of workplace accidents include some accidents that take place after the election – though before the winner takes office.

To deal with these problems, I turned to original death certificates, available in the Mortality Information System (SIM). In these certificates, physicians write reports about causes of death, which they submit to agencies responsible for the SIM. The SIM uses the medical classification list by the World Health Organization (WHO), which codes

---

<sup>10</sup> The appendix shows results for a number of smaller leftist parties and three additional large parties: the Brazilian Democratic Movement Party (PMDB), the Progressive Party (PP), and the Democratic Labor Party (PDT). See Appendix, sections A7 and A8.

14,400 diseases, social circumstances, and external causes of injury or death.<sup>11</sup> Doctors are required to report whether the injury or death was work-related, but they rarely do so. Therefore, I had to supplement this coding. With the assistance of an epidemiologist, I classified 373 accident categories as either likely or unlikely to be work-related; for those coded as likely to be work-related (e.g., “contact with agricultural machinery,” “explosion and rupture of gas cylinder”), I included all death tallies where doctors either declared the death as work-related or did not supply any information, and excluded those cases where doctors indicated that it was not work-related. For those I coded as unlikely to be work-related (e.g., “discharge of firework,” “contact with venomous snakes and lizards”), I only included death tallies where doctors said the death was work-related. I conducted several robustness checks to verify the reliability of the SIM data and my supplemental coding, reported in the appendix.

How does the number of fatal workplace accidents in Brazil compare with those of other countries? Even considering the official statistics alone, which dramatically undercount the number of workers killed in the workplace, Brazil has one of the most dangerous labor markets in the world. Take, for instance, the United States, one of the countries with the most reliable statistics, but which still suffers from substantial health and safety problems. In 2013, 4,405 workers died in the US in the workplace, a rate of 3.2 killed per 100,000 workers. Official statistics for Brazil show that 2,797 workers died while working, a fatality rate of 6.53 per 100,000 formal workers – nearly double the U.S. rate ([Maia et al. 2013](#)).

## Identification Strategy

Obviously, workplace fatalities do not happen randomly: some municipalities have local governments that work alongside workers and firm managers to improve health and safety conditions; some municipalities are more wealthy and have better enforcement

---

<sup>11</sup> For more details, see “ICD-10 Chapter XX: External causes of morbidity and mortality.”

agencies and healthcare systems; and dangerous industries will be present in some municipalities and absent in others. To identify the electoral effects of workplace fatalities, I exploit highly idiosyncratic variation in the number of workers killed soon before local elections. As one inspector told me during my fieldwork in Brazil,

Our work matters but labor accidents rarely have a single cause. Sometimes the accident is caused by the wind or the rain; sometimes the operator is more tired than usual and makes a mistake or forgets to put on his helmet, perhaps because he worked overtime. It could be a problem with a machine. It is not one single problem or mistake, but a succession of problems and human errors.<sup>12</sup>

To evaluate the effect of fatal workplace accidents, I sum the number of casualties in the three months before the election ( $t_4$ : July, August, September) and compare that number with the number of casualties during those same months one year before the election ( $t_3$ : July, August, September).<sup>13</sup> Restricting attention to the run-up to elections is necessary for two reasons: an incumbent party may decide not to run in the first place if it perceives that its chances are diminished by events that occur before the official registration of candidates. And voters may be myopic, weighing events occurring shortly before the election day more heavily than those that happened at the beginning of an election year or earlier in the term. To evaluate this claim, I also study the electoral effect of workplace fatalities in the first and second trimesters of the electoral year.

I define a municipality as “treated” if, conditional on experiencing at least one fatal accident during the selected period, the number of workplace casualties is at least twice that of the same period in the previous year. Setting the cutoff at twice the number of deaths is arbitrary but results are robust to multiple distinct specifications of the

---

<sup>12</sup> Interview RGDS7.

<sup>13</sup> Results using the INSS data, which covers only insured formal workers, use variation across years. See Appendix, Section A7.

“shock.”<sup>14</sup> This procedure results in a control group of 3,439 municipalities and a treated group of 979 municipalities:

$$Shock_{i,t4-t3} = \begin{cases} 1 & \text{if } Fatalities_{i,t4} > 2 \cdot Fatalities_{i,t3} \\ & \text{and } Fatalities_{i,t4} > 0 \text{ and } Fatalities_{i,t3} > 0 \\ 0 & \text{if } Fatalities_{i,t4} < 2 \cdot Fatalities_{i,t3} \\ & \text{and } Fatalities_{i,t4} > 0 \text{ and } Fatalities_{i,t3} > 0 \\ . & \text{otherwise} \end{cases}$$

To estimate the effect of  $Shock_{i,t4-t3}$ , I use a difference-in-differences design with fixed effects for year/municipality. This approach controls for within-municipality variation for all time-invariant municipal-level characteristics and also controls for time trends that are common to all municipalities. The key identifying assumption is that, after controlling for overall working conditions within a municipality and national-level time trends, a sudden increase in work-related fatalities in the run-up to elections is effectively random.

Although the timing of work-related accidents is idiosyncratic (as suggested by the inspector’s quote above), this does not imply that fatality shocks happen by chance. One concern is that incumbents might try to limit the number of workplace accidents during the election year, e.g., by increasing oversight. Then potential outcomes (vote shares of incumbents with and without accidents) will likely differ between those who try to limit workplace accidents – e.g., because they face a close election – and those who do not. Indeed, below I show that some incumbent parties are better than others in reducing workplace deaths. To deal with this potential inferential threat, I take a number of precautions.

---

<sup>14</sup> See Appendix, Section A3 and A4. This procedure is similar to the one used by [Marshall \(2015\)](#) and [Richardson \(2010\)](#).



All my comparisons take into account baseline number of deaths the year before the election; so, any any increase in workplace deaths is computed relative to whatever the baseline of workplace deaths was the year before the election within the municipality. To further account for party-level differences in the managing of workplace standards, I compare incumbents from different parties against each other (in the incumbent sample) and also compare incumbent co-partisans with and without workplace death spikes for the PT and the PSDB.

I also show results controlling for several time-changing covariates that may correlate with both incumbents' labor-market policies and their electoral chances. I control for GDP growth, comparing the size of the local economy during the election year with its size the previous year. During a recession, workers may accept riskier jobs, ignoring health and safety concerns. Alternatively, during economic booms, more workers may be employed, thus potentially increasing the number of people who might be injured on the job. I also control for the percentage change in the number of formal-sector workers and firms, again comparing the election year with the previous year. We should observe more accidents in places with more employed workers.<sup>15</sup> The third control variable is the change in the number of labor inspections conducted by the federal government. An increase in the number of inspections might signal labor market problems in the municipality. Also, voters might respond to an increase in inspections following labor accidents rather than to accidents *per se*.<sup>16</sup>

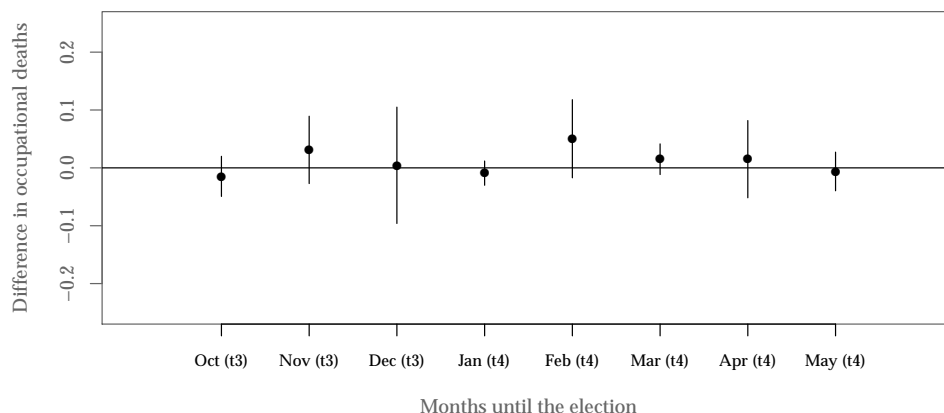
Figure 1 examines whether “treatment” and “control” municipalities exhibit differential pre-treatment trends in occupational fatality rates. The figure shows that the difference in monthly accidents between treated and untreated municipalities is close to zero in the eight months preceding the period used to define the shock. This evidence

---

<sup>15</sup> Unfortunately, there is no year-level data for the number of informal workers at the municipal level. Informal workers are defined as self-employed and waged workers that do not own a “labor card” and are not entitled to social security benefits.

<sup>16</sup> All these controls are computed as year-level variations, but elections typically take place in October. Thus, controlling for these variables may produce post-treatment bias ([Rosenbaum 1984](#)). I show results with and without controls.

limits concerns about mayors in “treated” municipalities behaving differently from those in “control ”municipalities – e.g., expanding the size of the economy to maximize the number of jobs during the election year or expanding the number of public construction projects to extract kickbacks from contractors.



**Figure 1:** Difference in the number of workplace deaths between treated and control municipalities, by month during the election year. Bars represent 95% confidence intervals. Each estimate is obtained from an OLS regression with fixed effects for year/municipality.

Figure 2 shows balance tests for 20 pre-treatment covariates. The shock measure is uncorrelated with a wide variety of pre-treatment covariates capturing demographic, socioeconomic, and political outcomes. Some of these variables measure levels (e.g., the number of workers who died the year the incumbent mayor took office) while other capture variations from the year before the election to the year of the election (e.g., local GDP growth). Municipalities that suffered fatality spikes – treated ones – did not differ significantly from others in the number of inspections that took place the year the mayor took office, the number (and yearly change) in labor fines imposed on firms, municipal-level GDP, GDP growth, population, or size of the service, agricultural, and industrial sector, among other factors. Only two variables (population size and the change in the number of formal-sector workers) show a small imbalance at the .1 significance level. Overall, treated and control municipalities appear, on average, very

similar to one another. Critically, I find balance on two key covariates: the share of municipalities controlled by the PT and the share of municipalities controlled by the PSDB.

## Do Workplace Accidents Influence Elections?

One key finding of this study is that a sudden increase in the number of fatal workplace accidents does not hurt the electoral chances of incumbent parties (Table 1). There are several plausible explanations for this null result: workers may fail to mobilize after a deterioration of workplace conditions, accidents may not receive sufficient attention from the media, or voters might not judge mayors on the basis of workplace safety. The analysis that follows sheds some light on these factors.

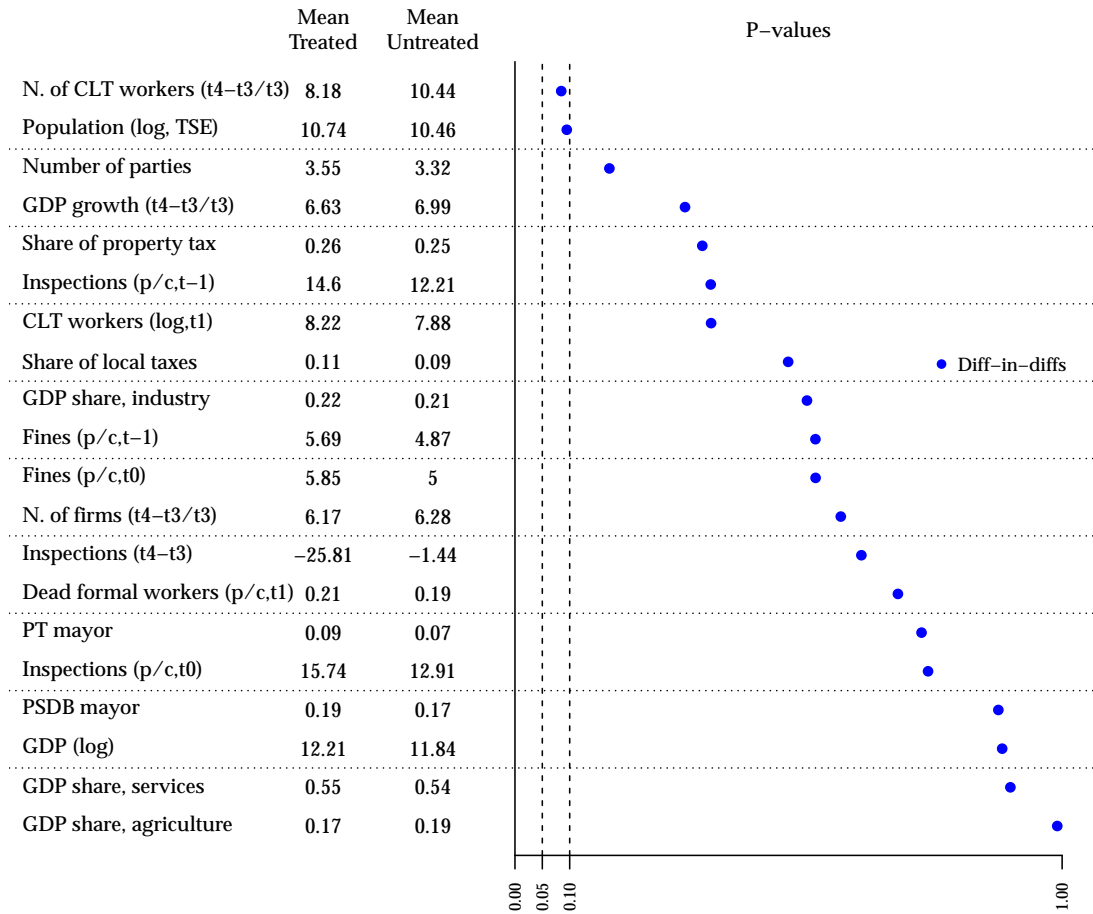
	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	0.008 (0.024)	−0.003 (0.029)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
N	4303	3109
R-squared	0.012	0.026
Adj. R-squared	0.006	0.011
F Statistic	7.013*** (df = 4; 2222)	5.023*** (df = 7; 1321)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table 1:** Difference-in-differences: The effect of a spike in workplace deaths on municipal electoral outcomes (incumbent sample) in the run-up to the election.

But a second key finding is that in localities in which the mayor was from the PT, the governing party lost votes if there had been a spike in workplace fatalities in the months before the election (Table 2). A sharp increase in the number of occupational deaths close to the election decreases the PT's probability of being reelected on average by 20%.<sup>17</sup> By contrast, mayors from the center-right PSDB escape punishment from

<sup>17</sup> 95% confidence intervals: [0.042, 0.383]; as I discuss below, the "true" effect is probably on the lower end of the distribution.



**Figure 2:** P-values for  $Shock_i$  on pre-treatment variables. All specifications include municipality and year fixed effects, and are estimated using OLS. *N. of CLT workers ( $t4 - t3/t3$ )* is the percent change in the number of formal workers; *Population (log, TSE)* is the log of the adult population at the time of the election ( $t0$ ); *GDP growth ( $t4 - t3/t3$ )* is the percent change in the local GDP; *Share of property tax* is the share of the property tax over the municipal budget; *Inspections ( $p/c, t - 1$ )* and *Inspections ( $p/c, t0$ )* is the per capita number of labor inspections the year before the incumbent mayors takes office and during the election year respectively; *CLT workers (log,  $t1$ )* is the log of the number of formal workers for the first year the mayor takes office; *Share of local taxes* is the share of local taxes over the municipal budget; *GDP share, industry; services; agriculture* is the GDP share represented by each of these activities respectively; *Fines ( $p/c, t - 1$ )* and *Fines ( $p/c, t0$ )* is the per capita number of fines for labor violations issued by the labor agency the year before the incumbent mayors takes office and during the election year respectively; *N. of firms ( $t4 - t3/t3$ )* is the percent change in the number of formal firms; *Inspections ( $t4 - t3$ )* is the change in the number of labor inspections between the year before the election and the election year; *Dead formal workers ( $p/c, t1$ )* is the per capita number of death workers (per 10,000 adult residents) the year the mayor takes office; *PT mayor* and *PSDB mayor* are municipalities controlled by the PT and the PSDB respectively; *GDP (log)* is the log of the municipal GDP the year of the election.

voters when workplace deaths spike during their tenure. The interaction term between PSDB incumbency and the treatment is negative but small; also, the standard errors are relatively small compared to those of the PT interaction term (i.e.,  $PT_{mayor} \cdot Shock$ ).

	<i>Reelect<sub>t+1</sub></i> , PT sample		<i>Reelect<sub>t+1</sub></i> , PSDB sample	
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<i>Shock</i>	−0.0001 (0.013)	0.010 (0.016)	0.031* (0.018)	0.004 (0.021)
<i>PT<sub>mayor</sub></i>	−0.027 (0.033)	−0.142*** (0.040)		
<i>PT<sub>mayor</sub> · Shock</i>	−0.213** (0.087)	−0.272*** (0.103)		
<i>PSDB<sub>mayor</sub></i>			−0.115*** (0.025)	−0.244*** (0.030)
<i>PSDB<sub>mayor</sub> · Shock</i>			−0.017 (0.055)	−0.062 (0.066)
Municipal FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	YEs
N	4303	3109	4303	3109
R-squared	0.023	0.052	0.021	0.084
Adj. R-squared	0.012	0.022	0.011	0.036

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table 2:** Difference-in-differences: The effect of a spike in workplace deaths on municipal electoral outcomes (PT sample: models 1 and 2; PSDB sample: models 3 and 4) in the run-up to the election.

I have been comparing the performance of the PT and the PSDB in places where these parties were the incumbent with places where they ran as an opposition party. In Table 3, I also compare PT and PSDB incumbents against other incumbent parties by interacting an indicator variable for PT and PSDB incumbency.<sup>18</sup> Again, an increase in the number of fatal workplace deaths significantly reduces the electoral chances of the PT: reelection chances fall by 17% compared to other incumbent parties. In contrast, a shock in the number of worker deaths does not hurt the electoral fortunes of PT’s main challenger, the PSDB. These results remain largely unaffected by the introduction of controls.

Most voters learn about workplace accidents through the media. In Brazil, local radio stations are the central source of information for local politics: “many radio

<sup>18</sup> The appendix, Section A7, includes interaction terms for other major parties.

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	0.022 (0.027)	0.029 (0.033)
<i>PTmayor</i>	0.299*** (0.038)	0.284*** (0.044)
<i>PSDBmayor</i>	0.076*** (0.028)	0.046 (0.034)
<i>PTmayor · Shock</i>	−0.173* (0.089)	−0.296*** (0.103)
<i>PSDBmayor · Shock</i>	0.003 (0.063)	−0.027 (0.072)
N	4303	3109
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
R-squared	0.037	0.051
Adj. R-squared	0.019	0.022
F Statistic	10.570*** (df = 8; 2218)	6.413*** (df = 11; 1317)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table 3:** Difference-in-differences: The effect of a spike in workplace deaths on municipal electoral outcomes for PT and PSDB incumbents (incumbent sample).

broadcasters typically host call-in talk shows where listeners can complain about poor public services and even corruption scandals” (Ferraz and Finan 2008, p. 709). Thus, we should expect voters to punish the PT for local workplace accidents in municipalities with local radios. I evaluate this argument by coding for the existence of a local radio station, either AM or FM, reported in the municipality survey *Perfil dos Municípios Brasileiros*.<sup>19</sup> We see that voters punish the PT incumbent only in places with local radio stations. Hence, the presence of local media mediates the relationship between performance and accountability in Brazil. For other incumbents (including those of the PSDB), workplace accidents do not affect reelection chances, whether or not there is a local station to report on local accidents.

One alternative interpretation of these findings is that party *strength* explains the unique price paid by the PT for workplace fatalities. Recall that the PT is an exception

<sup>19</sup> I use data for the following years: 1999 for shocks in 2000; 2002 for shocks in 2004; 2005 for shocks in 2008; and 2012 for shocks in 2012.

	<i>Reelect<sub>t+1</sub></i> , all incumbents		<i>Reelect<sub>t+1</sub></i> PT sample		<i>Reelect<sub>t+1</sub></i> PSDB sample	
	<b>No radio</b>	<b>Radio</b>	<b>No radio</b>	<b>Radio</b>	<b>No radio</b>	<b>Radio</b>
<i>Shock</i>	0.024 (0.067)	−0.010 (0.028)	0.007 (0.023)	−0.001 (0.016)	0.058 (0.045)	0.031 (0.021)
<i>PT<sub>mayor</sub></i>			−0.064 (0.149)	−0.029 (0.037)		
<i>PT<sub>mayor</sub> · Shock</i>			−0.052 (0.195)	−0.226** (0.105)		
<i>PSDB<sub>mayor</sub></i>					−0.166* (0.088)	−0.102*** (0.027)
<i>PSDB<sub>mayor</sub> · Shock</i>					−0.101 (0.162)	−0.062 (0.065)
Municipal FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1019	3252	1019	3252	1019	3252
R-squared	0.032	0.016	0.044	0.021	0.055	0.019
Adj. R-squared	0.007	0.009	0.010	0.011	0.012	0.010

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table 4:** Difference-in-differences: The effect of workplace deaths on municipal electoral outcomes for incumbents, in places with and without local radio stations.

in Brazil: a programmatic, disciplined party, surrounded by weak, personalistic, and opportunistic parties. Voters may punish incumbent *individuals* (whatever their party affiliation is) for bad outcomes but only the incumbent *party* when he or she is from the PT. But I find this to be unlikely. Treating individual candidates as the unit of analysis and excluding term-limited mayors, I find that the electoral chances of individual candidates who are up for reelection are not affected by a spike in workplace accidents. Again, only PT-affiliated individuals suffer an electoral penalty from a deterioration in labor conditions when they are the incumbent (Appendix, Section A4).

Mayors from other leftist parties in Brazil also suffer a penalty, albeit a smaller one, when workplace deaths spike on their watch (see Section A8 in the appendix). Hence, voters judge leftist incumbents more harshly when workers die in accidents. Left-leaning parties typically campaign on a pro-worker platform, and their constituents may feel disappointed when these parties fail to prevent workplace accidents. In line with this argument, PT incumbents are not punished when non-work-related accidents (defined as deaths that doctors record as non-work-related) spike close to election day; only when

work-related deaths do (Appendix, Section A9). The effects, both for PT and for PSDB incumbents, and incumbents more generally, are precisely estimated to be zero for shocks in accidents that are not work-related.

Might it be the case that the PT suffers more from its underperformance in office because other parties are engaged in clientelistic tactics? In Brazil, clientelistic machines are controlled by individual mayors (Novaes 2014). But incumbent parties do not perform worse when workplace accidents spike and the sitting mayor is not allowed to run for reelection. We also expect clientelism to be more widespread in municipalities that are small, poor, and rural. Yet there are no interaction effects between the spike in workplace accidents and the size of the municipality, its GDP, the share of people living in rural areas, the size of the local government, and the level of local development (according to a development index elaborated by the federal government).<sup>20</sup>

Finally, it is worth considering the magnitude of the effects. For PT incumbents, a spike in workplace accidents reduces reelection chances by roughly 20%. One way to benchmark these effects is to compare them with other studies that analyze reelection rates among Brazilian mayors. Ferraz and Finan (2008) find that the dissemination of audit reports revealing extensive corruption before the election reduces reelection rates by 17.7% points. Brollo (2011) finds that for every additional corruption violation reported, the incumbent party's probability of re-election decreases by 18% in municipalities with audit reports released six months before the municipal election. So, a 20% effect from workplace accidents is substantial. That said, the "true" effect of workplace accidents may be on the lower end of the estimated confidence intervals. The appendix shows analogous results for the percentage change in fatal accidents. A move of one standard deviation away from the mean-level of accidents reduces the likelihood of reelection of the PT by roughly 6% points (two-tailed p-value is XXXX).

---

<sup>20</sup> See Appendix, Section A5.



## Are Brazilian Voters Myopic?

Do voters punish the party for any spike in workplace accidents or only for those that take place soon before Election Day? To answer this question, I calculate a spike in workplace deaths for the first and second trimesters, using the same procedure as above. Indeed, voters are myopic: they are only sensitive to end-of-term accidents. When spikes in fatal workplace accidents occur during the first or second trimester, the electoral chances of the PT are unaffected, as are the chances of any other incumbent parties (Table 5).

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock<sub>jun,may,apr</sub></i>	0.037 (0.037)	
<i>Shock<sub>mar,feb,jan</sub></i>		−0.0004 (0.035)
<i>PTmayor</i>	0.294*** (0.037)	0.281*** (0.041)
<i>PSDBmayor</i>	0.082*** (0.031)	0.106*** (0.028)
<i>PTmayor · Shock<sub>jun,may,apr</sub></i>	−0.068 (0.154)	
<i>PSDBmayor · Shock<sub>jun,may,apr</sub></i>	0.004 (0.089)	
<i>PTmayor · Shock<sub>mar,feb,jan</sub></i>		0.037 (0.136)
<i>PSDBmayor · Shock<sub>mar,feb,jan</sub></i>		−0.071 (0.081)
N	3851	4006
R-squared	0.038	0.037
Adj. R-squared	−0.945	−0.907
F Statistic	9.422***	9.785***

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table 5:** Difference in differences: The effect of workplace deaths on municipal electoral outcomes (incumbent sample) with recurrent shocks. Model 1 shows results for spikes in the second trimester. Model 2 shows results for spikes in the first trimester.

The picture emerging here is consistent with the one painted by [Marshall \(2015\)](#). He shows that consumption of politically relevant news increases sharply before elections,

two to five months before election day. These information cycles induce voters to overweight recent performance and ignore incumbent behavior at other times.

## **Do PT Mayors Reduce Workplace Deaths?**

Does the electoral costs imposed by workplace accidents force PT mayors to improve occupational health and safety conditions in their towns and cities? According to [Achen and Bartels \(2016\)](#), if voters focus almost entirely in the months just before the election, political accountability should be greatly attenuated. But it could also be that performance at the end of the term is better if incumbents build an infrastructure for good results during the term, so the two are correlated. For instance, PT mayors may respond to their constituents' end-of-term sensitivity by working with unions, management, labor inspectors, and informal-sector organizations to promote safe practices *throughout* the term. And they may intensify inspections of firms in dangerous sectors. Indeed, the PT engages in many of these activities. Recall the PT mayor of Piracicaba; the local government worked with state and federal agencies and with a university to set up a system for identifying workplace hazards and occupational risks. The appendix also shows that PT mayors are more likely to sign agreements with the federal ministry of labor to promote "decent work" conditions in both the informal and formal sectors.

To estimate the effect of PT mayors on fatal workplace accidents, I compare total workplace deaths over a mayor's term in places governed by the PT with places governed by other parties. The threat to causal inference is that places where the PT runs competitive candidates may be systematically different from those where the party struggles to collect votes. For instance, the PT has been historically successful in the richer and more urban South and Southeast regions. Local bureaucracies in these regions may be more effective at enforcing construction codes and other regulations affecting occupational health and safety. These regions may also have stronger local unions that keep employers in compliance with health and safety codes.

To address these concerns, I use a close-election regression-discontinuity (RD) design to test for the effect of partisanship on fatal workplace accidents. This design is based on a simple assumption: in close elections, winners and losers are determined essentially by chance.<sup>21</sup> Therefore, municipalities where mayoral candidates from the PT barely win should be, on average, indistinguishable from municipalities in which PT candidates lose by a similarly small margin.<sup>22</sup> I estimate the effect of a PT mayor by looking at “close” races where the PT candidate came in either first or second, using a local-linear regression with triangular kernel weights around the bandwidth selected by the [Calonico, Cattaneo and Titiunik \(2014\)](#) estimator. I estimate standard errors using their robust standard error estimator and their bias-corrected confidence intervals. I define a workplace accident in the same way I did before in this paper, summing all workers killed at work during the entire mayoral term.<sup>23</sup> I normalize the dependent variable by taking the natural logarithm.

Graphical evidence suggests that a victory by the PT indeed causes a sharp decrease in workplace deaths in the cities governed by the party (Figure 3). Places where the PT won by a small margin were ones in which fewer workers were killed in the workplace. This result is confirmed by regression analysis. Roughly 28% fewer workers die at work by the end of a PT mayor’s term relative to places where a PT candidate barely lost the mayoral race (Table 6). The effects are substantively and statistically significant.<sup>24</sup> Fatal accidents decline, then, during the entire mayoral term. Critically, the appendix shows that PT mayors do not reduce the number of non-workplace deaths compared to other

---

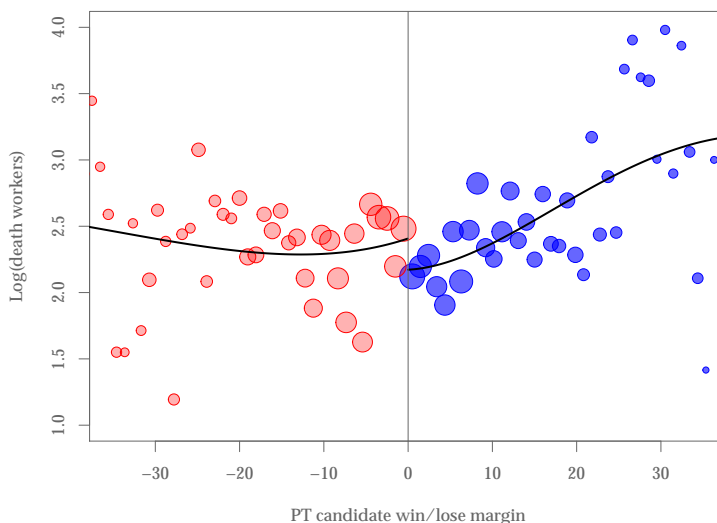
<sup>21</sup> For a full derivation of the RDD estimand see [Imbens and Lemieux \(2008\)](#).

<sup>22</sup> Indeed, I find no statistically significant differences for units around the discontinuity for a number of relevant pre-treatment covariates. See Appendix, Section B for more details.

<sup>23</sup> In the appendix, I also show results using data from the INSS, which includes official data on fatal workplace accidents for insured formal workers.

<sup>24</sup> The appendix shows that there is also a drop in workplace deaths when using the official data on the *formal* and *insured* sector, although confidence intervals are somewhat larger.

mayors. Instead, PT mayors only reduce deaths for which they are electorally sanctioned (see Appendix, Section B3).<sup>25</sup>



**Figure 3:** RD plot: The circles depict average number of death workers (logged) over the entire mayoral term at the municipal level in places where a PT candidate wins or loses. The size of the circles is proportional to the number of municipalities in each group. The fitted lines were estimated using a regression model with a third-order polynomial.

		Estimate	Std. Error	95% CI	Opt. bandwidth	N
1	t1-t4	-0.33	0.166	[-0.68,-0.03]	18.747	2254
2	t1	-0.349	0.174	[-0.735,-0.054]	18.935	1692
3	t2	-0.269	0.173	[-0.609,0.07]	19.035	1771
4	t3	-0.407	0.179	[-0.796,-0.093]	16.842	1715
5	t4	-0.171	0.169	[-0.507,0.154]	19.871	1728

**Table 6:** Effect of having a PT mayor on workplace deaths, logged. The table reports coefficients from a local linear regression using triangular kernel weight. Optimal bandwidths and robust standard errors are estimated using the [Calonico, Cattaneo and Titiunik \(2014\)](#) procedure.

But it could be that most of the effect comes from mayors working to prevent workplace accidents in the election year only. This is what [Achen and Bartels](#) would predict from voters' myopic behavior. Somewhat surprisingly, PT mayors bring down

<sup>25</sup> Why voters do not sanction the PT for fatal accidents that are not work-related, and why PT mayors are not more effective than other mayors in reducing these deaths, is beyond of this study.

fatal accidents in every year of their tenure in office, but the effects are smallest (and not statistically significant at conventional levels) during election years (Table 6). It may be that, during the election year, mayors feel countervailing pressures: to limit fatal accidents, grow the economy, and extract campaign funds from businesses. The key point, though, is that compared to parties that escape punishment when workplace deaths spike, PT mayors reduce the number of workers who die on the job throughout the mayor's term – despite being punished only for accidents that take place in the few weeks before the elections.

The fact that accidents fall during the first year of a mayor's term may also be surprising. But mayors have several tools at their disposal to quickly reduce workplace accidents. From day one, they can cooperate with firms and workers to identify the most important occupational hazards. They can also bring health and safety to the public bidding process, offering public contracts to firms that promise to follow better working standards. As a local official explained to me, local governments have several tools to bring a rapid change in labor standard: "We know which firms have been caught employing slave-like labor and we can use that information during the public bidding process. We can also remove municipal licenses or cancel public contracts."<sup>26</sup> Local governments can also signal their commitment to enforce labor and environmental standards by intensifying inspections during the first few weeks in office.<sup>27</sup>

One may also wonder whether the fact that PT mayors reduce workplace accidents affect the results presented earlier, on the effect of workplace fatal spikes on PT's electoral performance. But recall that I compared PT incumbents against other incumbents but also PT incumbents with and without workplace death spikes against each other. I also showed results with and without time-changing covariates and controlled for baseline levels of workplace standards.

---

<sup>26</sup> Interview SP6.

<sup>27</sup> Interview RGDS8.

## Conclusion

The conventional wisdom about democracy holds that voters can induce incumbents to deliver improved public goods, such as safer workplaces, by rewarding good incumbents and throwing the bad ones out. But recent scholarship suggests a broken link between elections and government accountability. One reason is that voters are shortsighted, rewarding “their elected leaders for *some* good times and punish them for *some* bad times” (Achen and Bartels 2016, p. 158). Similarly, Healy and Lenz (2014) state that voters who focus on recent rather than cumulative performance “favor the best manipulators as opposed to the best stewards” of government affairs (p. 45).

Against this pessimistic view, I argued that the effect of myopic retrospection on incumbent responsiveness depends on the specific issue area that shapes voter behavior. Examining the causes and consequences of occupational health and safety, I presented evidence that, even when voters are myopic, they can create incentives for office-holders to improve performance. The reason is that performance at the end of the term, when voters are particularly sensitive to public affairs, is often correlated with performance earlier in the term. Avoiding bad outcomes at the end of the term often requires working ahead of time to improve outcomes in advance.

To demonstrate that local governments in Brazil are under pressure to perform well even though their constituents are myopic, I examined the effect of an exogenous shock in fatal workplace accidents on the electoral fortune of Brazilian mayors using original data from death certificates to determine the causes and timing of fatal workplace accidents. I showed that voters punish incumbents when workplace deaths spike. In response, elected officials minimize fatal accidents throughout the term. I also showed, in the Brazilian case, that not all parties are held accountable for the same kinds of outcomes. As in the U.S., certain parties – or parties with certain ideological positions – “own” issues and are uniquely held to account for bad outcomes in those issue areas.

This article contributes to the literature that examines the consequences of various facets of governance on the quality of labor standards. Several cross-national studies suggest that democracy (Cingranelli and Tsai 2003; Mosley and Uno 2007) and left incumbency (Berliner et al. 2015; Mosley 2008) are associated with improved labor standards. The mechanisms linking democracy, government partisanship, and labor standards in these cross-national studies are often assumed rather than systematically examined. These studies also rely on highly aggregated indicators to measure the quality of democratic and labor standards, which conflate many dimensions into single indexes. I contribute to this literature by providing new evidence on the effect of democratic governance on a single but important aspect of labor standards – the quality of occupational health and safety standards measured by the number of workers killed at work in both the formal and informal sector. My findings highlight the importance of exploring the mechanisms linking elections and labor rights further, perhaps using additional case studies and survey data. Other studies could also analyze how democratic competition affects other labor practices, such as the propensity for firms to use child labor.

The broader meaning of these findings is interesting to ponder. Voters willing to punish incumbents for poor conditions over which elected officials exert some control may create incentives for these officials to improve their office performance. But if voters evaluate parties based on the expectations candidates or party labels set in advance, rather than just on their performance, electoral accountability may be attenuated. This may help explain why the enforcement of basic labor standards in many democratic countries where programmatic parties are weak, such as Brazil or India, remains lackluster.

## References

- Achen, Christopher H and Larry M Bartels. 2016. *Democracy for Realists: Why Elections Do Not Produce Responsive Government*. Princeton University Press.
- AEPS. 2015. Anuário Estatístico da Previdência Social. Technical report Ministério da Fazenda/Secretaria de Previdência.
- Berliner, Daniel, Anne Greenleaf, Milli Lake and Jennifer Noveck. 2015. "Building Capacity, Building Rights? State Capacity and Labor Rights in Developing Countries." *World Development* 72:127–139.
- Brollo, Fernanda. 2011. "Why Do voters punish corrupt politicians? Evidence from the Brazilian anti-corruption program." *SSRN Journal*.
- Calonico, Sebastian, Matias D Cattaneo and Rocio Titiunik. 2014. "Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs." *Econometrica* 82(6):2295–2326.
- Celso, Roma. 2006. "Organizaciones de partido en Brasil: el PT y el PSDB bajo perspectiva comparada." *América Latina Hoy* 44.
- Cingranelli, David L and Chang-yen Tsai. 2003. Democracy, workers' rights, and income inequality: A comparative cross-national analysis. In *annual meeting of the American Political Science Association, Philadelphia*.
- Enelow, James M and Melvin J Hinich. 1984. *The spatial theory of voting: An introduction*. Cambridge University Press.
- Fearon, James D. 1999. Electoral accountability and the control of politicians: selecting good types versus sanctioning poor performance. In *Democracy, accountability, and representation*, ed. Adam Przeworski and Susan C Stokes. Vol. 55 Cambridge University Press p. 61.



- Feierherd, German. 2017. "Insider–Outsider Politics and the Informal Economy in Developing Democracies." Working Paper, Yale University.
- Ferraz, Claudio and Frederico Finan. 2008. "Exposing Corrupt Politicians: The effects of Brazil's publicly released audits on electoral outcomes." *The Quarterly Journal of Economics* 123(2):703–745.
- Giuffrida, Antonio, Roberto F Iunes and William D Savedoff. 2002. "Occupational risks in Latin America and the Caribbean: economic and health dimensions." *Health Policy and Planning* 17(3):235–246.
- Gray, Wayne B and John T Scholz. 1993. "Does regulatory enforcement work? A panel analysis of OSHA enforcement." *Law and Society Review* pp. 177–213.
- Healy, Andrew and Gabriel S Lenz. 2014. "Substituting the End for the Whole: Why Voters Respond Primarily to the Election-Year Economy." *American Journal of Political Science* 58(1):31–47.
- Hibbs, Douglas A. 1977. "Political parties and macroeconomic policy." *American political science review* 71(04):1467–1487.
- Huber, Gregory A, Seth J Hill and Gabriel S Lenz. 2012. "Sources of bias in retrospective decision making: Experimental evidence on voters' limitations in controlling incumbents." *American Political Science Review* 106(04):720–741.
- Huber, Gregory Alain. 2007. *The Craft of Bureaucratic Neutrality*. Cambridge: Cambridge University Press.
- Hunter, Wendy. 2010. *The transformation of the Workers' Party in Brazil, 1989-2009*. Cambridge University Press.
- ILO. 1999. "Health and Welfare on Construction Sites." *ILO, A Training Manual* .

- ILO. 2002. *Report VI: Decent work and the informal economy*. International Labour Conference, 90th Session.
- ILO. 2016. "2016 Labour Overview of Latin America and the Caribbean." *International Labour Organization* .
- Imbens, Guido and Tomas Lemieux. 2008. "Regression discontinuity designs: A guide to practice." *Journal of Econometrics* 142(2):615–635.
- Klašnja, Marko and Rocio Titiunik. 2017. "The Incumbency Curse: Weak Parties, Term Limits, and Unfulfilled Accountability." *American Political Science Review* 111(1):129–148.
- Maia, André Luis Santiago, Cezar Akiyoshi Saito, Bussacos Oliveira, Juliana Andrade AN Marco Antonio, Maria Maeno, Ricardo Luiz Lorenzi and Sergio Antonio dos Santos. 2013. "Acidentes de trabalho no Brasil em 2013: comparação entre dados selecionados da Pesquisa Nacional de Saúde do IBGE (PNS) e do Anuário Estatístico da Previdência Social (AEPS) do Ministério da Previdência Social." *Boletim Fundacentro* .
- Malhotra, Neil and Yotam Margalit. 2014. "Expectation Setting and Retrospective Voting." *The Journal of Politics* 76(4):1000–1016.
- Marshall, John. 2015. Political information cycles: When do voters sanction incumbent parties for high homicide rates? Technical report Working Paper.
- Mosley, Layna. 2008. "Workers' Rights in Open Economies Global Production and Domestic Institutions in the Developing World." *Comparative Political Studies* 41(4-5):674–714.
- Mosley, Layna and Saika Uno. 2007. "Racing to the bottom or climbing to the top? Economic globalization and collective labor rights." *Comparative Political Studies* 40(8):923–948.

- Novaes, Lucas M. 2014. "Promiscuous Politicians and the Problem of Party Building." *Available at SSRN <https://ssrn.com/abstract=2420201>* .
- Petrocik, John R. 1996. "Issue ownership in presidential elections, with a 1980 case study." *American journal of political science* pp. 825–850.
- Powell Jr, G Bingham and Guy D Whitten. 1993. "A cross-national analysis of economic voting: taking account of the political context." *American Journal of Political Science* pp. 391–414.
- Richardson, Munro C. 2010. Financial stocks and political bonds: stock market participation and political behavior in the United States and Britain PhD thesis University of Illinois.
- Rosenbaum, Paul R. 1984. "The consequences of adjustment for a concomitant variable that has been affected by the treatment." *Journal of the Royal Statistical Society. Series A (General)* pp. 656–666.
- Samuels, David and Cesar Zucco. 2013. "The Power of Partisanship in Brazil: Evidence from Survey Experiments." *American Journal of Political Science* .
- Spiller, Pablo, Ernesto Stein and Mariano Tommasi. 2008. "Political Institutions, Policymaking, and Policy: An Introduction." *Policymaking in Latin America. How Politics Shapes Policies. Cambridge, United States: Harvard University, David Rockefeller Center for Latin American Studies* .
- Stokes, Donald E. 1963. "Spatial models of party competition." *American political science review* 57(02):368–377.
- Stokes, Susan C. 2005. "Perverse accountability: A formal model of machine politics with evidence from Argentina." *American Political Science Review* 99(3):315.
- Von Drehle, David. 2004. *Triangle: The fire that changed America*. Grove Press.

# Online Appendix for Electoral Accountability with “Myopic” Voters

German Feierherd\*

September 11, 2017

## Contents

<b>A</b>	<b>Difference-in-differences: robustness checks</b>	<b>2</b>
A.1	Main descriptives . . . . .	2
A.2	Effect of a spike in workplace accidents for various shock sizes . . . . .	2
A.3	Effect of workplace accidents using a continuous variable . . . . .	4
A.4	Effect of a spike in workplace accidents on incumbent <i>candidates</i> . . . . .	5
A.5	Alternative explanations . . . . .	6
A.6	Analysis using official statistics . . . . .	7
A.7	Analysis of other major parties . . . . .	7
A.8	Accidents hurt leftist mayors – not just PT mayors . . . . .	7
A.9	Non-work-related deaths do not affect elections . . . . .	9
A.10	Robustness checks to verify the coding of workplace deaths . . . . .	10
<b>B</b>	<b>RDD: robustness and balance tests</b>	<b>13</b>
B.1	Density test . . . . .	13

---

\*Yale University, Department of Political Science. Contact: [german.feierherd@yale.edu](mailto:german.feierherd@yale.edu)

B.2	Balance tests . . . . .	14
B.3	Effect of PT on workplace deaths in the formal and insured sector . . . . .	15
B.4	Effect of PT on non-workplace deaths . . . . .	15
C	Details about interviews	17

## A Difference-in-differences: robustness checks

### A.1 Main descriptives

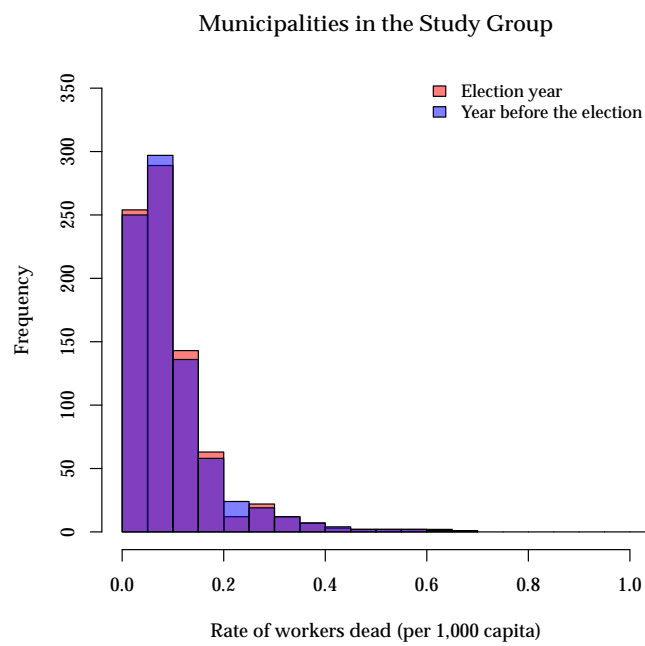
Table A1 and Figure A1 show descriptive information for workplace 1,000 per capita death rates for treated and control municipalities, for all municipalities in the study group and those controlled by the PT and the PSDB. PT municipalities have a slightly lower death rate for the three months selected to define the treatment shocks. Overall, municipalities look fairly similar in terms of workplace deaths in the run up to the election.

Incumbent Party	All incumbents		<i>PT</i> mayor		<i>PSDB</i> mayor	
	Treatment	Control	Treatment	Control	Treatment	Control
Workplace death rate (per 1,000)	0.095 (0.091)	0.094 (0.092)	0.082 (0.076)	0.082 (0.076)	0.098 (0.101)	0.098 (0.101)

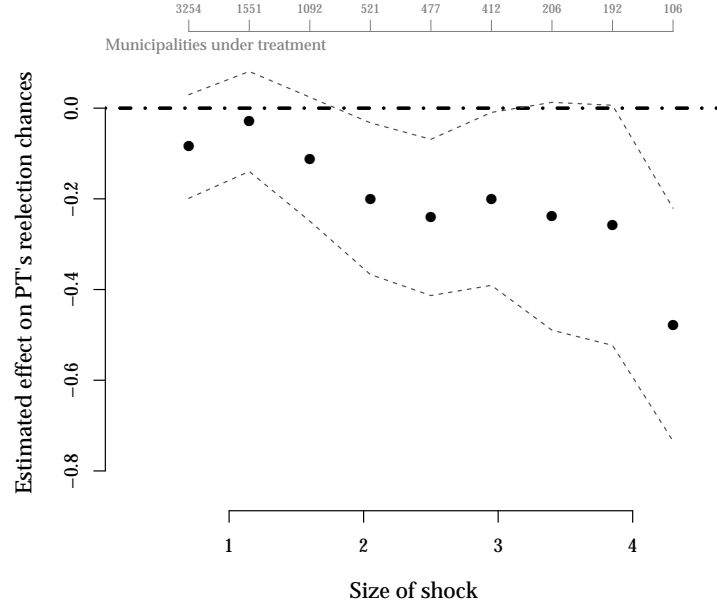
**Table A1:** Rate of workplace deaths in treatment and control municipalities by the partisanship of the mayor for the three months before the election (treatment) and the same three months, one year before the election (control). Standard deviations in parentheses.

### A.2 Effect of a spike in workplace accidents for various shock sizes

In the main text, I define a municipality as receiving a shock if it at least *doubles* the fatality rate compared to the same three months in the pre-electoral year. Figure A2 shows results for different shock magnitudes. The electoral fortunes of PT incumbents worsen as they preside over larger increases in workplace accidents.



**Figure A1:** Histogram of the rate of workers dead in the three months before the election and one year before the election for the municipalities in the study group.



**Figure A2:** Estimated effect of *Shock* on PT's reelection probability for different shock sizes. Dotted lines represent 95% confidence intervals. Each estimate is obtained from an OLS regression with fixed effects for year/municipality.

### A.3 Effect of workplace accidents using a continuous variable

Table A2 shows analogous results as those shown in tables 1 and 2 but using a different measure of workplace accidents.  $Shock_{chg}$  is the percentage change in the number of workplace accidents in the three months before the election compared to the same three months one year before. That is,

$$Shock_{chg,t4-t3} = \begin{cases} 100 \cdot (Fatalities_{i,t4} - Fatalities_{i,t3}) / Fatalities_{i,t3} & \text{if } Fatalities_{i,t3} > 0 \\ . & \text{otherwise} \end{cases}$$

Similar to the results using the dichotomous measure, Table A2 shows that an increase in fatal workplace accidents reduces the chances of reelection for PT incumbents only. Moving one standard deviation away from the mean reduces the likelihood of

reelection by roughly 6 percentage points.

	<i>Reelect<sub>t+1</sub></i> , incumbent sample		<i>Reelect<sub>t+1</sub></i> , PT sample
	Model 1	Model 2	Model 3
<i>Shock<sub>chg</sub></i>	0.00003 (0.0001)	0.0001 (0.0001)	0.00002 (0.00004)
<i>PTmayor</i>		0.249*** (0.030)	−0.036 (0.026)
<i>PTmayor · Shock<sub>chg</sub></i>		−0.001** (0.0003)	−0.001** (0.0003)
N	7227	7227	7227
R-squared	0.012	0.029	0.023
Adj. R-squared	0.006	0.015	0.012

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A2:** The effect of workplace deaths on municipal electoral outcomes (Incumbent – models 1 and 2 – and PT samples – model 3) for the rate of change in the number of deaths comparing the three months before the election and the same three months the year before the election. The incumbent sample includes data on the performance of incumbents in subsequent elections; the PT sample includes data on the performance of the PT in places where the PT is the incumbent and in places where it is not.

#### A.4 Effect of a spike in workplace accidents on incumbent *candidates*

The main text suggests that voters may judge the PT as a party because the PT is a programmatic party with a strong party brand and high party discipline. Other parties in Brazil, however, are considerably weaker. Thus, voters may judge individual incumbents for their performance but may not attribute their performance to a given party. This, in turn, may explain the difference in effects between the PT and the other parties. Table A3 presents evidence against this hypothesis. Here, the unit of analysis is the individual candidate, excluding term-limited mayors. The table shows that when individual candidates are up for reelection, a spike in workplace accidents does not change their electoral performance. Again, only PT incumbents seem to suffer an electoral penalty from a deterioration in labor conditions (Model 2).



	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	−0.015 (0.181)	0.002 (0.034)
<i>PTmayor</i>		0.193*** (0.048)
<i>PTmayor · Shock</i>		−0.186* (0.110)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
N	3105	3092
R-squared	0.044	0.055
Adj. R-squared	0.018	0.023
F Statistic	14.830*** (df = 4; 1291)	12.520*** (df = 6; 1286)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A3:** Difference-in-differences: The effect of workplace deaths on municipal electoral outcomes for incumbent candidates

## A.5 Alternative explanations

One possibility is that clientelistic parties may shield themselves from negative events by engaging in clientelism. A large literature in Brazil shows that clientelistic machines are personalistic, in the sense that they do not respond to parties but to individual candidates. Thus, we may expect that in “open seat” races, in which individual incumbents are term-limited and cannot run for reelection, parties may suffer the consequences of a spike in labor accidents. Against this hypothesis, Table A4 shows that incumbent parties do not perform worse in places that preside over a spike in workplace accidents and the sitting mayor is not allowed to run for reelection.

Similarly, there is no evidence that incumbents in more clientelistic environments are more successful in escaping blame from a spike in workplace deaths. Table A5 shows that the shock is not moderated by the size of the municipality, its GDP, and the level of development (according to a development index elaborated by the federal government). Also, the “size” of the spike does not explain the null effect of the shock on incumbents (Model 5).

	$Reelect_{t+1}$
<i>Shock</i>	0.055 (0.061)
<i>OpenSeat</i>	-0.310*** (0.040)
<i>OpenSeat · Shock</i>	-0.085 (0.105)
Municipal FE	Yes
Year FE	Yes
N	1785
R-squared	0.166
Adj. R-squared	0.045
F Statistic	24.230*** (df = 4; 486)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A4:** Difference-in-differences: The effect of a spike in workplace deaths on municipal electoral outcomes (incumbent sample) in the run-up to the election by “open-seat” races.

## A.6 Analysis using official statistics

Table A6 shows results for the effect of a spike in workplace accidents using the official statistics on workplace deaths released by the INSS, which covers only insured formal workers. This data uses variation across years and is only available since 2002. Again, a spike in workplace accidents reduces the reelection chances of the PT alone.

## A.7 Analysis of other major parties

Table A7 shows results for various parties using the incumbent sample. Again, even after controlling for the incumbency of various parties, PT incumbents are significantly hurt by a spike in workplace accidents. below I consider the effect for various leftist parties.

## A.8 Accidents hurt leftist mayors – not just PT mayors

In the main text, I suggested that the asymmetric reaction of voters to fatal workplace accidents is related to PT’s programmatic commitments. Although the OT is the largest and strongest programmatic party in Brazil, other leftist parties may suffer

	<i>Reelect<sub>t+1</sub></i>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
<i>Shock</i>	−0.077 (0.318)	−0.136 (0.250)	0.006 (0.214)	0.037 (0.037)	0.027 (0.034)
<i>Population<sub>(log)</sub></i>	0.112 (0.100)				
<i>GDP<sub>(log)</sub></i>		−0.013 (0.041)			
<i>Development</i>			−1.134 (0.779)		
<i>Rurality</i>				0.005** (0.002)	
$\Delta Deaths$					0.136 (0.205)
<i>GDP · Shock</i>	0.008 (0.029)				
<i>GDP · Shock</i>		0.012 (0.020)			
<i>Development · Shock</i>			0.001 (0.292)		
<i>Rurality · Shock</i>				−0.002 (0.001)	
$\Delta Deaths · Shock$					−0.429 (0.376)
Municipal FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
N	4283	4283	4301	4134	4283
R-squared	0.012	0.012	0.013	0.016	0.012
Adj. R-squared	0.006	0.006	0.007	0.008	0.006

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A5:** Difference in differences: The effect of workplace deaths on municipal electoral outcomes by various moderators (incumbent sample). *Development* is a composite index of education, income and longevity indices, that takes a number between 0 (less developed) and 1 (more developed).  $\Delta Deaths$  is defined as the rate of workplace deaths (per 1.000 capita) in the three months before the election minus the rate of workplace deaths (per 1.000 capita) during the same three months, one year before the local election.

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock<sub>inss</sub></i>	−0.002 (0.052)	0.003 (0.052)
<i>PT<sub>mayor</sub></i>	0.267*** (0.068)	0.267*** (0.067)
<i>PSDB<sub>mayor</sub></i>	0.101* (0.052)	0.099* (0.052)
<i>PT<sub>mayor</sub> · Shock<sub>inss</sub></i>	−0.219* (0.127)	−0.227* (0.126)
<i>PSDB<sub>mayor</sub> · Shock<sub>inss</sub></i>	−0.088 (0.108)	−0.099 (0.109)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
N	1715	1712
R-squared	0.040	0.043
Adj. R-squared	0.016	0.017

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A6:** The effect of workplace deaths on municipal electoral outcomes (incumbent sample) using official statistics on formal and insured workers.

from a similar disadvantage. Table A8 investigates the effect of workplace deaths on the fortune of leftist mayors. *LeftistMayor* takes values 1 if the incumbent belongs to the PT, the Labour Party of Brazil (PT DO B), the PDT, the Brazilian Socialist Party (PSB), and the Communist Party of Brazil (PC DO B) and 0 otherwise.

## A.9 Non-work-related deaths do not affect elections

As a robustness check, I explore the effect of a spike in non-workplace fatal accidents. As mentioned in the main text, doctors are required to report whether the injury or death was work-related; table A9 shows results for “spikes” in deaths that doctors record as non-work-related using the same coding strategy as with work-related deaths for the PT and PSDB samples. The effects, for both PT and PSDB incumbents, are precisely estimated at zero. PT incumbents are not punished when non-work-related fatal accidents spike in the proximity of the election. Table A10 replicates the analysis for the incumbent sample.

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	0.043 (0.036)	0.075* (0.044)
<i>PDTmayor</i>	0.076* (0.044)	0.168*** (0.053)
<i>PTmayor</i>	0.348*** (0.039)	0.365*** (0.046)
<i>PSDBmayor</i>	0.118*** (0.029)	0.119*** (0.035)
<i>PPmayor</i>	0.188*** (0.061)	0.264*** (0.067)
<i>PMDBmayor</i>	0.113*** (0.031)	0.177*** (0.040)
<i>Shock · PDTmayor</i>	−0.037 (0.099)	−0.114 (0.122)
<i>Shock · PTmayor</i>	−0.194** (0.092)	−0.349*** (0.106)
<i>Shock · PSDBmayor</i>	−0.019 (0.067)	−0.074 (0.078)
<i>Shock · PPmayor</i>	−0.044 (0.109)	−0.110 (0.117)
<i>Shock · PMDBmayor</i>	−0.075 (0.065)	−0.123 (0.082)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
N	4303	3109
R-squared	0.045	0.071
Adj. R-squared	0.023	0.030
F Statistic	7.476*** (df = 14; 2212)	5.918*** (df = 17; 1311)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A7:** The effect of workplace deaths on municipal electoral outcomes for Brazil's major parties (incumbent sample)

## A.10 Robustness checks to verify the coding of workplace deaths

I conducted several robustness checks to verify the reliability of the SIM data and my supplemental coding. First, all the results presented in this paper are robust to using death tallies based on the official INSS data on fatal work-related deaths (Appendix, Section A6). The municipal-level correlation of the two datasets (INNS and SIM) for work-related deaths is .85. The total number of deaths differs greatly, though, with data from SIM approaching the estimation made by independent researchers (Giuffrida,

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	0.028 (0.027)	0.028 (0.032)
<i>LeftistMayor</i>	0.147*** (0.026)	0.188*** (0.032)
<i>Shock · LeftistMayor_mayor</i>	−0.111* (0.061)	−0.165** (0.075)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
N	4303	3109
R-squared	0.024	0.046
Adj. R-squared	−0.892	−1.249
F Statistic	8.960*** (df = 6; 2220)	7.015*** (df = 9; 1319)

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A8:** The effect of workplace deaths on incumbent reelection for leftist incumbents (incumbent sample). *LeftistMayor* takes values 1 if the incumbent belongs to the PT, the PT DO B, the PDT, the PSB and the PC DO B and 0 otherwise.

	<i>Reelect<sub>t+1</sub>, PT sample</i>		<i>Reelect<sub>t+1</sub>, PSDB sample</i>	
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<i>PTmayor</i>	−0.101** (0.047)	−0.208*** (0.051)		
<i>PSDBmayor</i>			−0.151*** (0.033)	−0.210*** (0.039)
<i>Shock</i>	−0.021 (0.017)	−0.001 (0.020)	−0.021 (0.020)	−0.020 (0.023)
<i>Shock · PTmayor</i>	0.036 (0.097)	0.014 (0.107)		
<i>Shock · PSDBmayor</i>			0.00003 (0.058)	0.008 (0.071)
Municipal FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
N	3196	2729	3196	2729
R-squared	0.010	0.041	0.031	0.057
Adj. R-squared	−1.227	−1.515	−1.179	−1.474

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A9:** The effect of non-work-related fatal accidents on municipal electoral outcomes (PT and PSDB samples).

	<i>Reelect<sub>t+1</sub></i>	
	<b>Model 1</b>	<b>Model 2</b>
<i>Shock</i>	−0.037 (0.032)	−0.047 (0.038)
<i>PTmayor</i>	0.250*** (0.046)	0.207*** (0.053)
<i>PSDBmayor</i>	0.004 (0.034)	0.010 (0.039)
<i>Shock · PTmayor</i>	−0.038 (0.094)	−0.042 (0.104)
<i>Shock · PSDBmayor</i>	−0.032 (0.064)	−0.002 (0.079)
Municipal FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
N	3196	2729
R-squared	0.036	0.040
Adj. R-squared	−1.171	−1.523

\*\*\*p < .01; \*\*p < .05; \*p < .1

**Table A10:** The effect of non-workplace deaths on municipal electoral outcomes (incumbent sample)

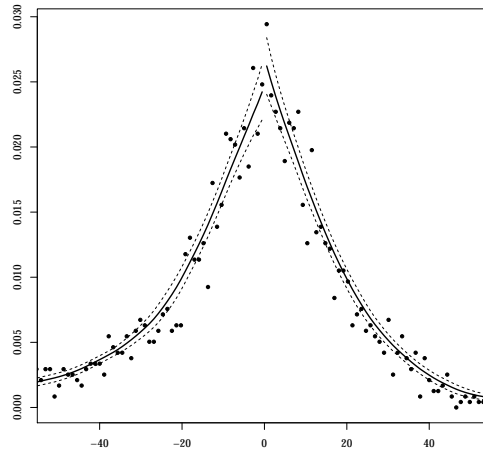
Iunes and Savedoff 2002).<sup>1</sup> Finally, working with individual-level survey data from the *Pesquisa Nacional de Saúde*, Maia et al. (2013) show that the discrepancy in work-related accidents between the official data and theirs is greatest in the states of the north and northeast regions. I aggregated the SIM and INSS data for 2013 at the state level, computed the ratio between the official number of deaths and the number of deaths that resulted from my own coding, and then ran a correlation between the ratios computed by Maia et al. (2013) and the ratios that resulted from my own calculations. The correlation is .79. All these exercises provide strong evidence in support of the reliability of the SIM data and my own coding to measure work-related fatalities.

<sup>1</sup>Their “less conservative” estimate assumes that a) only 50% of formal sector deaths were reported and b) that the true risk in the informal sector was 50% higher than in the formal sector. These assumptions would generate an estimated total for Brazil in 1998 of 7,600 deaths in the formal sector. The informal sector would thus be assumed to have two times as many workers and a rate 50% higher, for a total of three times as many deaths, or 22,800. Thus the high estimate for Brazil as a whole in 1998 would be 30,400.

## B RDD: robustness and balance tests

### B.1 Density test

A potential threat to the regression-discontinuity design comes from the possibility that units (PT candidates that barely lost or won) can sort near the threshold. I use the test developed by McCrary (2008) to identify sorting on the running variable (the vote margin of PT candidates). The test fails to reject the null hypothesis of no sorting. This test reduces concerns about electoral manipulation.

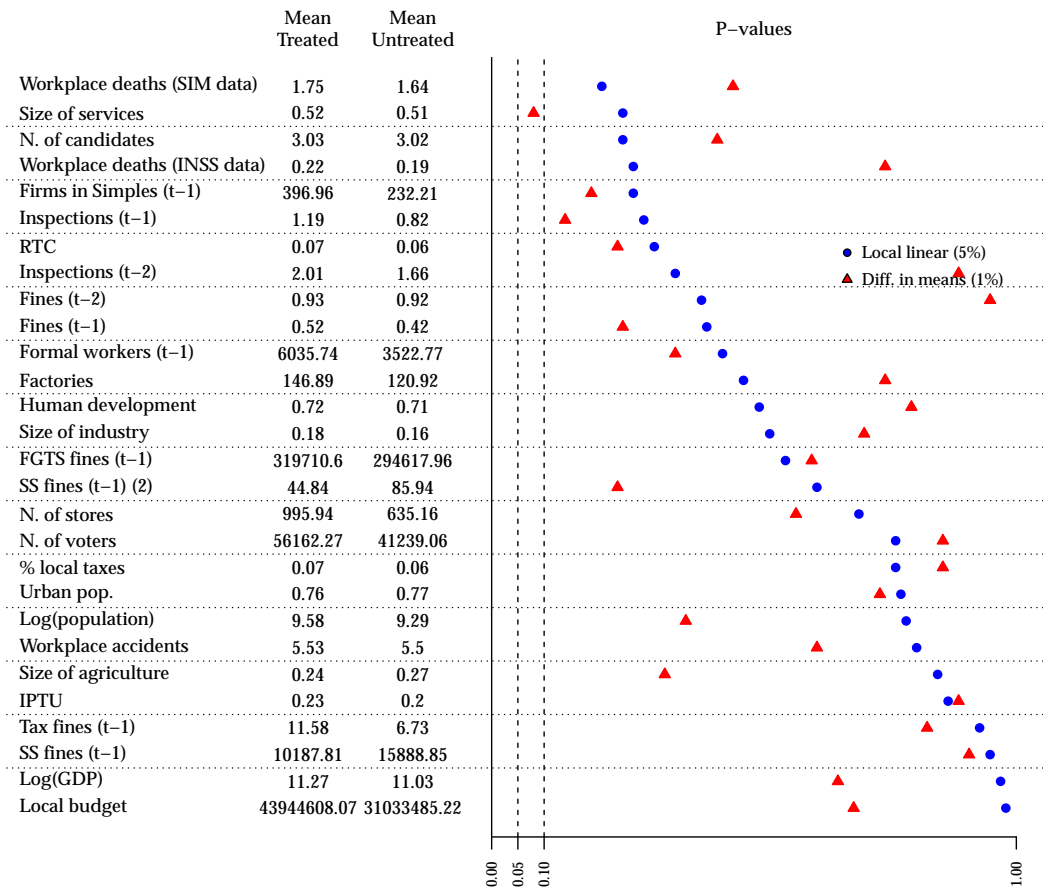


**Figure A3:** McCrary Density Test for PT candidates. The running variable (x-axis) is the electoral margin of the PT candidate.



## B.2 Balance tests

Figure A4 shows balance tests for two estimators – local-linear regression, using a 5% bandwidth, and difference in means, using a 1% bandwidth – on a number of pre-treatment covariates for municipalities where PT candidates came either first or second. Treated and control municipalities are statistically indistinguishable from one another on a number of relevant covariates.



**Figure A4:** RDD: balance tests for pre-treatment covariates (municipal-level data). % of taxes, (1) and (2), is the share of local taxes one year and two years before the election, as a share of the local GDP. Size of services, industry, and agriculture is the size of each industry over GDP. Firms in Simples is the number of firms participating in a tax simplification program, the year before the election. Inspection and Fines (multiple years) is the per capita number of inspections and fines. SS and FGTS fines is the amount of unpaid taxes collected by the inspectorate on each tax. Human development is a municipal-level human development index. IPTU is share of local property taxes over the local budget. The rest of the variables are self-explanatory.

### B.3 Effect of PT on workplace deaths in the formal and insured sector

		Estimate	Std. Error	95% CI	Opt. bandwidth	N
1	t1-t4	-0.303	0.195	[-0.734,0.032]	17.621	2145
2	t1	-0.213	0.141	[-0.527,0.024]	13.838	2145
3	t2	-0.246	0.164	[-0.614,0.027]	16.074	2007
4	t3	-0.094	0.14	[-0.368,0.182]	24.099	1995
5	t4	-0.074	0.153	[-0.368,0.232]	20.034	1988

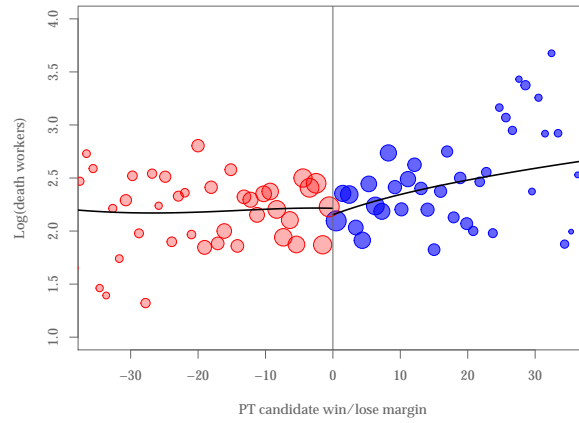
**Table A11:** Effect of having a PT mayor on workplace deaths in the formal and insured sector (logged). The table reports coefficients from a local linear regression using triangular kernel weight. Optimal bandwidths and robust standard errors are estimated using the Calonico, Cattaneo and Titiunik (2014) procedure.

### B.4 Effect of PT on non-workplace deaths

Before I showed that a spike in non-work-related deaths has no effect on the electoral fortunes of PT incumbents. Table A12 shows that PT incumbency has no effect on these deaths, summed across the 4-year mayoral term (divided by the municipal population and multiplies by 10,000). These results are confirmed by the graphical analysis (Figure A5).

	Estimate	Std. Err.	z	P> z	CI Lower	CI Upper
Conventional	-0.0431	0.1519	-0.2840	0.7764	-0.3409	0.2546
Robust				0.7228	-0.4125	0.2861

**Table A12:** Effect of having a PT mayor on non-work-related deaths (logged). The table reports coefficients from a local linear regression using triangular kernel weights on workplace deaths for all workers, formal workers, and informal workers. All models include year fixed effects. Optimal bandwidths and robust standard errors are estimated using the Calonico, Cattaneo and Titiunik (2014) procedure.



**Figure A5:** RD plot: The circles depict average number of non-work-related deaths per 10,000 capita over the entire 4-year mayoral term at the municipal level in places where a PT candidate wins or loses. The size of the circles is proportional to the number of municipalities in each group. The fitted lines were estimated using a regression model with a third-order polynomial.

## C Details about interviews

I conducted semi-structured interviews with officials of the federal Ministry of Labor, the state and local labor offices, labor inspectors, federal and state prosecutors and judges, union leaders, businessmen, and local experts. The following list provides the identification code, position (if available), organization, geographic location, and date of interviews cited or referenced in the main text:

**BH3**, Labor Inspector (AFT), Ministry of Labor and Employment, Bahia, Brazil, 06/2015

**RGDS1**, Labor Inspector (AFT), Ministry of Labor and Employment, Rio Grade do Sul, Brazil, 05/2015

**RGDS7**, Labor Inspector (AFT), Ministry of Labor and Employment, Rio Grade do Sul, Brazil, 05/2015

**RGDS8**, Local Official, Secretary of Urban Development, Rio Grade do Sul, Brazil, 05/2015

**SP1**, Senior Official, Ministry of Labor and Employment, São Paulo, Brazil, 09/2014

**SP4**, Labor Inspector (AFT), Ministry of Labor and Employment, São Paulo, Brazil, 09/2014

**SP5**, Local Official, Secretaria Municipal de Emprego e Renda, São Paulo, Brazil, 09/2014

**SP6**, Local Official, Secretaria Municipal de Emprego e Renda, São Paulo, Brazil, 09/2014

## References

Giuffrida, Antonio, Roberto F Iunes and William D Savedoff. 2002. "Occupational risks in Latin America and the Caribbean: economic and health dimensions." *Health Policy and Planning* 17(3):235–246.

Maia, André Luis Santiago, Cezar Akiyoshi Saito, Bussacos Oliveira, Juliana Andrade AN Marco Antonio, Maria Maeno, Ricardo Luiz Lorenzi and Sergio Antonio dos Santos. 2013. "Acidentes de trabalho no Brasil em 2013: comparação entre dados

selecionados da Pesquisa Nacional de Saúde do IBGE (PNS) e do Anuário Estatístico da Previdência Social (AEPS) do Ministério da Previdência Social." *Boletim Fundacentro*

.

McCrary, Justin. 2008. "Manipulation of the running variable in the regression discontinuity design: A density test." *Journal of Econometrics* 142(2):698–714.