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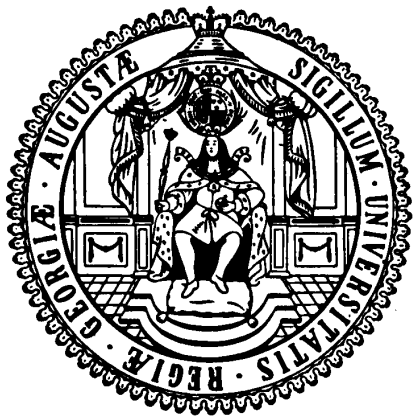

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Right-wing populism in the tropics: Economic crisis, the political gender gap, and the election of Bolsonaro

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Abstract

This paper investigates how a large labor market shock contributed to the 2018 election of far-right Jair Bolsonaro as president of Brazil. Using a shift-share approach, we find that gender heterogeneity in shock exposure predicts electoral outcomes. Male-specific labor demand shocks increase support for Bolsonaro, but female-specific shocks have the opposite effect. Additional results suggest that men gravitate towards a politician that exacerbates masculine stereotypes, as a way of compensating for losses in social and economic status. Women, on the other hand, when hit by the shock, reject Bolsonaro's political agenda in favor of a more pro-social platform.

JEL-Classification: D72, J16, J23, P16, R23.

Keywords: economic shocks, elections, populism, gender

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1 Introduction

In recent years, populist, authoritarian, and far-right movements have surged in advanced and emerging economies.[1] In October 2018, with the election of Jair Bolsonaro as president, the right-wing populist tide reached Brazil. The election followed a severe economic crisis that, between 2014 and 2017, interrupted more than one decade of sustained economic growth, accompanied by falling poverty and inequality.

Beyond the economic context, the election was also distinguished, in our view, by the salience of gender issues during the campaign. A considerable portion of Jair Bolsonaro's most controversial views involved topics of gender equality and often reflected misogynous beliefs. Shortly before the first round of voting, women organized massive protests against Bolsonaro, under the #EleNão (Not Him) movement. Typical mobilizing topics of right-wing populists elsewhere, such as trade integration or immigration, mattered much less in Brazil.

This paper uses a local labor market approach to answer two main questions. First, was the surprising victory of Bolsonaro related to Brazil's 2014–17 economic crisis? And, second, does this relationship depend on exposure to the crisis by *gender*? Several recent papers address the first question in other contexts and find that economic shocks boost populist movements. Indeed, although the populist tide originates from a wide range of context-specific factors, such as immigration, insecurity, corruption, social media, and erosion of political institutions, most episodes seem to be linked by common economic roots (Guriev and Papaioannou, forthcoming). In the United States, commuting zones more exposed to Chinese import competition experience an increase in support for candidates at the extremes of the political spectrum (Autor *et al.*, 2020). In Western Europe, in response to globalization and import competition, voters shift towards nationalist and isolationist parties (Dippel *et al.*, 2015; Colantone and Stanig, 2018). Similarly, rising unemployment following the Great Recession increased voting for anti-establishment parties and eroded trust in European institutions (Algan *et al.*, 2017; Dal Bó *et al.*, 2020; Dehdari, 2020).

[1] For an excellent overview of the recent literature on the rise of populism, see Guriev and Papaioannou (forthcoming).

In the United Kingdom, austerity reforms starting in 2010 raised Leave's vote share in the Brexit referendum in 2016; in the absence of austerity, Remain would have likely won (Fetzer, 2019). What distinguishes our paper from the existing literature is the second research question. To date, there is no causal evidence of the *gendered*-impacts of economic shocks on the populist tide.

Starting in late 2014, Brazil was hit by a severe economic crisis. The crisis arose from a complex combination of factors, including a bust in commodity prices, policy mismanagement, and widespread political and economic uncertainty in the wake of the *Lava Jato* (Car Wash) corruption scandal (Mello and Spektor, 2018; Spilimbergo and Srinivasan, 2018; Hunter and Power, 2019). We investigate how the exposure of local labor markets to the crisis affects voting outcomes between the 2014 and 2018 presidential elections. For causal identification, we use a shift-share framework based on Borusyak *et al.* (forthcoming). To measure gender-specific local exposure to the crisis, we weigh changes in national employment across 5-digit industries during the 2014–17 recession by the pre-crisis (2010) local industrial structure of employment and its sexual segregation by industry.[2]

We find that in regions where men experience a larger economic shock, Bolsonaro's vote share increases. In contrast, in regions where women experience larger shocks, his vote share is relatively lower. We find opposite effects for the percentage point change in votes for the left-wing Workers' Party (*Partido dos Trabalhadores*, henceforth PT) between the 2014 and 2018 elections. Further, in regions where women are hit harder by the crisis, abstention rates decrease relative to the previous election. Simple counterfactual exercises predict that if the male shock had, on average, occurred above its 90th percentile, Bolsonaro would have been elected already in the first round. In contrast, had the female shock hit, on average, at its maximum value, Bolsonaro would have lost the second round to Fernando Haddad (PT).

The key identifying assumption is that national employment changes by industry during

[2]In practice, these measures are gender-specific Bartik-type labor demand shocks (Bartik, 1991). For similar approaches measuring gender-specific local exposure to aggregate labor market shocks, see e.g. Aizer (2010); Anderberg *et al.* (2016); Lindo *et al.* (2018); Autor *et al.* (2019); Page *et al.* (2019).

the recession are conditionally exogenous (Borusyak *et al.*, forthcoming). In other words, they represent quasi-random labor demand shocks across industries. This assumption is violated in the presence of unobserved regional supply shocks and pre-existing trends that contaminate employment changes at the national level and correlate with local political preferences. To address this concern, we produce four additional analyses. First, the findings survive the inclusion of controls capturing local trends in employment, output, industry composition, and electoral outcomes, covering the one and a half decades preceding the 2014–17 crisis. Second, the significant and opposing gender-shock effects are specific to the 2014–18 election cycle. In previous cycles, between 2002 and 2014, shift-share measures of local labor demand by gender do not significantly correlate with changes in electoral support for the incumbent PT. Third, shift-shares measured before 2014 have no impact on outcomes in the 2014–18 cycle. And, fourth, shift-shares covering the 2014–17 crisis do not predict pre-crisis electoral results. Altogether, these analyses reinforce our confidence that the estimates represent causal effects.[3]

How should we interpret these results? We hypothesize that men gravitate towards a politician that exacerbates masculine stereotypes, as a way of compensating for losses in social and economic status. Employment and relative earnings are central for male identity (Bertrand *et al.*, 2015; Autor *et al.*, 2019). And when men perceive their identity under attack, they often respond by exaggerating their masculinity and aggressiveness (Cheryan *et al.*, 2015).[4] Some authors argue that anxiety surrounding masculinity is an important, even if understudied, determinant of men's political behavior (see DiMuccio and Knowles, 2020, for a review). For example, regional vote shares for Donald Trump in 2016 positively correlate with internet searches on topics that reflect men's insecurities about their manhood (DiMuccio and Knowles, 2018).

[3]Additionally, we perform several sensitivity checks to ensure that the main results are robust to alternative model specifications.

[4]A related literature on intimate partner violence (IPV) suggests that, in some contexts, men become more violent after an increase in their partners' income (Koenig *et al.*, 2003; Weitzman, 2014; Bulte and Lensink, 2019). In household bargaining models, this response is often explained by male backlash theories (Bloch and Rao, 2002; Eswaran and Malhotra, 2011; Luke and Munshi, 2011). Results from randomized control trials on cash transfers for women are mixed. Hidrobo *et al.* (2016) find a reduction in IPV in Ecuador, whereas Roy *et al.* (2019) find null effects in Bangladesh.

More broadly, during economic crises, competition for scarce resources tends to activate division and animosity between social groups, along perceived racial, ethnic, or class axes (Alesina *et al.*, 1999; Hutchings and Valentino, 2004; Habyarimana *et al.*, 2007; Rodrik, 2018). In particular, traditionally dominant groups become more authoritarian when hit by economic shocks (Ballard-Rosa *et al.*, forthcoming). Many studies in psychology document that when facing a (real or imagined) threat to their social status, people become more hostile to outside groups, especially those identified as the source of the threat (e.g., Tajfel, 1978; Riek *et al.*, 2006; Leach and Spears, 2008). In the United States, Mutz (2018b) argues that perceived status threat by dominant groups was a key factor explaining Trump's victory in 2016.[5]

Overall, recent economic shocks happened within a long-term trend of improved female social and economic status, including, for example, rising female labor force participation, shrinking gender wage gap, and, in some countries (like Brazil), a complete reversal of the gender gap in education. Against that backdrop, economic crises are likely to create 'status anxiety' among men, who feel their dominant position threatened. Gidron and Hall (2017) show that subjective social status is negatively correlated with support for right-wing populist parties in 15 European countries in 2009. Among adults without a college degree, male subjective social status has been declining since 1987, while female subjective social status has been increasing.

In sum, based on this literature, we interpret our main findings as follows: In areas where male employment declines the most during the crisis, Bolsonaro's authoritarian and masculine stereotypes become more popular among men, as they seek to compensate losses in social and economic status. Conversely, in areas where female employment declines the most, men's relative status improves, shutting off the compensation mechanism, whereas, among women, economic vulnerability deepens the distaste for (or expect costs of) Bolsonaro's gender rhetoric.

In support of this interpretation, we analyze seven rounds of individual-level survey data

[5] Morgan (2018), however, challenges Mutz's conclusions, arguing instead that economic voting motives were decisive in the 2016 US presidential election. See also Mutz (2018a).

from the *AmericasBarometer*, covering, for Brazil, the period 2007–2019. We document the emergence of a large political gender gap in Brazil that is specific to the 2018 election and its aftermath. Conditional on standard socio-demographic characteristics, there is *no* gender gap on left-right ideology or voting intentions for the incumbent party before 2018. In 2019, however, men have significantly shifted towards the right of the political spectrum and are more likely to support Bolsonaro's party (at the time: PSL[6]). In a similar vein, administrative data on party membership by gender reveal an unprecedented surge in *male* affiliations for PSL, once Bolsonaro joins the party in 2018, but not before. Finally, using data from the World Values Survey, we estimate a large conditional gender gap in support for abortion starting in 2018 among economically unsatisfied respondents, with men becoming substantially more conservative. This gender gap does not exist among economically satisfied respondents, nor before 2018. When we run placebo analyses for Mexico, we find null gender gaps for all years and sub-groups. Taken together, these descriptive patterns are consistent with Bolsonaro's rhetoric serving as a compensation mechanism for the perceived loss of economic and social status among men in the aftermath of the economic crisis.

To be sure, Bolsonaro's far-right platform was multi-dimensional, and we cannot decisively disentangle which elements (or combination thereof) drive the differential responses to the gender-specific shocks. But we can reject a few prominent hypotheses. First, we build similar shift-share measures of shock exposure by race but find null effects on electoral outcomes. This suggests that the relevant cleavage triggered by the crisis relates to gender, rather than race or industry affiliation.[7] Second, in a context of rising violent crime, whose victims and perpetrators are overwhelmingly male, Bolsonaro's 'tough-on-crime' agenda may be particularly appealing for men. Yet, local demand shocks (however measured) do not predict violent crime in the run up to the election. And

[6]Social Liberal Party (*Partido Social Liberal*). Notice that, in this case, the party name carries little ideological meaning. Bolsonaro abandoned the party in December 2019, eleven months after taking office as president.

[7]In Brazil, both gender and race segregation are substantial across industries. Therefore, conducting the analysis separately by gender and race helps us disentangling the effects of industry affiliation from other dimensions. As we find differential effects for gender- but not race-specific shocks, we are confident these effects are not simply capturing political preferences driven by industry affiliation.

although the level and growth of violent crime predict PT's under-performance between 2014 and 2018, these effects are largely independent from the gender-specific shock effects. Third, irrespective of the actual crime rate, men's perception of crime or preference for liberalized gun laws in times of crisis could explain their support for Bolsonaro, who defends laxer gun-ownership laws. We proxy preference for this policy position with the regional percentage of 'No' votes in the 2005 referendum on the ban of firearms and ammunition sales.[8] Interestingly, a 1 percentage point increase in local 'No' votes in 2005 raises Bolsonaro's vote share in the first round by 0.6 percentage points. But, once again, this effect is independent from the gender-shock effects, which remain qualitatively stable. Lastly, because Bolsonaro is strongly attached to the Brazilian military, not only as former army Captain, but also as a vocal supporter of the military regime (1964–85), we test whether differences in local military presence (which is overwhelmingly male) could explain our main results. We control for the pre-crisis share of local employment in the military and the number of young men and women drafted for military service between 2013 and 2017. None of these variables predicts Bolsonaro's vote share, nor affects the estimates of the gender-specific shocks.

To the best of our knowledge, this is the first paper focusing on the differential response to economic shocks by gender and its consequences for the election of a far-right president. Moreover, while most of the literature on the recent rise of populism and extremism focuses on advanced economies, evidence from developing countries remains scarce (Guriev and Papaioannou, forthcoming). In contrast to the ongoing right-wing populist surge in advanced economies, Latin American populism has been mostly associated with the left (Dornbusch and Edwards, 1991; Edwards, 2019). Bolsonaro's election represents a turning point in the region. Lastly, whereas most of the existing findings are best understood as medium to long-run effects of secular processes—such as trade integration, immigration, secular stagnation—we, on the other hand, focus on a severe, well-defined economic crisis (2014–17) that happens immediately before the 2018 presidential election.

[8]The referendum took place on October 23, 2005, and asked 'Should the sale of firearms and ammunition be banned in Brazil?'. 'No' won with 64% of valid votes.

The paper relates to several strands of research. First, we speak directly to the literature investigating the role of economic shocks on the rise of populist and extremist politicians (Dippel *et al.*, 2015; Che *et al.*, 2016; Colantone and Stanig, 2018; Fetzer, 2019; Autor *et al.*, 2020; Guriev and Papaioannou, forthcoming). Second, we relate to the strand of research linking political economy and gender (Edlund and Pande, 2002; Edlund *et al.*, 2005; Doepke *et al.*, 2012; Brollo and Troiano, 2016). More broadly, we add to the growing body of evidence on differential gender effects of economic shocks (Kis-Katos *et al.*, 2018; Lindo *et al.*, 2018; Anukriti and Kumler, 2019; Autor *et al.*, 2019; Page *et al.*, 2019). Fourth, we build on studies exploring the economics of social identity (Akerlof and Kranton, 2000, 2010; Bertrand *et al.*, 2015; Bursztyn *et al.*, 2017; Ballard-Rosa *et al.*, forthcoming). And, finally, we contribute to the empirical literature estimating socio-economic consequences of labor market shocks in Brazil. Most studies exploit the process of trade liberalization (1988–1995) as a natural experiment in order to estimate local labor market effects on wages and employment (Kovak, 2013; Dix-Carneiro and Kovak, 2017; Gaddis and Pieters, 2017), crime (Dix-Carneiro *et al.*, 2018), religion (Costa *et al.*, 2018), fertility (Braga, 2018), and discrimination (Hirata and Soares, 2020; Barros and Santos Silva, 2020). In contrast to that literature, we provide evidence on a much more recent, and yet unexplored, economic shock, the 2014–17 recession, and link it to a tectonic shift in the country's political environment—Jair Bolsonaro's election—whose consequences are likely to be felt for many years to come.

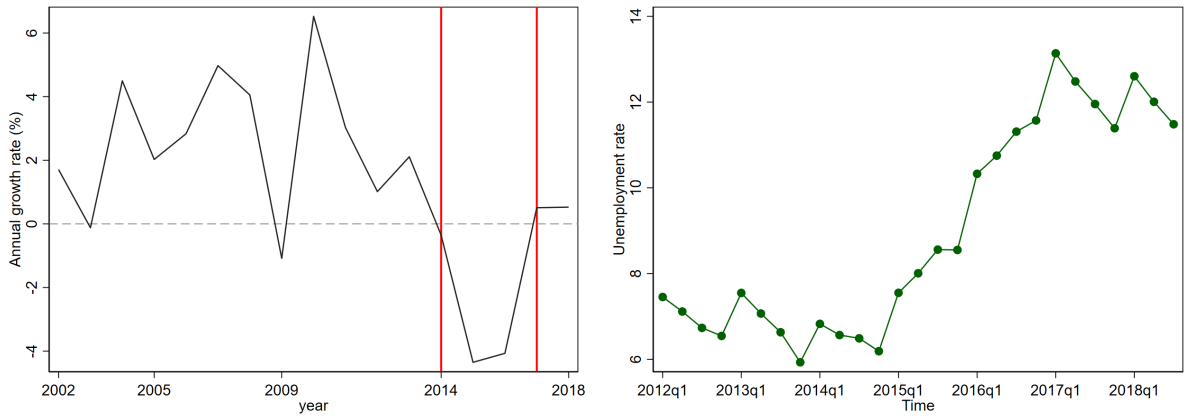
The next section presents the political and economic context preceding the presidential election of 2018. Section 3 discusses the empirical strategy. In section 4, we present the main local labor market results, and, in section 5, we discuss mechanisms and assess robustness. Section 6 concludes.

2 Brazil's 2018 presidential election: economic and political context

In 2002, Luiz Inácio Lula da Silva was elected president of Brazil, starting a 14-year rule for the left-wing PT. After Lula's two consecutive terms (2003–06, 2007–10)—the maximum allowed by the Constitution—Dilma Rousseff, his former minister and chief of staff, won the 2010 and 2014 elections. The decade 2003–2013 was marked by sustained economic growth (Figure 1a), large increase in social spending (e.g., Hall, 2006), and rapidly falling poverty and inequality (e.g., Alvarez *et al.*, 2018).

However, starting in late 2014, the Brazilian economy was hit by a severe economic crisis (Figure 1), which quickly morphed into social and political turmoil, culminating in Rousseff's impeachment, in August 2016. The onset of the recession resulted from a combination of several factors (Spilimbergo and Srinivasan, 2018). Commodity prices fell sharply, which, together with macroeconomic mismanagement, led to a severe fiscal crisis. Mid-2014 also marks the beginning of operation *Lava Jato* (Car Wash), which quickly unfolded to become the largest corruption scandal, in terms of misappropriated funds, ever uncovered in Brazil (Mello and Spektor, 2018; Pinotti, 2018; Hunter and Power, 2019). The criminal scheme involved a cartel of construction companies that, in collusion with public officials and politicians, systematically overcharged procurement contracts with Petrobras, the state-owned oil giant. In return, bureaucrats, politicians, and political parties received bribes and slush campaign funds. In 2015, Petrobras alone admitted losing US$1.8 billion due to the scheme (Pinotti, 2018). Many company executives and politicians have been arrested and convicted, including former president Lula, who was convicted of corruption and imprisoned between April 2018 and November 2019. While the official charge for Rousseff's impeachment was a 'creative accounting' irregularity and was not related to *Lava Jato*, PT became the main target of public outrage towards the corruption scandal (Mello and Spektor, 2018).

After Rousseff's impeachment, vice-president Michel Temer, from the center-right MDB



(a) Annual GDP per capita growth rate

(b) Quarterly unemployment rate

Figure 1: The 2014–17 economic crisis in Brazil

Notes: GDP per capita growth: Period is 2002–2018. Constant prices. Own calculations from World Bank's World Development Indicators. Unemployment rates: Period is 2012Q1–2018Q3 and age group is 18–64. Own calculations from PNAD Contínua.

party[9], became president. In spite of low popular support, the government put forward a series of austerity measures, involving cuts in social rights and budgetary limits for social spending. These reforms failed to restore economic growth and increased popular dissatisfaction. By September 2017, 77% of individuals interviewed rated the government as 'bad or terrible', and 92% did not trust the president.[10] Consequently, president Temer opted out of the 2018 race. His Finance Minister, Henrique Meirelles, was the MDB candidate and obtained 1.20% of the votes in the first round.

The other major center-right party, PSDB[11], governed the country from 1994 to 2002 and had contested every single runoff election since PT took power in 2003. The runoff election of 2014, between Dilma Rousseff (PT) and Aécio Neves (PSDB), was the closest in Brazilian history, with Rousseff winning narrowly, with 51.6% of the votes. Since then, however, several senior PSDB figures have been implicated in corruption scandals, and the party supported both Rousseff's impeachment and the least popular austerity measures of Temer's government. In the first round of 2018, the party's candidate, Geraldo Alckmin, ranked 4th place with 4.76% of the votes.

[9]Brazilian Democratic Movement (*Movimento Democrático Brasileiro*).

[10]IBOPE survey commissioned by the National Confederation of Industry (*CNI*). Between September 15th and 20th, 2,000 individuals were surveyed in 126 municipalities. The confidence level of the survey is 95%.

[11]Brazilian Social Democracy Party (*Partido da Social Democracia Brasileira*).

With the collapse of the center-right parties, the 2018 election became a contest between the left-wing PT and far-right candidate Jair Bolsonaro, from PSL. PT fielded Lula as its presidential candidate, with Fernando Haddad—a former Education Minister and Mayor of São Paulo—as running mate. By mid-August 2018, polls showed a difference of 20 percentage points in voting intentions for Lula (39%), the leading candidate, and Bolsonaro (19%), in second place.[12] However, with the impediment of Lula's candidacy by the Federal Electoral Court, on August 31, due to his corruption conviction, Fernando Haddad became PT's presidential candidate. Bolsonaro started to gain political space (Hunter and Power, 2019) and eventually won the first round of the election, on October 7, with 46.03% of the votes, and the runoff against Haddad, on October 28, with 55.13%. Figure 2 shows the percentage of votes for Bolsonaro in each round, by Brazilian microregion.[13] There is a striking degree of variation in support for Bolsonaro across regions. In the runoff, the percentage of votes ranged from 10.3% in the microregion Serrana do Sertão Alagoano, in the northeastern state of Alagoas, up to 85.3% in the microregion Blumenau, in the southern state of Santa Catarina.

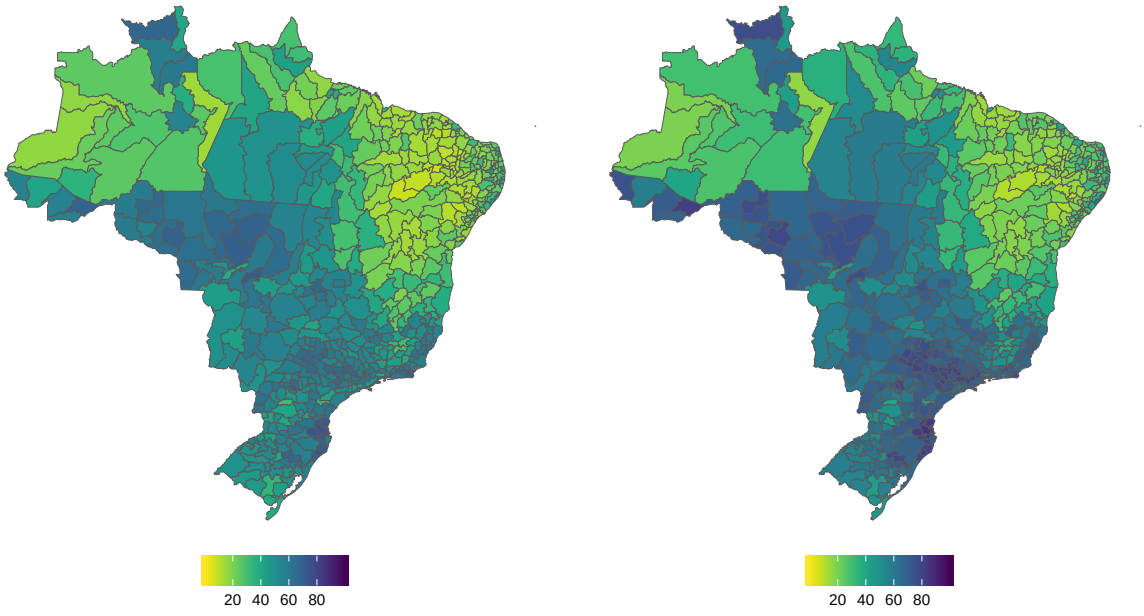
Although posing as an outsider, Jair Bolsonaro, a former Captain for the reserve army, has a long career in politics. Starting in 1988 as a municipal council member for the city of Rio de Janeiro, he was then elected seven consecutive times as federal deputy for the lower chamber of Congress, between 1991 and 2018. Since 1988, he has represented seven different political parties.[14]

Throughout his political career, Bolsonaro became acquainted to the public for views that are widely considered sexist, homophobic, racist, and, overall, illiberal. To cite a few examples, in 2003, he stated to a congresswoman that he would not rape her because she was not "worth" it. In 2016, during the lower chamber's vote to impeach Dilma Rousseff, he dedicated his vote to Colonel Brilhante Ustra, one of the most infamous torturers of

[12] Electoral polls conducted by *Instituto Datafolha* on August 2018.

[13] A microregion is a statistical unit between a municipality and a federal state. We define microregions more precisely in section 3.

[14] *Partido Democrata Cristão* (PDC, 1988–1993), *Partido Progressista* (PP, 1993), *Partido Progressista Reformador*/*Partido Progressista Brasileiro*/*Partido Progressista* (PPR/PPB/PP, 1993–2003 and 2005–2016), *Partido Trabalhista Brasileiro* (PTB, 2003–2005), *Partido da Frente Liberal* (PFL, 2005), *Partido Social Cristão* (PSC, 2016–2018), *Partido Social Liberal* (PSL, 2018–2019).



(a) First round (b) Second round

Figure 2: Bolsonaro, percentage of votes by election round

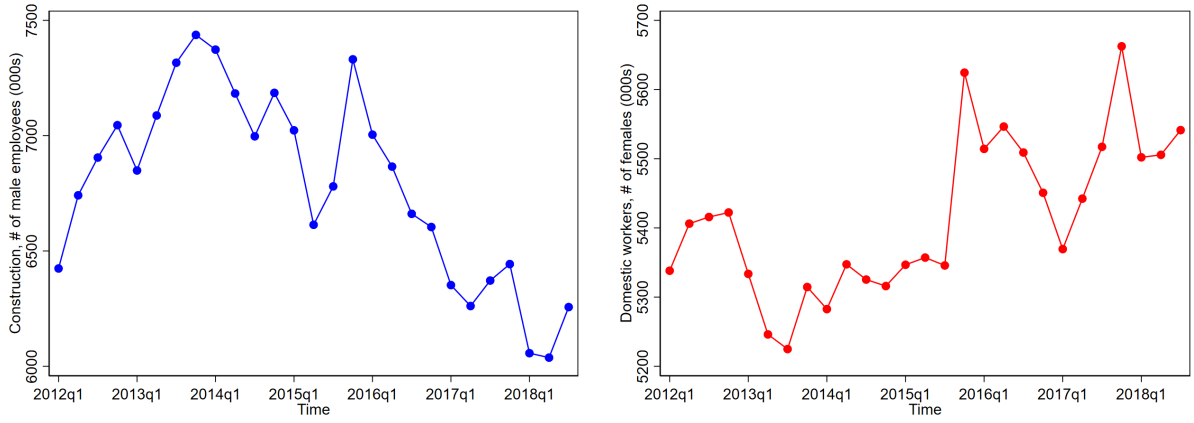
Notes: Percentage of votes for Jair Bolsonaro (PSL) in 2018, by microregion and election round. Own calculations from TSE (*Tribunal Superior Eleitoral*).

Brazil's military dictatorship.[15] Apart from this specific episode, Bolsonaro has explicitly defended, in many occasions, the military regime and its regular practice of torturing political opponents. As for his homophobic views, for example, he declared in an interview that he "would not be able to love a homosexual son".[16]

Differently from many other far-right and populist movements, Bolsonaro's rhetorical attacks did not target only minority groups, but had a misogynous component. It seems puzzling, from a strategic perspective, that a candidate would openly insult women in a majoritarian electoral system. Although the political and social context that culminated with Bolsonaro's victory emerged from several factors, including rising crime and the *Lava Jato* corruption scandal, we argue that the economic crisis, particularly through its

[15]In her youth, as a member of a far-left armed group fighting the military dictatorship, Rousseff had been imprisoned and tortured. Bolsonaro ended his voting statement with the words: "[I]n memory of Colonel Carlos Alberto Brilhante Ustra, the terror of Dilma Rousseff, [...] my vote [for impeachment] is 'Yes'!" (Authors' own translation from Portuguese: "[P]ela memória do Coronel Carlos Alberto Brilhante Ustra, o pavor de Dilma Rousseff, [...] o meu voto é 'Sim'!")

[16]The examples mentioned above are widely documented in hundreds of press articles in Portuguese. For a good popular press piece in English that refers to most of these statements, see "Jair Bolsonaro's Southern Strategy" by John Lee Anderson, published in the *New Yorker*, on April 1, 2019. For an academic reference, see Hunter and Power (2019).



(a) Construction, males, 18–64

(b) Domestic workers, females, 18–64

Figure 3: Quarterly employment estimates for selected industries

Notes: Period is 2012Q1–2018Q3 and age group is 18–64. Own calculations from PNAD Contínua (2012–2018).

Table 1: Voting poll for second round of 2014 and 2018 presidential elections

	2014				2018		
	All	Males	Females		All	Males	Females
Dilma Rousseff (PT)	49%	48%	49%	Fernando Haddad (PT)	41%	37%	44%
Aécio Neves (PSDB)	43%	44%	42%	Jair Bolsonaro (PSL)	47%	**54%**	**41%**
Blank/Null	5%	5%	5%	Blank/Null	10%	7%	12%
Undecided	3%	3%	4%	Undecided	2%	1%	3%

Notes: For 2018 the source is IBOPE, 'Pesquisa de Opinião Pública sobre Assuntos Políticos/Administrativos', JOB0011-10/2018. The poll was conducted on October 26–27 (the election was on October 28), with a sample of 3,010 respondents in 208 municipalities. For 2014 the source is IBOPE, 'Pesquisa de Opinião Pública sobre Assuntos Políticos/Administrativos', JOB0462-14/2014. The poll was conducted on October 24–25 (the election was on October 26), with a sample of 3,010 respondents in 206 municipalities. Both polls were registered at Brazil's Federal Electoral Court (Tribunal Superior Eleitoral, TSE) with IDs BR-02934/2018 and BR-01195/2014, respectively.

differential gender dimension, helps explaining the electoral outcome.

The main consequence of the recession for the average Brazilian was a steep rise in unemployment (Figure 1b). But, because the amount of jobs lost varied across industries and Brazil's labor market has a great amount of gender segregation by industry, the economic shock affected men and women differently. To illustrate this point, Figure 3 shows the evolution of employment for a male-dominated industry—construction—and a female-dominated industry—domestic work. During the crisis, these two industries experienced different employment trajectories, with large job losses in construction, but mild job gains in domestic work.

In addition to the documented heterogeneity in industry exposure to the recession by gender, voting polls suggest a large political gender gap which is specific to the 2018 election. As shown in Table 1, on the eve of the 2014 runoff election, the gender gap

in votes between Dilma Rousseff, the left-wing and *female* candidate, and Aécio Neves, center-right and *male*, was small: 44% of men preferred Neves *versus* 42% of women. A comparable poll, on the eve of the 2018 runoff, shows a large gender gap: 54% of men would vote for Bolsonaro *versus* 41% of women. The remainder of the paper investigates if this gender gap was, in part, the result of differential responses to the economic shock by men and women. The next section presents our empirical strategy to estimate causal effects at the local labor market level.

3 Empirical Strategy

Our empirical strategy relies on a Bartik-type labor demand shock (Bartik, 1991). We measure the labor demand shock using a shift-share variable at the local labor market level: a Brazilian microregion.[17] For microregion r, the overall shift-share variable is defined as:

$$\dot{L}_r = \sum_i \frac{L^0_{ri}}{L^0_r} \dot{L}_i \tag{1}$$

where the *shift*, $\dot{L}_i \equiv log(\bar{L}_{i,2012q3:2013q3}) - log(\bar{L}_{i,2017q3:2018q3})$, is the log difference in average employment for industry i between the pre-crisis period and the pre-election period. We compute $\dot{L}_i$ from PNAD[18] Contínua, a quarterly household survey that covers the formal and informal sectors and is the source of official unemployment statistics. For the pre-crisis period, we pool all survey waves between the 3rd quarter of 2012 and the 3rd quarter of 2013. For the pre-election period, we pool the waves between the 3rd quarter of 2017 and the 3rd quarter of 2018. Using the most disaggregated industry variable available in PNAD Contínua, we calculate average employment changes between the two periods for 223 industries.[19] The *share*, $\frac{L^0_{ri}}{L^0_r}$, is industry i's share of total employment in microregion r, computed from the 2010 census for the age group 18–64. The larger $\dot{L}_r$, the larger the

[17] A microregion is group of contiguous municipalities that are economically integrated, as defined by the Brazilian Statistical Agency (Instituto Brasileiro de Geografia e Estatística, IBGE). In the literature, microregions have been the unit of choice to define a Brazilian local labor market. We use the microregion boundaries of the 2010 census.

[18] *Pesquisa Nacional por Amostra de Domicílios* (National Household Sample Survey).

[19] Corresponding to the 5-digit level of CNAE Domiciliar 2.0—Brazil's classification of economic activities since 2006.

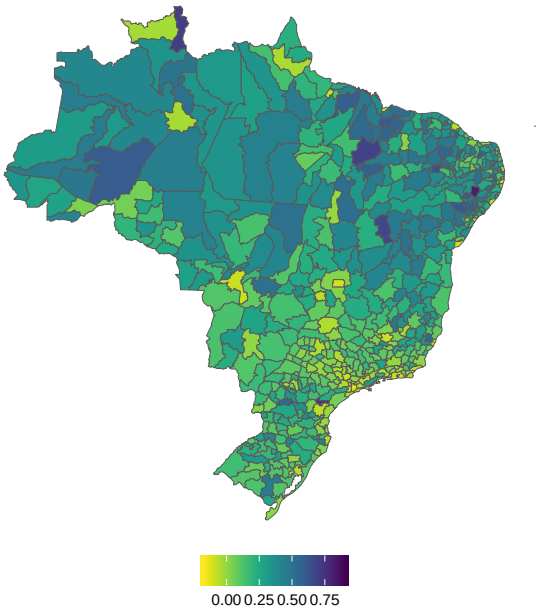


Figure 4: Labor demand shock (overall)

Notes: Overall shock is defined in equation (1). Unit of analysis is the microregion. $N = 558$.

employment *loss*, i.e., the larger the shock to labor demand experienced by microregion r.

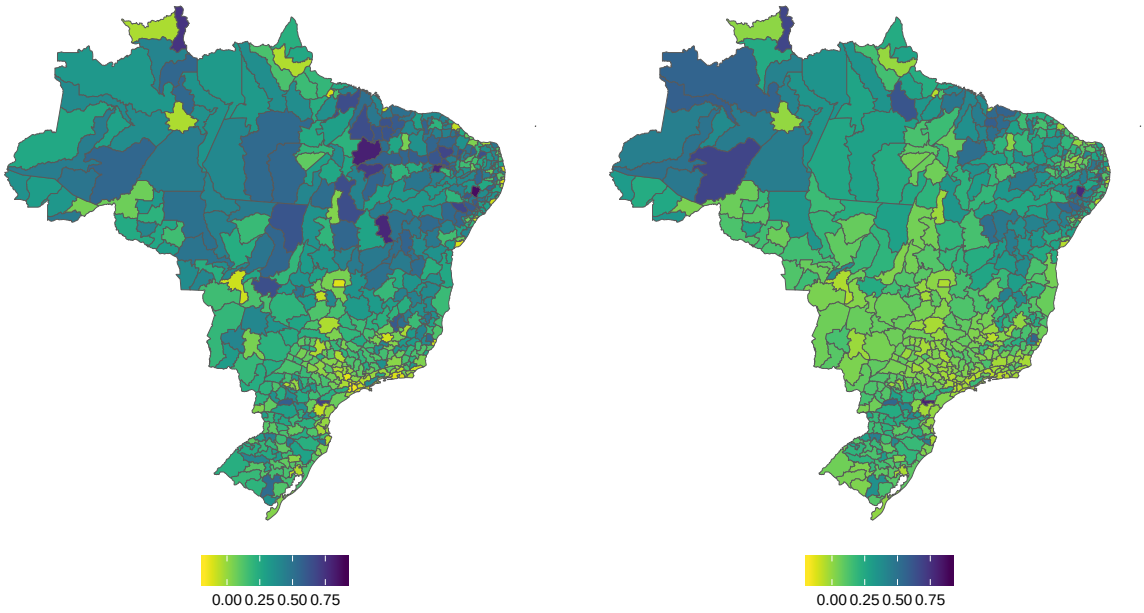
To create labor demand shocks by gender (m = males, f = females), we construct:

$$\dot{L}_r^m = \sum_i \frac{M_{ri}^0}{M_r^0} \dot{L}_i^m \text{ and } \dot{L}_r^f = \sum_i \frac{F_{ri}^0}{F_r^0} \dot{L}_i^f \tag{2}$$

where M_{ri}^0 (F_{ri}^0) is the number of males (females) employed in industry i, in microregion r, from the 2010 census. $\dot{L}_i^m$ ($\dot{L}_i^f$) is the log difference in average employment for males (females) for industry i between the pre-crisis period and the pre-election period. Finally, we compute similar shocks by race—with superscript w for whites, and nw for nonwhites.[20]

Altogether, there is substantial variation in shock intensity across the 558 microregions of Brazil, both for the overall shock (Figure 4), the gender-specific shocks (Figure 5), and the race-specific shocks (Figure 6). Table 2 displays summary statistics for the shock variables. On average, men are hit harder by the crisis than women (Figure 7). Within microregions, the shocks are highly correlated: $\rho = 0.83$ for gender shocks (Figure A1a)

[20]The IBGE's racial/ethnic classification consists of 'White' (*Branca*), 'Black' (*Preta*), 'Asian' (*Amarela*), 'Brown' (*Parda*), and 'Native' (*Indígena*). We combine 'White' and 'Asian' as *white* and the remaining as *nonwhite*.



(a) Male shock (b) Female shock

Figure 5: Labor demand shock by gender

Notes: Male shock is $\dot{L}_r^m$ and female shock is $\dot{L}_r^f$, as defined in equation (2). Unit of analysis is the microregion. $N = 558$.

and $\rho = 0.93$ for race shocks (Figure A1b).[21]

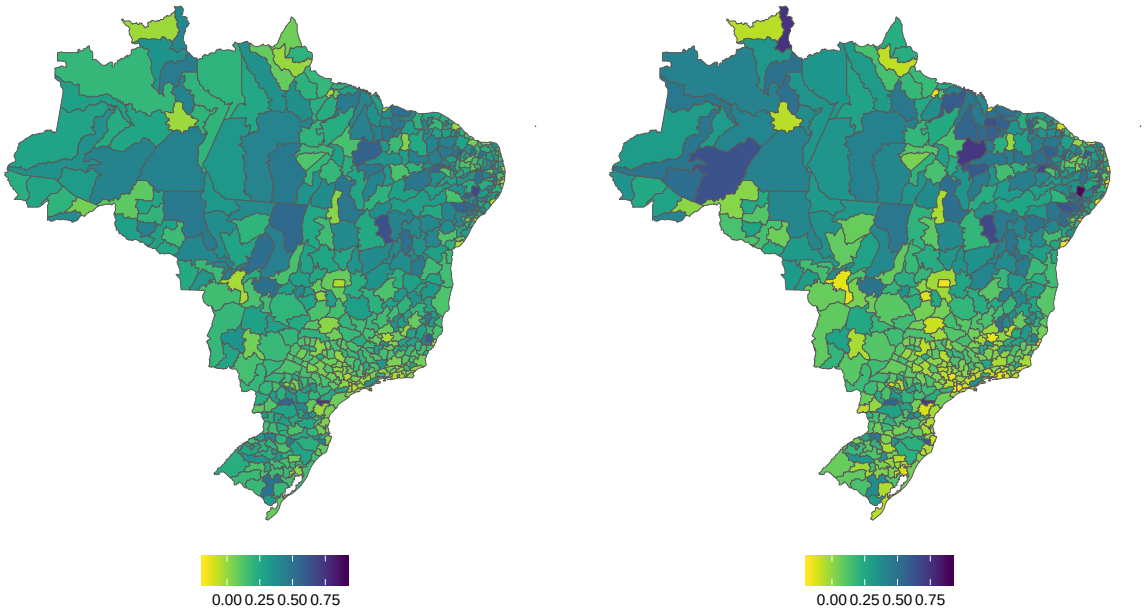
We use the labor demand shocks to estimate Bartik-type reduced-form regressions. Illustrating with the gender-specific shift-shares, our preferred regression equation is:

$$\Delta_{18-14} Votes_r = \beta_m \dot{L}_r^m + \beta_f \dot{L}_r^f + \delta \Delta_{14-10} Votes_r + \mathbf{X_{10,r}}\gamma + \eta_s + \epsilon_r, \tag{3}$$

The dependent variable, $\Delta_{18-14} Votes_r$, is the difference in an electoral outcome between the 2018 and 2014 presidential elections. We estimate models for four electoral outcomes: (1) the percentage point change in votes for PT, (2) the percentage of votes for Bolsonaro[22], (3) the percentage point change in the abstention rate, and (4) the percentage point change in invalid votes (nulls or blanks). For the gender-specific shock regressions, shown in (3),

[21] The correlation between the gender shocks compares to that ($\rho = 0.8$) reported by Autor *et al.* (2019, p. 167), whose shock is the decline of manufacturing jobs across US commuting zones induced by import competition from China. Similar to Autor *et al.* (2019), we will have enough statistical power to precisely estimate the independent impacts of the gender-shocks.

[22] Since 2018 was Bolsonaro's first run for president, his percentage point change between 2018 and 2014 equals his percentage of votes in 2018. Later on, in robustness checks, we will relax this equality, by allowing 'far-right' baseline values in 2014 that differ from zero. All results remain qualitatively unchanged.



(a) White shock (b) Nonwhite shock

Figure 6: Labor demand shock by race

Notes: White shock is $\dot{L}_r^w$ and nonwhite shock is $\dot{L}_r^{nw}$, as defined in equation (2). Unit of analysis is the microregion. $N = 558$.

our coefficients of interest are β_m and β_f—the conditional effect of the male and female shift-shares, respectively. Table 2 reports descriptive statistics for the outcome and shock variables.

Because the model is estimated in differences, microregion-specific time-invariant characteristics are removed. In addition, we include three sets of control variables. First, we control for the lagged dependent variable, $\Delta_{14-10}Votes_r$, which is the difference between the electoral outcome in the 2014 and 2010 presidential elections.[23] Next, vector $\mathbf{X_{10,r}}$ includes pre-crisis socio-demographics and election results for each microregion, both measured in 2010. Socio-demographics come from the 2010 census and refer to the out-of-school adult population (18+). We include male and female employment shares, the log of population, the share of males, the share of nonwhites, the shares with completed primary, secondary, or tertiary education, the share of recipients of Bolsa Família[24], and

[23]Because Bolsonaro did not run before 2018, when modeling his percentage of votes in 2018, we proxy the lagged dependent variable by the percentage point change in Rousseff's (PT) votes between 2014 and 2010.

[24]Bolsa Família is the flagship federal conditional cash transfer that became highly popular and is an important predictor of political support for PT (see, for example, Table A1). The census variable

Table 2: Descriptive statistics: dependent and economic shock variables

	mean	sd	min	max
Election outcomes: 1st round				
Bolsonaro, % of votes	40.78	18.36	7.24	74.50
Δ_{18-14} PT, % votes	-12.55	9.21	-50.21	16.88
Δ_{18-14} abstention, %	0.19	3.73	-12.66	10.52
Δ_{18-14} null/blank, %	-0.35	1.79	-8.66	4.52
2nd round				
Bolsonaro, % of votes	48.61	21.43	10.30	85.35
Δ_{18-14} PT, % votes	-5.37	7.17	-33.64	10.27
Δ_{18-14} abstention, %	-0.17	4.02	-12.49	12.30
Δ_{18-14} null/blank, %	3.15	3.09	-3.58	11.90
Shock variables:				
Shock (overall)	0.22	0.17	-0.12	0.81
Male shock	0.26	0.20	-0.15	0.87
Female shock	0.18	0.16	-0.06	0.81
White shock	0.23	0.14	-0.06	0.74
Nonwhite shock	0.20	0.19	-0.17	0.87
N	558			

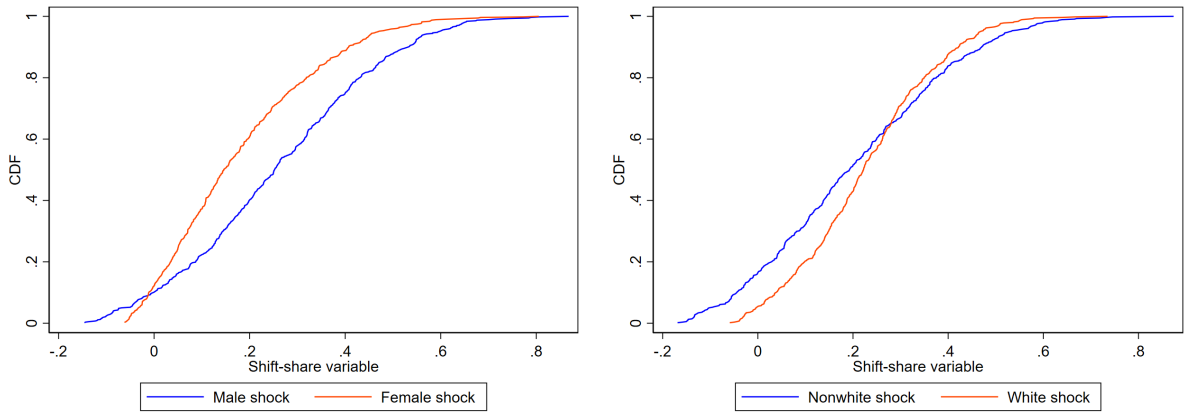
Table 3: Descriptive statistics: control variables from 2010 census

	mean	sd	min	max
Male employment share	0.73	0.06	0.53	0.92
Female employment share	0.47	0.08	0.26	0.78
Population, log	11.63	0.96	7.43	15.98
Male pop. share	0.50	0.02	0.45	0.56
Nonwhite pop. share	0.54	0.22	0.06	0.91
Primary	0.14	0.03	0.06	0.35
Secondary	0.21	0.06	0.07	0.45
Tertiary	0.06	0.03	0.02	0.22
Bolsa Familia recipients	0.10	0.07	0.00	0.24
Construction share	0.07	0.02	0.00	0.17
N	558			

the share employed in the construction sector (1-digit level). Table 3 reports descriptive statistics for the 2010 socio-demographics. The 2010 election controls include the first round percentage of votes for the main candidates: José Serra (PSDB) and Marina da Silva (PV), the second and third most voted candidates, with the most voted—Dilma Rousseff (PT)—being the omitted candidate. We also add the percentage of votes for Levy Fidelix (PRTB), who ran a far-right political platform, and the percentage of votes for the other remaining candidates.[25] The percentage of invalid votes and the abstention rate are also controlled for. Table 4 shows descriptives for the 2010 election. As a third set

also includes recipients of the federal program against child labor (Programa de Erradicação do Trabalho Infantil, PETI).

[25]The candidate with the most far-right platform in the 2010 and 2014 elections, Levy Fidelix (PRTB), performed very poorly. He received 57,960 votes (0.06%) in 2010 and 446,878 votes (0.43%) in 2014.



(a) Gender

(b) Race

Figure 7: CDFs of gender- and race-specific shocks.

Notes: CDF is the empirical cumulative distribution function of the shock variables. Male (female) shock is $\dot{L}_r^m$ ($\dot{L}_r^f$), and white (nonwhite) shock is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). Unit of analysis is the microregion. $N = 558$.

of controls, the model includes state dummies (η_s). Altogether, our preferred specification flexibly allows for differential trends based on pre-crisis socio-demographics and political preferences, at the microregion level, and, at a higher level, state-specific trends. All electoral data are made publicly available by Brazil's Federal Electoral Court (Tribunal Superior Eleitoral, TSE). We cluster standard errors at the microregion level, but we will later assess robustness to other levels of clustering.

Causal identification To obtain causal estimates for the shift-share coefficients, we follow the quasi-experimental framework of Borusyak *et al.* (forthcoming), in which the sufficient identifying assumption is conditional shift (i.e., shock) orthogonality.[26] Borusyak *et al.* (forthcoming) show that this assumption holds if shocks are quasi-randomly assigned, occur in large number, and their average exposure shares are sufficiently dispersed. We argue that, in our setting, the shift—i.e., aggregate change in a 5-digit industry's employment by gender and race—satisfies these three conditions.

We start by justifying the assumption that the industry-level shocks are as-good-as-randomly assigned, conditional on controls. As we estimate a model in differences, we account for time-invariant microregion exposure shares and isolate variation in shocks

[26]See Goldsmith-Pinkham *et al.* (2020) for an alternative causal inference framework for shift-share designs that depends on *share* exogeneity.

Table 4: Descriptive statistics: control variables from past elections

	mean	sd	min	max
Election outcomes, 2010: 1st round				
Dilma Rousseff (PT)	52.65	15.26	16.96	85.13
José Serra (PSDB)	33.74	12.98	6.38	61.21
Marina da Silva (PV)	12.81	6.88	2.58	41.96
Levy Fidelix (PRTB)	0.05	0.03	0.00	0.28
Other	0.74	0.34	0.21	2.43
Null/blank	9.17	2.84	3.73	17.70
Abstention	20.08	4.64	8.76	39.36
Δ_{14-10}*: 1st round*				
Dilma Rousseff, % of votes	-2.56	6.90	-30.07	15.29
Abstention, %	0.89	2.46	-8.75	5.63
Null/blank, %	-0.57	2.17	-7.73	6.29
Δ_{14-10}*: 2nd round*				
Dilma Rousseff, % of votes	-1.23	6.95	-21.60	22.64
Abstention, %	-0.65	2.95	-20.82	4.35
Null/blank, %	-0.52	1.84	-6.16	5.45
N	558			

over time. By including a set of electoral and socio-demographic controls, we account for pre-existing political outcomes and socio-demographic characteristics at the microregion level that could correlate with local election outcomes. In particular, we control for the share of employment in the construction sector, because the expansion and contraction cycles of this (predominantly male) sector could have been, in part, politically driven. In 2014, Brazil hosted the FIFA (Soccer) World Cup and, in 2016, Rio de Janeiro hosted the Summer Olympics, with both events involving sizable investments in physical infrastructure. In addition, the *Lava Jato* corruption scandal hit the construction sector particularly hard, since most of the largest construction firms in the country were criminally convicted of wrongdoing. By controlling for the pre-crisis relative size of the construction sector, we alleviate the concern that the bust of this specific sector might correlate with unobservable determinants of local political preferences. Finally, state-specific trends are a particularly powerful control: state-specific trends *alone* absorb 79% of the microregional variation in the percentage point change in votes for PT (2018–14, first round).[27]

Later on, we will augment the baseline specification with several economic and political variables covering the period between 2002, when PT wins its first presidential election,

[27]For the second round, the R^2 is lower, 0.57. For the percentage of votes for Bolsonaro: $R^2 = 0.79$ (first round), and = 0.82 (second round). To be precise, state dummies include the 26 federal states and the federal district (Brasília).

and 2014. These additional controls will purge pre-existing economic and political changes at the local level that may correlate with the 2014–18 crisis. In another exercise, we further relax the identification assumption by using as shift the change in employment by industry for the *total* population (i.e., $\dot{L}_i$ as in equation (1)), instead of using gender- and race-specific shifts. In those alternative shift-share measures, all gender- and race-specific variation comes only from the *pre-crisis* (2010) labor market composition across microregions.

In addition to satisfying conditional shock orthogonality, the validity of our shift-share approach requires additional assumptions on the shift and share variables (Borusyak *et al.*, forthcoming). The shift variable needs to be relatively large in number, and the distribution of the average shares needs to be sufficiently dispersed. Although there is no clear threshold for satisfying these criteria, we follow Borusyak *et al.* (forthcoming) and provide descriptive evidence in favor of the validity of our identification strategy. First, we calculate the Herfindahl index (HHI) using the average exposure share by industry and find low concentration (HHI = 0.026). Second, we take a closer look at the distribution of the overall shock variable by industry as well as its associated average exposure shares. As shown in Table A2, for the 10 most exposed and 10 least exposed industries, the shares range from 1% to 10%. These relatively low exposure shares also indicate that, apparently, the shock variable is not driven by a few particular industries, but is rather dispersed depending on a microregion's initial industrial composition. Third, with respect to the number of shocks, we exploit variation in employment across 5-digit industries, which corresponds to a total of 223 shocks.

Despite being causally identified, the regression models of equation (3) suffer from two shortcomings. First, we cannot infer individual behavior from microregion level aggregates. To alleviate this concern, we later analyze several rounds of a cross-sectional public opinion survey, the *AmericasBarometer*, covering the period 2007–2019. Because we do not observe the same individuals over time and the survey is not representative at the microregion level, we cannot use the identification strategy employed so far. Reassuringly, the descriptive individual-level evidence is consistent with the causal local labor market estimates.

Second, our empirical strategy relies on variation across microregions and, as a result, cannot pin-down the factors contributing to the common-trend component of Bolsonaro's electoral success. Even though we cannot address this shortcoming directly, since Bolsonaro's first presidential run was in 2018, we will use our preferred estimates to perform a counterfactual exercise. The exercise quantifies the electoral impact of counterfactual shocks, changing their incidence (by gender) and their magnitude.

4 Local labor market results

We present results for the change in PT and Bolsonaro votes, and for the change in abstention rates and invalid votes. In all the following tables, each shock variable is standardized, so the estimated coefficient is readily interpreted as the effect of a one standard deviation (SD) increase in the shock.

Change in PT and Bolsonaro votes Panel A of Table 5 estimates the effect of the overall shock, $\dot{L}_r$, on the percentage point change in PT votes between the first election round of 2018 and 2014. On average, across the 558 microregions, PT lost 12.6 percentage points (ppts), with the maximum loss in a region being 50.2 ppts and the maximum gain being 16.9 ppts.[28] For all panels, columns 1–5 sequentially introduce sets of controls, with the fully-specified model of equation (3) shown in column 5. In the first two columns, there is a positive and significant correlation between the overall shock and the percentage point change in votes for PT's presidential candidate. However, this correlation vanishes once socio-demographics are controlled for (column 3). This result suggests that the overall shock disproportionately hit microregions whose pre-crisis socio-demographics were already

[28]The maximum loss occurred in Meruoca, in the northeastern state of Ceará, where most of the PT votes in 2014 were transferred to the 2018 center-left, home-state candidate, Ciro Gomes (PDT), with Bolsonaro receiving 9.6% of the first round votes. (See also Figure A2.) The maximum gain occurred in Mata Meridional Pernambucana, in the northeastern state of Pernambuco. When each microregion is weighted by its share of total national valid votes, the average 2018–14 PT loss is very similar to unweighted average: 12.3 vs. 12.6 ppts. Throughout, the figures we present do not exactly match the official election results reported by TSE, because we only include votes from within territorial Brazil and exclude (the relatively few) votes from abroad. For a map plotting the change in PT votes between 2014 and 2018 in both election rounds, see Figure A3.

predictive of rising support for PT over time. For the full model, in column 5, the effect is very small and statistically insignificant. In sum, average exposure to the 2014–17 labor demand shock does not affect voting for PT.

However, the null overall effect masks a striking gender-specific effect. Column 5 of panel B shows that the gender-specific shocks have opposite, and statistically significant, effect on votes for PT. The stronger the shock hitting men, the larger the decline in a region's percentage point change of votes for PT (relative to 2014). Female shocks have the opposing effect, increasing PT votes over time. A one SD increase in the shock intensity for men reduces PT votes by 1.34 ppts from 2014 to 2018. A one SD increase in the shock intensity for women *increases* PT votes by 1.72 ppts from 2014 to 2018. For the male (female) shock, the standardized effect is approximately 11% (14%) of the 12.55 ppt loss in PT votes for the average microregion, in the first round.

The race-specific shock estimates are shown in panel C. Similarly to the overall shock, we find no significant effects once socio-demographics are included (columns 3–5). In panels D-F, all models are re-estimated using results from the second round of the 2018 and 2014 elections.[29] In the average microregion, PT's candidate lost 5.37 ppts relative to 2014's runoff election.[30] We still find null effects for the overall shock (panel D) and the race-specific shocks (panel F). For the gender-specific shocks (panel E), the negative effect of the female shock is smaller than in the first round, with one SD increase leading to a 1.18 ppt gain in PT votes. This estimate is sizable, corresponding to 22% of the 5.37 ppts loss in PT votes for the average microregion, in the runoff round. The male shock coefficient is also smaller than the first round coefficient and is only significant at the 10% level.

In Table 6, the outcome variable is the percentage of votes for Bolsonaro in the first (panels A-C) and runoff (panels D-F) rounds of the 2018 election. As before, we find null

[29]We expect the explanatory power of our model to be larger in the first round of the elections, as voters are unconstrained with respect to the number of candidates and are free to decide their most preferred choice. In the runoff, however, there is less variation, and it is difficult to disentangle whether voters align with a candidate or simply reject the alternative choice.

[30]The maximum loss, 33.6 ppts, occurred in Itaguaí, in the southeastern state of Rio de Janeiro. The maximum gain, 10.3 ppts, occurred in Portel, in the northern state of Pará.

Table 5: Change in PT votes, 2018–2014

	Δ_{18-14} PT, % of votes: 1st round				
Panel A: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	1.1090***	1.1378***	-0.1412	-0.1133	0.1068
	(0.4074)	(0.2598)	(0.4382)	(0.4171)	(0.3415)
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-2.7926***	0.2024	-0.8920*	-1.0538**	-1.3380***
	(0.7457)	(0.4290)	(0.5027)	(0.4916)	(0.3955)
Female shock	4.1706***	1.0191**	0.8570*	1.0739**	1.7232***
	(0.6116)	(0.4570)	(0.4807)	(0.4760)	(0.3982)
Panel C: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	-2.1257**	-1.5995**	-0.6378	-0.3974	-0.5341
	(1.0407)	(0.7190)	(0.6783)	(0.6779)	(0.5624)
Nonwhite shock	3.1420***	2.6851***	0.3492	0.1046	0.5809
	(1.0576)	(0.7902)	(0.7467)	(0.7395)	(0.6298)
	Δ_{18-14} PT, % of votes: 2nd round				
Panel D: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	3.6291***	2.7232***	0.3332	0.2828	0.2312
	(0.2628)	(0.2635)	(0.4079)	(0.4013)	(0.3759)
Panel E: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	1.0181**	1.1398**	-0.1781	-0.2700	-0.8090*
	(0.4578)	(0.4800)	(0.4866)	(0.4960)	(0.4578)
Female shock	2.8341***	1.7628***	0.5056	0.5588	1.1757***
	(0.4777)	(0.5016)	(0.4953)	(0.4874)	(0.4528)
Panel F: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	-1.9936***	-1.1642	-0.7051	-0.4803	-0.7360
	(0.6832)	(0.7312)	(0.7297)	(0.7234)	(0.6637)
Nonwhite shock	5.5840***	3.8353***	0.8597	0.5829	0.8801
	(0.6776)	(0.7980)	(0.8383)	(0.8207)	(0.7496)
	Control variables in all panels:				
State-specific trends	No	Yes	Yes	Yes	Yes
Socio-demographics	No	No	Yes	Yes	Yes
Election 2010	No	No	No	Yes	Yes
Δ_{14-10} PT, % of votes	No	No	No	No	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included.

effects for the overall and race-specific shocks in both election rounds. For the gender shocks, the estimates are symmetric to those for PT: a strong positive effect of the male shock and a strong negative effect of the female shock. A one SD increase in the male shock leads to a gain for Bolsonaro of 1.64 ppts in the first round and 1.06 ppts in the second; whereas a one SD increase in the female shock reduces his share of votes by 1.40 ppts in the first round and 1.09 ppts in the second.

In sum, we find that average exposure to the 2014–17 labor demand shock, or exposure by race, do not affect support for Bolsonaro or PT. In sharp contrast, however, there are large and significant effects by gender. The male shock has a strong positive [negative] effect for Bolsonaro [PT]; the female shock has a strong negative [positive] effect for Bolsonaro [PT].

Change in abstention and invalid votes We now consider the impact of the economic shock on changes in voter turnout and invalid ballots (null or blank). Table 7 shows estimates for the percentage point change in the abstention rate, between 2018 and 2014. In Brazil, voting is compulsory for the literate population aged 18–70. (The minimum voting age is 16.) In practice, voters that fail to comply with compulsory voting need to justify the reason for abstention or pay a symbolic fine of R$3.51 (≈US$0.95, in 31.10.2018) per election round. In the first (second) round, in 2018, the average microregion had an abstention rate of 21.2% (22.9%) of eligible voters, representing a 0.19 (-0.17) ppts change from the respective round in 2014.[31] The female shock coefficient is statistically significant and sizable, in both election rounds (panels B and E). In microregions where women experience a more severe labor demand shock, abstention rates decline, with a one SD increase in the female shock leading to a 0.8–1.0 ppt drop in abstention, in both rounds. The race-specific shocks are also significant. In regions where the white shock increases by one SD, abstention rates increase 0.73 ppts in the first round, and 0.91 ppts in the second. In contrast, a one SD increase in the nonwhite shock reduces abstention by

[31] In the first round of 2018, abstention ranged from 9.2% in Nordeste Roraima (in the northern state of Roraima) to 39.3% in Japurá (in the northern state of Amazonas). For a map showing microregion variation in the percentage point change in abstention rates between 2018 and 2014, by election round, see Figure A4.

Table 6: Bolsonaro vote share, 2018

	Bolsonaro, % of votes: 1st round				
Panel A: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-11.3283***	-5.5970***	-0.1919	0.2211	0.4231
	(0.5849)	(0.4261)	(0.5608)	(0.4635)	(0.4078)
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-3.9249***	-1.1542	1.7490***	1.8899***	1.6449***
	(1.1817)	(0.7738)	(0.6243)	(0.5058)	(0.4633)
Female shock	-8.0580***	-4.9946***	-2.3767***	-1.9605***	-1.4006***
	(1.1851)	(0.8185)	(0.6334)	(0.5026)	(0.4662)
Panel C: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	11.8520***	2.8236***	-0.1053	1.0669	0.9419
	(1.6743)	(1.0731)	(0.7792)	(0.7109)	(0.6600)
Nonwhite shock	-22.6869***	-8.3678***	-0.0951	-0.9544	-0.5191
	(1.7404)	(1.1713)	(0.9120)	(0.8142)	(0.7534)
	Bolsonaro, % of votes: 2nd round				
Panel D: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-13.5781***	-6.1719***	-0.3745	0.1754	0.1028
	(0.6729)	(0.4750)	(0.5817)	(0.4470)	(0.3684)
Panel E: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-5.2102***	-1.8172**	1.3868**	1.7654***	1.0589**
	(1.2993)	(0.8390)	(0.6636)	(0.4958)	(0.4462)
Female shock	-9.1181***	-4.9043***	-2.1918***	-1.8967***	-1.0880**
	(1.3449)	(0.9036)	(0.6875)	(0.5124)	(0.4715)
Panel F: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	12.6253***	3.1686***	-0.4214	1.0566	0.7022
	(1.8960)	(1.1859)	(0.8278)	(0.7119)	(0.6501)
Nonwhite shock	-25.6145***	-9.2777***	0.0558	-0.9737	-0.5619
	(1.9608)	(1.3033)	(0.9636)	(0.8105)	(0.7468)
	Control variables in all panels:				
State dummies	No	Yes	Yes	Yes	Yes
Socio-demographics	No	No	Yes	Yes	Yes
Election 2010	No	No	No	Yes	Yes
Δ_{14-10} PT, % of votes	No	No	No	No	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the percentage of votes for Jair Bolsonaro (PSL) in the 2018 election, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included.

1.16 ppts in the first round, and by 1.26 ppts in the second.

Voters may, of course, turn up at the ballot box, but still opt for casting a null or blank vote. In Brazil, invalid votes are not considered in the denominator of a candidate's percentage of votes. Table A3 shows estimates for the percentage point change in invalid votes, between 2018 and 2014.[32] All shock coefficients are small and statistically insignificant.

In sum, the female shock reduces abstention rates, in both rounds. By race, the white shock increases abstention, whereas the nonwhite shock decreases it.

Accounting for economic and political pre-trends At this point, a pertinent concern is whether local exposure to the 2014–17 crisis correlates with pre-existing structural changes in economic and political conditions. To systematically test this possibility, we augment the baseline model with economic and political pre-trends.

We start by considering economic pre-trends in three dimensions: employment, GDP per capita, and industry composition (Table 8). First, in panel A, we control for the microregion's change in employment share between the 2000 and 2010 censuses for the overall population (columns 1 and 4), separately for men and women (columns 2 and 5), and both by gender and separately for white and nonwhite (columns 3 and 6). Second, in panel B, we control in several ways for the microregion's GDP per capita: as the pre-crisis (2013) level (columns 1 and 4); as the pre-crisis growth between 2002 and 2013 (columns 2 and 5); and as the growth in each pre-crisis presidential election cycle separately—2002–06, 2006–10, 2010–14 (columns 3 and 6). Third, in panel C, we control for the microregion's industry composition of employment at the 2-digit level. We start by including industry shares in 2010 (22 industries, columns 1 and 4) and in 2000 (17 industries, columns 2 and 5). Then, we control for the change in the employment share by industry between 2000 and 2010 (17 industries, columns 3 and 6). Overall, the gendered effects of the 2014–17

[32]In both rounds, in 2018, the average microregion's percentage of null/blank votes was approximately 8%, representing a -0.35 (3.15) ppts change from the first (second) round in 2014. In the first round of 2018, invalid votes ranged from 3.2% in Japurá (in the northern state of Amazonas) to 14.6% in Suape (in the northeastern state of Pernambuco). For a map showing microregion variation in the percentage point change in invalid votes between 2018 and 2014, by election round, see Figure A5.

Table 7: Change in abstention rate, 2018–2014

	Δ_{18-14} abstention, %: 1st round				
Panel A: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-1.3673***	-0.7237***	-0.3869	-0.3645	-0.3564
	(0.1554)	(0.1753)	(0.2979)	(0.2993)	(0.2802)
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-1.0001***	-0.1402	0.1956	0.2102	0.3435
	(0.2766)	(0.2929)	(0.3685)	(0.3772)	(0.3391)
Female shock	-0.4203	-0.6430**	-0.6717*	-0.6516*	-0.7852**
	(0.3072)	(0.2951)	(0.3684)	(0.3724)	(0.3189)
Panel C: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	0.0405	0.3061	0.1227	0.0598	0.7312*
	(0.4314)	(0.3889)	(0.4070)	(0.3989)	(0.3794)
Nonwhite shock	-1.4140***	-1.0368***	-0.5426	-0.4655	-1.1573***
	(0.4418)	(0.3965)	(0.4267)	(0.4274)	(0.3896)
	Δ_{18-14} abstention, %: 2nd round				
Panel D: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-1.2369***	-0.6428***	-0.4614	-0.4451	-0.3027
	(0.1701)	(0.1967)	(0.3299)	(0.3349)	(0.3002)
Panel E: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-0.8731***	0.1078	0.3622	0.3651	0.5727*
	(0.3024)	(0.3203)	(0.4246)	(0.4325)	(0.3442)
Female shock	-0.4182	-0.8313**	-0.9694**	-0.9371**	-0.9875***
	(0.3363)	(0.3290)	(0.4218)	(0.4240)	(0.3273)
Panel F: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	-0.3297	0.4205	0.1934	0.1429	0.9102**
	(0.4821)	(0.4309)	(0.4556)	(0.4472)	(0.4097)
Nonwhite shock	-0.9297*	-1.0747**	-0.6955	-0.6358	-1.2581***
	(0.4923)	(0.4454)	(0.4787)	(0.4814)	(0.4285)
	Control variables in all panels:				
State-specific trends	No	Yes	Yes	Yes	Yes
Socio-demographics	No	No	Yes	Yes	Yes
Election 2010	No	No	No	Yes	Yes
Δ_{14-10} abstention	No	No	No	No	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of abstention between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} abstention' is the change in the percentage of abstention between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included.

economic shock remain robust throughout.

Next, we consider political pre-trends (Table 9). In columns 1 and 5, we add the percentage point change in votes for PT between 2010 and 2006 and between 2006 and 2002. Together with the baseline control variable—Δ_{14-10} PT, % of votes—these models flexibly allow for differential trends based on lagged changes in PT votes since Lula's first victory in 2002. In the remaining columns, we control for the percentage of votes of the top 3–4 candidates, as well as the percentage of invalid votes and the abstention rate, for the presidential elections of 2014 (columns 2 and 6), 2006 (columns 3 and 7), and 2002 (columns 4 and 8). The presidential elections of 2010 are always included as part of the baseline model. As before, the shock coefficients by gender are qualitatively robust to the inclusion of these political pre-trends.

In sum, the large and significant gender effects in the response to the economic crisis are not explained by changes in employment, output, industry composition, and electoral results in the preceding one and a half decades. This result supports the identifying assumption of conditional shock exogeneity.

Dynamics and falsification We now investigate the dynamics of the period leading up to the 2014–17 crisis and perform falsification exercises by purposefully mismatching the timing of shift-share measures to different electoral cycles. To this end, we create shift-share measures between 2002 and 2018 for time windows of up to six years. Because throughout most of the period until 2014 aggregate employment was increasing in Brazil, we define the shift-share as the predicted *growth* in a microregion's employment, as opposed to the 'shock' shift-share measure defined in equation (1), where larger values implied larger employment *losses*. The only practical implication is that the signs of the gender coefficients flip relative to the results presented so far. Online Appendix A describes in detail the data sources and procedure to construct the shift-shares for the extended period. Before presenting the results, it is worth emphasizing that the assumption of conditional shock exogeneity only applies to the years of the large and unexpected crisis of 2014–17. Before 2014, when the economy was growing at a relatively robust pace, the shift-share

Table 8: Change in PT (2018–2014) votes and share of Bolsonaro votes, first round: accounting for economic pre-trends

	Δ_{18-14} PT, % of votes			Bolsonaro, % of votes		
Panel A: Employment pre-trends	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-1.3168***	-1.2681***	-1.1728***	1.6332***	1.5804***	1.5774***
	(0.3966)	(0.4130)	(0.4287)	(0.4642)	(0.4780)	(0.4895)
Female shock	1.7500***	1.6998***	1.6408***	-1.4155***	-1.3646***	-1.2647***
	(0.4024)	(0.4165)	(0.4212)	(0.4677)	(0.4808)	(0.4789)
Δ_{10-00} *employment share:*						
Overall	Yes			Yes		
By gender		Yes	Yes		Yes	Yes
By race			Yes			Yes
Panel B: GDP pre-trends	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-1.3119***	-1.3357***	-1.3135***	1.6602***	1.6462***	1.6070***
	(0.3949)	(0.3957)	(0.4000)	(0.4617)	(0.4646)	(0.4688)
Female shock	1.6944***	1.7229***	1.7017***	-1.4175***	-1.4008***	-1.3796***
	(0.4011)	(0.3984)	(0.4009)	(0.4631)	(0.4666)	(0.4751)
GDP per capita:						
Level: 2013 (log)	Yes			Yes		
Growth: 13–02		Yes			Yes	
Growth: 14–10, 10–06, 06–02			Yes			Yes
Panel C: Industry shares pre-trends	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-1.3415***	-1.4617***	-0.9183**	1.6470***	1.6628***	1.2073**
	(0.4256)	(0.4032)	(0.4238)	(0.4709)	(0.4610)	(0.4787)
Female shock	1.2053**	1.7734***	1.3463***	-1.4903***	-1.7177***	-1.0608**
	(0.5205)	(0.4338)	(0.4449)	(0.5582)	(0.4844)	(0.4750)
Industries (2-digit-level):						
Employment share, 2010	Yes			Yes		
Employment share, 2000		Yes			Yes	
Δ_{10-00} employment share			Yes			Yes
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. In columns 1–3, the outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, in the first round. In columns 4–6, the outcome is the percentage of votes for Bolsonaro (PSL) in the first round of the 2018 election. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, in the first round. *Panel A*—'Δ_{10-00} employment share' is the change in the employment share between 2000 and 2010 for total employment ('Overall'), male and female employment as separate variables ('By gender'), and white and nonwhite employment as separate variables ('By race'). *Panel B*—real per capita GDP included as log in 2013 (columns 1 and 4), as log-difference between 2013 and 2002 (columns 2 and 5), and as three separate log-differences for each pre-crisis election cycle: 2014–10, 2010–06, and 2006–02 (columns 3 and 6). *Panel C*—For 2010, employment shares by industry, at the 2-digit-level, include 22 industries from the 2010 census (classification: CNAE Domiciliar 2.0), and, for 2000, 17 industries from the 2000 census (classification: CNAE Domicilar 1.0). The change in employment shares by industry between 2000 and 2010 considers the 17 (2-digit) industries from CNAE Domicilar 1.0. In columns 1 and 4, construction sector share is excluded from the 'Socio-demographics' controls due to perfect collinearity.

Table 9: Change in PT (2018–2014) votes and share of Bolsonaro votes, first round: accounting for political pre-trends

	Δ_{18-14} PT, % of votes				Bolsonaro, % of votes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Male shock	-0.9783**	-1.0650**	-1.3785***	-0.7735**	1.5643***	1.1812**	1.5350***	1.6974***
	(0.3915)	(0.4214)	(0.4032)	(0.3882)	(0.4695)	(0.4995)	(0.4712)	(0.4337)
Female shock	1.5311***	1.6186***	1.7820***	1.2759***	-1.3156***	-1.0820**	-1.2246**	-1.2759***
	(0.3857)	(0.3998)	(0.4032)	(0.3787)	(0.4682)	(0.4827)	(0.4826)	(0.4388)
Δ_{10-06} PT, % of votes	Yes				Yes			
Δ_{06-02} PT, % of votes	Yes				Yes			
Election 2014		Yes				Yes		
Election 2006			Yes				Yes	
Election 2002				Yes				Yes
	Control variables in all panels:							
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	No	Yes	Yes	Yes	No	Yes	Yes

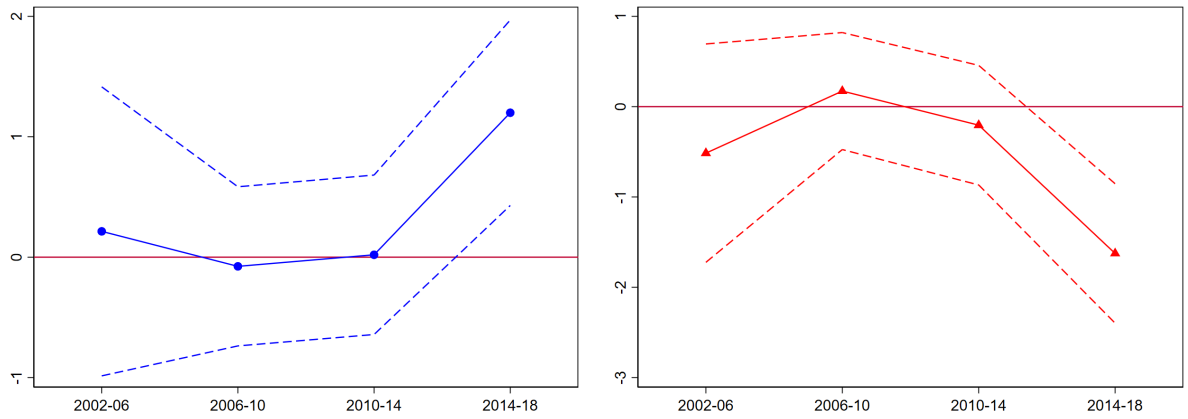
Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. In columns 1–4, the outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, in the first round. In columns 5–8, the outcome is the percentage of votes for Bolsonaro (PSL) in the first round of the 2018 election. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, in the first round. 'Δ_{10-06} PT, % of votes' is the change in the percentage of votes for PT's candidate between the 2010 (Dilma Rousseff) and 2006 (Lula da Silva) elections, in the first round. 'Δ_{06-02} PT, % of votes' is the change in the percentage of votes for PT's candidate Lula da Silva between the 2006 and 2002 elections, in the first round. 'Election 2014' are voting outcomes of the first round of the 2014 presidential election: percentage of valid votes for Aécio Neves (PSDB), Marina da Silva (PSB), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Election 2006' are voting outcomes of the first round of the 2006 presidential election: percentage of valid votes for Geraldo Alckmin (PSDB), Heloísa Helena (PSOL), and Other (with Lula da Silva (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Election 2002' are voting outcomes of the first round of the 2002 presidential election: percentage of valid votes for José Serra (PSDB), Anthony Garotinho (PSB), Ciro Gomes (PPS), and Other (with Lula da Silva (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate.

coefficients should be interpreted with caution, since aggregate employment changes are unlikely to represent exogenous shifts to labor demand.

We start by confirming that the heterogeneous effects of the gender shocks are specific to the 2018 election. Figure 8 plots the coefficients of employment growth by gender for each 4-year election cycle between 2002 and 2018, conditional on baseline controls and a lagged dependent variable. Only in the crisis cycle, 2014–18, does the usual pattern emerge: male employment growth increases support for PT and female employment growth decreases it. In previous election cycles, between 2002 and 2014, there is no relationship between the evolution of local employment by gender and votes for the incumbent PT. This finding reinforces our view that the supply of populist rhetoric by Bolsonaro interacted with the gendered-demand for such rhetoric created during the crisis. In previous elections, when these two ingredients are absent, the relationship disappears.

We then perform a variety of exercises based on redefining the time window of the economic shock. First, we fix the end-year of the shift-shares at 2018 and vary the base-year between 2012 and 2017. The gender effects are highly significant for all base years up to 2016, but decrease rapidly in absolute magnitude for the periods 2016–18 and 2017–18, when they become indistinguishable from zero (Table A4, Panel A). This pattern fits well the evolution of the crisis; by 2017 the bulk of the employment losses had already occurred. Second, we fix the base-year of the shift-shares at 2012 and vary the end-year between 2013 and 2018. Once more, the estimates are fully consistent with the evolution of the crisis (Table A4, Panel B). Between 2012 and 2015, the gender effects are small and mostly insignificant. After 2016, which was the peak year of the crisis, the effects turn significant and increase up to 2018, as employment losses accumulate over time.

As falsification, we show that shift-shares defined in the pre-crisis period of 2002–2014 have no effect on the change in PT's support between 2014 and 2018 (Table A5). This is the case irrespective of the base- and end-years used to define the shift-shares. Analogously, shift-shares defined in the crisis period of 2014–18 fail to systematically predict the change in PT's support in the three pre-crisis election cycles of 2014–10, 2010–06, and 2006–02



(a) Effect of predicted male employment growth ($\hat{\beta}_m$)

(b) Effect of predicted female employment growth ($\hat{\beta}_f$)

Figure 8: Conditional effect of predicted employment growth by gender on the percentage point change in PT votes by presidential election cycle, 2002–2018

Notes: Figure shows estimated OLS coefficients ($\hat{\beta}_m$ in panel (a) and $\hat{\beta}_f$ in panel (b)) and 95% confidence intervals from four regressions specified as $\Delta^{t}_{t-4} PT\ \%\ vote_r = \beta_{mt}\dot{E}^{m}_{r,(t-4,t)} + \beta_{ft}\dot{E}^{f}_{r,(t-4,t)} + \delta_t \Delta^{t-4}_{t-8} PT_r + \mathbf{V_{t-8,r}}\theta_\mathbf{t} + \mathbf{X_{10,r}}\gamma_\mathbf{t} + \eta_{st} + \epsilon_{rt}$, with $t = 2006, 2010, 2014, 2018$. $N = 558$ microregions in all regressions. Standard errors are clustered at microregion level, r. The employment growth variables, $\dot{E}^{m}_{r,(t-4,t)}$ and $\dot{E}^{f}_{r,(t-4,t)}$, are shift-shares, measured in standard deviations; for details on their construction, see Online Appendix A. η_{st} are state dummies. $\mathbf{V_{t-8,r}}$ are voting outcomes of the first round of the presidential election in $t-8$. In 2010: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category). In 2006: percentage of valid votes for Geraldo Alckmin (PSDB), Heloísa Helena (PSOL), and Other (with Lula da Silva (PT) being the omitted category). In 2002: percentage of valid votes for José Serra (PSDB), Anthony Garotinho (PSB), Ciro Gomes (PPS), and Other (with Lula da Silva (PT) being the omitted category). The percentage of invalid votes and the abstention rate are also included for every election. When $t = 2006$, the controls $\Delta^{t-4}_{t-8} PT_r$ and $\mathbf{V_{t-8,r}}$ are replaced by the percentage of votes for Lula (PT) in 2002. $\mathbf{X_{10,r}}$ are 'socio-demographics' which refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit).

(Table A6).[33] These falsification exercises increase our confidence in the validity of our causal identification strategy.

Counterfactual shocks and election outcomes It is helpful to benchmark the magnitude of the gender-specific effects with respect to Bolsonaro's victory margins. We propose two simple counterfactual exercises. First, how large would the male shock have to be to elect Bolsonaro directly in the first round? Second, how large would the female shock have to be to flip the second round and elect the PT candidate, Fernando Haddad? Both counterfactuals are based on the OLS estimates for Bolsonaro's percentage of votes from our preferred specification in column 5 of Table 6 (panels B and E).

Table 10 reports the counterfactual predictions. All predictions, and underlying

[33]The only exception is the significant coefficient of the female shift-share between 2012 and 2018 for the 2014–18 election cycle. However, the female coefficient is statistically insignificant for all other end-years (2013–2017).

regression models, are weighted by the microregion's share of total national valid votes in the first (column 1) or second round (column 2). Column 1 shows the linear prediction of Bolsonaro's percentage of votes in the first round at different quantiles of the male shock distribution.[34] The *actual* (weighted) percentage of votes for Bolsonaro in the first round was 46.01%; Haddad, who came second, received 29.31%. Column 1 shows that setting the male shock at quantiles in the bottom half of the shock distribution has only a marginal effect on the predicted percentage of votes for Bolsonaro. For example, when the average male shock equals the minimum, the percentage of votes for Bolsonaro decreases to 42.52%, a 3.49 ppt decline. Clearly, there is no realistic scenario in which a different magnitude of the male shock, within the observed range, would have resulted in Bolsonaro *losing* the first election round. Instead, above the 90th percentile of the male shock, Bolsonaro would have achieved more than 50% and would have become president in the first round.

Column 2 reports predicted percentages of Bolsonaro's second round votes for different values of the female shock. The *actual* (weighted) percentage of votes for Bolsonaro, in the second round, is 55.10%. Column 2 shows that setting the average female shock to its observed maximum would flip the outcome: Bolsonaro, with 46.2% of the votes, would lose to Haddad.

5 Mechanisms

Our preferred explanation for the local labor market findings is the following. In areas where male employment declines the most, Bolsonaro's authoritarian and masculine stereotypes become more popular among men, as they seek to compensate losses in social and economic status. Conversely, in areas where female employment declines the most, men's social and economic status improves in relative terms, shutting off the compensation mechanism, whereas, for women, economic grievances turn Bolsonaro's rhetoric particularly unappealing or even threatening. In section 5.1, we present individual-level evidence consistent with our preferred explanation. In section 5.2, we discuss, test and, ultimately, reject the most

[34] Table A7 reports distribution quantiles for all shock variables.

Table 10: Counterfactual shocks and election outcomes

Bolsonaro, % of votes (predicted)			
1st round		2nd round	
Male shock at quantile:	(1)	Female shock at quantile:	(2)
min	42.52	min	56.72
	(0.85)		(0.53)
p10	42.86	p10	56.63
	(0.78)		(0.51)
p25	43.26	p25	56.56
	(0.70)		(0.49)
median	45.07	median	55.93
	(0.35)		(0.32)
p75	48.15	p75	54.23
	(0.51)		(0.37)
p90	50.83	p90	52.16
	(1.08)		(0.98)
max	57.78	max	46.20
	(2.61)		(2.86)

Notes: Column 1: linear prediction of Bolsonaro's percentage of votes in the first round of the 2018 election at different quantiles of the male shock distribution. Column 2: linear prediction of Bolsonaro's percentage of votes in the second round of the election at different quantiles of the female shock distribution. Standard errors, calculated via the delta-method, shown in parentheses. All regressions and predictions are weighted by the microregion's share of total national valid votes in the first (column 1) or second round (column 2). The *actual* (weighted) percentage of votes for Bolsonaro is 46.01%, in the first round, and 55.10%, in the second round.

prominent alternative mechanisms.

5.1 Individual-level evidence

We report descriptive individual-level evidence from three independent data sources covering three distinct dimensions: political preferences, party membership, and moral and ethical values.

Political preferences Data on political preferences come from seven cross-sections of a public opinion survey, the *AmericasBarometer*.[35] The data for Brazil include 11,223 individuals and cover the years 2007, 2008, 2010, 2012, 2014, 2017, and 2019. Each wave is representative for the adult population in that year. More details on the data and variables

[35]The *AmericasBarometer* by the Latin American Public Opinion Project (LAPOP), available at www.LapopSurveys.org.

used are available in Online Appendix B. The 2019 wave is particularly interesting, because interviews were conducted between January 29 and March 3, 2019—i.e., shortly after Bolsonaro took office as president. This wave explicitly asks how the respondent voted in the first round of the October 2018 election.

Our descriptive analysis is straightforward. We estimate conditional gender gaps for three measures of political preferences. In each year, the regression model is:

$$Political\ preference_i = \beta_m Male_i + \mathbf{X_i}\gamma + \eta_s + \zeta_u + \epsilon_i, \tag{4}$$

The first outcome variable is a left-right ideological scale, running from 0 (farthest on the left) to 10 (farthest on the right). The second outcome is the answer to the question "If presidential elections were this week, would you vote for the party of the current president?". The third outcome, only available in 2019, is the self-reported vote in the first round of the 2018 election. X_i includes a rich set of individual characteristics such as age, race, having a Bolsa Família recipient in the household, labor force participation and employment status, educational attainment, marital status, religion, perceived improvement/deterioration of own economic situation in the last 12 months, and being a crime victim in the last 12 months. In addition, we control for urban and state dummies, ζ_u and η_s. The coefficient of interest, β_m, captures the differential political preferences of males for each particular year. Because the male coefficient estimates are robust to several combinations of the above controls, we only show estimates from the full model that includes all controls simultaneously.

Figures 9–11 plots the male dummy coefficient and its 95% confidence interval for the three outcomes. Before 2019, there was no gender gap in left-right ideology in Brazil, including during the crisis period of 2014–17 (Figure 9). However, in 2019, after Bolsonaro becomes president, a large and significant gender gap appears, with men positioned 0.6 point (on a 10-point scale) more to the right than women.

Figure 10 shows a similar pattern. There are no gender differences in voting intentions for the ruling party before 2019, when a large gender gap appears, with men being 12

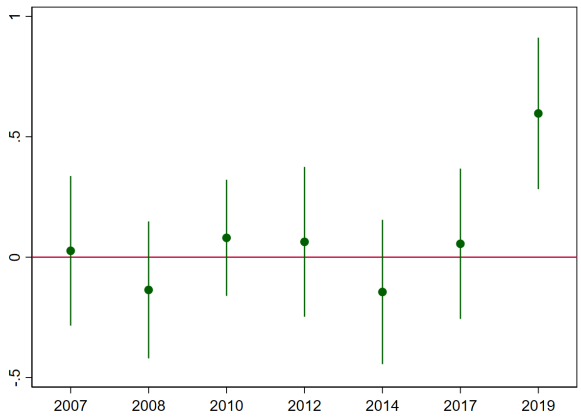


Figure 9: Left-right scale (0–10): male dummy estimate, conditional on controls

Notes: Figure shows male dummy coefficients with 95% confidence intervals. Own calculations from *AmericasBarometer*. Control variables are: age, age squared, race, presence of Bolsa Família recipient in the household, labor force participation and employment status, educational attainment, marital status, religion, perceived improvement/deterioration of own economic situation in the last 12 months, being a crime victim in the last 12 months, urban/rural, and state dummies. Regressions are estimated separately for each survey year.

ppts more likely to vote for Bolsonaro's party. Note that the president's party is changing over time—PT (2007–2014), PMDB (2017), PSL (2019). If the gender gap was driven only by a rejection of PT, we would expect it to emerge already in 2017, when Temer's center-right government was in power. But this is not the case, supporting the view that Bolsonaro's rhetoric is a necessary ingredient for polarization along gender identities.

Finally, Figure 11 shows results for the first round of the 2018 election. Men are 12 ppts more likely to have voted for Bolsonaro than women. This 12 ppt-gap comes at the expense of votes for Haddad (PT)—4 ppts—and invalid votes—8 ppts. Importantly, we find very precisely estimated zero effects on votes for Ciro Gomes (PDT), the third most voted candidate, or all the other ten candidates combined. Once again, the results suggest that male preference for Bolsonaro is not fully explained by anti-PT sentiment, but is rather linked to some feature of Bolsonaro's platform that is not offered by the remaining candidates.

Party membership We now consider official party membership. We use administrative data on all individual affiliations to PT and PSL to construct a dataset of party members' entry, exit, and stocks by gender. Online Appendix B describes our data work in detail.

PT was founded in 1980 and, despite a relative ideological shift to the center in the

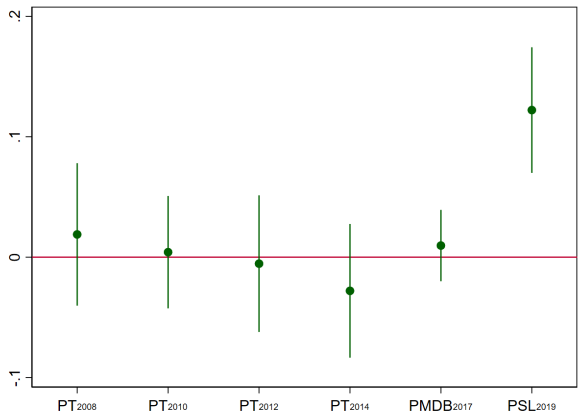


Figure 10: If Presidential election were this week, would you vote for [...]: male dummy estimate, conditional on controls

Notes: Figure shows male dummy coefficients with 95% confidence intervals. Own calculations from *AmericasBarometer*. Control variables are: age, age squared, race, presence of Bolsa Família recipient in the household, labor force participation and employment status, educational attainment, marital status, religion, perceived improvement/deterioration of own economic situation in the last 12 months, being a crime victim in the last 12 months, urban/rural, and state dummies. Regressions are estimated separately for each survey year.

mid-1990s, the party had a fairly consistent program over the years (Samuels, 2004). In 2018, PT had around 1.5 million members, roughly the same it had in 2013, before the economic crisis started. PSL was founded in 1994 as a social-liberal party but underwent a major ideological shift in 2018, when Bolsonaro announced his affiliation.[36] Between 2013 and 2018, party membership rose by 62%, from around 200,000 to around 325,000. Most of this increase happened in 2018, when Bolsonaro joined the party. Of the nearly 84,000 members that joined PSL in 2018, 78% were men (Figure 12).

Party members are a highly selected subgroup of the electorate (Ribeiro and Do Amaral, 2019), partly because party membership is costly, often requiring time and monetary investments (Brollo *et al.*, 2017). Therefore, any analysis of party members cannot be extrapolated to the electorate. Indeed, at the microregion level, the increase in PSL membership between 2013 and 2018 does not predict Bolsonaro's vote share (Table A8). Reassuringly, the effect of the gender shocks on Bolsonaro's vote share remains the same when the change in PSL membership is controlled for. In a similar vein, we find that changes in male or female PSL membership are not related to the 2014–17 economic shock (however measured) in our usual shift-share specifications (Table A9).

[36]Notice that Bolsonaro only joined PSL in January 2018, ten months before the October election. In protest, the most progressive wing of PSL, LIVRES, left the party. This marks the shift from a social-liberal to a social-conservative, nationalist and economic liberal ideology.

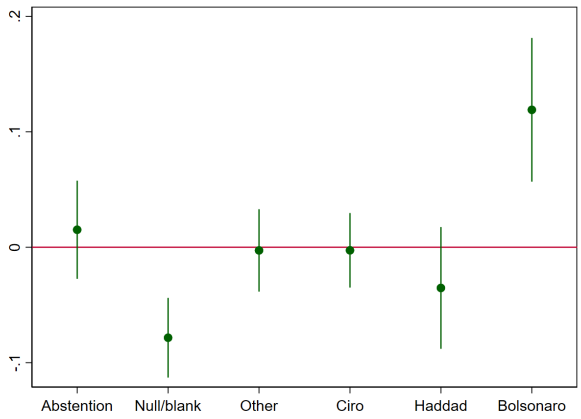


Figure 11: Self-reported vote in first round of 2018 election: male dummy estimate, conditional on controls

Notes: Figure shows male dummy coefficients with 95% confidence intervals. Own calculations from *AmericasBarometer* 2019. Control variables are: age, age squared, race, presence of Bolsa Família recipient in the household, labor force participation and employment status, educational attainment, marital status, religion, perceived improvement/deterioration of own economic situation in the last 12 months, being a crime victim in the last 12 months, urban/rural, and state dummies.

Despite the lack of external validity, the affiliation data unequivocally confirm that among the pool of potential party members, Bolsonaro's candidacy was particularly appealing to men. Figure 13 shows monthly affiliations for PSL and PT by gender. There is a dramatic increase in the number of men joining PSL in October 2018, the month of the presidential election. This single-month increase in male membership dwarfs any monthly increase in PT's male affiliations in the same period—this despite PT being a much larger party. Figure 14 shows the yearly gender ratio of new members joining PSL and PT since the founding of each party. The disproportionate increase in male membership that can be attributed to Bolsonaro is unprecedented in both parties' historical record.

Albeit descriptive and capturing a different dimension than voting behavior, these patterns are remarkably similar to those found for the *AmericasBarometer* data and suggest that the political gender gap is triggered by Bolsonaro's presidential run.

Moral/ethical values One concern with the results presented so far is whether the documented gender gap in political preferences at the individual level indeed relates to a compensation mechanism reflecting pre-existing gender norms or is driven by other dimensions present in far-right political platforms. In what follows, we provide descriptive-level evidence on individual support for abortion—a highly controversial topic, which is

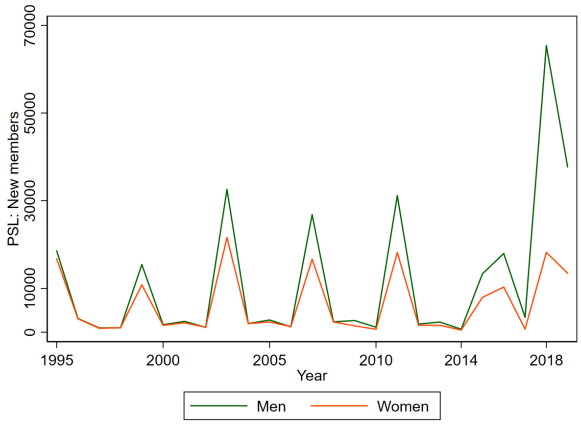
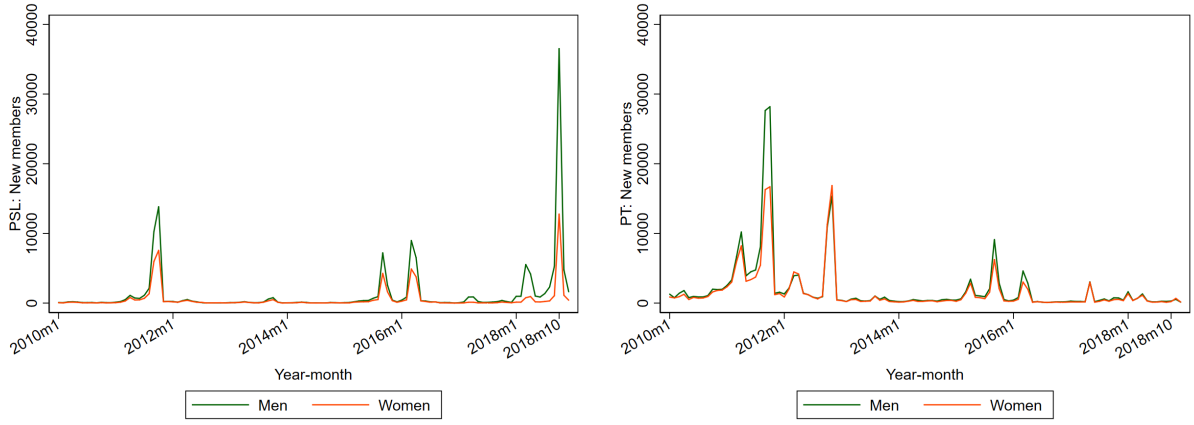


Figure 12: Yearly number of new PSL members by gender, 1995–2019

Notes: PSL was founded in October 1994. Own calculations from TSE data. For details, see Online Appendix B.



(a) PSL

(b) PT

Figure 13: Monthly number of new members of PSL and PT by gender, 2010–2018

Notes: The largest spike in PSL membership occurs during the month of the presidential election, October 2018. Common y-axis for both subfigures. Own calculations from TSE data. For details, see Online Appendix B.

central to the debate about gender equality in Brazil.[37]

To that end, we rely on five waves of cross-sectional data from the World Values Survey and estimate an individual-level model similar in scope to equation (4). For Brazil, interviews took place in 1991, 1997, 2006, 2014, and 2018, with a sample of 7,673 respondents. Further details on the data are presented in Online Appendix B. Our main outcome of interest is a measure of support for abortion, running from 0 (abortion is never justifiable) to 10 (abortion is always justifiable). In addition to standard socio-demographic

[37]In Brazil, abortion is prohibited by law, exceptionally in cases where the woman's life is endangered or in case of rape or incest. There is a large public debate on the topic, typically led by religious institutions and human rights and gender equality movements.

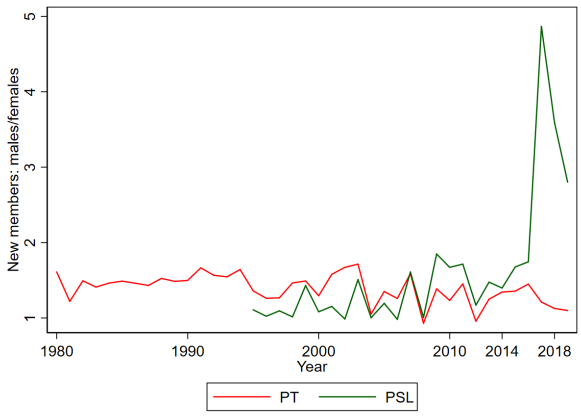


Figure 14: Gender ratio (males/females) of new members of PSL and PT, 1980–2019

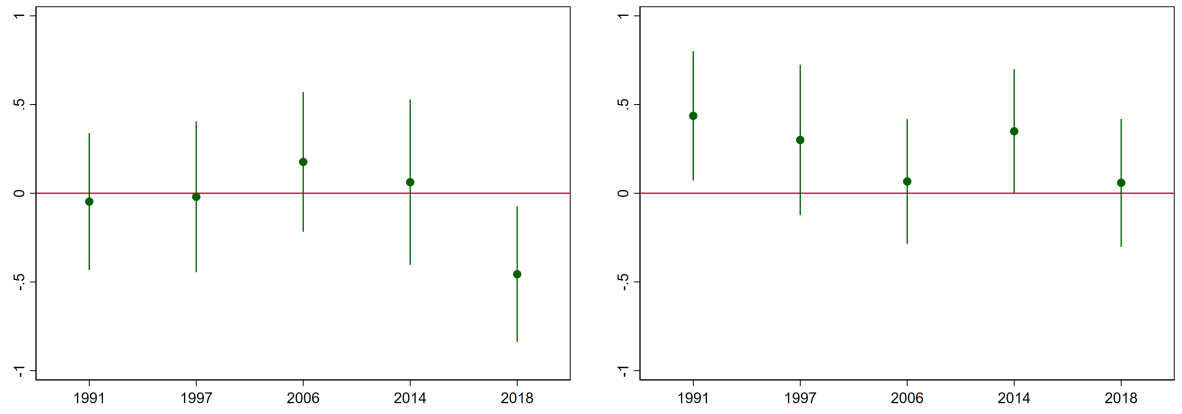
Notes: PT was founded in February 1980; PSL was founded in October 1994. Own calculations from TSE data. For details, see Online Appendix B.

controls, we split our sample between economically satisfied and unsatisfied individuals and plot the male dummy coefficients separately for each year. The results are presented in Figure 15. Interestingly, we find that, in 2018, the year when Bolsonaro appears in the political scene, economically unsatisfied males become more conservative with respect to abortion, while for economically satisfied males, this is not the case. The gender gap in support for abortion seems to be specific to 2018 in Brazil; we find no similar pattern for Mexico, in the same period (see Figure A6).

In sum, alongside Bolsonaro's presidential candidacy, an ideological gender gap emerges in Brazil, with the average male shifting to the right of the average female. This gap can be traced among a highly motivated group of voters: party members. In 2018, there is an unprecedented surge of men joining Bolsonaro's party at the time. Moreover, these gender gaps in political dimensions are accompanied by a gender gap in moral/ethical views on a gender-sensitive issue: abortion. In 2018, for the first time since data are available, the average male finds abortion less justifiable than the average female, with the difference being statistically significant among individuals unsatisfied with their economic situation.

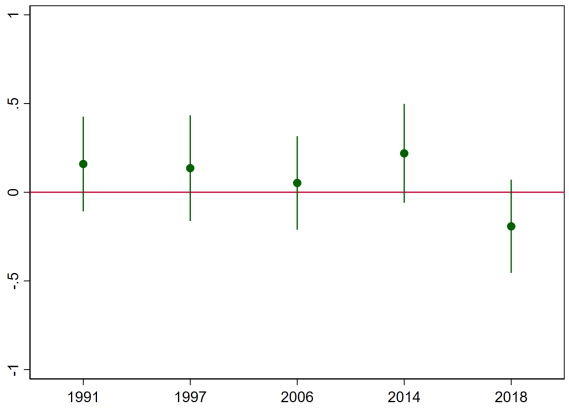
5.2 Alternative mechanisms

Because Bolsonaro's political platform was multidimensional, we test the most prominent alternative mechanisms that could also explain the local labor market findings. We consider



(a) Economically unsatisfied

(b) Economically satisfied



(c) All

Figure 15: Individual preferences on abortion, scale (0-10): male dummy estimate, conditional on controls

Notes: Figure shows male dummy coefficients with 95% confidence intervals. Own calculations from Word Values Survey—Brazil. Control variables are: age, age squared, race, employment status, educational attainment, marital status, and religion. Regression are estimated separately for each survey year.

crime, military affiliation and support for guns, because these were salient elements of Bolsonaro's discourse and could trigger gender divides. We then test other mechanisms (namely: religion, age structure, and urban/rural residence) and present further robustness checks. We note that the individual-level results from the *AmericasBarometer* are always conditional on exposure to crime (as a victim), religious affiliation, urban/rural residence, and age, among other controls.[38] Thus, descriptively, these mechanisms cannot account for the emergence of the gender gaps discussed above. In the following, we therefore focus exclusively on a local labor market approach.

[38]Due to data availability, the individual results for the World Values Survey are conditional on fewer socio-demographic controls: age, race, employment status, educational attainment, marital status, religion, and perception of own economic situation.

Crime During the economic crisis, violent crime increased substantially in Brazil. We collect administrative homicide data from mortality records and assign crimes to microregions by place of death.[39] From 2013 to 2017, homicides went up from 56,689 to 63,634—a 12% increase. The vast majority of victims are nonwhite men—71% of all victims, in 2017. Throughout his political career, Bolsonaro has defended a tough-on-crime stance, including, for example, explicit support for extrajudicial killings of criminal suspects and a proposal to liberalize gun ownership laws. Crime was a particularly salient feature of the 2018 presidential campaign, and Bolsonaro's tough-on-crime views became symbolized by his celebratory 'finger-gun' hand gesture (at rallies, congressional sessions, and other public events) of pretending to hold and shoot an imaginary rifle. Therefore, we want to test whether the increase in crime is explained by the labor demand shock, and, in turn, whether the shock effects on electoral outcomes are robust to controlling for crime levels and trends.

Table 11 shows estimates for the usual regression specification (equation (3)), but with the outcome variable being the log difference in homicide rate (homicides per 100,000 inhabitants) between 2017 and 2013, by gender of the victim.[40] For male victims (panels A-C), columns 1 and 2 suggest that the overall shock (panel A) and the male shock (panel B) significantly raise crime rates. However, all the shock coefficients become statistically insignificant once socio-demographics are controlled for (columns 3–5). The evidence for homicides of women is similar (panels D-F). Overall, microregions where the average resident, or a particular subgroup, was hit harder by the labor demand shock did not

[39]Data are compiled by the Brazilian Ministry of Health, in the DATASUS system (*Departamento de Informática do Sistema Único de Saúde*). For Brazil, Dix-Carneiro *et al.* (2018) show that homicide rates are a good approximation for overall crime. As in their paper, we code homicides as all deaths in categories X85-Y09 of the International Statistical Classification of Diseases and Related Health Problems (ICD-10).

[40]In 2017, 92% of homicide victims were male. We normalize homicide numbers by 100,000 inhabitants using yearly population estimates by municipality provided by IBGE. As in Dix-Carneiro *et al.* (2018), we compute $\log(\text{crime rate} + 1)_t$, to avoid losing microregions where no homicides occurred at time t. In addition, for a few microregions with missing values in either 2013 or 2017, we assign the values for the closest year. For example, in the case of homicides of men, 8 microregions have missing values in 2017 or 2013. For 2 microregions with missing 2017 data, we assign the values of 2016; for 4 microregions with missing 2013 data, we assign the values of 2012; for 1 microregion with missing 2013 and 2012 data, we assign the value of 2014; and, finally, for 1 microregion with missing 2017 and 2013 data, we use the 2016 and 2012 values. We perform similar adjustments for homicides of women.

experience an increase in crime rates relative to pre-crisis levels.[41]

While the results of Table 11 suggest that crime is not a transmission mechanism for the effect of economic shocks on electoral outcomes, it could still be the case that crime is confounding that effect. We test this hypothesis in Table 12. We model the percentage point change in votes for PT and Bolsonaro with augmented specifications that sequentially introduce as control variables the homicide rate of men in 2012 and the log difference in homicides rates of men between 2017 and 2013. Column 1 replicates the baseline model of equation (3); column 2 controls for pre-crisis crime levels; column 3 further controls for the change in crime rates.

Starting with the percentage point change in PT votes, for both election rounds (panel A), we find that the effects of the gender-specific shocks are qualitatively similar across all columns, although the absolute magnitude of the shock coefficients is somewhat reduced in the second round (columns 4–6). The estimated effects of the crime variables suggest that Bolsonaro's tough-on-crime rhetoric paid off. The more violent a microregion was in 2012, and the larger its increase in crime rates between 2017 and 2013, the larger the loss in votes for PT between 2018 and 2014.

Turning to the percentage of votes for Bolsonaro, we find that gender-specific shock effects are robust in both rounds. Interestingly, the estimates for the crime variables suggest that Bolsonaro performed particularly well in microregions that already had high pre-crisis homicides rates. However, there is no additional significant effect of increasing crime rates during the 2013–17 crisis period.

Finally, we estimate similar models for abstention (Table A10). The results show that the negative effects of the female and nonwhite shocks and the positive effect of the white shock are robust (both in statistical significance and in coefficient magnitude) to the augmented specifications. None of the crime variables is significant at conventional levels.

In sum, we find that rising crime is neither a mechanism nor a confounder for the gender-specific economic shocks. Instead, while crime significant galvanizes support for

[41] In this respect, our results differ from Dix-Carneiro *et al.* (2018), who find that, across microregions, the labor market shock caused by the 1988–1995 trade liberalization process increased homicide rates between 1996 and 2003, but not afterwards.

Table 11: Change in homicide rate, 2017–2013

	Δ_{17-13} log(Crime rate): male victims				
Panel A: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	0.1253***	0.1006***	0.0350	0.0474	0.0473
	(0.0196)	(0.0233)	(0.0473)	(0.0475)	(0.0476)
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	0.1329***	0.1320***	0.0175	0.0314	0.0316
	(0.0345)	(0.0431)	(0.0548)	(0.0554)	(0.0554)
Female shock	-0.0079	-0.0377	0.0164	0.0146	0.0141
	(0.0321)	(0.0433)	(0.0530)	(0.0531)	(0.0534)
Panel C: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	0.0515	0.1235	0.0883	0.1038	0.1040
	(0.0619)	(0.0768)	(0.0827)	(0.0825)	(0.0825)
Nonwhite shock	0.0765	-0.0224	-0.0475	-0.0506	-0.0510
	(0.0602)	(0.0785)	(0.0853)	(0.0855)	(0.0857)
	Δ_{17-13} log(Crime rate): female victims				
Panel D: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	0.0641***	0.0696***	0.0676	0.0629	0.0640
	(0.0174)	(0.0212)	(0.0509)	(0.0506)	(0.0504)
Panel E: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	0.0508	0.0431	0.0198	0.0127	0.0108
	(0.0366)	(0.0454)	(0.0617)	(0.0632)	(0.0636)
Female shock	0.0133	0.0269	0.0480	0.0506	0.0546
	(0.0367)	(0.0469)	(0.0625)	(0.0633)	(0.0639)
Panel F: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	0.0248	0.0723	0.0552	0.0565	0.0557
	(0.0503)	(0.0652)	(0.0723)	(0.0728)	(0.0730)
Nonwhite shock	0.0398	-0.0057	0.0065	0.0011	0.0036
	(0.0511)	(0.0678)	(0.0803)	(0.0816)	(0.0817)
	Control variables in all panels:				
State-specific trends	No	Yes	Yes	Yes	Yes
Socio-demographics	No	No	Yes	Yes	Yes
Election 2010	No	No	No	Yes	Yes
Δ_{14-10} PT, % of votes	No	No	No	No	Yes

Notes: $N = 557$ (Panels A-C); $N = 531$ (Panels D-F). OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the log difference in crime rates (homicides per 100,000 inhabitants) between 2017 and 2013 by gender of the victim: male victims in Panels A-C, female victims in Panels D-F. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, first round. For regressions without state dummies, an intercept term is also included.

Table 12: Change in voting outcomes: shock by gender; controlling for crime.

Panel A:	Δ_{18-14} PT, % of votes					
	1st round			2nd round		
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-1.3380***	-1.3775***	-1.3527***	-0.8090*	-0.5883	-0.5550
	(0.3955)	(0.3837)	(0.3864)	(0.4578)	(0.4428)	(0.4390)
Female shock	1.7232***	1.7309***	1.7280***	1.1757***	0.9308**	0.9254**
	(0.3982)	(0.3925)	(0.3911)	(0.4528)	(0.4392)	(0.4325)
Crime rate: men, 2012		-0.0266*	-0.0328**		-0.0609***	-0.0688***
		(0.0153)	(0.0157)		(0.0172)	(0.0168)
Δ_{17-13} log(Crime rate): men			-0.6448*			-0.8188*
			(0.3462)			(0.4168)
Panel B:	Bolsonaro, % of votes					
	1st round			2nd round		
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	1.6449***	1.5050***	1.4922***	1.0589**	0.9418**	0.9151**
	(0.4633)	(0.4569)	(0.4568)	(0.4462)	(0.4413)	(0.4397)
Female shock	-1.4006***	-1.2851***	-1.2836***	-1.0880**	-0.9528**	-0.9485**
	(0.4662)	(0.4670)	(0.4663)	(0.4715)	(0.4662)	(0.4617)
Crime rate: men, 2012		0.0384**	0.0416**		0.0450**	0.0513***
		(0.0183)	(0.0184)		(0.0175)	(0.0174)
Δ_{17-13} log(Crime rate): men			0.3318			0.6596
			(0.4338)			(0.4166)
	Control variables in all panels:					
State-specific trends/dummies	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes
N	558	554	554	558	554	554

Notes: OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variables are: in Panel A, the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, either in the first (columns 1–3) or second (columns 4–6) round; and, in Panel B, the percentage of votes for Jair Bolsonaro (PSL) in the 2018 election, either in the first (columns 1–3) or second (columns 4–6) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). Shocks are measured in standard deviations. 'Crime rate: men, 2012' is homicides per 100,000 inhabitants (male victims), in 2012. 'Δ_{17-13} log(Crime rate): men' is the log difference in crime rates between 2017 and 2013 (male victims). 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (columns 1–3) or second (columns 4–6) round.

Bolsonaro, this effect is independent from the gender-shock effects.

Military affiliation and gun support We now consider whether military affiliation and preference for guns are alternative mechanisms or confounders of our results. Besides having been part of the military himself, Bolsonaro has openly praised the Brazilian military dictatorship and its practice of torture and killing of dissidents. Besides that, Bolsonaro has openly defended the flexibilization of gun-ownership laws. It is possible, therefore, that the ideological sorting by gender following the economic crisis relates to pre-existing gender differences in social values triggered by Bolsonaro's rethoric. Additionally, since military service is only compulsory for males in Brazil and army-affiliation is to a

great extent male dominated, we are particularly interested in testing these alternative channels empirically.[42]

To that end, we augment our baseline model with four additional controls, capturing alignment with the military and support for firearms, all measured at the microregion level: (i) log number of males [(ii) females] drafted to military service between 2013 and 2018; (iii) the employment share of the military from the 2010 census; and (iv) % of 'No' votes in the 2005 referendum on the ban of retail sales of firearms and ammunition. Results on the percentage of votes for Bolsonaro in both election rounds are presented in Table 13. Overall, we find no evidence that our estimated gender effects operate through alignment with the military or preferences for guns. Our estimated coefficients remain statistically significant and similar in magnitude irrespective of which control variable we include. Interestingly, however, we find a statistically significant relationship between support for firearms in the referendum and vote shares for Bolsonaro in the first round (Panel A), suggesting that Bolsonaro's pro-gun rethoric have earned him political dividends in the 2018 election, although this channel operates independently from the exposure to economic shocks.

Further robustness checks We perform a battery of additional robustness checks, presented in detail in Online Appendix C. We show that, overall, the results remain qualitatively robust after: relaxing the linear functional form; weighting each microregion by population; replacing the 27 state-specific trends with 137 mesoregion-specific trends; allowing for a non-zero, 'far-right' 2014 vote share for the Bolsonaro outcome variable; using more conservative standard error estimates, clustered at the mesoregion-level (137 clusters) and state-level (27 clusters); extending the set of pre-crisis socio-demographic controls with the share of urban population, the share by age group (18–29, 30–44, 45–59, 60+), and the share by religious affiliation (Catholic, Protestant, Pentecostal, Other, and None). We also test two alternative measures of the shock; one that calculates the

[42] In Argentina, where military conscription was drawn by lottery, a recent study finds that "men who were conscripted are less tolerant, more disciplined, more politically conservative, more authoritarian, and more belligerent." (Navajas *et al.*, forthcoming, p. 1).

relative loss in employment directly, rather than using the log-difference approximation, and another that removes the gender- and race-specific variation from the shift, only using the aggregate change in total employment for identification. The results remain robust.

In sum, among the most prominent explanations for Bolsonaro's victory, his 'tough-on-crime' rhetoric appears to have been particularly successful. Nonetheless, this effect is largely independent from—and, thus, unable to adequately explain—the effects of the gender-specific shocks.

6 Conclusion

Brazil's virtuous cycle of economic growth, declining poverty, and falling inequality came to an end in 2014, with the onset of a severe economic recession. This article investigates the consequences of this economic shock for the election of far-right Jair Bolsonaro in October 2018. We argue that rather than the overall shock itself, its heterogeneous effect by gender helps explaining Bolsonaro's victory. More specifically, we hypothesize that men and women react differently to the labor demand shock when confronted with the prospect of Bolsonaro's election. Bolsonaro's authoritarian, tough-on-crime, populist, and sexist rhetoric may have been appealing to men who, due to the economic shock, perceive a threat to the traditional masculine, breadwinner-type social identity. For women, however, the grievances activated by the economic shock should make this rhetoric particularly unattractive.

We find evidence that in locations where the economic shock hits men harder, Bolsonaro obtains a higher percentage of votes. In sharp contrast, in regions where the shock hits women harder, there is a reduction in the percentage of votes for Bolsonaro and in the percentage of abstentions. We do not find similar effects for race-specific shocks. This finding supports the interpretation that gender was a key dimension of Bolsonaro's polarizing effect.

We try to disentangle the effects in a number of ways. We investigate the role of crime, support for guns, and military presence and conclude that the gender shocks run

independently from these channels. By combining individual-level survey data from the *AmericasBarometer* and the World Values Survey, and political affiliation data disaggregated by gender, we show that the political and social gender gaps are specific to the 2018 election, after Bolsonaro announces his candidacy. These patterns are consistent with the interpretation that a compensation mechanism could be at play, although we cannot decisively close this channel.

This paper contributes to the literature by assessing empirically how economic shocks shortly before consequential elections can have important, and highly heterogeneous, effects at the ballot box. In line with Ballard-Rosa *et al.* (forthcoming), we provide evidence that economic shocks that threaten the relative status of men, a traditionally dominant group, can give rise to political extremism. To the best of our knowledge, this is the first paper linking the heterogeneity in exposure to a labor demand shock by gender to the rise of a far-right populist.

To be sure, several right-wing populist leaders share conservative positions on gender issues and propagate traditional norms of masculinity. For example, there is a parallel between the misogynous rhetoric of Bolsonaro and the 2016 presidential campaigns of Donald Trump, in the United States, and Rodrigo Duterte, in the Philippines. More generally, the platforms of far-right European parties, such as the Alternative für Deutschland (AfD), in Germany, have often incorporated conservative gender values. While anecdotal evidence points to a link between the recent rise of populism and gender norms, systematic and causal evidence remains scarce. Our paper, therefore, opens up the possibility for future research studying gender and populism in other contexts. In the future, a better understanding of the exact mechanisms linking shocks, gender identity, and political preferences can help designing public policies that mitigate the appeal of candidates at the extremes of the political spectrum and ensure well-functioning democratic systems.

Table 13: Bolsonaro vote share, 2018, controlling for military affiliation and gun referendum

	Bolsonaro, % of votes: 1st round					
Panel A: Shock by gender	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	1.6449***	1.6483***	1.6531***	1.6473***	1.5372***	1.5517***
	(0.4633)	(0.4677)	(0.4691)	(0.4643)	(0.4795)	(0.4853)
Female shock	-1.4006***	-1.4013***	-1.4022***	-1.4036***	-1.4335***	-1.4507***
	(0.4662)	(0.4672)	(0.4681)	(0.4679)	(0.4658)	(0.4690)
log(Males drafted military 13-18)		0.0085	0.0132			-0.0081
		(0.1181)	(0.1183)			(0.1192)
log(Females drafted military 13-18)			-0.2517			-0.3110
			(0.3141)			(0.3441)
Share employed as military 2010				3.1353		18.0818
				(26.9554)		(29.8925)
% No gun referendum					0.0597**	0.0595**
					(0.0284)	(0.0284)
	Bolsonaro, % of votes: 2nd round					
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	1.0589**	1.0409**	1.0441**	1.0459**	1.0074**	0.9881**
	(0.4462)	(0.4509)	(0.4523)	(0.4485)	(0.4602)	(0.4680)
Female shock	-1.0880**	-1.0851**	-1.0848**	-1.0715**	-1.1032**	-1.0944**
	(0.4715)	(0.4723)	(0.4740)	(0.4733)	(0.4721)	(0.4764)
log(Males drafted military 13-18)		-0.0466	-0.0431			-0.0419
		(0.1104)	(0.1103)			(0.1122)
log(Females drafted military 13-18)			-0.1896			-0.1631
			(0.2836)			(0.3075)
Share employed as military 2010				-16.2942		-5.7068
				(27.4752)		(29.7851)
% No gun referendum					0.0281	0.0282
					(0.0280)	(0.0282)
	Control variables in all panels:					
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the percentage of votes for Jair Bolsonaro (PSL) in the 2018 election, either in the first (Panel A) or second (Panel B) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). Shocks are measured in standard deviations. 'log(Males drafted military 13–18)' and 'log(Females drafted military 13–18)' are, respectively, the log number of males and the log number of females that between 2013 and 2018 were drafted for military service. Data are from the Brazilian Army (EB). 'Share employed as military 2010' is the share of employment in the military, military police, or firefighters, measured from the 2010 census. '% No gun referendum' is the percentage of 'No' votes in the 2005 national referendum that asked: "Should the sale of firearms and ammunition be banned in Brazil?". Data are from TSE. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (Panels A) or second (Panels B) round.

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For Online Publication

Right-wing populism in the tropics: Economic crisis, the political gender gap, and the election of Bolsonaro

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A Shift-share construction over time, 2002–2018

To measure shocks to a microregion's labor demand over time, we construct shift-share series covering the period 2002–2018. Because in most years until 2014 aggregate employment was increasing, we define the shift-share as the predicted *growth* in a microregion's employment, as opposed to the 'shock' shift-share measure defined in equation (1) of the main text, where larger values implied larger employment *losses*. To distinguish those two approaches, we call the employment growth shift-share, $\dot{E}_r$.

We combine microdata from four sources collected by Brazil's official statistical agency (IBGE). For representative industry shares of employment at the microregion level, we use microdata from the 2000 and 2010 censuses. For yearly national level employment totals by industry, we combine microdata from the yearly household survey (PNAD) from 2002–2009 and 2011–2015, and its quarterly successor (PNAD Contínua) from 2012-Q1 to 2018-Q3. For 2010, national employment totals come from that year's census.

We link the data across these sources through 5-digit industry codes. Two sets of industry codes were used by IBGE since 2000: CNAE-Dom and CNAE-Dom 2.0.[43] The 2000 census and the yearly PNAD (2002–09, 2011–15) use the CNAE-Dom version.[44] The 2010 census uses both the CNAE-Dom and the current CNAE-Dom 2.0. CNAE-Dom 2.0 is used in the PNAD Contínua (2012Q1–2018Q3). The CNAE-Dom 2.0 is a substantially revised and extended set of codes and, at the 5-digit level, harmonizing these codes with those of CNAE-Dom leads to a substantial loss in the number of industries available. Instead, we construct two separate shift-share series: one using CNAE-Dom from 2002 to 2015 and another using CNAE-Dom 2.0 from 2012 to 2018.

For microregion r and time period $(t-k, t)$, the overall shift-share variables are defined as:

$$\dot{E}_{r,(t-k,t)} = \sum_i \frac{L^0_{ri}}{L^0_r} \dot{L}_{i,(t-k,t)} \tag{5}$$

In the earliest shift-share series, based on the CNAE-Dom, the *share*, $\frac{L^0_{ri}}{L^0_r}$, is industry i's share of total employment in microregion r, computed from the 2000 census for the age group 18–64. The *shift*, $\dot{L}_{i,(t-k,t)} \equiv log(L_{i,t}) - log(L_{i,t-k})$, is the log difference in national employment for industry i between year t and year $t-k$, where $t = 2003, 2004, ..., 2015$ and $k = 1, 2, ..., 6$. We compute $\dot{L}_{i,(t-k,t)}$ from the yearly PNAD for 2002–2009 and 2011–2015 and from the 2010 census. The 2000 census includes a few residual industries that are unambiguously classified at the 2-digit level, but left unspecified at the 5-digit level. After aggregating these cases, there are 167 industries matched between the 2000 census, the PNAD, and the 2010 census.

In the latest shift-share series, based on the CNAE-Dom 2.0, the *share* is computed from the 2010 census for the age group 18–64. The *shift*, $\dot{L}_{i,(t-k,t)} \equiv log(L_{i,t}) - log(L_{i,t-k})$, is the log difference in national employment for industry i between year t and year $t-k$, where $t = 2013, 2014, ..., 2018$ and $k = 1, 2, ..., 4$. We compute $\dot{L}_{i,(t-k,t)}$ by pooling the first three quarters of year t from PNAD Contínua for 2012Q1–2018Q3. Once again, the 2010 census includes a few residual industries that are unambiguously classified at the 2-digit

[43] Abbreviations for CNAE Domiciliar—Brazil's national classification of economic activities in household surveys.

[44] Our shift-share series starts in 2002, because that is the first time CNAE-Dom codes appear in the PNAD.

level, but left unspecified at the 5-digit level. After aggregating these cases, there are 161 industries matched between the 2010 census and the PNAD Contínua.[45]

Figure A7 plots the two annual shift-share series, i.e., $\dot{E}_{r,(t-1,t)}$, for the median microregion. The deep negative labor market shock of the 2014–17 economic crisis is striking.[46]

To create shift-shares by gender (m = males, f = females), we construct:

$$\dot{E}^{m}_{r,(t-k,t)} = \sum_{i} \frac{M^{0}_{ri}}{M^{0}_{r}} \dot{L}^{m}_{i,(t-k,t)} \text{ and } \dot{E}^{f}_{r,(t-k,t)} = \sum_{i} \frac{F^{0}_{ri}}{F^{0}_{r}} \dot{L}^{f}_{i,(t-k,t)} \tag{6}$$

where M^{0}_{ri} (F^{0}_{ri}) is the number of males (females) employed in industry i, in microregion r, from the 2000 (2010) census in the earliest (latest) series. And $\dot{L}^{m}_{i,(t-k,t)}$ ($\dot{L}^{f}_{i,(t-k,t)}$) is the log difference in national employment for males (females) for industry i between year t and $t-k$.

B Additional data sources

AmericasBarometer The *AmericasBarometer* is a cross-sectional individual-level public opinion survey conducted in several American countries, roughly every two years. It is nationally representative for the voting age population. We use all seven survey rounds for Brazil. Fieldwork dates and sample sizes are shown in Table A20.

In our analysis, we use three outcome variables. The first outcome variable is a left-right ideological scale, running from 0 (farthest on the left) to 10 (farthest on the right). The second outcome is the answer to the question "If the next presidential elections were this week, in whom would you vote?". The answer options are: (1) Abstention, (2) Candidate of the party of the current president, (3) One of the opposition candidates, or (4) Blank or null vote. We code a dummy of voting intentions for the party in power that takes value 1 for the second answer option (party of the president), and 0 otherwise. This question was not asked in 2007. The third outcome, only available in 2019, is the self-reported vote in the first round of the 2018 elections.

For control variables, we pick several individual characteristics that are consistently asked over the survey rounds. These are age, race, having a Bolsa Família recipient in the household, labor force participation and employment status, educational attainment, marital status, religion, perceived improvement/deterioration of own economic situation in the last 12 months, being a crime victim in the last 12 months, urban/rural residence, and state of residence. Race is a white/nonwhite dummy, where 'white' are White (*Branca*) and Asian (*Amarela*), and 'nonwhite' are Black (*Preta*), Mixed (*Parda*), or Indigenous (*Indígena*). The wording of the Bolsa Família questions change slightly over the years. In 2007 and 2008, the respondent is asked whether he/she, any family member, or any acquaintance currently receives Bolsa Família. In 2010, the question changes to whether any household member received Bolsa Família in the last three years. In the subsequent

[45] For the shift-share variables defined in the main text in equations (1) and (2), we follow a slightly different approach. We do not aggregate the residual industries from the 2010 census and, instead, directly match the 223 industries from the PNAD Contínua to those of the census. In the end, since the shift-share is a weighted sum over many industries with relatively small individual shares, the difference between the two measures is negligible. The correlation between the two measures, either overall or by gender, is above 0.99. In our regression framework, we obtain similar points estimates irrespective of the harmonization and matching procedure.

[46] When including any of these shift-shares as regressors, we first standardize them.

rounds (2012, 2014, 2017, 2019), the question is whether any household member currently receives Bolsa Família. Labor force participation and employment status are a set of four mutually exclusive dummies: Employed, Unemployed, Student, or Other inactive. Educational attainment is a set of four mutually exclusive dummies: Less than primary, Completed primary, Completed high school, and Completed tertiary. Marital status is a dummy variable capturing whether the individual is currently married or cohabiting. Religion is a set of five mutually exclusive dummies: Catholic, Evangelical Pentecostal, Protestant, Other religion, No religion. Perceived improvement/deterioration of own economic situation in the last 12 months is a set of dummies for 'Better', 'Same', or 'Worse'. Table A21 displays descriptive statistics for the pooled sample.

Party affiliations Data on party affiliations are available from the Brazilian Federal Electoral Court's (TSE) novel database, *Filia*, launched in September 2019. By law, Brazilian political parties are required to submit members lists to TSE twice a year, in April and October. It is illegal for an individual to be a member of two different political parties simultaneously, and, in such cases, TSE will automatically cancel both affiliations. Beyond the legal requirement, political parties have a strong incentive to submit high-quality affiliation data to *Filia*, since all candidates running for public office have to be registered members of the party at least one year (between 1995 and 2015) or six months (since 2016) before the election date. Independent candidates are not allowed.

Between March 31 and April 2, 2020, we downloaded affiliation records for PSL and PT. Each record includes information on the name of the party member, municipality of residence, date of the affiliation, and, for former members, the date at which the membership was terminated or canceled. Note that TSE automatically cancels membership upon the individual's death.

The dataset includes 462,131 records for PSL and 2,060,328 for PT. The data do not include gender information, but we derive it from the individual's first name. We match the first name of each individual to a gender-classified database of all first names listed in the 2010 census, available from IBGE. This procedure classifies 97.33% of PSL's and 97.65% of PT's records. For the remaining cases, which do not appear in the census list, we classify names ending in 'o' as male, and names ending in 'a' as female. In Portuguese, 'a' and 'o' endings are almost perfect predictors of a word's gender. In the 2010 census name database, 96% of first names ending in 'a' are female and 98% of first names ending in 'o' are male. After this step, only 1.7% of PSL's and 1.4% of PT's records are not classified by gender. We remove these from the analysis. Finally, we clean the records from several inconsistencies which affect a small share of records for both parties: data entry mistakes in recorded dates, duplicated entries within each party, missing entry and exit dates, and so on.[47] Our cleaned dataset includes 447,839 records for PSL between 1995 and 2019, and 1,977,010 for PT between 1980 and 2019.

In late 2018, party members corresponded to about 11% of the Brazilian electorate, more that twice the percentage of most European countries (Ribeiro and Do Amaral, 2019). Moreover, whereas party membership has been declining in Europe, it has actually been rising in Brazil, from 6.4% to 10.5% of the electorate between 1997 and 2013 (Brollo *et al.*, 2017). Becoming a party member in Brazil can be costly. Affiliations have to

[47]Not all duplicated entries are errors. Some are entirely legitimate and reflect distinct, non-overlapping periods of party membership for the same individual. We only clean up duplicated entries whose dates overlap or are otherwise inconsistent.

be initiated by the prospective member and cannot be done online. As pointed out by Brollo *et al.* (2017, p. 9), "party members are [often] required to attend party meetings and activities related to the political campaigns of party candidates, provide support in electoral campaigns, participate in fund raising activities, and vote for political candidates of the party. Some parties also require members to pay dues." On the benefit side, Brollo *et al.* (2017) shows that party members are more likely to be recruited as municipal employees, when their party wins the mayoral election. As in most other countries, party members are a highly selected subgroup of all voters: they are older, more likely to be male, and of higher socioeconomic backgrounds (Ribeiro and Do Amaral, 2019).

To further contextualize the party membership data, it is important to note that PSL is much smaller than PT, especially before Bolsonaro joined the party, in January 2018. In our cleaned dataset, in 2013, PSL had around 200,000 members, while PT had about 1,5 million. There is a 62% increase in PSL members between 2013 and 2018, with most of the rise happening in 2018, when Bolsonaro joins the party. In the same period, 2013–2018, membership in PT was stagnant, with a change of -0.55%. Another relevant feature of the data is that whereas, by law, party candidates have to be registered as party members, the number of candidates is too small to influence membership statistics in any direction. In the 2018 election, for example, PSL was the Brazilian party with most candidates running for public office—1,481 in total. But this figure is only 0.45% of total PSL members in that year.

We investigate whether the increase in PSL membership between 2018 and 2013 occurred in microregions most affected by the 2014-17 economic crisis. In particular, we can estimate whether changes in *male* and *female* PSL membership are correlated with the male and female shift-share variables. Table A9 shows the estimates of our usual difference regressions (see equation (3) in main text), with the change in PSL membership by gender as the outcome variables. We define change either as a log-difference (where we add one member to all microregions to avoid losing observations), or as a relative change. The lagged dependent variable for the period 2009–2013 is added to the usual set of control variables. None of the shock variable is statistically significant. The gender shock coefficients have the expected signs, but the magnitude is quite sensitive to how the outcome variable is defined. These results are not surprising given how different party members are from the average voter. To make this point even clearer, we show that, in fact, at the microregion level, the increase in PSL membership does not predict Bolsonaro's vote share (Table A8). The estimated coefficient is even negative in some specifications. Reassuringly, the effect of the gender shocks on Bolsonaro's vote share remains the same when the change in PSL membership is controlled for.

World Values Survey The World Values Survey is a cross-sectional individual-level survey on social values and beliefs conducted in five-year waves across a large sample of countries. The survey is representative at the country level and the fact that common questionnaires are used in each wave allows for the comparison of indicators across countries. We exploit five survey rounds: WVS-3 (1989-1993); WVS-4 (1994-1998); WVS-5 (2005-2009); WVS-6 (2010-2014); and WVS-7 (2017-2020), focusing on the Brazilian and Mexican samples. Details on the waves, interview years and sample size are presented in Table A22.

In our analysis we focus on one outcome variable, a measure of support for abortion running from 0 to 10, with higher values indicating more tolerance towards abortion. Although there are other gender-related questions in the survey, we believe the abortion

question would reduce demand effects, since there is no clear right or wrong answer, and respondents would be more likely to truthfully report their beliefs. Most importantly, the abortion question is consistently available for all relevant survey rounds.

We include a range of individual socio-demographic controls which most likely determine tolerance towards abortion. These include age, race, employment status, educational attainment, marital status, religion, and perception of own economic situation. Race is a white/ nonwhite dummy, where 'white' are White and Caucasian and 'nonwhite' are Asian, Arabic, Black, Mixed, or Indigenous. Employment status are a set of mutually exclusive dummies: Full time, Part time, Self employed, Retired, Housewife, Students, Unemployed, and Other. Educational attainment are a set of mutually exclusive dummies: Lower, Middle, and Upper. Marital status is a dummy capturing if respondents are married or cohabiting. We create an indicator variable for satisfaction with own economic situation which equals to one if respondents rank their satisfaction as equal or above 6 in a 0 to 10 scale. Descriptive statistics for the Brazilian and Mexican samples are presented in Tables A23 and A24.

Gun referendum On October 23, 2005, Brazil held a national referendum concerning the sale of firearms and ammunition. The referendum asked "Should the sale of firearms and ammunition be banned in Brazil?". As with regular elections, voting was compulsory for all individuals aged 18 to 70. The percentage of "No" votes in the referendum was around 64%, corresponding to close to 60 million votes. Data on the share of "No" votes in the referendum were made publicly available by the Federal Electoral Court (TSE). We aggregate the votes at the microregion level.

Military service and share of individuals employed at the military To measure military affiliation, we rely on two main data sources. First, information on military service is made publicly available by the Brazilian Army (EB). The data contain anonymized individual records of all Brazilian citizens registered to serve the military in each municipality. In Brazil, military service is compulsory for men at the age of 18 and voluntary for women. Second, we rely on data from the census 2010 to measure the share of individuals employed at the military. We construct three control variables reflecting local military presence at the microregion level: (i) log number of males [(ii) females] drafted to military service between 2013 and 2018, and (iii) share employed in the military as of 2010.

C Further robustness checks

We conduct several additional robustness checks. We start by assessing whether the linear functional form is appropriate. Figure A8 shows the conditional coefficients of the gender shocks over deciles of the shift-share distribution, for the change in PT votes in the first round of the election. The figure suggests that the linear specification is appropriate.

We then rerun our preferred specification of equation (3) (see main text) with each microregion weighted by its 2010 share of the national population (Table A11, column 2). In column 3, we replace the state-specific trends with mesoregion-specific trends. Mesoregions are statistical areas defined by IBGE, whose size lies between a microregion and a federal state. There are 137 mesoregions (compared with 27 states). A regression of the percentage point change of PT votes on mesoregion-specific trends alone has an R^2

of 0.87, in the first round.[48] For brevity, Table A11 only present estimates for the first election round.

For the change in PT votes (panels A-C), the population-weighted regressions produce similar null effects for the overall and race-specific shocks. The gender-specific shock effects (positive for male shock; negative for female shock) become even larger in absolute magnitude and remain highly statistically significant. When absorbing mesoregion-specific trends, the direction of the gender-specific shocks is the same and both remain statistically significant, although their absolute magnitudes decrease, when compared to the baseline specification with state-specific trends.

For the percentage of votes for Bolsonaro (panels D-F), population-weighted estimates also produce larger gender-shock effects (in absolute terms), whereas the other shocks remain insignificant (column 2). When we replace state-specific trends by mesoregion-specific trends (column 3), the gender effects decline and only the female shock remains significant. This result is not surprising, because the mesoregion-specific dummies absorb nearly all of the variation across microregions. Regressing the percentage of votes for Bolsonaro on mesoregion dummies *alone* gives an R^2 of 0.91 (first round) and 0.92 (second round). In column 4, the outcome is the percentage point change between Bolsonaro's votes in 2018 and Levy Fidelix's in 2014. This variable captures the percentage point change in far-right votes, since Fidelix (PRTB) was the far-right candidate in 2014 (and 2010).[49] However, because, in the average microregion, Fidelix obtained only 0.43% of the first round votes in 2014, all point estimates for the shock variables are virtually identical (up to the first decimal case) to the baseline model. In other words, before 2018, the far-right had virtually no electoral support in Brazilian presidential elections (see, also, Figure A9).

We next allow for more conservative standard error estimates. In Tables A12-A14, we re-estimate our baseline specifications but increase the geographical level of aggregation at which standard errors are clustered. We move from the baseline 558 microregion-clusters (column 1) to 137 mesoregion-clusters (column 2), and to 27 state-clusters (column 3). For models on the percentage point change in PT votes (Table A12), all first-round shock effects that were significant at least at the 5% level with microregion-clusters are still statistically significant at least at the 5% level with state-clusters. Second-round coefficients lose significance when errors are clustered at the state level. For models on the percentage of votes for Bolsonaro in the first round (panels A-C, Table A13), the gender-specific shock effects are still significant with mesoregion-clusters and state-clusters, whereas, for the second round (panels D-F), the gender-specific shock effects are only marginally significant with state-clusters. Lastly, the negative effect of the female and nonwhite shocks and the positive effect of the white shock on the percentage point change in abstention (Table A14) remain highly significant for all clusters in the second round of the election (panels D-F).

Another important robustness check includes extending the set of pre-crisis socio-demographic control variables from the 2010 census. Essentially, we are allowing for differential microregion trends based on these pre-crisis characteristics. The extended set includes: the share of urban population, the share by age group (18–29, 30–44, 45–59, 60+), and the share by religious affiliation (Catholic, Protestant, Pentecostal, Other, and

[48] For the second round, the R^2 is 0.76.

[49] Levy Fidelix did not run in the 2018 election, because his party, PRTB, ran in a coalition with Bolsonaro and fielded his running mate, the current vice-president, retired General Hamilton Mourão.

None). The gender shock effects are remarkably robust to the inclusion of these extra controls, either sequentially or simultaneously, for all the outcome variables: votes for PT (Table A15), votes for Bolsonaro (Table A16), and abstentions (Table A17). Among the controls, it is interesting to note that microregions that, in 2010, had a larger share of Protestants and Pentecostals experience, on average, a larger decline in votes for PT between 2014 and 2018 and a larger increase in support for Bolsonaro.

We now test how sensitive the findings are to two alternative measures of the shock. First, we redefine the shift to be the exact formula for the relative change in employment rather than the log-difference approximation. That is, instead of $log(\bar{L}^g_{i,2012q3:2013q3}) - log(\bar{L}^g_{i,2017q3:2018q3})$, we now use $\frac{\bar{L}^g_{i,2012q3:2013q3} - \bar{L}^g_{i,2017q3:2018q3}}{\bar{L}^g_{i,2012q3:2013q3}}$ as the shift for industry i and gender g. The alternative shift measure reduces the influence of observations where the log-difference approximation deviates markedly from the actual relative change.

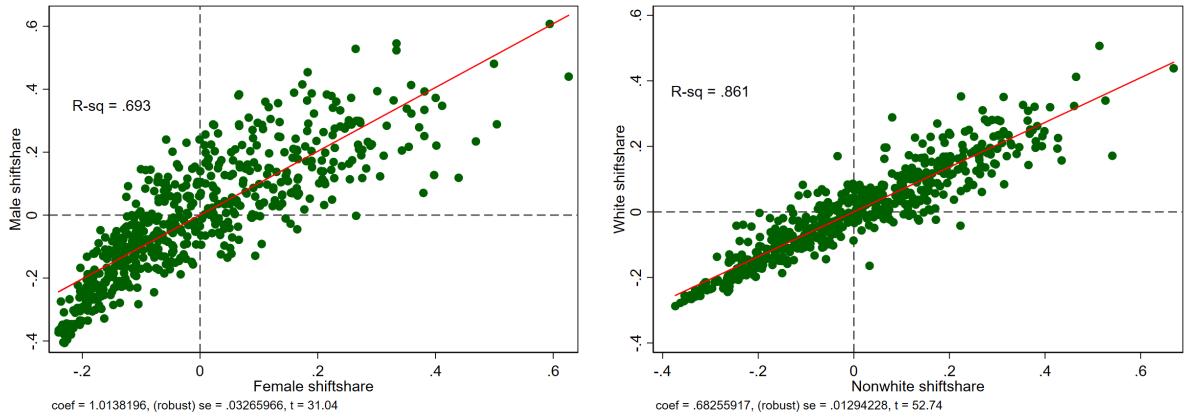
The second alternative measure only uses the aggregate change in employment by industry as the shift component of the shift-share variable. In practice, we remove the gender-specific variation from the shift, i.e., from the measure of employment change during the crisis. As such, the only source of gender-specific variation in the shock measures comes from the share component, which is fixed at 2010, pre-crisis, levels. Moreover, the shares are slightly redefined, with the denominator being the total employed population of microregion r, such that the gender-specific shift-shares add up to the overall shift-share (as they do, for example, in Autor *et al.* (2019)). The gender shocks are now:

$$\dot{L}^m_r = \sum_i \frac{M^0_{ri}}{L^0_r}\dot{L}_i \text{ and } \dot{L}^f_r = \sum_i \frac{F^0_{ri}}{L^0_r}\dot{L}_i \tag{7}$$

The results of our baseline models for the preferred and alternative shift-share measures are shown in Tables A18 (PT and Bolsonaro votes) and A19 (absentions and invalid votes). Reassuringly, the results remain qualitatively robust across the alternative shock measures.

Overall, these sensitivity checks indicate that our main findings are robust.

D Additional Tables and Figures



(a) Gender (b) Race

Figure A1: Linear correlation between shocks, by gender and race

Notes: Male (female) shock is $\dot{L}_r^m$ ($\dot{L}_r^f$), and white (nonwhite) shock is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2).

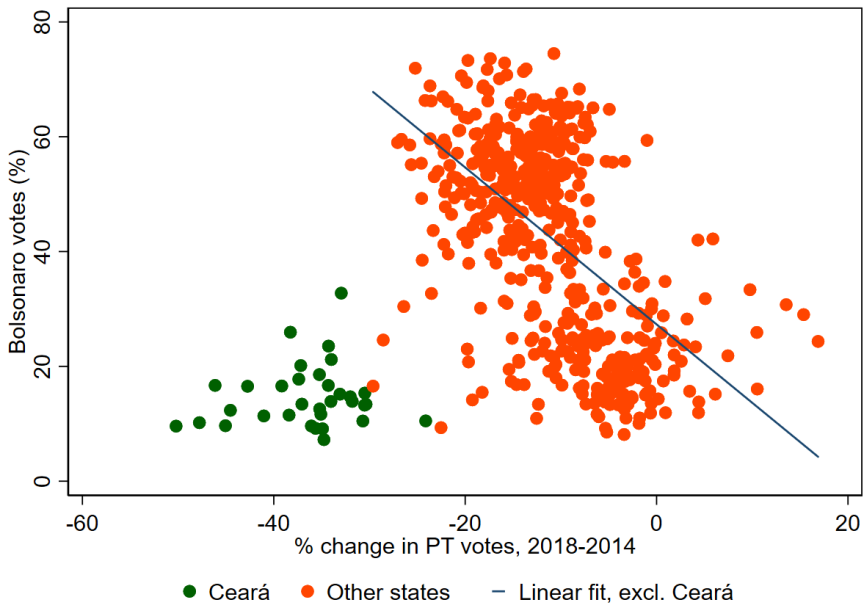
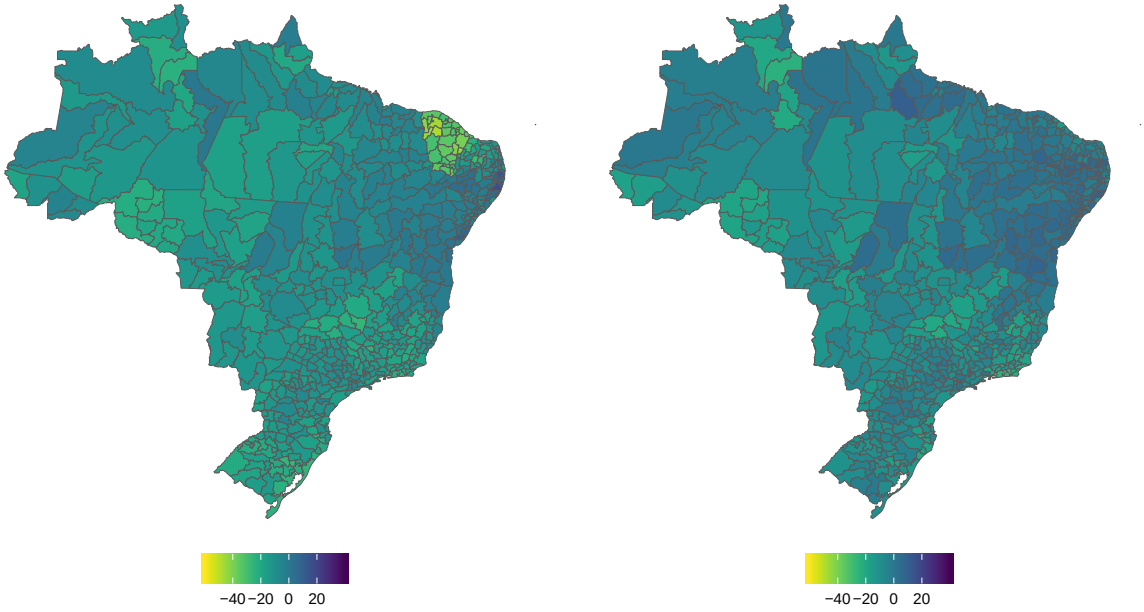


Figure A2: Bolsonaro, percentage votes vs. PT votes, percentage point change 2018–2014, first round

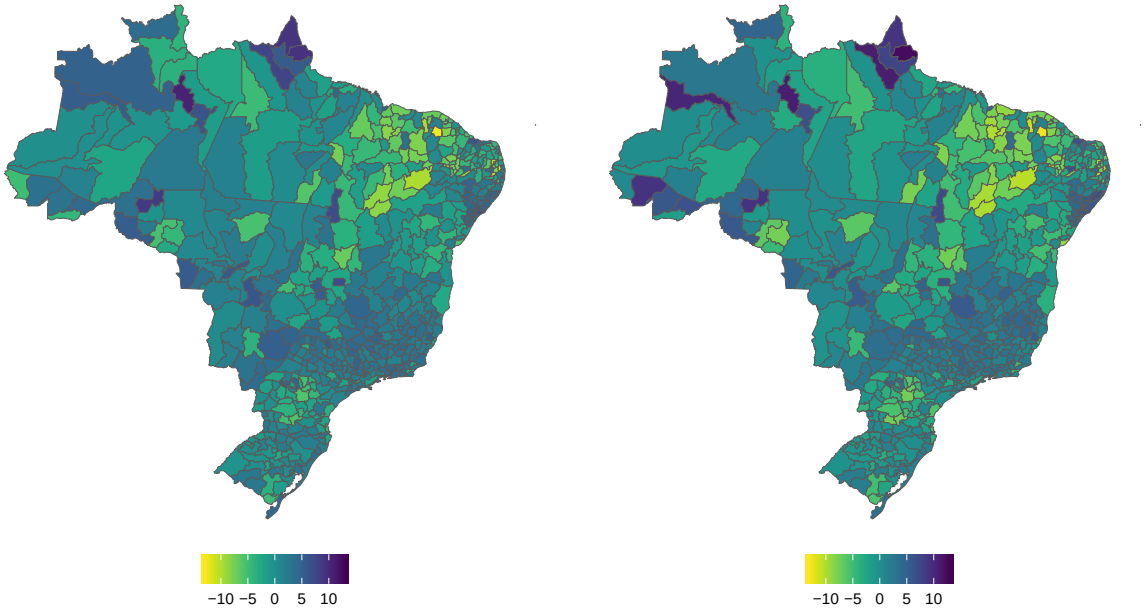
Notes: The first round in Ceará was won by the home candidate, Ciro Gomes (PDT). Own calculations from TSE.



(a) First round (b) Second round

Figure A3: Percentage point change in PT votes, 2018–2014, by microregion

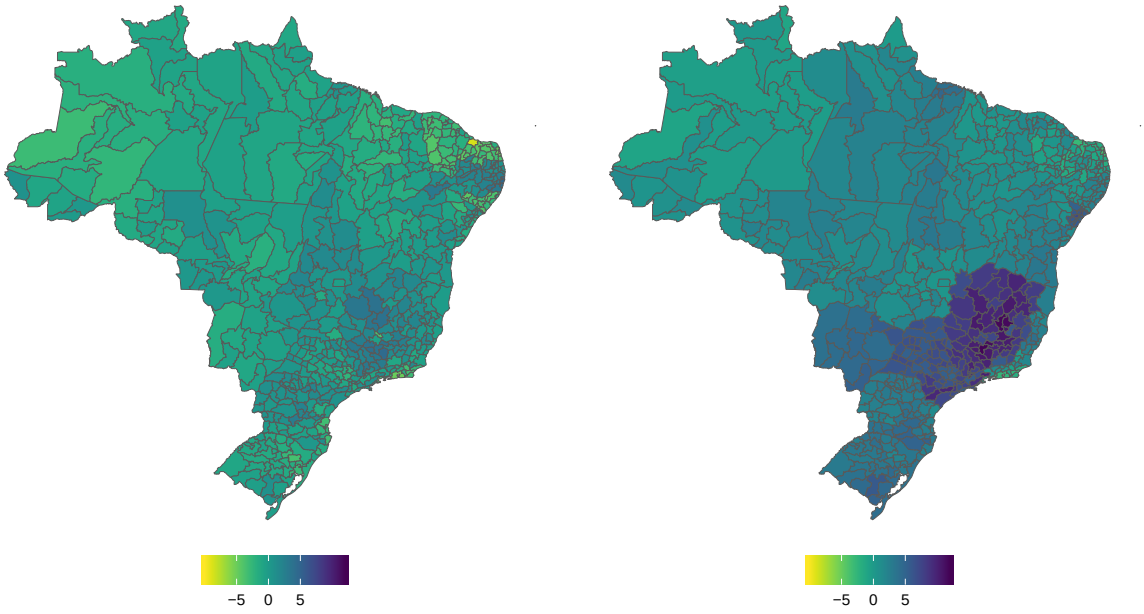
Notes: Change in PT votes, 2018–2014



(a) First round (b) Second round

Figure A4: Percentage point change in abstention rate, 2018–2014, by microregion

Notes: Change in % abstention 2018-2014.



(a) First round

(b) Second round

Figure A5: Percentage point change in invalid votes (null/blank), 2018–2014, by microregion

Notes: Change in % nulls and blanks 2018-2014.

Table A1: Change in PT votes: shock by gender, first round. Full table

	Δ_{18-14} PT, % of votes: 1 round				
	(1)	(2)	(3)	(4)	(5)
Male shock	-2.7926***	0.2024	-0.8920*	-1.0538**	-1.3380***
	(0.7457)	(0.4290)	(0.5027)	(0.4916)	(0.3955)
Female shock	4.1706***	1.0191**	0.8570*	1.0739**	1.7232***
	(0.6116)	(0.4570)	(0.4807)	(0.4760)	(0.3982)
Male pop. share			50.1398**	57.2292***	23.8877
			(20.7296)	(20.3420)	(16.9968)
Nonwhite pop. share			15.9069***	17.1966***	22.1571***
			(2.5494)	(2.8682)	(2.7199)
Education attainment (Ref. = < primary)					
Primary			-36.1168***	-30.3016**	-30.3418***
			(13.3166)	(14.3466)	(11.2156)
Secondary			-1.6668	4.8151	5.5084
			(8.2437)	(9.1090)	(7.9959)
Tertiary			12.5080	15.5031	27.9185**
			(12.5432)	(12.5050)	(11.1166)
Bolsa Famĺia recipients			0.1317	21.7356	55.7872***
			(12.6874)	(13.4492)	(12.4553)
Construction share			-9.4766	-8.3932	-9.7283
			(13.8237)	(13.8683)	(13.0605)
Population, log			0.3332	0.3311	0.0846
			(0.2917)	(0.3170)	(0.2870)
Male employment share			-3.7439	-4.2155	-9.1704
			(6.4492)	(6.4760)	(5.8038)
Female employment share			-9.1930	-5.6193	-6.5065
			(6.1868)	(6.1403)	(5.4145)
Votes 2010 (Ref. = Rousseff (PT))					
Serra (PSDB)				0.1318***	0.3173***
				(0.0280)	(0.0279)
Marina (PV)				0.1721***	0.1648***
				(0.0600)	(0.0540)
Fidelix (PRTB)				-1.9229	-6.4573
				(6.9372)	(5.6957)
Other				-1.9637	-1.4980
				(1.3548)	(1.3565)
Null/blank				0.6309***	0.2576*
				(0.1608)	(0.1509)
Abstention				-0.0599	-0.0411
				(0.0810)	(0.0725)
Δ_{14-10} PT, % of votes: 1 round					-0.5610***
					(0.0421)
State-specific trends	No	Yes	Yes	Yes	Yes
N	558	558	558	558	558
R^2	0.068	0.796	0.835	0.848	0.889
adj. R^2	0.065	0.785	0.823	0.835	0.879

Notes: OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, first round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Overall shock exposure: top ten and bottom ten 5-digit level industries

Panel A: Ten most exposed

Code	Name	$\frac{L^0_{ri}}{L^0_r}$ mean	$\dot{L}_i$	$\frac{L_i^{2012}-L_i^{2018}}{L_i^{2012}}$	m^0_{ri} mean	nw^0_{ri} mean
01119	Unspecified farming	.1	2.19	.89	.72	.57
01999	Agriculture	.01	2.86	.94	.77	.53
01209	Unspecified livestock farming	.01	2.74	.94	.73	.53
84013	Public administration and regulation of economic and social policy - Municipal	.03	.26	.23	.53	.51
01401	Agricultural and post-harvest support activities	.01	1.01	.63	.86	.62
01101	Growing of rice	.01	.65	.48	.75	.6
01102	Growing of maize	.01	.34	.29	.7	.57
10092	Manufacture and refining of sugar	.01	.43	.35	.78	.56
43000	Specialized services for construction	.03	.1	.1	.98	.6
01109	Growing of other temporary crops	.02	.18	.17	.7	.59

Panel B: Ten least exposed

Code	Name	$\frac{L^0_{ri}}{L^0_r}$ mean	$\dot{L}_i$	$\frac{L_i^{2012}-L_i^{2018}}{L_i^{2012}}$	m^0_{ri} mean	nw^0_{ri} mean
00000	Undefined activites	.05	-.96	-1.62	.59	.53
85012	Preschool and elementary school	.03	-.3	-.36	.15	.46
56011	Restaurants and other food and beverage service establishments	.02	-.23	-.25	.43	.52
01110	Horticulture	.01	-.31	-.36	.53	.57
48071	Trade in pharmaceutical, medical, ortopedic, odontological and cosmetic and perfurmery products	.01	-.41	-.51	.31	.43
97000	Activities of households as employers of domestic personnel	.07	-.05	-.05	.08	.62
86002	Outpatient care activities carried out by doctors and dentists	.01	-.39	-.48	.23	.43
48080	Retail sale in supermarkets	.01	-.31	-.37	.56	.49
96020	Hairdressing and other beauty treatment	.01	-.24	-.27	.2	.52
48030	Trade in food, beverages or tobacco	.03	-.07	-.07	.61	.5

Notes: $N = 558$.

Table A3: Change in invalid votes (null/blank), 2018–2014

	Δ_{18-14} null/blank, %: 1st round				
Panel A: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-0.1686**	0.1768***	-0.0339	0.0288	-0.0057
	(0.0805)	(0.0658)	(0.0876)	(0.0832)	(0.0791)
Panel B: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-0.0144	0.3194***	0.0978	0.1467	-0.0300
	(0.1463)	(0.0953)	(0.1006)	(0.1033)	(0.1021)
Female shock	-0.1626	-0.1639*	-0.1557	-0.1398	0.0297
	(0.1427)	(0.0886)	(0.1025)	(0.0986)	(0.0998)
Panel C: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	0.5863***	0.2634**	0.0780	0.0994	0.0756
	(0.1776)	(0.1323)	(0.1313)	(0.1255)	(0.1235)
Nonwhite shock	-0.7162***	-0.0837	-0.0904	-0.0591	-0.0674
	(0.1818)	(0.1488)	(0.1576)	(0.1395)	(0.1368)
	Δ_{18-14} null/blank, %: 2nd round				
Panel D: Overall shock	(1)	(2)	(3)	(4)	(5)
Shock (overall)	-0.9728***	0.0696	-0.0966	-0.0570	-0.0732
	(0.1164)	(0.0605)	(0.0969)	(0.0970)	(0.0976)
Panel E: Shock by gender	(1)	(2)	(3)	(4)	(5)
Male shock	-0.0581	0.1540	0.0397	0.1116	0.0803
	(0.2176)	(0.1039)	(0.1197)	(0.1275)	(0.1288)
Female shock	-0.9846***	-0.1000	-0.1759	-0.2100*	-0.1909
	(0.2006)	(0.0939)	(0.1188)	(0.1173)	(0.1172)
Panel F: Shock by race	(1)	(2)	(3)	(4)	(5)
White shock	0.2459	-0.0474	-0.0879	-0.0325	-0.0402
	(0.2692)	(0.1312)	(0.1258)	(0.1198)	(0.1209)
Nonwhite shock	-1.1660***	0.1236	0.0105	-0.0084	-0.0163
	(0.2722)	(0.1469)	(0.1449)	(0.1371)	(0.1374)
	Control variables in all panels:				
State-specific trends	No	Yes	Yes	Yes	Yes
Socio-demographics	No	No	Yes	Yes	Yes
Election 2010	No	No	No	Yes	Yes
Δ_{14-10} null/blank	No	No	No	No	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of invalid votes (null/blank) between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} null/blank' is the change in the percentage of invalid votes (null/blank) between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included.

Table A4: Change in PT (2018–2014) votes, first round: varying crisis period

	Δ_{18-14} PT, % of votes: 1st round					
Panel A: Alternative base years	$\tau = 2012$	$\tau = 2013$	$\tau = 2014$	$\tau = 2015$	$\tau = 2016$	$\tau = 2017$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $2018 - \tau$	1.2791***	1.3802***	1.1995***	1.2744***	0.8401**	0.5648
	(0.4127)	(0.3872)	(0.3920)	(0.4001)	(0.3667)	(0.3570)
Female, $2018 - \tau$	-1.7289***	-1.6515***	-1.6253***	-1.5985***	-0.9112**	-0.3225
	(0.4138)	(0.3806)	(0.3929)	(0.3866)	(0.3598)	(0.2653)
Panel B: Alternative end years	$\tau = 2013$	$\tau = 2014$	$\tau = 2015$	$\tau = 2016$	$\tau = 2017$	$\tau = 2018$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2012$	-0.1922	0.4781	0.2993	1.1453***	1.2756***	1.2791***
	(0.2683)	(0.3881)	(0.3018)	(0.3812)	(0.4177)	(0.4127)
Female, $\tau - 2012$	-0.3581	-0.6187*	-0.5881*	-1.6178***	-1.6858***	-1.7289***
	(0.3245)	(0.3191)	(0.3091)	(0.4064)	(0.4160)	(0.4138)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, in the first round. 'Male (female) predicted employment growth' is $\dot{E}^{m}_{r,(\tau,2018)}$ ($\dot{E}^{f}_{r,(\tau,2018)}$) in Panel A, and $\dot{E}^{m}_{r,(2012,\tau)}$ ($\dot{E}^{f}_{r,(2012,\tau)}$) in Panel B, as defined in equation (6) of Online Appendix A. All shift-shares are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, in the first round.

Table A5: Change in PT (2018–2014) votes, first round: pre-crisis employment dynamics

	Δ_{18-14} PT, % of votes: 1st round					
Panel A: 2002–2008	$\tau = 2003$	$\tau = 2004$	$\tau = 2005$	$\tau = 2006$	$\tau = 2007$	$\tau = 2008$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2002$	-0.2012	0.2144	0.1200	0.3369	0.1242	0.2523
	(0.2253)	(0.3002)	(0.2842)	(0.3002)	(0.2108)	(0.2291)
Female, $\tau - 2002$	0.1484	-0.0867	-0.1093	-0.2926	0.2949	-0.3429
	(0.2458)	(0.3136)	(0.2941)	(0.3131)	(0.2763)	(0.2793)
Panel B: 2008–2014	$\tau = 2009$	$\tau = 2010$	$\tau = 2011$	$\tau = 2012$	$\tau = 2013$	$\tau = 2014$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2008$	0.1913	0.0024	0.0154	0.4299	0.3066	0.4448
	(0.3172)	(0.3290)	(0.3137)	(0.2994)	(0.2573)	(0.3102)
Female, $\tau - 2008$	-0.1201	0.0070	0.4468	-0.0372	0.0852	-0.0315
	(0.3361)	(0.3403)	(0.3362)	(0.3357)	(0.3162)	(0.3465)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, in the first round. 'Male (female) predicted employment growth' is $\dot{E}^{m}_{r,(2002,\tau)}$ ($\dot{E}^{f}_{r,(2002,\tau)}$) in Panel A, and $\dot{E}^{m}_{r,(2008,\tau)}$ ($\dot{E}^{f}_{r,(2008,\tau)}$) in Panel B, as defined in equation (6) of Online Appendix A. All shift-shares are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, in the first round.

Table A6: Falsification tests: pre-crisis change in PT votes, first round

Panel A:	Δ_{14-10} PT, % of votes: 1st round					
Dilma Rousseff, 2014–10	$\tau = 2013$	$\tau = 2014$	$\tau = 2015$	$\tau = 2016$	$\tau = 2017$	$\tau = 2018$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2012$	0.2735	-0.1202	0.3694	0.5661	0.4357	0.4922
	(0.2840)	(0.4065)	(0.3127)	(0.4069)	(0.4646)	(0.4664)
Female, $\tau - 2012$	0.2047	0.3981	-0.1248	-0.6212	-0.7138	-1.0691**
	(0.3468)	(0.3462)	(0.3353)	(0.4308)	(0.4535)	(0.4732)
Panel B:	Δ_{10-06} PT, % of votes: 1st round					
Dilma Rousseff, 2010 - Lula da Silva, 06	$\tau = 2013$	$\tau = 2014$	$\tau = 2015$	$\tau = 2016$	$\tau = 2017$	$\tau = 2018$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2012$	-0.0015	-0.0289	-0.1662	-0.5035	-0.6247	-0.7573
	(0.3542)	(0.4766)	(0.3962)	(0.4405)	(0.4886)	(0.4825)
Female, $\tau - 2012$	-0.6366*	-0.6185*	-0.4240	-0.3089	-0.2751	-0.0985
	(0.3767)	(0.3576)	(0.3588)	(0.4522)	(0.4875)	(0.4989)
Panel C:	Δ_{06-02} PT, % of votes: 1st round					
Lula da Silva, 2006–02	$\tau = 2013$	$\tau = 2014$	$\tau = 2015$	$\tau = 2016$	$\tau = 2017$	$\tau = 2018$
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted employment growth:						
Male, $\tau - 2012$	0.2951	0.3581	-0.1588	-0.0828	-0.2349	-0.3092
	(0.4793)	(0.7376)	(0.5815)	(0.7920)	(0.8588)	(0.8649)
Female, $\tau - 2012$	-0.1350	-0.1303	0.1875	0.4403	0.5442	0.6238
	(0.6871)	(0.6445)	(0.6322)	(0.8771)	(0.9069)	(0.9194)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election$_{(t-8)}$	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{t-8}^{t-4} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the first round change in the percentage of votes for PT (Workers' Party) between: 2018 and 2014 (Panel A), 2010 and 2006 (Panel B), 2006 and 2002 (Panel C). 'Male (female) predicted employment growth' is $\dot{E}^{m}_{r,(2012,\tau)}$ ($\dot{E}^{f}_{r,(2012,\tau)}$), as defined in equation (6) of Online Appendix A. All shift-shares are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election$_{(t-8)}$' are voting outcomes of the first round of the presidential election in $t - 8$. In 2010: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category). In 2006: percentage of valid votes for Geraldo Alckmin (PSDB), Heloísa Helena (PSOL), and Other (with Lula da Silva (PT) being the omitted category). In 2002: percentage of valid votes for José Serra (PSDB), Anthony Garotinho (PSB), Ciro Gomes (PPS), and Other (with Lula da Silva (PT) being the omitted category). The percentage of invalid votes and the abstention rate are also included for every election. When $t = 2006$, the controls 'Δ_{t-8}^{t-4} PT' and 'Election$_{(t-8)}$' are replaced by the percentage of votes for Lula (PT) in 2002.

Table A7: Shock percentiles

min	p10	p25	p50	p75	p90	p99	max
I. Shock (overall)							
-0.121	-0.004	0.094	0.215	0.348	0.462	0.628	0.808
II. Female shock							
-0.061	-0.011	0.051	0.146	0.280	0.408	0.618	0.805
III. Male shock							
-0.146	-0.001	0.123	0.252	0.400	0.534	0.715	0.868
IV. Nonwhite shock							
-0.169	-0.044	0.055	0.193	0.344	0.471	0.666	0.874
V. White shock							
-0.059	0.038	0.130	0.222	0.318	0.422	0.568	0.735

Notes: $N = 558$.

Table A8: Bolsonaro vote share and PSL membership

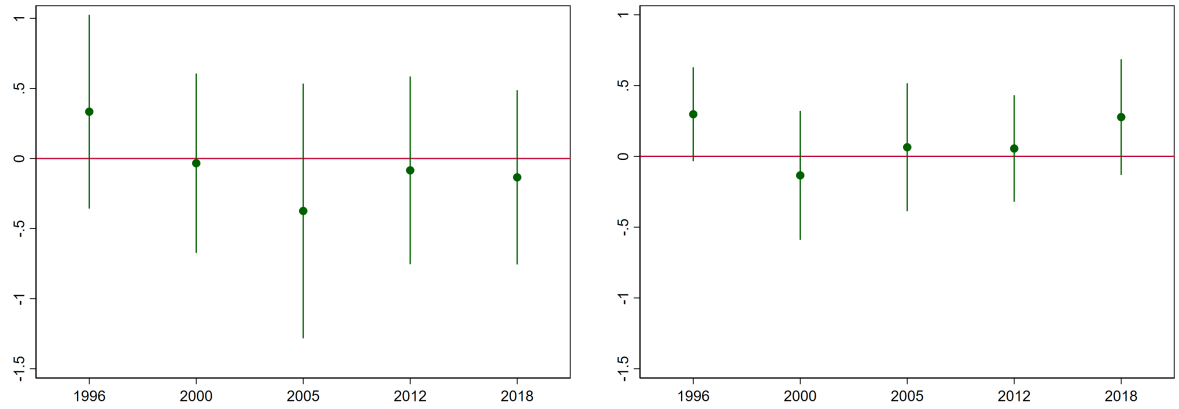
	Bolsonaro, % of votes: 1st round				
	(1)	(2)	(3)	(4)	(5)
Δ_{18-13}log(PSL)	6.7259***	0.9965	-0.2577	-0.1350	-0.1671
	(0.7892)	(0.8170)	(0.4333)	(0.3676)	(0.3684)
Male shock					1.6502***
					(0.4654)
Female shock					-1.4053***
					(0.4653)
	Control variables in all panels:				
State dummies		Yes	Yes	Yes	Yes
Socio-demographics			Yes	Yes	Yes
Election 2010			Yes	Yes	Yes
Δ_{14-10} PT, % of votes				Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the percentage of votes for Jair Bolsonaro (PSL) in the first round of the 2018 election. 'Δ_{18-13}log(PSL)' is the log difference in the number of PSL members between 2018 and 2013. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the first round of the 2014 and 2010 elections. For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A9: Change in PSL members by gender, 2018–2013

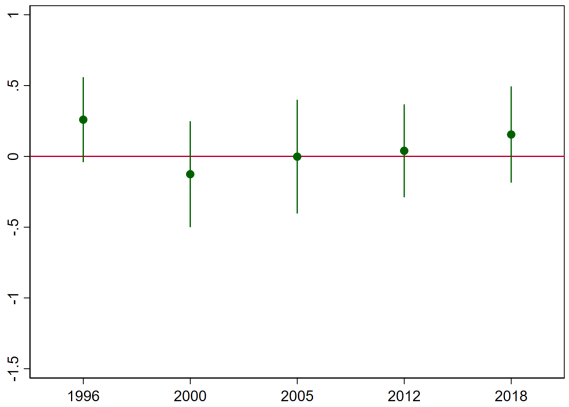
	Males		Females	
	Δ_{18-13} log(PSL)	$\frac{\Delta_{18-13}PSL}{PSL_{13}}$	Δ_{18-13} log(PSL)	$\frac{\Delta_{18-13}PSL}{PSL_{13}}$
Panel A: Overall shock	(1)	(2)	(3)	(4)
Shock (overall)	0.0100	0.4722	-0.0275	-0.2716
	(0.0447)	(0.8010)	(0.0434)	(0.2722)
Panel B: Shock by gender	(1)	(2)	(3)	(4)
Male shock	0.0203	0.0892	0.0162	0.2378
	(0.0436)	(0.4004)	(0.0378)	(0.1760)
Female shock	-0.0112	0.4826	-0.0549	-0.6178*
	(0.0619)	(1.0137)	(0.0598)	(0.3517)
Panel C: Shock by race	(1)	(2)	(3)	(4)
White shock	0.0788	1.2939	0.0233	-0.0840
	(0.0762)	(0.7989)	(0.0701)	(0.4334)
Nonwhite shock	-0.0837	-0.9412	-0.0706	-0.1677
	(0.0861)	(1.1663)	(0.0783)	(0.5119)
	Control variables in all panels:			
State dummies	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes
Lagged outcome (2013–09)	Yes	Yes	Yes	Yes

Notes: $N = 558$ in columns (1) and (3); $N = 541$ in columns (2) and (4). OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the log difference (columns 1 and 3) or relative change (columns 2 and 4) in PSL members between 2018 and 2013. Columns 1–2 only consider male members; columns 3–4 only consider female members. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the first round of 2014 and 2010 elections. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.



(a) Economically unsatisfied

(b) Economically satisfied



(c) All

Figure A6: Individual preferences on abortion in Mexico, scale (0-10): male dummy estimate, conditional on controls

Notes: Figure shows male dummy coefficients with 95% confidence intervals. Own calculations from Word Values Survey—Mexico. Control variables are: age, age squared, race, employment status, educational attainment, marital status, and religion. Regression are estimated separately for each survey year.

Table A10: Change in abstention: shock by gender and race; controlling for crime.

	Δ_{18-14} abstention, %					
	1st round			2nd round		
Panel A: Shock by gender	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	0.3435	0.4229	0.4124	0.5727*	0.5584	0.5438
	(0.3391)	(0.3435)	(0.3409)	(0.3442)	(0.3491)	(0.3452)
Female shock	-0.7852**	-0.8384**	-0.8380**	-0.9875***	-0.9602***	-0.9587***
	(0.3189)	(0.3257)	(0.3242)	(0.3273)	(0.3345)	(0.3317)
Crime rate: men, 2012		0.0056	0.0083		0.0046	0.0083
		(0.0096)	(0.0099)		(0.0103)	(0.0108)
Δ_{17-13} log(Crime rate): men			0.2892			0.3872
			(0.2654)			(0.2747)
	1st round			2nd round		
Panel B: Shock by race	(1)	(2)	(3)	(4)	(5)	(6)
White shock	0.7312*	0.7703**	0.7462*	0.9102**	0.9028**	0.8697**
	(0.3794)	(0.3821)	(0.3851)	(0.4097)	(0.4094)	(0.4106)
Nonwhite shock	-1.1573***	-1.1631***	-1.1518***	-1.2581***	-1.2514***	-1.2353***
	(0.3896)	(0.3925)	(0.3928)	(0.4285)	(0.4291)	(0.4279)
Crime rate: men, 2012		0.0080	0.0106		0.0073	0.0108
		(0.0095)	(0.0099)		(0.0102)	(0.0107)
Δ_{17-13} log(Crime rate): men			0.2744			0.3690
			(0.2708)			(0.2806)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} abstention, %	Yes	Yes	Yes	Yes	Yes	Yes
N	558	554	554	558	554	554

Notes: OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of abstention between the 2018 and 2014 elections, either in the first (columns 1–3) or second (columns 4–6) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$), as defined in equation (2). White and nonwhite shocks are computed analogously. All shocks are measured in standard deviations. 'Crime rate: men, 2012' is homicides per 100,000 inhabitants (male victims), in 2012. 'Δ_{17-13} log(Crime rate): men' is the log difference in crime rates between 2017 and 2013 (male victims). 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} abstention, %', is the change in percentage of abstention between the 2014 and 2010 elections, either in the first (columns 1–3) or second (columns 4–6) round. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

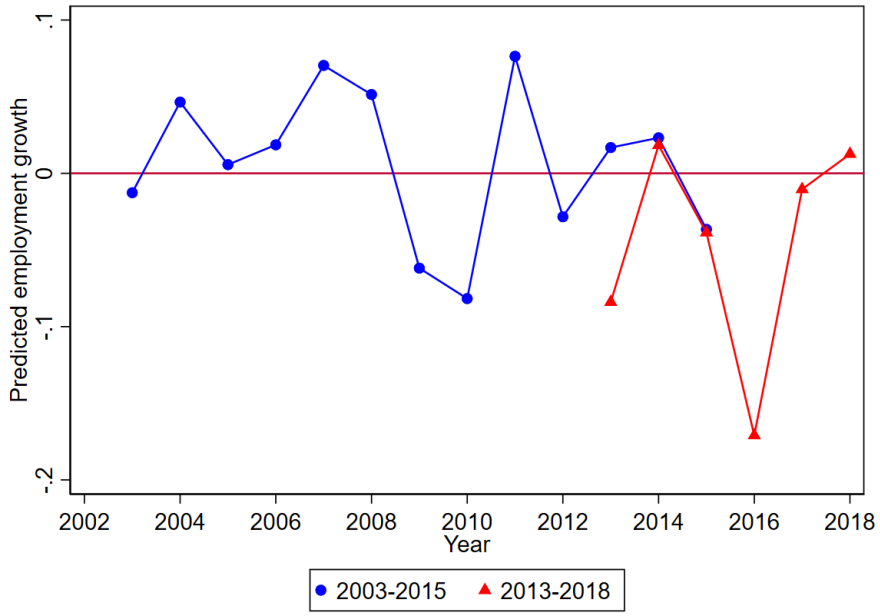
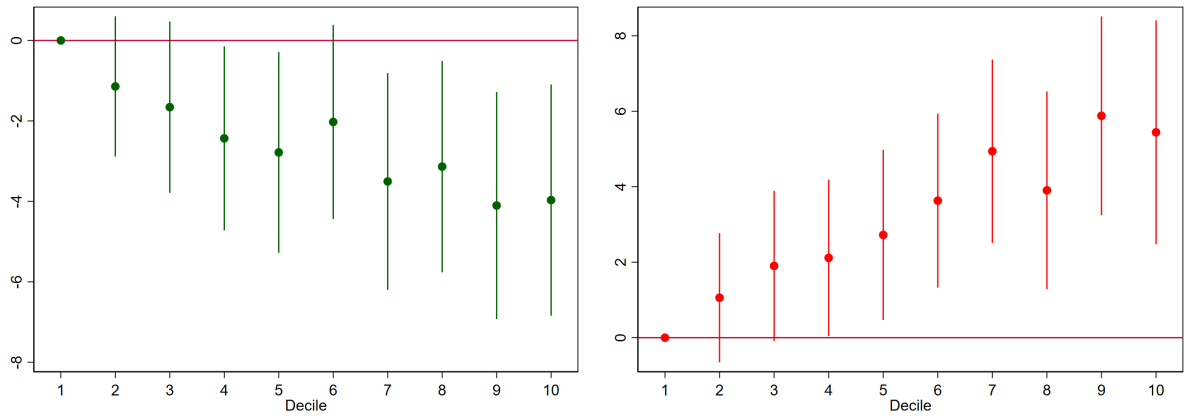


Figure A7: Predicted median annual employment growth: shift-shares, 2002–2018

Notes: Unit of analysis is the microregion. See sources and details on construction in Online Appendix A.



(a) Male shock

(b) Female shock

Figure A8: Conditional effect of gender shocks on percentage point change in votes for PT, 2018–2014, first election round: flexible functional form

Notes: The estimates shown are coefficients of decile dummies, with 95% confidence intervals, over the gender-specific shift-share distributions, conditional on baseline control variables: 'Socio-demographics', 'Election 2010', 'Δ_{14-10} PT, % of votes', and state dummies.

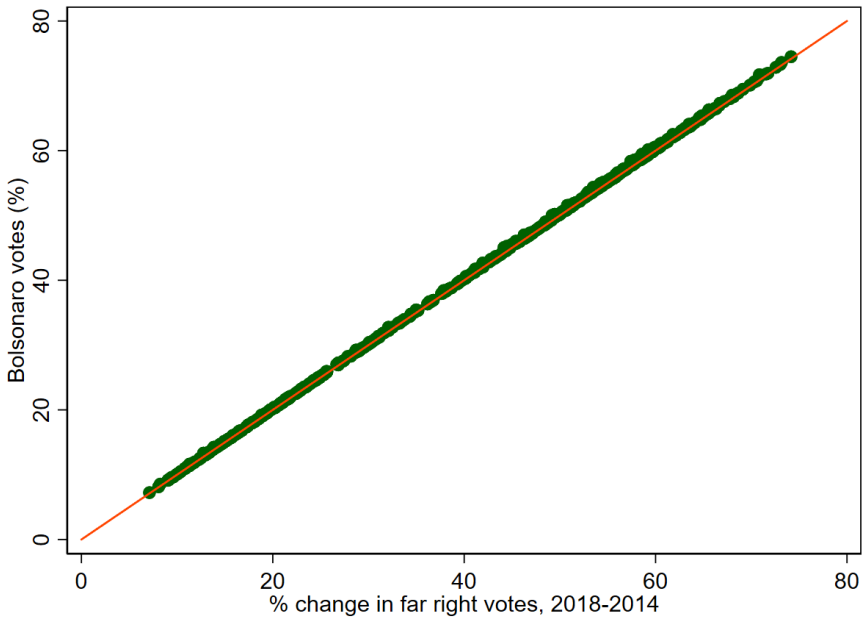


Figure A9: Bolsonaro, percentage votes vs. Far-right votes, percentage point change 2018–2014

Notes: Far-right gain is calculated as the difference in percentage votes between Jair Bolsonaro (PSL, first round in 2018) and Levy Fidelix (PRTB, first round in 2014). Own calculations from TSE.

Table A11: Further robustness

	Δ_{18-14} PT, % of votes: 1st round		
	Base	Pop. weighted	Mesoreg. FEs
Panel A: Overall shock	(1)	(2)	(3)
Shock (overall)	0.1068	-0.3093	-0.0162
	(0.3415)	(0.3947)	(0.3592)
Panel B: Shock by gender	(1)	(2)	(3)
Male shock	-1.3380***	-2.3219***	-1.0090**
	(0.3955)	(0.4914)	(0.4652)
Female shock	1.7232***	2.3407***	1.1181**
	(0.3982)	(0.4884)	(0.4490)
Panel C: Shock by race	(1)	(2)	(3)
White shock	-0.5341	-0.7613	-0.5380
	(0.5624)	(0.5561)	(0.5277)
Nonwhite shock	0.5809	0.4693	0.5246
	(0.6298)	(0.6494)	(0.6068)

	Bolsonaro, % of votes: 1st round			
	Base	Pop. weighted	Mesoreg. FEs	Δ Fidelix$_{14}$
Panel D: Overall shock	(1)	(2)	(3)	(4)
Shock (overall)	0.4231	0.9925*	-0.1785	0.4207
	(0.4078)	(0.5223)	(0.3699)	(0.4076)
Panel E: Shock by gender	(1)	(2)	(3)	(4)
Male shock	1.6449***	3.0331***	0.7800	1.6521***
	(0.4633)	(0.6927)	(0.5053)	(0.4629)
Female shock	-1.4006***	-2.2784***	-1.0351**	-1.4130***
	(0.4662)	(0.6787)	(0.4622)	(0.4658)
Panel F: Shock by race	(1)	(2)	(3)	(4)
White shock	0.9419	0.0374	0.6583	0.9492
	(0.6600)	(0.8893)	(0.5640)	(0.6589)
Nonwhite shock	-0.5191	0.9628	-0.9963	-0.5318
	(0.7534)	(0.9310)	(0.6515)	(0.7516)
	Control variables in all panels:			
State-specific trends/dummies	Yes	Yes	No	Yes
Mesoregion-specific trends	No	No	Yes	No
Socio-demographics	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, in the first round. For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A12: Change in PT votes, 2018–2014: changing standard errors

	Δ_{18-14} PT, % of votes: 1st round		
	standard errors clustered at		
Panel A: Overall shock	microregion	mesoregion	state
Shock (overall)	0.1068	0.1068	0.1068
	(0.3415)	(0.3638)	(0.4289)
Panel B: Shock by gender	microregion	mesoregion	state
Male shock	-1.3380***	-1.3380***	-1.3380**
	(0.3955)	(0.4179)	(0.5963)
Female shock	1.7232***	1.7232***	1.7232***
	(0.3982)	(0.3685)	(0.4422)
Panel C: Shock by race	microregion	mesoregion	state
White shock	-0.5341	-0.5341	-0.5341
	(0.5624)	(0.6214)	(0.6970)
Nonwhite shock	0.5809	0.5809	0.5809
	(0.6298)	(0.6229)	(0.6966)
	Δ_{18-14} PT, % of votes: 2nd round		
	standard errors clustered at		
Panel D: Overall shock	microregion	mesoregion	state
Shock (overall)	0.2312	0.2312	0.2312
	(0.3759)	(0.3874)	(0.4810)
Panel E: Shock by gender	microregion	mesoregion	state
Male shock	-0.8090*	-0.8090	-0.8090
	(0.4578)	(0.4944)	(0.6894)
Female shock	1.1757***	1.1757**	1.1757*
	(0.4528)	(0.4771)	(0.6121)
Panel F: Shock by race	microregion	mesoregion	state
White shock	-0.7360	-0.7360	-0.7360
	(0.6637)	(0.7098)	(0.9572)
Nonwhite shock	0.8801	0.8801	0.8801
	(0.7496)	(0.7368)	(0.8409)
	Control variables in all panels:		
State-specific trends	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level in column 1, robust standard errors clustered at mesoregion level in column 2, robust standard errors clustered at state level in column 3. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A13: Bolsonaro vote share, 2018: changing standard errors

	Bolsonaro, % of votes: 1st round		
	standard errors clustered at		
Panel A: Overall shock	microregion	mesoregion	state
Shock (overall)	0.4231	0.4231	0.4231
	(0.4078)	(0.4106)	(0.4612)
Panel B: Shock by gender	microregion	mesoregion	state
Male shock	1.6449***	1.6449***	1.6449**
	(0.4633)	(0.4864)	(0.6090)
Female shock	-1.4006***	-1.4006***	-1.4006**
	(0.4662)	(0.5067)	(0.6161)
Panel C: Shock by race	microregion	mesoregion	state
White shock	0.9419	0.9419	0.9419
	(0.6600)	(0.7034)	(0.8808)
Nonwhite shock	-0.5191	-0.5191	-0.5191
	(0.7534)	(0.7605)	(0.8110)
	Bolsonaro, % of votes: 2nd round		
	standard errors clustered at		
Panel D: Overall shock	microregion	mesoregion	state
Shock (overall)	0.1028	0.1028	0.1028
	(0.3684)	(0.3745)	(0.4241)
Panel E: Shock by gender	microregion	mesoregion	state
Male shock	1.0589**	1.0589**	1.0589*
	(0.4462)	(0.4689)	(0.5951)
Female shock	-1.0880**	-1.0880**	-1.0880*
	(0.4715)	(0.4989)	(0.5980)
Panel F: Shock by race	microregion	mesoregion	state
White shock	0.7022	0.7022	0.7022
	(0.6501)	(0.6777)	(0.8955)
Nonwhite shock	-0.5619	-0.5619	-0.5619
	(0.7468)	(0.7300)	(0.8505)
	Control variables in all panels:		
State dummies	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level in column 1, robust standard errors clustered at mesoregion level in column 2, robust standard errors clustered at state level in column 3. The outcome variable is the percentage of votes for Jair Bolsonaro (PSL) in the 2018 election, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} PT, % of votes' is the change in the percentage of votes for Dilma Rousseff (PT) between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A14: Change in abstention rate, 2018–2014: changing standard errors

	Δ_{18-14} abstention, %: 1st round		
	standard errors clustered at		
Panel A: Overall shock	microregion	mesoregion	state
Shock (overall)	-0.3564	-0.3564	-0.3564
	(0.2802)	(0.2878)	(0.3814)
Panel B: Shock by gender	microregion	mesoregion	state
Male shock	0.3435	0.3435	0.3435
	(0.3391)	(0.3355)	(0.3972)
Female shock	-0.7852**	-0.7852**	-0.7852*
	(0.3189)	(0.3509)	(0.3845)
Panel C: Shock by race	microregion	mesoregion	state
White shock	0.7312*	0.7312**	0.7312*
	(0.3794)	(0.3620)	(0.3795)
Nonwhite shock	-1.1573***	-1.1573***	-1.1573***
	(0.3896)	(0.3806)	(0.3977)
	Δ_{18-14} abstention, %: 2nd round		
	standard errors clustered at		
Panel D: Overall shock	microregion	mesoregion	state
Shock (overall)	-0.3027	-0.3027	-0.3027
	(0.3002)	(0.3036)	(0.4029)
Panel E: Shock by gender	microregion	mesoregion	state
Male shock	0.5727*	0.5727*	0.5727
	(0.3442)	(0.3302)	(0.4100)
Female shock	-0.9875***	-0.9875***	-0.9875**
	(0.3273)	(0.3487)	(0.3706)
Panel F: Shock by race	microregion	mesoregion	state
White shock	0.9102**	0.9102**	0.9102**
	(0.4097)	(0.3576)	(0.3767)
Nonwhite shock	-1.2581***	-1.2581***	-1.2581***
	(0.4285)	(0.3998)	(0.4127)
	Control variables in all panels:		
State-specific trends	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes
Δ_{14-10} abstention	Yes	Yes	Yes

Notes: $N = 558$.OLS estimates reported with robust standard errors clustered at microregion level in column 1, robust standard errors clustered at mesoregion level in column 2, robust standard errors clustered at state level in column 3. The outcome variable is the change in the percentage of abstention between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. 'Socio-demographics' refer to the out-of-school adult population (18+) and are measured from the 2010 census. They include: male employment share, female employment share, population (log), male share, nonwhite share, educational attainment shares, share of Bolsa Família or PETI recipients, and share employed in construction sector (1-digit). 'Election 2010' are voting outcomes of the first round of the 2010 presidential election: percentage of valid votes for José Serra (PSDB), Marina da Silva (PV), Levy Fidelix (PRTB), and Other (with Dilma Rousseff (PT) being the omitted category); percentage of invalid votes (null or blank), and the abstention rate. 'Δ_{14-10} abstention' is the change in the percentage of abstention between the 2014 and 2010 elections, either in the first (Panels A-C) or second (Panels D-F) round. For regressions without state dummies, an intercept term is also included. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A15: Change in PT votes, 2018–2014: robustness to pre-crisis trends

	Δ_{18-14} PT, % of votes: 1st round				
Panel A: 1st round	(1)	(2)	(3)	(4)	(5)
Male shock	-1.3380***	-1.3432***	-1.1946***	-1.2908***	-1.1120***
	(0.3955)	(0.3971)	(0.4136)	(0.3922)	(0.4171)
Female shock	1.7232***	1.5558***	1.5855***	1.7175***	1.3117***
	(0.3982)	(0.4237)	(0.4101)	(0.4021)	(0.4432)
Share urban		-2.9435			-4.3155*
		(2.3510)			(2.3590)
Share of age (Ref. = 18–29)					
30–44			-8.6093		-4.2904
			(22.8529)		(23.5458)
45–59			-16.8867		-19.3579
			(18.8259)		(18.9999)
60+			-3.6334		-2.2740
			(14.8160)		(14.9657)
Share by religion (Ref. = Catholic)					
None				2.4719	3.3515
				(7.2413)	(7.2795)
Protestant				-18.7640***	-20.5118***
				(5.3289)	(5.4620)
Pentecostal				-2.4208	-2.7068
				(5.2966)	(5.2072)
Other religion				-5.2556	-4.7648
				(7.6798)	(7.7593)

	Δ_{18-14} PT, % of votes: 2nd round				
Panel B: 2nd round	(1)	(2)	(3)	(4)	(5)
Male shock	-0.8090*	-0.8113*	-0.7201	-0.9893**	-0.8405*
	(0.4578)	(0.4593)	(0.4873)	(0.4312)	(0.4552)
Female shock	1.1757***	1.0989**	1.1078**	1.2752***	0.9475**
	(0.4528)	(0.4721)	(0.4813)	(0.4338)	(0.4731)
Share urban		-1.3382			-4.1197*
		(2.4876)			(2.4617)
Share of age (Ref. = 18–29)					
30–44			-10.8149		14.1911
			(22.5415)		(22.7259)
45–59			-1.1035		4.3912
			(20.9940)		(20.2078)
60+			-10.7267		-10.6302
			(16.1658)		(16.1306)
Share by religion (Ref. = Catholic)					
None				1.8611	0.4190
				(8.3628)	(8.4911)
Protestant				-35.1785***	-36.3842***
				(7.6557)	(7.9545)
Pentecostal				-26.0903***	-27.6593***
				(5.6542)	(5.7816)
Other religion				2.9894	5.0518
				(10.7837)	(10.8368)
	Control variables in all panels:				
State-specific trends	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of votes for PT (Workers' Party) between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. All additional controls are measured from the 2010 census. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A16: Bolsonaro vote share, 2018: robustness to pre-crisis trends

	Bolsonaro, % of votes: 1st round				
Panel C: 1st round	(1)	(2)	(3)	(4)	(5)
Male shock	1.6449***	1.6526***	1.7204***	1.7111***	1.7398***
	(0.4633)	(0.4655)	(0.4927)	(0.4342)	(0.4637)
Female shock	-1.4006***	-1.1546**	-1.5554***	-1.5190***	-1.1880**
	(0.4662)	(0.4847)	(0.4899)	(0.4699)	(0.4941)
Share urban		4.3248			7.6146***
		(2.9070)			(2.8499)
Share of age (Ref. = 18–29)					
30–44			-20.9055		-41.2905
			(25.0219)		(25.5076)
45–59			-39.6727*		-43.7522**
			(22.5361)		(21.6973)
60+			12.0316		12.6973
			(17.1861)		(17.0125)
Share by religion (Ref. = Catholic)					
None				-11.1013	-7.0763
				(8.8473)	(9.0401)
Protestant				37.7816***	39.9122***
				(8.6694)	(8.9348)
Pentecostal				25.7094***	28.1940***
				(6.7281)	(6.7287)
Other religion				-4.8714	-11.0105
				(11.0017)	(10.7546)

	Bolsonaro, % of votes: 2nd round				
Panel D: 2nd round	(1)	(2)	(3)	(4)	(5)
Male shock	1.0589**	1.0622**	1.0910**	1.2239***	1.1937***
	(0.4462)	(0.4483)	(0.4831)	(0.4240)	(0.4565)
Female shock	-1.0880**	-0.9767**	-1.1508**	-1.2467***	-1.0085**
	(0.4715)	(0.4878)	(0.5057)	(0.4443)	(0.4865)
Share urban		1.9403			4.5348*
		(2.5606)			(2.5475)
Share of age (Ref. = 18–29)					
30–44			0.7642		-20.3489
			(23.0746)		(23.2565)
45–59			-17.7507		-20.9165
			(20.8663)		(20.0320)
60+			9.9057		9.8086
			(16.2139)		(16.1755)
Share by religion (Ref. = Catholic)					
None				-9.4736	-7.3328
				(8.5282)	(8.6563)
Protestant				34.3416***	35.5761***
				(7.3952)	(7.6692)
Pentecostal				26.5004***	28.0529***
				(5.8535)	(5.9998)
Other religion				2.1126	-1.2090
				(10.5233)	(10.5185)
	Control variables in all panels:				
State dummies	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the percentage of votes for Jair Bolsonaro (PSL) in the 2018 election, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. All additional controls are measured from the 2010 census. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A17: Change in abstention rate, 2018–2014: robustness to pre-crisis trends

	Δ_{18-14} abstention, %: 1st round				
Panel A: 1st round	(1)	(2)	(3)	(4)	(5)
Male shock	0.3435	0.3464	0.3981	0.5243	0.5650
	(0.3391)	(0.3397)	(0.3538)	(0.3411)	(0.3537)
Female shock	-0.7852**	-0.7247**	-0.8291**	-0.7910**	-0.8299**
	(0.3189)	(0.3369)	(0.3219)	(0.3215)	(0.3422)
Share urban		1.0733			-0.0176
		(1.8287)			(1.8298)
Share of age (Ref. = 18–29)					
30–44			-23.9960		-28.1696*
			(15.3562)		(15.6288)
45–59			4.4359		2.1426
			(12.8798)		(13.1846)
60+			-17.2440		-15.4084
			(10.4809)		(10.1838)
Share by religion (Ref. = Catholic)					
None				13.6231***	14.3385***
				(5.0394)	(5.1675)
Protestant				-9.7354***	-9.2917***
				(3.3778)	(3.5260)
Pentecostal				-2.7375	-2.2629
				(3.9245)	(3.9312)
Other religion				5.0450	4.9041
				(8.3522)	(8.5595)

	Δ_{18-14} abstention, %: 2nd round				
Panel B: 2nd round	(1)	(2)	(3)	(4)	(5)
Male shock	0.5727*	0.5730*	0.4760	0.7156**	0.6290*
	(0.3442)	(0.3446)	(0.3619)	(0.3485)	(0.3621)
Female shock	-0.9875***	-0.9797***	-0.9332***	-1.0025***	-0.9785***
	(0.3273)	(0.3485)	(0.3367)	(0.3281)	(0.3564)
Share urban		0.1352			-0.5197
		(1.9988)			(2.0269)
Share of age (Ref. = 18–29)					
30–44			-28.2976*		-32.3379*
			(16.5507)		(16.8641)
45–59			7.6129		5.9472
			(14.5957)		(14.8973)
60+			-8.6576		-6.9386
			(11.2571)		(11.0999)
Share by religion (Ref. = Catholic)					
None				8.8664	10.3125*
				(5.5705)	(5.5992)
Protestant				-7.5611**	-7.6167**
				(3.6187)	(3.8206)
Pentecostal				-1.1324	0.3582
				(4.2441)	(4.1968)
Other religion				4.1581	4.3268
				(8.5055)	(8.8729)
	Control variables in all panels:				
State-specific trends	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} abstention	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. The outcome variable is the change in the percentage of abstention between the 2018 and 2014 elections, either in the first (Panels A-C) or second (Panels D-F) round. 'Male (female) shock' is $\dot{L}_r^m$ ($\dot{L}_r^f$) and 'white (nonwhite) shock' is $\dot{L}_r^w$ ($\dot{L}_r^{nw}$), as defined in equation (2). 'Overall shock' is $\dot{L}_r$, as defined in equation (1). All shocks are measured in standard deviations. All additional controls are measured from the 2010 census. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A18: PT and Bolsonaro votes, 2018–2014: alternative shift-shares

	Δ_{18-14} PT, % of votes:					
	1st round			2nd round		
Alternative shifts	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-1.3380***			-0.8090*		
	(0.3955)			(0.4578)		
Female shock	1.7232***			1.1757***		
	(0.3982)			(0.4528)		
Male shock		-0.9116***			-0.7400*	
		(0.3278)			(0.4079)	
Female shock		1.2772***			0.9206**	
		(0.3486)			(0.4008)	
Male shock			-1.2547***			-0.6401
			(0.4086)			(0.4806)
Female shock			1.5019***			0.9571**
			(0.3841)			(0.4430)
	Bolsonaro, % of votes:					
	1st round			2nd round		
Alternative shifts	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	1.6449***			1.0589**		
	(0.4633)			(0.4462)		
Female shock	-1.4006***			-1.0880**		
	(0.4662)			(0.4715)		
Male shock		1.6932***			0.9154**	
		(0.4242)			(0.3976)	
Female shock		-0.9715**			-0.7349*	
		(0.4218)			(0.4154)	
Male shock			1.2657**			0.9545**
			(0.5039)			(0.4625)
Female shock			-0.9229*			-0.9303**
			(0.5024)			(0.4568)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} PT, % of votes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A19: Abstention and invalid votes, 2018–2014: alternative shift-shares

	Δ_{18-14} abstention					
	1st round			2nd round		
Alternative shifts	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	0.3435			0.5727*		
	(0.3391)			(0.3442)		
Female shock	-0.7852**			-0.9875***		
	(0.3189)			(0.3273)		
Male shock		-0.2470			-0.0099	
		(0.2554)			(0.2672)	
Female shock		-0.4531*			-0.6029**	
		(0.2641)			(0.2755)	
Male shock			0.5746*			0.7287**
			(0.3462)			(0.3535)
Female shock			-1.0259***			-1.1348***
			(0.2987)			(0.3076)
	Δ_{18-14} null/blank					
	1st round			2nd round		
Alternative shifts	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$	$\dot{L}_i^g$	$\frac{L_{i,12}^g - L_{i,18}^g}{L_{i,12}^g}$	$\dot{L}_i$
	(1)	(2)	(3)	(4)	(5)	(6)
Male shock	-0.0300			0.0803		
	(0.1021)			(0.1288)		
Female shock	0.0297			-0.1909		
	(0.0998)			(0.1172)		
Male shock		0.0009			-0.0202	
		(0.0920)			(0.1067)	
Female shock		-0.0554			-0.1922*	
		(0.0884)			(0.1038)	
Male shock			-0.0952			0.0560
			(0.1036)			(0.1302)
Female shock			0.0972			-0.1422
			(0.0958)			(0.1147)
	Control variables in all panels:					
State-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Socio-demographics	Yes	Yes	Yes	Yes	Yes	Yes
Election 2010	Yes	Yes	Yes	Yes	Yes	Yes
Δ_{14-10} abstention	Yes	Yes	Yes	Yes	Yes	Yes

Notes: $N = 558$. OLS estimates reported with robust standard errors clustered at microregion level shown in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A20: *AmericasBarometer* fieldwork dates and sample sizes for Brazil

Survey round	Fieldwork	Sample size
2006/07	July 12, 2007 – July 26, 2007	1,214
2008	March 2, 2008 – April 29, 2008	1,497
2010	March 19, 2010 – April 10, 2010	2,482
2012	March 1, 2012 – April 18, 2012	1,500
2014	March 21, 2014 – April 26, 2014	1,500
2016/17	April 5, 2017 – May 11, 2017	1,532
2018/19	January 29, 2019 – March 3, 2019	1,498

Table A21: Descriptive statistics from *AmericasBarometer*. Pooled sample for Brazil, 2007–2019

	mean	SD	min	max	N
Male	0.489		0	1	11223
Age	39.262	15.901	16	94	11202
Nonwhite	0.598		0	1	10980
Bolsa Família	0.217		0	1	11173
Employed	0.544		0	1	11190
Unemployed	0.111		0	1	11190
Student	0.057		0	1	11190
Other inactive	0.288		0	1	11190
Married/cohabiting	0.557		0	1	11164
Crime victim	0.179		0	1	11178
Urban	0.854		0	1	11223
Education:					
Less than primary	0.377		0	1	11099
Primary	0.221		0	1	11099
Secondary	0.324		0	1	11099
Tertiary	0.077		0	1	11099
Religion:					
Catholic	0.598		0	1	11053
Evangelical	0.159		0	1	11053
Protestant	0.107		0	1	11053
Other	0.053		0	1	11053
None	0.084		0	1	11053
Change in economic situation:					
Worse	0.251		0	1	11141
Same	0.435		0	1	11141
Better	0.315		0	1	11141
Left-right ideology	5.612	2.579	1	10	9295
Voting intention:					
PT (2008–2014)	0.494		0	1	5938
PMDB (2017)	0.077		0	1	1464
PSL (2019)	0.445		0	1	1439
Election 2018, 1st round:					
Bolsonaro (PSL)	0.547		0	1	1006
Haddad (PT)	0.238		0	1	1006
Ciro (PDT)	0.068		0	1	1006
Other	0.076		0	1	1006
Null/blank	0.073		0	1	1006
Abstention	0.232		0	1	1498

Table A22: World Values Survey waves, survey years and sample size for Brazil and Mexico

Country	Survey wave	Year	Sample size
Brazil	WVS-3 (1989-1993)	1991	1,782
	WVS-4 (1994-1998)	1997	1,143
	WVS-5 (2005-2009)	2006	1,500
	WVS-6 (2010-2014)	2014	1,486
	WVS-7 (2017-2020)	2018	1,762
Mexico	WVS-3 (1989-1993)	1996	1,510
	WVS-4 (1994-1998)	2000	1,535
	WVS-5 (2005-2009)	2005	1,560
	WVS-6 (2010-2014)	2012	2,000
	WVS-7 (2017-2020)	2018	1,739

Table A23: Descriptive statistics from World Values Survey. Pooled sample for Brazil

	mean	SD	min	max	count
Abortion	2.360	2.403	1	10	7538
Male	0.449		0	1	7673
Age	39.939	15.598	17	93	7671
Nonwhite	0.421		0	1	7673
Married	0.564		0	1	7673
Employment status:					
Full time	0.322		0	1	7619
Part time	0.075		0	1	7619
Self employed	0.132		0	1	7619
Retired	0.137		0	1	7619
Housewife	0.151		0	1	7619
Students	0.045		0	1	7619
Unemployed	0.135		0	1	7619
Other	0.003		0	1	7619
Education:					
Lower	0.394		0	1	7628
Middle	0.455		0	1	7628
Upper	0.151		0	1	7628
Religion:					
None	0.138		0	1	7452
Roman Catholic	0.612		0	1	7452
Protestant	0.039		0	1	7452
Orthodox	0.015		0	1	7452
Jew	0.001		0	1	7452
Muslim	0.000		0	1	7452
Buddhist	0.002		0	1	7452
Other Christian	0.161		0	1	7452
Other	0.033		0	1	7452

Table A24: Descriptive statistics from World Values Survey. Pooled sample for Mexico

	mean	SD	min	max	count
Abortion	2.941	2.840	1	10	8134
Male	0.497		0	1	8322
Age	38.659	15.642	16	94	8338
Nonwhite	0.852		0	1	8344
Married	0.638		0	1	8344
Employment status:					
Full time	0.299		0	1	8236
Part time	0.098		0	1	8236
Self employed	0.155		0	1	8236
Retired	0.038		0	1	8236
Housewife	0.258		0	1	8236
Students	0.063		0	1	8236
Unemployed	0.083		0	1	8236
Other	0.005		0	1	8236
Education:					
Lower	0.330		0	1	8312
Middle	0.443		0	1	8312
Upper	0.227		0	1	8312
Religion:					
None	0.181		0	1	8202
Roman Catholic	0.719		0	1	8202
Protestant	0.032		0	1	8202
Orthodox	0.001		0	1	8202
Jew	0.001		0	1	8202
Muslim	0.001		0	1	8202
Buddhist	0.001		0	1	8202
Other Christian	0.001		0	1	8202
Other	0.051		0	1	8202