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## **Electronic voting and Public Spending: The impact of enfranchisement on federal budget amendments in Brazil**

**Rodrigo Schneider (Skidmore College, US)**  
**Diloá Athias (Development Pathways, UK)**  
**Mauricio Bugarin (UnB)**

Economics and Politics Working Paper 93/2018  
December 10th, 2018

Economics and Politics Research Group  
Working Paper Series

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**Authors:**

**Rodrigo Schneider**

Department of Economics, Skidmore College, 815 N Broadway, 223 Filene Hall – Saratoga Springs, New York 12866, e-mail: rschnei2@skidmore.edu

**Diloá Athias**

Economist at Development Pathways Ltd, 2nd Floor Downe House 303 High Street Orpington Kent BR6 0NJ, e-mail: dathias@developmentpathways.co.uk

**Mauricio Bugarin**

Department of Economics, University of Brasilia, Campus Darcy Ribeiro, FACE building, Asa Norte, CEP 70910-900, Brasilia, DF, Brazil, e-mail: bugarin.mauricio@gmail.com

**Abstract**

This article examines whether an increase in political participation biased toward low-income voters, and concentrated in legislative elections, impacts federal representatives' allocation of resources from the federal budget. We use a regression discontinuity design that exploits the assignment to electronic voting based on population size in Brazil to identify the causal effect of enfranchisement on allocation of public spending. We find that an increase of 1 percentage point in the valid vote to turnout ratio for federal representatives increases the allocation of funds from the federal budget in 4.2%, and that experienced politicians are more responsive to the enfranchisement of low-income voters.

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**JEL classification codes:** C21, D72, D78, E62

**December 2018**

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\* We are very grateful to Rebecca Thornton, Daniel Bernhardt, Daniel McMillen, Jake Bowers, José Cheibub and Wilfredo Maldonado for their detailed feedback and support. This paper also benefited from comments by participants at the 9th Midwest Graduate Student Summit in Applied Economics, Regional and Urban Studies; The 2016 Midwest International Economic Development Conference; The 2016 LACEA-LAMES Annual Meeting; The 2016 LAWLE Annual Meeting; The 2017 North American Summer Meeting of the Econometric Society; The 70th *European Meeting of the Econometric Society*; The 45<sup>th</sup> *ANPEC Meeting* and the UIUC graduate seminars. All errors are our own.

# **Electronic voting and Public Spending:**

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### **Abstract**

This article examines whether an increase in political participation biased toward low-income voters, and concentrated in legislative elections, impacts federal representatives' allocation of resources from the federal budget. We use a regression discontinuity design that exploits the assignment to electronic voting based on population size in Brazil to identify the causal effect of enfranchisement on allocation of public spending. We find that an increase of 1 percentage point in the valid vote to turnout ratio for federal representatives increases the allocation of funds from the federal budget in 4.2%, and that experienced politicians are more responsive to the enfranchisement of low-income voters.

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# 1- Introduction

The discussion associating public spending to voters' income has an old tradition. As early as 1835, Alexis de Tocqueville in his seminal book "Democracy in America" argued that allowing those who do not own property to vote would increase the proportion of voters who are in favor of income redistribution. Theoretical models also predict that an increase in voting participation of low-income voters increases public spending (Meltzer and Richards, 1981). Many empirical studies test this hypothesis; however, it has remained a challenge to solve the problem of simultaneity between voting turnout and public spending.<sup>1</sup>

This work uses the phased-in introduction to electronic voting (EV) in Brazil – which enfranchised low-income voters without directly affecting public spending – to identify the impact of enfranchisement on allocation of funds from federal budget. We show that voting enfranchisement biased toward low-income voters, and concentrated in municipalities using EV, increases funds from the federal budget allocated to these localities. Our main contribution to the literature is twofold: first, we use granular data to understand how enfranchisement affects individual federal representatives' choices of budget amendments; and second, we directly measure how an increase in valid votes to turnout ratio impacts the allocation of federal funds. Fujiwara (2015) also examines the impact of enfranchisement on public spending, however, he uses aggregate data at the state level. The strategy used by the author restricts our understanding about how an elected representative will choose between municipalities that provided similar electoral support but that had different enfranchisement of low-income voters. We believe that this is an important research gap in the literature that this paper aims to fill.

Electronic voting (EV) increased political participation in the Brazilian legislative elections. Even though Brazil has a voting turnout of around 80%, before EV, only 58% of votes for federal representatives were valid (*Tribunal Superior Eleitoral*, TSE).<sup>2</sup> Therefore, federal representatives could ignore the voice of voters that were not able to cast a vote, which, as the previous literature argues were mostly low-income.<sup>3</sup> After the use of EV, valid votes to turnout ratio for federal representatives increased to 92% and the main purpose of this work is to measure the impact

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<sup>1</sup> See, for instance, Meltzer and Richards (1983); Lindert (2004) and Mueller and Stratmann (2003).

<sup>2</sup> In the United States, for instance, voting turnout is close to 60%.

<sup>3</sup> The valid vote for executive elections were almost not affected by EV (Fujiwara, 2015).

of this *de facto* enfranchisement on the allocation of funds from the federal budget, which impacts local governments' public spending.

We measure the impact of enfranchisement on allocation of funds from the federal budget using a regression discontinuity design. We use the number of registered voters, at the municipality level, as our running variable and exploit the deterministic rule that assigned EV to municipalities with more than 40,500 registered voters. Using an optimal bandwidth of around 8,700 registered voters,<sup>4</sup> we find that federal representatives send, during their four-year term, close to 22,245 more Brazilian *reais* (close to US\$11,000) to municipalities that used EV. We show that our estimation is robust across different bandwidths and to polynomial functions of the running variable. In addition, we mitigate concerns of selection bias by running a falsification test considering elections in which EV was already being used across the country. We keep the same running variable and cutoff (40,500) but find no significant results.

Besides the introduction, this work contains four other sections. Section 2 first presents a literature review on the connection between voting participation and public spending, then it discusses the EV implementation and allocation of funds from the federal budget. Section 3 discusses the empirical model and present the results followed by a discussion of alternative explanations to our findings. Finally, Sections 4 and 5 discuss our findings and conclude the work.

## 2- Background

### 2.1-Voters' enfranchisement and public spending

Meltzer and Richards (1981) show that voting enfranchisement biased toward poor voters increases public spending. Using a model of electoral competition, they argue that the median voter is the one imposing her preferences on public spending. Therefore, the poorer the median voter is, the larger will be her optimum public spending provision demanded. This result derives from the assumption that all citizens enjoy public goods the same way, however, poorer citizens will contribute less (lower tax) to finance the public provision.

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<sup>4</sup> We follow the approach in Calonico, Cattaneo, Farrell, and Titiunik (2017) to estimate the optimal bandwidth.

Many empirical studies have attempted to test Meltzer and Richards' theoretical prediction. Lindert (2004), using decennial data from OECD countries between 1880 and 1930, find a positive relationship between government size and vote participation. In Latin America, Brown and Hunter (1999) find that democracies spend more on social programs than dictatorships. Husted and Kenny (1997) analyze 46 U.S. states between 1950 and 1988 and find that a reduction of 0.2 on the ratio of median voter's income to the total population income caused an increase of 5 to 12% on public social spending.

Nonetheless, corroborating Meltzer and Richard's (1981) argument is not trivial. As Alesina and Giuliano (2009) argue, empirical studies attempting to achieve this goal may suffer from endogeneity as public spending may increase voting turnout. Additionally, other aspects such as the median voter's perspective on social mobility and strength of lobbying groups could reinforce the limits imposed on government intervention in the economy. Another difficulty to establish causal relationship between the median voter's income and public spending is given by the fact that the median income of the population may not be the same as the median income of those who show up to vote and cast valid votes. That is, even if democracy allows all eligible voters to cast their votes, those who do not vote may have their preferences completely ignored by politicians.

As Bugarin and Portugal (2015) argue, when there is a lower political participation concentrated on the poor, the income of the median voter is larger than the income of the median citizen creating a Nash equilibrium with lower amount of public goods than the situation in which all voters show up to vote. A solution pointed by these authors is to use mandatory voting. Jackman (2001) uses the Australian elections to show how mandatory voting increase voting participation (the turnout has increased from 65% to 95% after mandatory voting was imposed in this country). However, mandatory voting by itself cannot guarantee voting participation. As aforementioned, Brazil's case is illustrative. Although the constitution makes it mandatory for all literate citizens between 18 and 70 years old to vote,<sup>5</sup> in 1994 for instance, less than 60% of those who showed up to vote (turnout close to 80%) cast a valid vote for a candidate or party to the legislative seats.

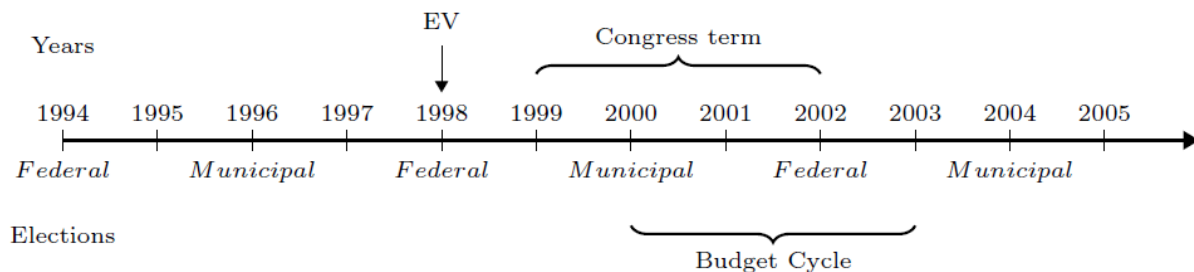
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<sup>5</sup> All Brazilian citizens, age 16 and older have the right to vote. Illiterate citizens are not mandated to vote.

## 2.2-Electronic voting and political participation in Brazil

In Brazil, there are elections every other year as Figure 1 shows. For instance, in 1994, the federal elections elected federal and state representatives; senators; governors and president to a four-year term. Two years later, the municipal elections elected municipal councilors and mayors.<sup>6</sup> The legislative electoral system follows open list proportional representation. EV was first implemented in the 1996 municipal level elections. All municipalities with more than 200,000 eligible voters and the states' capitals used the new technology.<sup>7</sup> In the 1998 federal elections all Brazilian municipalities with more than 40,500 eligible voters used the electronic voting system.<sup>8</sup> Finally, in the municipal elections of 2000, and all the subsequent elections, every Brazilian voter used EV.

**Figure 1 – Brazilian elections' timeline**



As showed in the literature (Hidalgo, 2012), EV usage is responsible for an increase of close to 23 percentage points in the valid votes to turnout ratio for federal representatives. This number represents an increase of

<sup>6</sup> Both municipal and federal elections grant a four-year term to the ones elected (except senator that get an eight-year term). In addition, a two years distance separates these two elections.

<sup>7</sup> Only 57 municipalities used EV in 1996.

<sup>8</sup> Four states used EV in all their territories independent of the number of eligible voters (Rio de Janeiro, Amapá, Alagoas and Roraima).

enfranchisement in Brazilian legislative elections close to 33% and can be explained by the complexity to cast a paper ballot in these elections. Before EV, to cast a vote for representatives, voters should clearly write the name or number of the candidate in the ballot. Therefore, it was essential to know how to read to understand the ballot instructions and to correctly vote in Brazil.

The EV introduction made it easier, especially for less educated voters, to cast a ballot. In the new voting system, voters need to press the candidate's number on a numerical keypad and after verifying the picture of the candidate, press a green button to confirm their vote.<sup>9</sup> The only way to cast an *invalid* vote, accidentally, is to type a candidate's number with no correspondence and press the green button after seeing the screen warning "this number is wrong".<sup>10</sup> As Hidalgo (2012) points out, the EV was considered a democratic progress since even illiterates could press a number followed by the green button after seeing a picture their preferred candidates' face on the screen. Fujiwara (2015) corroborates this insight by showing that municipalities with above median illiteracy rate had larger increase in valid votes to turnout ratio and, as these places are also poorer than average, we conclude that the EV enfranchisement was biased toward low-income voters.

The present work takes advantage of this enfranchisement in legislative elections biased toward low-income voters to understand how federal representatives' choice of allocation of funds from the federal budget is influenced by voters' income. Differently from Fujiwara (2015), our work relies on data at the federal representative level. Next, we discuss how federal representatives allocate funds from the federal budget in Brazil.

### 2.3-Understanding federal representatives' allocation of funds

Federal representatives can allocate part of the federal budget in a discretionary manner and frequently do so motivated by political reasons. Local governments that want access to these discretionary funds, must first be selected by federal representatives to be part of the federal budget expenditure consisting of discretionary spending, which is

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<sup>9</sup> Fujiwara (2015) shows illustrations of the old ballot comparing it to the electronic one. It is also important to notice that the government had made TV advertisement teaching how to vote in the new system and trained people to help voters if something went wrong during the voting process in the Election Day.

<sup>10</sup> Voters could cast a blank vote by pressing a white button followed by the green one to confirm it.



defined in the middle of the year prior to its implementation. This connection between federal representatives and local authorities is established through federal budget amendments, which allocates part of the federal annual budget to municipalities and only takes place if a federal representative decides to allocate part of his share of budget amendments to that location. As each representative is limited to a certain amount of budget amendments,<sup>11</sup> these are usually allocated strategically. That is, federal representatives allocate these budget amendments to municipalities in which they had larger political support (Ames, 2001; Firpo, Ponczek and Sanfelice, 2015).

One of the threats to our analysis is that political support, at the municipality level, can vary across EV usage. Brazil elects federal representatives in large multi-member electoral districts, where the states are the districts themselves. Therefore, campaigning across the entire district can be too costly and often candidates concentrate their efforts in a few select municipalities of their district. This set of municipalities are often called “*reduto eleitoral*” – or *de facto* district – of each representative, i.e., they characterize the places that representatives choose to disproportionately benefit by selecting them to obtain their share of discretionary funds from the federal budget (Ames, 1995). This characteristic of Brazilian elections can be a threat to our empirical analysis if the level of importance of municipalities vary across EV usage. To control for this potential issue, we follow Firpo, Ponczek and Sanfelice (2015) and construct a dummy variable indicating whether elected federal representatives are associated to municipalities. The goal of constructing this variable is to be able to captures municipalities’ level of importance to federal representatives.<sup>12</sup> We also show that our estimates are robust to controlling for alternative measures of level of importance.

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<sup>11</sup> Currently, each federal representative has available close to \$4 million per year to be allocated into, at most, 25 different budget amendments.

<sup>12</sup> An elected federal representative is associated to the municipality if his descending rank (the candidate with the most votes in the municipality is ranked as 1) is equal or below the number of effective candidates in the municipality (calculated using the Herfindahl–Hirschman Index).

### 3- Empirical strategy and main results

#### 3.1-Regression Discontinuity Design

We aggregate the total funds each federal representative allocated to each municipality across three budget cycles (2000-2003, 2004-2007 and 2008-2011).<sup>13</sup> Note that, as federal budgets are determined in the year preceding its implementation, federal representatives elected in 1998 and whose term starts in 1999, can only start allocating discretionary funds from the 2000 federal budget. In addition, observe that, as all municipalities used EV in the 2002 and 2006 federal elections, the only budget cycle that allows us to measure how variation in EV usage impacts allocation of federal funds is the one between 2000 and 2003. The remaining ones will be used in our falsification tests.

We follow Fujiwara (2015) and use a regression discontinuity design to identify the impact of enfranchisement on allocation of funds from federal budget. In this design, the number of registered voters is the running variable and the cutoff point determining whether a municipality used EV is defined as 40,500.<sup>14</sup> That is, all municipalities with more than 40,500 registered voters used EV.<sup>15</sup>

More specifically, our model is constructed as the following:

$$Y_{rmt} = \alpha + \lambda D + \beta_1(n - c) + \beta_2(n - c) * D + X_{mt} + Assoc_{rmt} + \Lambda_r + \epsilon_{rmt}, \quad (1)$$

such that:  $(c - h) \leq n \leq (c + h)$

where  $Y_{rmt}$  is the value of total funds, per number of eligible voters, sent by federal representative  $r$  to municipality  $m$  in budget cycle  $t$ .  $c$  represents the cutoff (40,500),  $n$  indicates the number of registered voters for each municipality surrounding the cutoff,  $D$  is a dummy variable indicating EV usage in 1998, and  $h$  represents the selected bandwidth.

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<sup>13</sup> We considered all federal budget amendments proposed by each representative, independent of it being *de facto* implemented. We collected this data from the Brazilian Chamber of Deputies.

<sup>14</sup> We remove from our sample the four Brazilian states that used EV across their territories in 1998 (i.e. Alagoas, Rio de Janeiro, Amapá and Roraima).

<sup>15</sup> The requirement to use EV in 1998 was announced in 1997 and defined based on the number of registered voters in 1996, which mitigates concerns of selection bias (i.e. municipalities manipulating number of registered voters).

$\lambda$  captures the enfranchisement effect on federal budget allocation.  $X_{mt}$  contains population and income per capita for each municipality  $m$  at budget cycle  $t$ . Note that we run regressions for each budget cycle separately and only capture variation in EV usage in the 2000-2003 budget cycle.  $Assoc_{rmt}$  is a dummy variable indicating whether federal representative  $r$  is associated to municipality  $m$  at the budget cycle  $t$ . This variable captures the level of importance of each municipality  $m$  to federal representative  $r$ .  $A_r$  adds federal representatives fixed effects to capture time-invariant unobservable characteristics of these politicians. Finally,  $\epsilon_{rmt}$  contains the error term for each observation. It is important to highlight that, when we add control variables, we regress the predicted residuals from regressing the number of funds per voter on these control variables.

In an ideal experiment, we would have, during the same budget cycle, two data points for each municipality containing information on the amount of discretionary funds received by them when they used EV (i.e. received the treatment) and when they did not. As each municipality either used EV or did not, we cannot analyze this ideal experiment. Therefore, we rely on the assumption that all confounding variables that could explain federal representatives' allocation of funds change continuously across the threshold (i.e. municipalities are comparable), with exception of the enfranchisement of low-income voters. Two features make us confident that our assumption holds. First, as shown in Fujiwara (2015), socio-economic observed characteristics of municipalities, such as income and education, change smoothly across the cutoff point. Second, in our falsification test examining discretionary funds allocation *after* EV became a feature across Brazil, we find that federal representatives' allocation of funds changes continuously across the cutoff point.

### 3.2-Does EV affect federal representatives' allocation of funds?

We start this subsection analysis showing that our sample, once restricted to the optimal bandwidth, is balanced across EV usage. Table 1-A, shows the average per voter value of federal funds allocated by federal representatives to municipalities that used paper-based ballots and municipalities that used EV in the 1998 elections. As reported in Columns 1 and 2, municipalities that used EV in 1998 had a smaller amount of funds per voter allocated. Nonetheless, this result is persistent even after EV was used by all municipalities suggesting that the number of registered voters *per se* can explain the amount of funds per voter. Once we restrict our sample to municipalities with similar sizes (Columns 4 and 5), however, we cannot statically distinguish the amount of funds per voter across EV

usage suggesting that our sample is balanced. Table 1-B reports whether municipalities received any discretionary federal funds in each budget cycle. Comparing the percentage of municipalities receiving any funds, and without restricting the sample (Columns 1 and 2), we find that municipalities that used EV are much more likely to receive funds. However, when we compare the sample restricted to municipalities with similar sizes (Columns 4 and 5), we find no statistical differences across EV usage, once again suggesting that our sample is balanced.

**Table 1 – Descriptive statistics of funds from the federal budget**

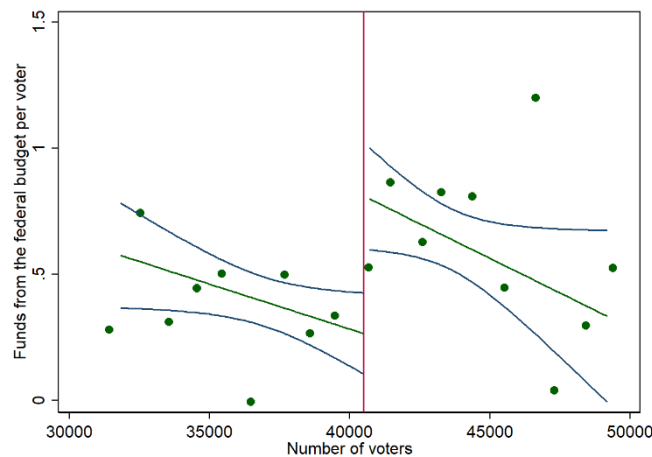
Budget Cycles	All municipalities			Optimal bandwidth (8,688)		
	(1) Paper	(2) EV	(3) Difference	(4) Paper	(5) EV	(6) Difference
A. Funds per voter						
2000-2003	1.13	0.41	0.72***	0.55	0.57	-0.02
<i>Observations</i>	193,182	15,364		4,916	2,966	
2004-2007	1.08	0.58	0.50***	0.75	0.63	0.12
<i>Observations</i>	185,913	16,478		4,765	2,865	
2008-2011	1.40	0.57	0.83***	1.18	1.02	0.16
<i>Observations</i>	190,610	17,064		4,863	2,923	
B. Percentage receiving any funds						
2000-2003	0.05	0.11	-0.06***	0.09	0.09	0.0
<i>Observations</i>	193,182	15,449		4,916	2,966	
2004-2007	0.03	0.10	-0.07***	0.08	0.08	0.0
<i>Observations</i>	185,952	16,524		4,765	2,865	
2008-2011	0.02	0.10	-0.08***	0.07	0.07	0.0
<i>Observations</i>	190,657	17,145		4,863	2,923	

*Notes:* This table shows separately for different samples of municipalities and budget cycles: A) the average value of funds per registered voter received in Brazilian *reais*; B) the percentage of municipalities receiving any funds. Columns 1 and 2 do not add restrictions; Columns 4 and 5 restrict the sample to municipalities that had, in 1996, between 31,812 and 49,188 registered voters (i.e. within the optimal bandwidth). States that had EV in all municipalities were disregarded. Columns 3 and 6 show the t-test analysis of the difference of means. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

We then estimate the regression proposed in Equation 1 to identify the impact of EV usage on discretionary funds after adding control variables not considered in Table 1. Figure 2 illustrates the estimation of the impact of EV on allocation of federal funds after controlling for population, income, being associated to the municipality and federal representative fixed effects. Our estimation shows that EV usage increases the amount of federal funds per voter received by the municipality by 0.54 Brazilian *reais* per registered voter. This result is not only statistically significant

but is also relevant in terms of magnitude. From Table 1, we conclude that EV usage doubled the average amount of discretionary funds sent to municipalities. Combined, these results suggest that there was a salient impact of EV usage on the allocation of discretionary funds and that controlling for political relevance of municipalities and federal representatives fixed effects are essential to capture this impact. Next, we present a detailed analysis where we test different specifications and report the results from a falsification test considering subsequent elections where all municipalities used EV.

**Figure 2 – Effect of EV usage on total funds per voter at the municipality level between 2000 and 2003**



*Notes:* Figure 2 shows an electorate size-varying function using an 8,688 number of registered voters’ bandwidth and a vertical red line representing the cutoff point (40,500). The solid line is fitted separately on each side of the threshold, and the dashed line represents the 95% confidence interval. The scatter plots show averages for intervals of 1,000 voters. We regress the predicted residuals from regressing total funds per voter on population, income, dummy indicating whether elected candidates are associated to the municipality, and federal representatives fixed effects.

We estimate different specifications for the regression proposed in Equation 1 and report the results in Table 2. We first analyze row 1, which restricts our regressions to the 2000-2003 budget cycle (after the 1998 elections). We first notice that not adding controls nor federal representative fixed effects decreases the magnitude and significance of our estimate in Figure 2 (significant at the 12% level). However, once fixed effects are added, and controls for time invariant characteristics of each representative, our estimation increases by close to 1.7 times and becomes highly significant. It also improves the fit of our model (based on a larger F-statistic). We increase even more the precision of our estimates; the fit of our model; and the magnitude of the results once we add controls for income, population and political relevance of each municipality to each representative.

Finally, we propose a falsification test that once again estimates the regression presented in Equation 1, but that analyzes different budget cycles – where there was no variation in EV usage – to examine whether our sample suffers from selection bias. In Table 2, rows 2 and 3, we find – consistent across all specifications – that funds per voter vary smoothly across the cutoff point. When we analyze the budget cycles following the 2002 and 2006 elections, where all municipalities used EV, no statistically significant results are found. This falsification test improves the strength of our estimation reported in row 1 indicating that it is driven by the enfranchisement of low-income voters caused by EV.

**Table 2 – Measuring the EV impact on allocation of funds from the federal budget**

VARIABLES	(1) Funds per voter	(2) Funds per voter	(3) Funds per voter
EV – 1998	0.199 (0.128)	0.334*** (0.119)	0.545*** (0.129)
EV - 2002	-0.168 (0.188)	0.054 (0.174)	0.195 (0.174)
EV - 2006	-0.098 (0.358)	0.055 (0.265)	0.299 (0.270)
Federal representatives	No	Yes	Yes
Fixed Effects			
Controls	No	No	Yes

*Notes:* Standard errors are reported in parentheses. Controls include population, income and association to the municipality. All regressions consider the optimal bandwidth of 8,688 registered voters. Each row runs a separate regression, for each budget cycle, measuring the impact of being assigned to use EV in 1998 on funds per voter. EV – 1998, EV – 2002 and EV - 2006 consider, respectively, the 2000-2003 (539 representatives and 7,882 observations), 2004-2007 (523 representatives and 7,630 observations) and 2008-2011 (535 representatives and 7,786 observations) budget cycles. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.3-Heterogeneous effects of EV

Next, we examine whether the impact of EV usage on the allocation of discretionary funds varies across federal representatives' level of experience. We expect that experienced candidates will be more responsive to voters' demands as they are familiarized with the process of strategically allocating discretionary funds to maximize their chances of staying in office. We use two variables as proxies for experience: candidates' reelection status and age. We first examine whether candidates that were reelected were more responsive to EV usage. Table 3, Columns 1 and 2, split candidates within reelection status. Results suggests that candidates reelected are more responsive to

enfranchisement of low-income voters. Columns 3 and 4 split the sample between below and above median age candidates. Older candidates are also more responsive to enfranchisement. Combined, these results indicate that more experienced candidates responded better to the enfranchisement of low-income voters.

**Table 3 – Heterogeneous effects of EV usage on allocation of funds from the federal budget**

VARIABLES	(1) Reelected	(2) Not-reelected	(3) Below median age	(4) Above median age
EV	0.553*** (0.149)	0.532** (0.235)	0.417** (0.203)	0.680*** (0.161)
Observations	4,719	3,163	4,168	3,714

*Notes:* Standard errors clustered at the federal representative level are reported in parentheses. Controls include population, income, association to the municipality and federal representatives fixed effects. All regressions consider the optimal bandwidth of 8,688 registered voters. Columns 1, 2, 3 and 4 consider, respectively, 307, 232, 316 and 223 federal representatives. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

### 3.4-Alternative interpretations

The last part of our empirical analysis discusses threats to the interpretation of our findings and implement additional robustness checks. So far, we have interpreted our findings as a consequence of enfranchisement biased toward poor voters. However, we acknowledge that the main threat to our interpretation is that municipalities that use EV will automatically provide a disproportionate larger share of votes to elected representatives because voters are more likely to cast valid votes in these localities. Therefore, we cannot disentangle the effect of larger political support from enfranchisement of low-income voters.

We attempt to solve the aforementioned issue by investigating whether our results are driven by increase in political support. First, we regress the total funds per voter on the share of each representative's total vote coming from the municipality, and the share of the municipality's total vote for each candidate.<sup>16</sup> We then use the residuals of this estimation, which captures the part of the total funds per voter that cannot be explained by our measure of political support and use it as our dependent variable following Equation 1. Table 4, Column 1, reports our estimation, where

<sup>16</sup> We also include population, income and federal representative fixed effects as additional control.

we find that EV increased total funds per voter by 0.48. The results suggest that only a small fraction of our main estimate could be driven by the effect of EV on the share of political support obtained by representatives. In Columns 2-4, we show that our results are not sensitive to allowing the running variable to vary quadratically and cubically, nor to using the `rdrobust` package.<sup>17</sup> Finally, following Fujiwara (2015), we set 20,000 and 5,000 registered voters as maximum and minimum bandwidths for our sample respectively, and show (columns 5 and 6) that our results are robust to these bandwidths' selection.

**Table 4 – Robustness analysis examining the impact of EV of funds from federal budget**

VARIABLES	(1) Residuals	(2) Quadratically	(3) Cubically	(4) Rdrobust	(5) Larger bandwidth	(6) Smaller bandwidth
EV	0.477*** (0.105)	0.540*** (0.132)	0.384** (0.160)	0.446*** (0.123)	0.331*** (0.089)	0.321** (0.151)
Observations	7,882	7,882	7,882	7,882	23,596	4,989

*Notes:* Standard errors clusters at the federal representative level are reported in parentheses. All regressions consider 539 representatives and are controlled by population, income, association to the municipality and federal representatives fixed effects. In addition, columns 1-4 consider the optimal bandwidth of 8,688 registered voters, while column 5 and 6 contain, respectively, 20,000 and 5,000 registered voters. EV is a dummy variable indicating EV usage in 1998. Column 1 is an estimation of the impact of EV on funds from the federal budget after removing the part of these funds that are explained by socio-economic variables and political support. Columns 2 and 3 allows the running variable to vary quadratically and cubically respectively. Column 4 uses the `rdrobust` package and triangular kernel. Columns 5 and 6 estimates the baseline model but considering a 20,000 and 5,000 bandwidth respectively. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 4- Discussion

Our estimates presented in section 3 indicate that municipalities using electronic voting (EV) had their total discretionary funds per voter increased by 0.54 Brazilian *reais* per eligible voter during the 2000-2003 budget cycle. As the average of voters in our sample is 41,196, we find that municipalities using EV received during the 2000-2003 budget cycle, on average, 22,245 more Brazilian *reais* (close to \$11,000) than municipalities not using EV. A back-of-the-envelope calculation provides us the direct impact of increasing valid votes on discretionary transfers. As Hidalgo (2012) reports, EV increased the valid votes to turnout ratio for federal representatives by 23 percentage points. Therefore, we conclude that an increase of one percentage point in valid votes to turnout ratio increases the

<sup>17</sup> To this end, we utilize the STATA package `rdrobust`, which uses a triangular kernel to estimate our regression model instead of the uniform kernel we used throughout our empirical analysis.



total discretionary funds per voter by 0.023. This number is equivalent to a 4.2% increase from the mean baseline amount of funds per voter (i.e. 0.56) considering our restricted sample.

The connection between democracy and representation lies at the foundation of political participation and liberties. If participation is widespread and voters are free to express their choices, then elected policy makers will act in the best interest of the people. Consequently, institutions and rules are often devised to encourage civic involvement in politics and to promote freely contested elections. For instance, democracies promote participation by holding elections on holidays or weekends, permitting absentee and early voting, and creating initiatives such as the prominent Get-Out-The-Vote (GOTV) campaign (see Berinsky, Burns and Traugott 2001, Berinsky, 2005).

Nonetheless, campaigns to increase voting participation as absentee and early voting as well as GOTV, mostly increases the participation of the rich and the impact of enfranchising low-income voters is unclear. This paper shows that enfranchisement of low-income voters, concentrated among municipalities using EV, increased the amount of discretionary funds from the federal budget allocated to these localities. The main contribution of the present work is, therefore, to show the consequences of *de facto* enfranchisement on allocation of public spending and shed a light on the impact of larger turnout in democracies where vote is not mandatory. When electoral participation in a country is low, the level of public spending might not represent the choice of the majority diminishing the strength of the democracy.

## 5- Conclusion

Our findings suggest that federal representatives responded to the enfranchisement of low-income voters, concentrated in municipalities using EV, by allocating more federal funds to these localities. To attenuate concerns that our findings may be capturing confounding variables that vary across EV usage, and to provide results consistent with our interpretation that representatives are responding to a shift in the income of the median voter, we use two strategies. First, we control for federal representatives fixed effects. Second, in a residual analysis, we only examine the variation in the decision to allocate federal funds that are unexplained by variations in political support. In both analyses, we find support for the conclusion that EV usage *per se* explains the allocation of funds from the federal budget, which we interpret as suggestive evidence that enfranchisement of poor voters is driving our results. Finally, we find support for the hypothesis that experienced politicians are more responsive to the enfranchisement of low-

income voters as they are familiarized with the process of strategically allocating discretionary funds to increase the chances of reelection.

## References

- Alesina, Alberto F., and Paola Giuliano. *Preferences for redistribution*. No. w14825. National Bureau of Economic Research, 2009.
- Ames, Barry. "Electoral rules, constituency pressures, and pork barrel: bases of voting in the Brazilian Congress." *The Journal of Politics* 57, no. 2 (1995): 324-343.
- Ames, Barry. "The deadlock of democracy in Brazil: interests, identities, and institutions in comparative politics." *Ann Arbor: University of Michigan Press* (2001).
- Berinsky, Adam J., Nancy Burns, and Michael W. Traugott. "Who votes by mail?: A dynamic model of the individual-level consequences of voting-by-mail systems." *Public Opinion Quarterly* 65, no. 2 (2001): 178-197.
- Berinsky, Adam J. "The perverse consequences of electoral reform in the United States." *American Politics Research* 33, no. 4 (2005): 471-491.
- Brown, David S., and Wendy Hunter. "Democracy and social spending in Latin America, 1980-92." *American Political Science Review* 93, no. 4 (1999): 779-790.
- Bugarin, Mauricio, and Adriana Portugal. "Should voting be mandatory? The effect of compulsory voting rules on candidates' political platforms." *Journal of Applied Economics* 18, no. 1 (2015): 1-19.
- Calonico, Sebastian, Matias D. Cattaneo, Max H. Farrell, and Rocio Titiunik. "rdrobust: Software for regression discontinuity designs." *Stata Journal* 17, no. 2 (2017): 372-404.
- De Toqueville, Alexis. "Democracy in America." *New York: A Mentor Book from New American Library* (1835).

- Firpo, Sergio, Vladimir Ponczek, and Viviane Sanfelice. "The relationship between federal budget amendments and local electoral power." *Journal of Development Economics* 116 (2015): 186-198.
- Fujiwara, Thomas. (2015). Voting technology, political responsiveness, and infant health: Evidence from Brazil. *Econometrica*, 83(2), 423-464.
- Hidalgo, Fernando Daniel. "Renovating Democracy: The Political Consequences of Election Reforms in Post-War Brazil." PhD diss., UC Berkeley, 2012.
- Husted, Thomas A., and Lawrence W. Kenny. "The Effect of the Expansion of the Voting Franchise on the Size of Government." *Journal of Political Economy* 105, no. 1 (1997): 54-82.
- Jackman, Simon. "Compulsory voting." *International encyclopedia of the social and behavioral sciences* (2001): 16314-18.
- Lindert, Peter H. *Growing public: Volume 1, the story: Social spending and economic growth since the eighteenth century*. Vol. 1. Cambridge University Press, 2004.
- Meltzer, Allan H., and Scott F. Richard. "A rational theory of the size of government." *Journal of political Economy* 89, no. 5 (1981): 914-927.
- Meltzer, Allan H., and Scott F. Richard. "Tests of a rational theory of the size of government." *Public Choice* 41, no. 3 (1983): 403-418.
- Mueller, Dennis C., and Thomas Stratmann. "The economic effects of democratic participation." *Journal of Public Economics* 87, no. 9 (2003): 2129-2155.

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