Casting ballots when knowing results

Online Appendix

Victor Araújo* & Malu A. C. Gatto†

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Contents

A The biometric system of voter identification

In 2018, the use of fingerprints as a form of identification became mandatory for 73.6 million voters from 2,793 Brazilian municipalities (50.3% of the electorate). Figure 1 shows the machine used across Brazilian voting stations to identify voters through their fingerprints. While the innovation did not cause disturbances in some voting machines, technical problems related to the identification of voters using fingerprint readers caused considerable delays in many others. In effect, these problems led some voters to only cast ballots after the official closing time of the election, when the results were already being counted and announced.

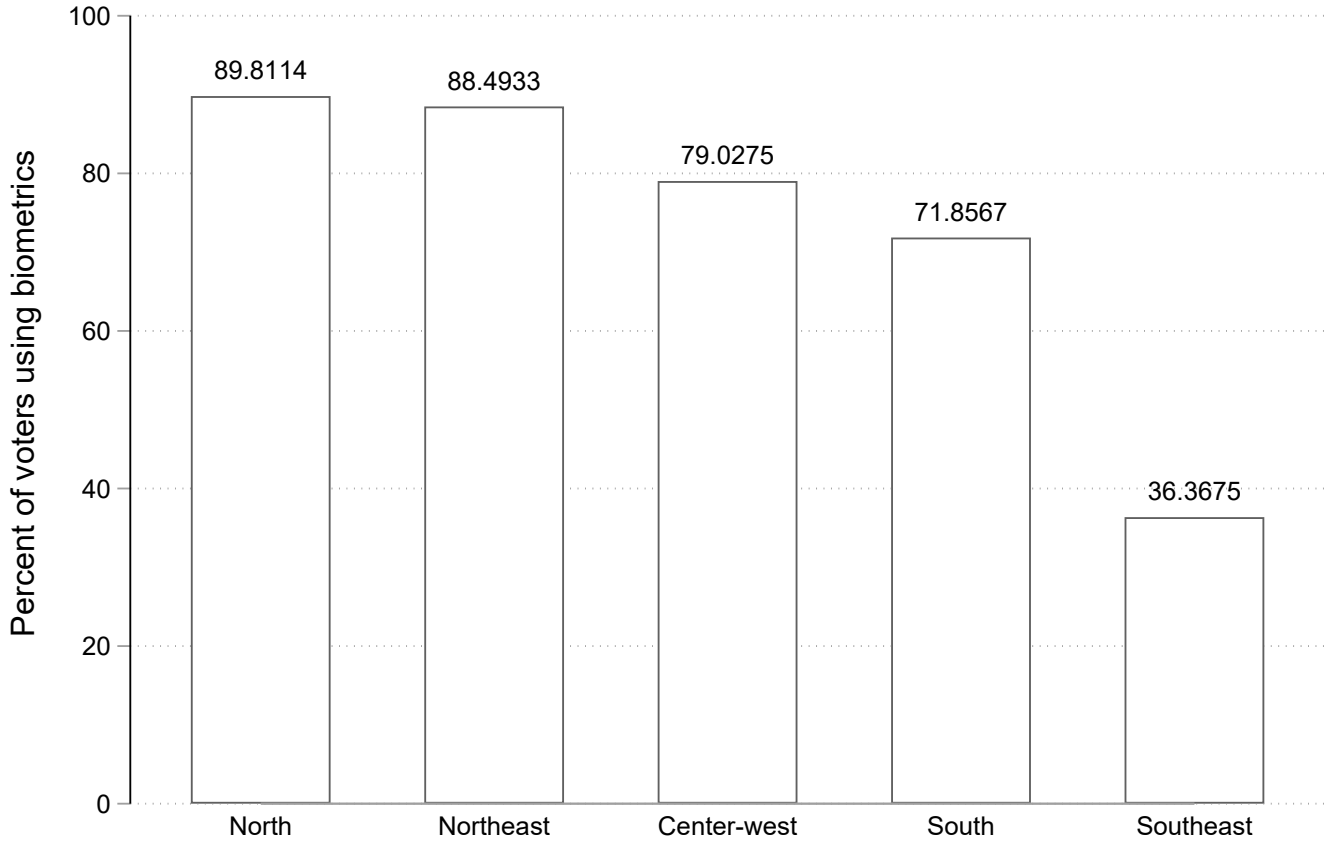
Figure 1: Biometrics' machine used in the 2018 Brazilian elections to identify voters

Source: Agência Brasil. http://agenciabrasil.ebc.com.br/politica/noticia/2014-10/saiba-como-melhorar-leitura-das-digitais-na-hora-do-voto.

B The implementation of the biometric system across regions

The North and the Northeast, Brazil's poorest regions, had the highest concentration of registered biometric voters in the country, with 89% and 88% of voters registered to use the system, respectively. They were followed by the Center-West, with 79% of voters with registered biometrics, and the South, with 71%. By contrast, only 36% of voters in Brazil's wealthiest region, the Southeast, were registered to vote using the biometric system.

Figure 2: Percentage of biometric voters, by region (2018)

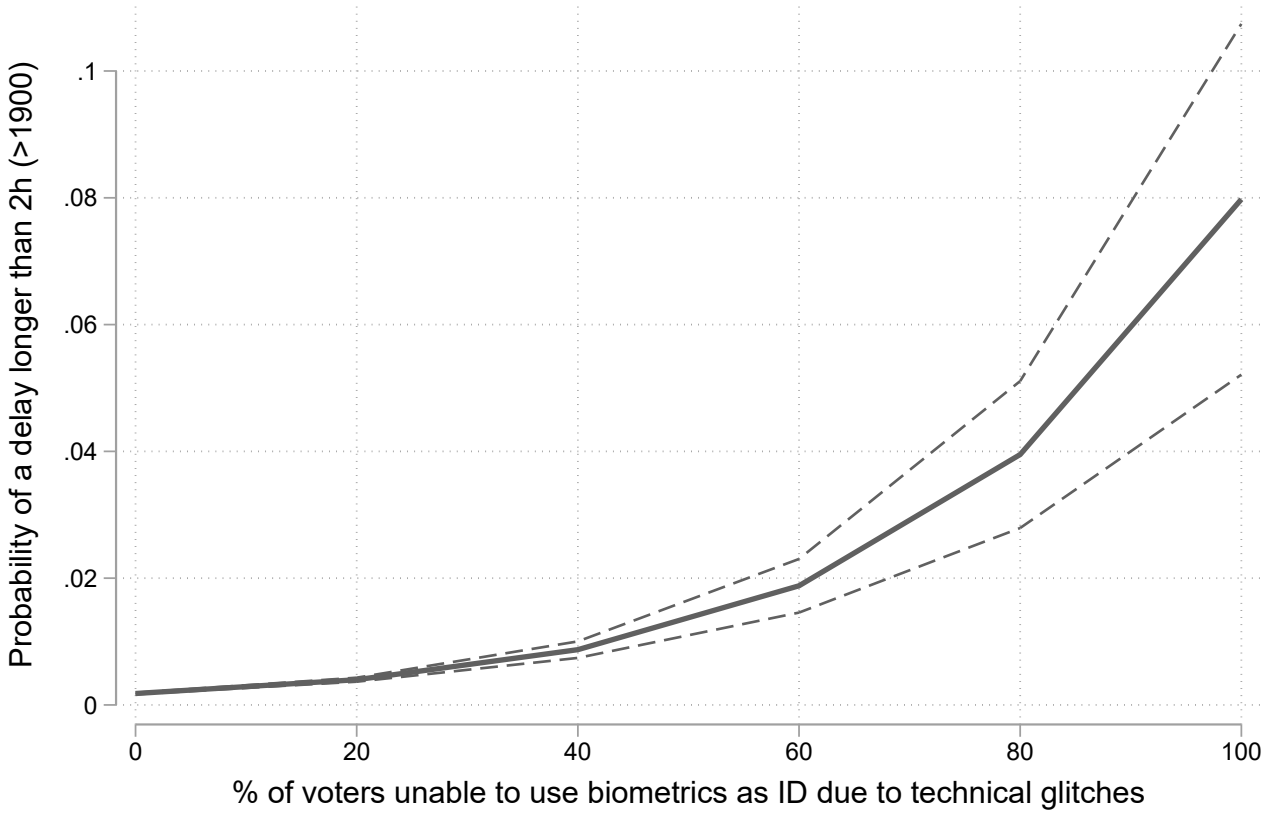


Note: Compiled by authors with data from the TSE. Each bar shows the percentage of voters registered to use the biometric system of voter ID in the 2018 Brazilian elections in each region.

C Probability of being exposed to information in the second round

Technical problems associated with the implementation of the biometric system meant that voters assigned to stations employing the system were significantly more likely to face delays and vote after 19:00 BRT, when the TSE officially started announcing electoral results. Figure 3 shows the results of our logit estimates for the second round of elections.

Figure 3: Probability of being exposed to information in the second round of the 2018 Brazilian elections



Note: The unit of analysis is voting machine (N = 453,319). We cluster standard errors at the level of voting machine (where the treatment took place). We run all logit estimates with controls for turnout rate, age (avg.), % of women voters, and years of schooling (avg.).

D Baseline estimates

Table 1 and 2 show our baseline estimates without controls for characteristics of the electorate included in other models, namely: average age, share of women voters, and average years of schooling.

Table 1: The effect of information exposure on voting behaviour (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	8.941***	-11.60***	-1.454***	0.210***	-0.937***
	(0.247)	(0.300)	(0.126)	(0.0194)	(0.0452)
Closure delay (in min.)	-0.117***	0.132***	0.00757***	-0.00289***	0.0109***
	(0.000877)	(0.00106)	(0.000468)	(0.0000722)	(0.000162)
% Error in biometrics	-0.149***	0.307***	0.0525***	-0.0101***	-0.0321***
	(0.00371)	(0.00433)	(0.00173)	(0.000378)	(0.000675)
Time zone	8.290***	0.453***	-4.590***	-0.885***	-1.824***
	(0.0973)	(0.113)	(0.0260)	(0.00698)	(0.0137)
R^2	0.085	0.075	0.026	0.026	0.043
Observations	452980	453653	452066	438741	451802
N.Clusters	452980	453653	452066	438741	451802

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Table 2: The effect of information exposure on voting behaviour (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	7.524***	-8.210***	0.607***	-0.176**
	(0.452)	(0.467)	(0.0329)	(0.0719)
Closure delay (in min.)	-0.139***	0.0933***	0.00312***	0.0472***
	(0.00972)	(0.00962)	(0.000699)	(0.00401)
% Error in biometrics	-0.380***	0.538***	-0.0247***	-0.132***
	(0.00427)	(0.00452)	(0.000291)	(0.000750)
Time zone	9.349***	-6.208***	-2.814***	-2.421***
	(0.109)	(0.113)	(0.0520)	(0.0146)
R^2	0.038	0.043	0.032	0.108
Observations	453342	453670	433194	452545
N.Clusters	453342	453670	433194	452545

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

E Descriptive statistics

First round of elections

Table 3: Descriptive statistics - 2018 Brazilian presidential elections (first round)

Variable	Obs	Mean	Std.Dev.	Min	Max
Outcome variables					
% votes for Frontrunner (Bolsonaro)	452,998	41.12	17.60	.2673	95
% votes for Second place (Haddad)	453,671	28.12	20.20	.2923	100
% votes for Third place (Gomes)	452,084	11.19	8.395	.25	80.52
% Blank votes	438,758	2.698	1.628	.2242	27.27
% Null votes	451,820	6.105	3.126	.2237	50
Treatments and controls					
Treatment	453,671	.0188	.1359	0	1
Treatment (placebo)	453,671	.7948	.4037	0	1
Closure delay (in min.)	453,653	16.84	40.15	0	657
Number of registered voters	453,671	323.5	75.39	9	596
Number of voters who turnout	453,671	258.2	62.44	1	475
Turnout	453,671	79.95	6.901	1.851	100
% Error in biometrics	453,671	7.223	7.494	0	100
Age (avg.)	453,319	45.26	5.376	19	95
Women voters*	453,319	3.074	.0894	2	4
Year of schooling (avg.)	453,319	4.429	.8106	1	8

Note: Compiled by authors with data from the *Tribunal Superior Eleitoral* (Superior Electoral Court, TSE). The unit of analysis is voting machine. **Women voters* is an indicator that varies between 2 and 4. Values closer to 4 indicate higher incidence of women voters in a given voting machine.

Second round of elections

Table 4: Descriptive statistics - 2018 Brazilian presidential elections (second round)

Variable	Obs	Mean	Std.Dev.	Min	Max
Outcome variables					
% votes for Frontrunner (Bolsonaro)	453,372	48.80	19.81	.2865	98.14
% votes for Second place (Haddad)	453,700	41.84	20.79	.5102	100
% Blank votes	433,222	2.196	1.232	.2364	25
% Null votes	452,575	7.309	3.529	.2724	47.12
Treatments and controls					
Treatment	453,700	.0023	.0488	0	1
Treatment (placebo)	453,700	.5447	.4979	0	1
Closure delay (in min.)	453,670	1.382	3.542	0	421
Number of registered voters	453,700	323.5	75.42	9	596
Number of voters who turnout	453,700	255.0	63.75	3	489
% Error in biometrics	453,700	7.045	7.219	0	98.85
Turnout	453,700	78.84	7.251	4.950	100
Age (avg.)	453,347	45.26	5.377	19	95
Women voters*	453,347	3.074	.0894	2	4
Year of schooling (avg.)	453,347	4.429	.8106	1	8

Note: Compiled by authors with data from the TSE). The unit of analysis is voting machine. **Women voters* is an indicator that varies between 2 and 4. Values closer to 4 indicate higher incidence of women voters in a given voting machine.

F Main estimates

Table 5 and 6 summarize our main estimates. These tables replicate the results of Figures 2 and 3 reported in the main text.

First round of elections

Table 5: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	5.694***	-7.408***	-1.968***	0.310***	-0.729***
	(0.178)	(0.219)	(0.123)	(0.0197)	(0.0437)
Closure delay (in min.)	-0.0646***	0.0662***	0.0164***	-0.00456***	0.00662***
	(0.000657)	(0.000769)	(0.000462)	(0.0000747)	(0.000159)
% Error in biometrics	-0.113***	0.277***	0.0431***	-0.0119***	-0.0382***
	(0.00288)	(0.00317)	(0.00177)	(0.000382)	(0.000689)
Turnout	-0.178***	0.0922***	0.0643***	0.0126***	0.0458***
	(0.00360)	(0.00397)	(0.00224)	(0.000449)	(0.000830)
Time zone	9.636***	-1.973***	-4.209***	-0.854***	-1.672***
	(0.0766)	(0.0868)	(0.0263)	(0.00717)	(0.0135)
Age (avg.)	0.521***	-0.705***	0.0106***	-0.00451***	0.0172***
	(0.00403)	(0.00444)	(0.00229)	(0.000523)	(0.000891)
Women voters	-4.680***	-7.549***	6.306***	1.192***	3.611***
	(0.238)	(0.252)	(0.149)	(0.0288)	(0.0528)
Years of schooling (avg.)	12.95***	-16.40***	2.471***	-0.458***	-1.310***
	(0.0287)	(0.0317)	(0.0168)	(0.00340)	(0.00611)
Constant	-38.98***	151.6***	-12.43***	3.031***	1.671***
	(0.822)	(0.895)	(0.504)	(0.101)	(0.185)
R^2	0.439	0.538	0.103	0.069	0.140
Observations	452656	453301	451763	438539	451574
N. Clusters	452656	453301	451763	438539	451574

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Second round of elections

Table 6: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	11.76***	-12.14***	0.622***	-0.436***
	(0.420)	(0.410)	(0.0325)	(0.0726)
Closure delay (in min.)	-0.166***	0.119***	0.00256***	0.0471***
	(0.00995)	(0.00781)	(0.000671)	(0.00395)
% Error in biometrics	-0.305***	0.468***	-0.0247***	-0.137***
	(0.00323)	(0.00355)	(0.000297)	(0.000780)
Turnout	-0.0738***	0.0302***	0.00445***	0.0368***
	(0.00379)	(0.00407)	(0.000322)	(0.000869)
Time zone	10.28***	-7.685***	-0.492***	-2.010***
	(0.0907)	(0.0922)	(0.00613)	(0.0149)
Age (avg.)	0.768***	-0.881***	0.0157***	0.0883***
	(0.00426)	(0.00461)	(0.000386)	(0.00101)
Women voters	-7.593***	3.270***	0.343***	3.484***
	(0.265)	(0.283)	(0.0224)	(0.0603)
Years of schooling (avg.)	14.99***	-14.80***	0.132***	-0.447***
	(0.0317)	(0.0349)	(0.00255)	(0.00680)
Constant	-52.35***	155.0***	1.162***	-1.256***
	(0.901)	(0.963)	(0.0769)	(0.206)
R^2	0.447	0.428	0.047	0.137
Observations	453016	453317	432965	452260
N.Clusters	453016	453317	432965	452260

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

G Estimated substantive effects for the frontrunner

It is not possible to know how many voters cast ballots after the threshold of information exposure (i.e., 19:00 BRT). However, we can provide estimations for a range of possible scenarios.

After identifying the number of votes that the frontrunner (Bolsonaro) attained, we established a range of possible exposure targets (from 5% to 100%) and calculated the number of voters that would have been exposed to information for each target level. We then multiplied that by the effect estimated in our models (5.7pp or 14%) to derive the estimated number of votes that the frontrunner would have gained from the bandwagon effect across different levels of information exposure.

As shown, in a conservative estimation that assumes that only 5% of voters in the treated units cast ballots after information exposure in the first round, Bolsonaro would have gained a total of 5,517 votes; if, instead, 25% of voters in affected units voted after 19:00 BRT, then Bolsonaro would have gained an estimated total of 27,587 votes.

Table 7: Simulations of estimated substantive effects for the frontrunner (first round)

Total	% exposed	# exposed	effect (pp)	effect (%)	votes gained
788204	5%	39410	5.7	14	5,517
788204	10%	78820	5.7	14	11,034
788204	25%	197051	5.7	14	27,587
788204	50%	394102	5.7	14	55,174
788204	75%	591153	5.7	14	82,761
788204	100%	788204	5.7	14	110,348

Note: Compiled by authors with data from the TSE.

As shown, in a scenario where 5% of voters were exposed to information in the second round, Bolsonaro would have gained a total of 2,017 votes due to bandwagon. Meanwhile, if 25% had been affected, then we estimate that Bolsonaro would have gained 10,086 votes.

Table 8: Simulations of estimated substantive effects for the frontrunner (second round)

Total	% exposed	# exposed	effect (pp)	effect (%)	votes gained
168110	5%	8405	11.8	24	2,017
168110	10%	16811	11.8	24	4,034
168110	25%	42027	11.8	24	10,086
168110	50%	84055	11.8	24	20,173
168110	75%	126082	11.8	24	30,259
168110	100%	168110	11.8	24	40,346

Note: Compiled by authors with data from the TSE.

H Estimated substantive effects for the second place

It is not possible to know how many voters cast ballots after the threshold of information exposure (i.e., 19:00 BRT). However, we can provide estimations for a range of possible scenarios.

After identifying the number of votes that the second place candidate (Haddad) attained, we established a range of possible exposure targets (from 5% to 100%) and calculated the number of voters that would have been exposed to information for each target level. We then multiplied that by the effect estimated in our models (7.4pp or 26%) to derive the estimated number of votes that the second place candidate would have lost from the bandwagon effect across different levels of information exposure.

For example, in a scenario where only 5% of voters are exposed to information in the first round, Haddad would have lost an estimated total of 14,012 votes. If 25% of voters were exposed, then Haddad would have lost a total of 70,063 votes. While even in our least conservative estimates the number of votes gained by Bolsonaro and lost by Haddad would not have changed electoral outcomes, this is only the case because, despite the glitches associated with the implementation of the biometric system, only a low percentage of voting machines remained open after the threshold of information exposure.

Table 9: Simulations of estimated substantive effects for the second place (first round)

Total	% exposed	# exposed	effect (pp)	effect (%)	votes lost
1077904	5%	53895	7.4	26	14,012
1077904	10%	107790	7.4	26	28,025
1077904	25%	269476	7.4	26	70,063
1077904	50%	538952	7.4	26	140,127
1077904	75%	808428	7.4	26	210,191
1077904	100%	1077904	7.4	26	280,255

Note: Compiled by authors with data from the TSE.

As shown, in a scenario where 5% of voters were exposed to information in the second round, Haddad would have lost a total of 745 votes due to bandwagon. Meanwhile, if 25% had been affected, then we estimate that Haddad would have lost 3,728 votes.

Table 10: Simulations of estimated substantive effects for the second place (second round)

Total	% exposed	# exposed	effect (pp)	effect (%)	votes lost
53269	5%	2663	12	28	745
53269	10%	5326	12	28	1,491
53269	25%	13317	12	28	3,728
53269	50%	26634	12	28	7,457
53269	75%	39951	12	28	11,186
53269	100%	53269	12	28	14,915

Note: Compiled by authors with data from the TSE.

I Estimated substantive effects for the third place

It is not possible to know how many voters cast ballots after the threshold of information exposure (i.e., 19:00 BRT). However, we can provide estimations for a range of possible scenarios.

After identifying the number of votes that the third place candidate (Gomes) attained, we established a range of possible exposure targets (from 5% to 100%) and calculated the number of voters that would have been exposed to information for each target level. We then multiplied that by the effect estimated in our models (2pp or 18%) to derive the estimated number of votes that the third place candidate would have lost from the bandwagon effect across different levels of information exposure. For example, in a scenario where only 5% of voters are exposed to information, Gomes would have lost an estimated total of 2,271 votes. If 25% of voters were exposed, then Gomes would have lost a total of 11,357 votes.

Table 11: Simulations of estimated substantive effects for the third place (first round)

Total	% exposed	# exposed	effect (pp)	effect (%)	votes lost
252386	5%	12619	2	18	2,271
252386	10%	25238	2	18	4,552
252386	25%	63096	2	18	11,357
252386	50%	126193	2	18	22,714
252386	75%	189289	2	18	34,072
252386	100%	252386	2	18	45,429

Note: Compiled by authors with data from the TSE.

J Estimates with a restricted sample without Acre-based units

We rerun our estimates without observations located in the state of Acre, where, due to time zone differences, even a 1-minute voting delay would place voting machines in the treatment condition. As shown in Tables 12 and 13, these models also produce results that are consistent with our main findings (reported in Figures 2 and 3 of the main text).

First round of elections

Table 12: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	6.380***	-4.836***	-3.751***	0.321***	-1.335***
	(0.211)	(0.260)	(0.156)	(0.0242)	(0.0539)
Closure delay (in min.)	-0.0663***	0.0609***	0.0202***	-0.00460***	0.00792***
	(0.000710)	(0.000825)	(0.000506)	(0.0000812)	(0.000173)
% Error in biometrics	-0.112***	0.280***	0.0412***	-0.0119***	-0.0390***
	(0.00289)	(0.00318)	(0.00177)	(0.000383)	(0.000693)
Turnout	-0.178***	0.0969***	0.0624***	0.0126***	0.0450***
	(0.00361)	(0.00398)	(0.00225)	(0.000451)	(0.000833)
Time zone	9.772***	-0.951***	-4.783***	-0.857***	-1.867***
	(0.0858)	(0.0948)	(0.0236)	(0.00785)	(0.0142)
Age (avg.)	0.521***	-0.706***	0.0109***	-0.00456***	0.0169***
	(0.00404)	(0.00445)	(0.00229)	(0.000525)	(0.000894)
Women voters	-4.701***	-7.225***	6.161***	1.195***	3.565***
	(0.239)	(0.252)	(0.150)	(0.0289)	(0.0529)
Years of schooling (avg.)	12.95***	-16.46***	2.500***	-0.460***	-1.302***
	(0.0288)	(0.0318)	(0.0169)	(0.00342)	(0.00614)
Constant	-39.24***	147.5***	-10.26***	3.041***	2.441***
	(0.835)	(0.904)	(0.506)	(0.102)	(0.187)
R^2	0.437	0.539	0.103	0.067	0.139
Observations	450735	451379	449866	436850	449662
N.Clusters	450735	451379	449866	436850	449662

Standard errors in parentheses

$^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Second round of elections

Table 13: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	49.89***	-31.20***	-1.088***	-17.78***
	(4.151)	(3.889)	(0.273)	(1.259)
Closure delay (in min.)	-0.225***	0.149***	0.00478***	0.0738***
	(0.0118)	(0.0104)	(0.000772)	(0.00355)
% Error in biometrics	-0.307***	0.470***	-0.0248***	-0.137***
	(0.00324)	(0.00355)	(0.000298)	(0.000781)
Turnout	-0.0738***	0.0295***	0.00458***	0.0373***
	(0.00380)	(0.00409)	(0.000324)	(0.000876)
Time zone	9.673***	-7.002***	-0.541***	-2.029***
	(0.0957)	(0.0973)	(0.00630)	(0.0162)
Age (avg.)	0.770***	-0.883***	0.0158***	0.0886***
	(0.00428)	(0.00462)	(0.000387)	(0.00102)
Women voters	-7.737***	3.444***	0.333***	3.467***
	(0.265)	(0.283)	(0.0225)	(0.0603)
Years of schooling (avg.)	15.02***	-14.84***	0.132***	-0.451***
	(0.0317)	(0.0350)	(0.00255)	(0.00682)
Constant	-50.25***	152.6***	1.327***	-1.217***
	(0.908)	(0.969)	(0.0774)	(0.207)
R^2	0.445	0.427	0.048	0.132
Observations	451095	451396	431240	450386
N.Clusters	451095	451396	431240	450386

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

K Estimates with a restricted sample of units with biometrics

We rerun our estimates on a restricted sample composed only of units where at least one biometric-related technical issue occurred. Tables 14 and 15 report our results and show that they are consistent with our main findings reported in Figures 1 and 2 in the main text.

First round of elections

Table 14: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	4.551***	-4.901***	-1.160***	0.0795***	-1.110***
	(0.179)	(0.218)	(0.130)	(0.0204)	(0.0444)
Closure delay (in min.)	-0.0580***	0.0561***	0.0128***	-0.00362***	0.00760***
	(0.000667)	(0.000775)	(0.000480)	(0.0000759)	(0.000162)
% Error in biometrics	-0.111***	0.203***	-0.0390***	-0.00292***	-0.0387***
	(0.00355)	(0.00392)	(0.00228)	(0.000457)	(0.000856)
Turnout	-0.235***	0.128***	0.0593***	0.0130***	0.0418***
	(0.00424)	(0.00466)	(0.00286)	(0.000516)	(0.000950)
Time zone	10.76***	-4.424***	-4.949***	-0.614***	-1.164***
	(0.0815)	(0.0882)	(0.0339)	(0.00806)	(0.0151)
Age (avg.)	0.503***	-0.693***	0.0592***	0.00356***	0.0313***
	(0.00517)	(0.00569)	(0.00320)	(0.000634)	(0.00110)
Women voters	-4.662***	-8.329***	7.866***	1.222***	3.517***
	(0.312)	(0.330)	(0.214)	(0.0359)	(0.0662)
Years of schooling (avg.)	13.64***	-16.33***	2.331***	-0.484***	-1.411***
	(0.0343)	(0.0371)	(0.0215)	(0.00389)	(0.00704)
Constant	-40.24***	159.0***	-14.81***	1.774***	0.535**
	(1.044)	(1.130)	(0.707)	(0.122)	(0.225)
R^2	0.455	0.523	0.081	0.067	0.153
Observations	324633	325037	324045	314748	323880
N.Clusters	324633	325037	324045	314748	323880

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Second round of elections

Table 15: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	8.399***	-7.393***	0.384***	-1.373***
	(0.426)	(0.417)	(0.0337)	(0.0645)
Closure delay (in min.)	-0.0962***	0.0677***	-0.00240***	0.0319***
	(0.00856)	(0.00845)	(0.000736)	(0.00337)
% Error in biometrics	-0.175***	0.296***	-0.0100***	-0.108***
	(0.00408)	(0.00448)	(0.000361)	(0.000949)
Turnout	-0.108***	0.0861***	0.00242***	0.0176***
	(0.00442)	(0.00474)	(0.000362)	(0.000983)
Time zone	12.04***	-10.39***	-0.308***	-1.345***
	(0.0970)	(0.0960)	(0.00714)	(0.0168)
Age (avg.)	0.711***	-0.843***	0.0188***	0.105***
	(0.00552)	(0.00600)	(0.000472)	(0.00123)
Women voters	-8.374***	4.361***	0.227***	3.348***
	(0.346)	(0.371)	(0.0274)	(0.0721)
Years of schooling (avg.)	15.38***	-15.06***	0.114***	-0.543***
	(0.0375)	(0.0409)	(0.00291)	(0.00752)
Constant	-53.72***	157.3***	0.856***	-2.076***
	(1.138)	(1.217)	(0.0911)	(0.243)
R^2	0.441	0.410	0.022	0.108
Observations	324561	324711	309575	323913
N.Clusters	324561	324711	309575	323913

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

L Estimates by size of voting stations (number of voters, quartiles)

We rerun our estimates on samples restricted to voting stations of different sizes. Tables 16-21 report our results and show that they are consistent with our main findings (from Table 1 in the main text).

First round of elections

Quartile 25 (0-220 voters)

Table 16: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	7.823***	-20.07***	2.443***	0.502***	1.262***
	(1.000)	(1.175)	(0.320)	(0.0858)	(0.172)
Closure delay (in min.)	-0.108***	0.155***	-0.00214	-0.00873***	0.00220
	(0.00716)	(0.00791)	(0.00477)	(0.000841)	(0.00179)
% Error in biometrics	-0.0790***	0.140***	0.0281***	0.00322**	-0.0157***
	(0.00751)	(0.00875)	(0.00479)	(0.00126)	(0.00178)
Turnout	-0.137***	0.145***	0.0165**	-0.00505***	-0.0108***
	(0.00979)	(0.0116)	(0.00680)	(0.00159)	(0.00259)
Time zone	10.20***	-2.972***	-4.899***	-0.792***	-1.536***
	(0.288)	(0.340)	(0.0902)	(0.0296)	(0.0474)
Age (avg.)	0.789***	-0.971***	-0.122***	0.00884***	0.0468***
	(0.0111)	(0.0133)	(0.00681)	(0.00175)	(0.00271)
Women voters	-14.19***	3.883***	6.398***	-0.0176	3.400***
	(0.824)	(0.920)	(0.479)	(0.108)	(0.173)
Years of schooling (avg.)	15.28***	-19.00***	1.676***	-0.219***	-0.776***
	(0.0867)	(0.0994)	(0.0515)	(0.0113)	(0.0187)
Constant	-39.52***	142.9***	3.114**	6.131***	2.129***
	(2.687)	(3.086)	(1.550)	(0.370)	(0.595)
R^2	0.514	0.553	0.054	0.025	0.078
Observations	44829	45321	44069	38825	44081
N.Clusters	44829	45321	44069	38825	44081

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Quartile 50 (220-339 voters)

Table 17: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	7.570***	-10.96***	-2.138***	0.527***	0.439***
	(0.300)	(0.356)	(0.240)	(0.0323)	(0.0710)
Closure delay (in min.)	-0.0953***	0.0970***	0.0287***	-0.00699***	-0.00000663
	(0.00118)	(0.00145)	(0.00111)	(0.000140)	(0.000302)
% Error in biometrics	-0.137***	0.237***	0.0403***	-0.00584***	-0.0129***
	(0.00434)	(0.00471)	(0.00290)	(0.000540)	(0.00101)
Turnout	-0.118***	-0.0166***	0.0838***	0.0228***	0.0486***
	(0.00541)	(0.00591)	(0.00370)	(0.000645)	(0.00124)
Time zone	11.93***	-5.250***	-4.168***	-0.684***	-1.771***
	(0.111)	(0.122)	(0.0427)	(0.0103)	(0.0194)
Age (avg.)	0.626***	-0.852***	-0.0202***	0.0171***	0.0331***
	(0.00642)	(0.00710)	(0.00391)	(0.000789)	(0.00140)
Women voters	-9.689***	-1.189***	7.380***	0.775***	2.819***
	(0.375)	(0.394)	(0.256)	(0.0423)	(0.0803)
Years of schooling (avg.)	14.08***	-16.89***	1.786***	-0.376***	-1.320***
	(0.0452)	(0.0490)	(0.0275)	(0.00513)	(0.00936)
Constant	-45.95***	161.4***	-12.89***	1.391***	3.224***
	(1.282)	(1.381)	(0.851)	(0.147)	(0.279)
R^2	0.513	0.571	0.081	0.054	0.138
Observations	182692	182805	182562	177070	182460
N.Clusters	182692	182805	182562	177070	182460

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Quartile 75 (>339 voters)

Table 18: The effect of information exposure on voting behavior (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1900h)	7.472***	-8.215***	-2.638***	0.422***	-1.033***
	(0.244)	(0.291)	(0.149)	(0.0263)	(0.0577)
Closure delay (in min.)	-0.0908***	0.0934***	0.0214***	-0.00655***	0.00532***
	(0.000916)	(0.00102)	(0.000523)	(0.0000981)	(0.000209)
% Error in biometrics	0.113***	0.118***	0.00548**	-0.00427***	-0.0441***
	(0.00488)	(0.00479)	(0.00242)	(0.000568)	(0.00121)
Turnout	-0.0966***	0.00433	0.0239***	0.0209***	0.0815***
	(0.00546)	(0.00569)	(0.00290)	(0.000648)	(0.00121)
Time zone	6.260***	2.856***	-4.162***	-0.999***	-1.694***
	(0.119)	(0.137)	(0.0377)	(0.0109)	(0.0204)
Age (avg.)	0.395***	-0.554***	0.0704***	-0.0192***	0.00145
	(0.00566)	(0.00582)	(0.00297)	(0.000722)	(0.00123)
Women voters	-5.245***	-6.663***	7.214***	1.231***	3.009***
	(0.323)	(0.317)	(0.192)	(0.0391)	(0.0731)
Years of schooling (avg.)	9.629***	-13.21***	3.691***	-0.734***	-1.706***
	(0.0425)	(0.0449)	(0.0223)	(0.00496)	(0.00890)
Constant	-11.69***	117.9***	-20.64***	4.805***	3.583***
	(1.144)	(1.172)	(0.649)	(0.140)	(0.257)
R^2	0.347	0.492	0.182	0.136	0.188
Observations	225135	225175	225132	222644	225033
N.Clusters	225135	225175	225132	222644	225033

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Second round of elections

Quartile 25 (0-220 voters)

Table 19: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	15.05***	-15.98***	0.508***	-0.305*
	(1.330)	(1.350)	(0.117)	(0.183)
Closure delay (in min.)	-0.114***	0.114***	-0.00458**	0.00928**
	(0.0125)	(0.0139)	(0.00184)	(0.00412)
% Error in biometrics	-0.151***	0.245***	-0.00672***	-0.0905***
	(0.00892)	(0.00977)	(0.00106)	(0.00221)
Turnout	0.0106	0.00102	-0.000120	-0.0190***
	(0.0103)	(0.0112)	(0.00122)	(0.00264)
Time zone	11.79***	-9.481***	-0.456***	-1.667***
	(0.321)	(0.333)	(0.0233)	(0.0497)
Age (avg.)	1.055***	-1.194***	0.0132***	0.0955***
	(0.0120)	(0.0130)	(0.00136)	(0.00321)
Women voters	-16.84***	13.74***	-0.488***	2.661***
	(0.920)	(0.973)	(0.0925)	(0.198)
Years of schooling (avg.)	16.83***	-17.28***	0.117***	-0.00406
	(0.0976)	(0.105)	(0.00952)	(0.0211)
Constant	-58.93***	159.5***	4.147***	1.589**
	(2.957)	(3.142)	(0.305)	(0.652)
R^2	0.516	0.498	0.013	0.092
Observations	45121	45347	36603	44452
N.Clusters	45121	45347	36603	44452

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

Quartile 50 (220-339 voters)

Table 20: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	6.707***	-7.244***	0.536***	-0.136*
	(0.546)	(0.542)	(0.0422)	(0.0789)
Closure delay (in min.)	-0.161***	0.124***	0.00163	0.0327***
	(0.0195)	(0.0161)	(0.00122)	(0.00499)
% Error in biometrics	-0.316***	0.445***	-0.0204***	-0.109***
	(0.00485)	(0.00530)	(0.000419)	(0.00113)
Turnout	-0.0276***	-0.0178***	0.00689***	0.0342***
	(0.00557)	(0.00598)	(0.000459)	(0.00130)
Time zone	14.06***	-11.85***	-0.351***	-1.796***
	(0.126)	(0.128)	(0.00868)	(0.0204)
Age (avg.)	0.892***	-1.041***	0.0258***	0.117***
	(0.00680)	(0.00736)	(0.000587)	(0.00158)
Women voters	-11.96***	9.120***	0.229***	2.459***
	(0.423)	(0.450)	(0.0329)	(0.0914)
Years of schooling (avg.)	16.44***	-16.46***	0.202***	-0.263***
	(0.0489)	(0.0532)	(0.00379)	(0.0101)
Constant	-67.19***	169.7***	-0.0193	-1.231***
	(1.411)	(1.503)	(0.111)	(0.308)
R^2	0.510	0.490	0.060	0.122
Observations	182739	182792	173859	182649
N.Clusters	182739	182792	173859	182649

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

Quartile 75 (>339)

Table 21: The effect of information exposure on voting behavior (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1900h)	17.77***	-17.60***	0.705***	-1.061***
	(0.756)	(0.675)	(0.0563)	(0.198)
Closure delay (in min.)	-0.229***	0.150***	0.00346***	0.0759***
	(0.0163)	(0.0125)	(0.000892)	(0.00637)
% Error in biometrics	-0.269***	0.459***	-0.0334***	-0.157***
	(0.00504)	(0.00543)	(0.000426)	(0.00126)
Turnout	-0.119***	0.0466***	0.00285***	0.0671***
	(0.00585)	(0.00619)	(0.000451)	(0.00124)
Time zone	5.574***	-2.765***	-0.592***	-2.125***
	(0.141)	(0.143)	(0.00919)	(0.0242)
Age (avg.)	0.579***	-0.658***	0.00904***	0.0685***
	(0.00605)	(0.00642)	(0.000528)	(0.00138)
Women voters	-6.611***	2.745***	0.645***	3.112***
	(0.359)	(0.379)	(0.0300)	(0.0841)
Years of schooling (avg.)	12.63***	-11.80***	0.0705***	-0.940***
	(0.0468)	(0.0518)	(0.00358)	(0.00998)
Constant	-17.17***	114.9***	1.341***	1.428***
	(1.263)	(1.334)	(0.105)	(0.292)
R^2	0.340	0.313	0.052	0.157
Observations	225156	225178	222503	225159
N.Clusters	225156	225178	222503	225159

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).

M Estimates with data from the 2014 Brazilian presidential elections

It is also possible that voters in treated units were already more prone to supporting the frontrunner, Bolsonaro, than voters in untreated units. To account for this, we examine the electoral preferences of treated and untreated units in the 2014 presidential elections. As Tables 22 and 23 show, units exposed to information in 2018 were more prone supporting the left-wing PT and less supportive of the centre-right PSDB. That is, there is no evidence to suggest that units treated in 2018 were already more predisposed to supporting Bolsonaro.

Table 22: Voter behaviour in the first round of the 2014 elections according to the treatment in the 2018 presidential elections

	(1)	(2)	(3)
	Frontrunner (PT)	Second place (PSDB)	Third place (PSB)
Treated (>1900h)	4.755***	-7.974***	2.734***
	(0.204)	(0.150)	(0.173)
Time zone	-2.452***	7.288***	-1.271***
	(0.108)	(0.107)	(0.0917)
Age (avg.)	-0.736***	0.893***	-0.184***
	(0.00430)	(0.00436)	(0.00322)
Women voters	-7.875***	-17.50***	16.17***
	(0.253)	(0.266)	(0.203)
Years of schooling (avg.)	-16.33***	11.53***	4.009***
	(0.0277)	(0.0280)	(0.0222)
R^2	0.544	0.390	0.129
Observations	349751	349203	348471
N.Clusters	349751	349203	348471

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-3) at the level of voting machine (where the treatment occurred).

Table 23: Voter behaviour in the first round of the 2014 elections according to the treatment in the 2018 presidential elections (placebo treatment)

	(1)	(2)	(3)
	Frontrunner (PT)	Second place (PSDB)	Third place (PSB)
Treated (>1700h and <1900h)	0.865***	-4.639***	2.630***
	(0.0537)	(0.0554)	(0.0384)
Time zone	-1.813***	5.759***	-0.595***
	(0.104)	(0.112)	(0.106)
Age (avg.)	-0.737***	0.880***	-0.176***
	(0.00430)	(0.00433)	(0.00320)
Women voters	-7.986***	-16.54***	15.60***
	(0.253)	(0.264)	(0.202)
Years of schooling (avg.)	-16.37***	11.56***	4.018***
	(0.0277)	(0.0278)	(0.0219)
R^2	0.543	0.399	0.138
Observations	349751	349203	348471
N.Clusters	349751	349203	348471

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-3) at the level of voting machine (where the treatment occurred).

N Estimates with the placebo treatment

Tables 24 and 25 report the estimates for both first and second rounds of elections with a placebo treatment. To be considered treated units in our placebo analyses, voting machines would have had to close with a delay (after 17:00 local-time) but before the results started being announced (at 19:00 BRT). In other words, for these analyses, treated units encompass voting machines where voters faced delays and stayed in the queue but could not have been exposed to information.

First round of elections

Table 24: The effect of non-information exposure on voting behaviour - Placebo treatment (first round)

	(1) Frontrunner	(2) Second place	(3) Third place	(4) Blank	(5) Null
Treated (>1700h and <1900h)	-2.840***	1.771***	1.099***	0.0130**	0.593***
	(0.0492)	(0.0501)	(0.0290)	(0.00597)	(0.0104)
Closure delay (in min.)	-0.0532***	0.0507***	0.0125***	-0.00388***	0.00524***
	(0.000491)	(0.000600)	(0.000372)	(0.0000583)	(0.000127)
% Error in biometrics	-0.115***	0.281***	0.0436***	-0.0122***	-0.0382***
	(0.00286)	(0.00317)	(0.00176)	(0.000381)	(0.000686)
Turnout	-0.181***	0.0926***	0.0654***	0.0128***	0.0465***
	(0.00359)	(0.00397)	(0.00224)	(0.000449)	(0.000828)
Time zone	9.956***	-2.625***	-4.304***	-0.817***	-1.685***
	(0.0730)	(0.0853)	(0.0230)	(0.00666)	(0.0126)
Age (avg.)	0.512***	-0.703***	0.0142***	-0.00418***	0.0194***
	(0.00403)	(0.00444)	(0.00229)	(0.000523)	(0.000890)
Women voters	-4.141***	-7.814***	6.096***	1.184***	3.491***
	(0.238)	(0.252)	(0.149)	(0.0288)	(0.0525)
Years of schooling (avg.)	12.94***	-16.40***	2.475***	-0.457***	-1.307***
	(0.0286)	(0.0317)	(0.0168)	(0.00340)	(0.00611)
Constant	-38.78***	153.0***	-12.61***	2.902***	1.448***
	(0.819)	(0.895)	(0.501)	(0.101)	(0.184)
R^2	0.442	0.538	0.106	0.069	0.145
Observations	452656	453301	451763	438539	451574
N.Clusters	452656	453301	451763	438539	451574

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-5) at the level of voting machine (where the treatment occurred).

Second round of elections

Table 25: The effect of non-information exposure on voting behaviour - Placebo treatment (second round)

	(1) Frontrunner	(2) Second place	(3) Blank	(4) Null
Treated (>1700h and <1900h)	-1.144***	0.611***	0.0303***	0.496***
	(0.0491)	(0.0512)	(0.00402)	(0.0117)
Closure delay (in min.)	-0.0897***	0.0675***	0.00173***	0.0225***
	(0.00843)	(0.00788)	(0.000659)	(0.00264)
% Error in biometrics	-0.307***	0.468***	-0.0246***	-0.136***
	(0.00323)	(0.00355)	(0.000297)	(0.000777)
Turnout	-0.0762***	0.0313***	0.00456***	0.0380***
	(0.00379)	(0.00407)	(0.000322)	(0.000868)
Time zone	10.89***	-8.382***	-0.450***	-1.984***
	(0.0847)	(0.0864)	(0.00585)	(0.0136)
Age (avg.)	0.767***	-0.880***	0.0158***	0.0889***
	(0.00427)	(0.00461)	(0.000386)	(0.00101)
Women voters	-7.311***	3.056***	0.345***	3.410***
	(0.264)	(0.283)	(0.0224)	(0.0599)
Years of schooling (avg.)	14.99***	-14.80***	0.131***	-0.455***
	(0.0317)	(0.0349)	(0.00255)	(0.00679)
Constant	-54.34***	157.3***	1.008***	-1.445***
	(0.896)	(0.958)	(0.0765)	(0.204)
R^2	0.447	0.428	0.047	0.141
Observations	453016	453317	432965	452260
N.Clusters	453016	453317	432965	452260

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The unit of analysis is voting machine. We cluster standard errors of all OLS models (1-4) at the level of voting machine (where the treatment occurred).