Do Mayors Matter?

Reverse Coattails on Congressional Elections in Brazil

Supporting Information Files (SIF)

October 12, 2020

Contents

1 Research Design for the Mechanisms and Extensions

In this section, I detail the research design for the models assessing the mechanisms of reverse coattails and the empirical extensions. The tables below introduce the treatment and control groups and the outcome variables in each specification.

Table 1: Description of the Treatment Effect for Access to Pork

Entire Sample

- Treatment Group: Mayor barely wins at t.
- Control Group: Runner up candidate who barely loses at t
- Outcome: Binary indicator to when the municipality had resources allocated from individual amendments on the federal budget proposed by House Members from the incumbent/runner up's party.

Party Effects Sample

- Treatment Group: Mayor of party j barely wins at t.
- Control Group: Runner up candidate from party j who barely loses at t
- Outcome: Binary indicator to when the municipality had resources allocated from individual amendments on the federal budget proposed by members of the House from party j.

Table 2: Description of the Treatment Effect for Information Gains

Entire Sample

- Treatment Group: Mayor barely wins at t.
- Control Group: Runner up candidate who barely loses at t
- Outcome: Effective Number of Candidates by list for the incumbent/runner up's party weighted by the average number of effective candidates in each of their proportional list for the House Election at t_{+2}.

Table 3: Description of the Design for the Party Institutional Strength

Governor Sample

- Treatment Group: Mayor who barely wins at t and is a member of the Governor's
- Control Group: Runner up candidate who barely loses at t for a mayor from the treatment group.
- Outcome: The party vote share for House at t_{+2} in municipality i for the treatment and control group.

Representative Elected Sample

- Treatment Group: Mayor who barely wins at t and her party has at least one elected representative for the House at the same district at t_{-2}
- Control Group: Runner-up candidate who barely loses at t for a mayor from the treatment group.
- Outcome: The party vote share for House at t_{+2} in municipality i for the treatment and control group.

Table 4: Extension: Reverse Coattails for Career Incentives

Reelection Sample

- Treatment Group: Mayor barely wins at t and runs for reelection at t_{+4}.
- Control Group: Runner up candidate who barely loses at t and the winner runs for reelection at t_{+4}
- Outcome: The party vote share for House at t_{+2} in municipality i for the treatment and control group.

Lame Duck Sample

- Treatment Group: Mayor barely wins the reelection at t and is forbidden to run again at t_{+4}.
- Control Group: Runner up candidate who barely loses at t for a Lame-Duck mayor
- Outcome: The party vote share for House t_{+2} in municipality i for the treatment and control group.

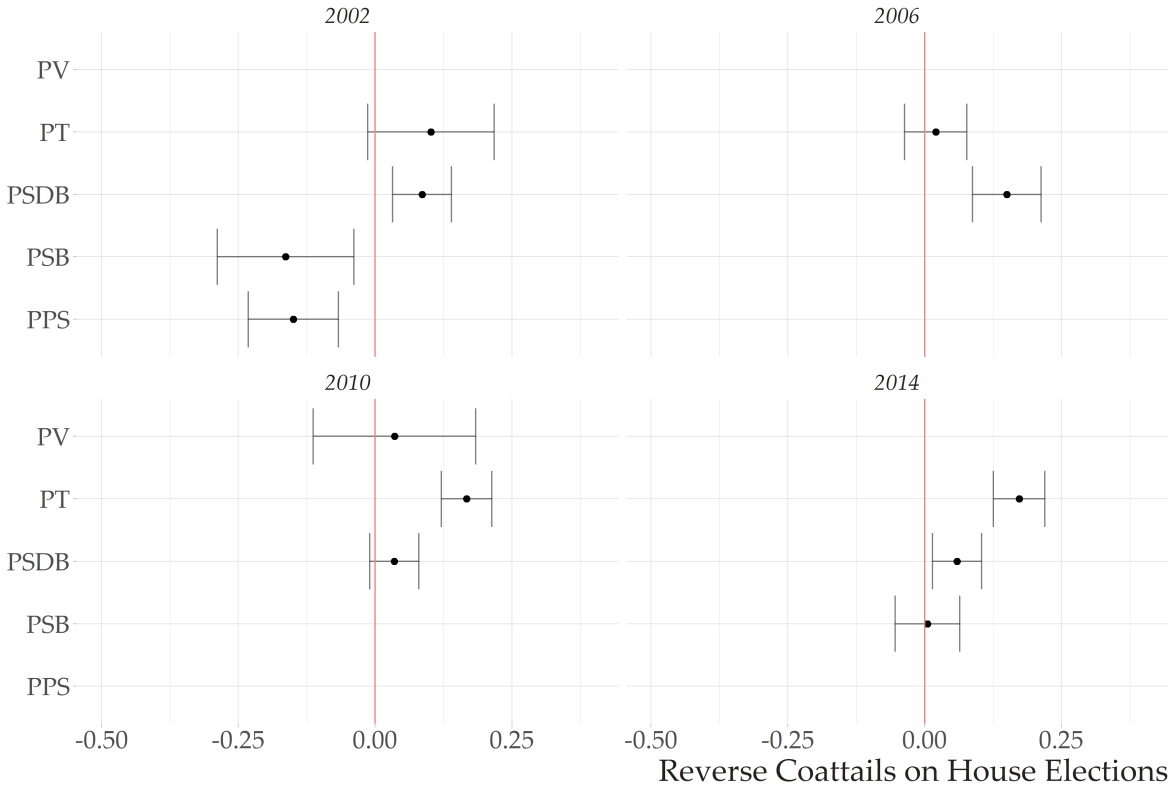
Open Seat Sample

- Treatment Group: Mayor barely wins the reelection at t and decides not to run for reelection at t_{+4}.
- Control Group: Runner up candidate who barely loses at t for a mayor who has decided not to run for reelection.
- Outcome: The party vote share for House t_{+2} in municipality i for the treatment and control group

2 Parties with Competitive Presidential Candidates

Being competitive nationally might explain reverse coattails effects. This idea has remarkable semblance with the arguments made by the scholarship on presidential coattails about horizontal effects; therefore, it offers us a way to check the robustness of the results presented in the main paper. In Brazil, Presidential elections coincide with House elections; hence, it is a plausible argument that national competitiveness might work as the causal mechanism explaining heterogeneous effects by parties. To discuss this alternative, I estimate local polynomial models splitting the data by year and by each competitive presidential candidate in the race. The PT and the PSDB appear in all the estimations. I then add the third and fourth runner up party for each election conditional on summing more than 95% of the valid vote share in the first round. Figure 1 presents the results.

Figure 1: Treatment effect for nationally competitive party using the local linear estimation by electoral year



Having a competitive national candidate has no consistent effect. As figure 1 indicates, none

of the other parties running against the PT and PSDB, exhibit consistent positive co-partisan effects of winning local elections. Even among the PT and the PSDB some heterogeneity occurs. In 2002 and 2006, only the PSDB has positive effects, while the PT exhibits positive effects alone in 2010 and together with the PSDB in 2014. The results also rule out the effect of presidential incumbency affecting coattails effects for the case of PSDB in 2002 and PT in the next elections.

3 Effects for Non-Governor and No Representative Sample

.

In subsection *Party Institutional Strength and Incumbents' Career Incentives*, I assess whether alignment with the Governor Party and having an co-partisan House Member in the same district explains the degree to which parties gain from coattails. Here, I provide an extra piece of information for this section by analyzing the treatment effect for the opposite cases of these two subsamples. I discuss the impact of winning the local election when the mayor does not belong to the governors' party, and it has no representative elected at t_{-2} in the House race. The table below presents the treatment and control group for each subsample.

Table 5: Description of RDD for the Party Coordination Hypothesis

No Governor Sample

- Treatment Group: Mayor who barely wins at t and is not a member of the Governor's.
- Control Group: Runner up candidate who barely loses at t for a mayor from the treatment group.
- Outcome: The party vote share for House at t_{+2} in municipality i for the treatment and control group
- Outcome: The party vote share for House t_{+2} in municipality i for the treatment and control group.

No Representative Elected Sample

- Treatment Group: Mayor barely wins the reelection at t and has no co-partisan House Member elected at t_{-2}.
- Control Group: Runner up candidate barely loses at t for a mayor from the treatment group.
- Outcome: The party vote share for House t_{+2} in municipality i for the treatment and control group.

Figure 2 presents the results. For both subsamples, the treatment effects are negative. Mayors who are barely elected reduce the vote share of their party in subsequent elections in cases of non-alignment with the governor. The same effects occur for incumbents affiliated with a party with no representative elected in the district. In this sense, as the paper more broadly show, mayoral reverse coattails seems to work effectively for larger parties. In comparison, smaller parties probably rely on different strategies for gaining national political offices.

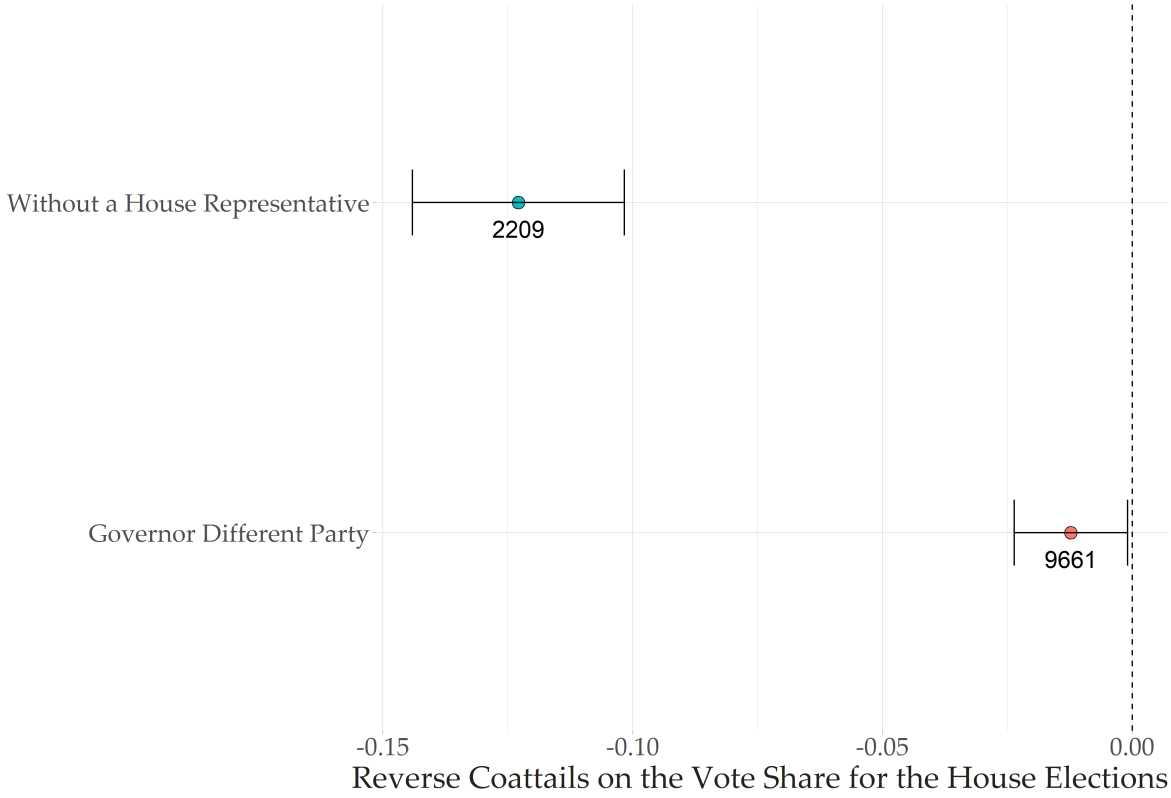


Figure 2: Conditional Treatment effect for the No Governor Alignment and No Representative Elected subsamples. The figures plot robust 95% confidence intervals. The number of cases is printed above each point estimate.

4 Local Linear Estimators for Partisan Effects

In this appendix, I provide the estimates for party subgroup treatment effects and for access to pork using the local estimators proposed by Calonico, Cattaneo, and Titiunik (2014). Table 6 presents the full results, and figure 4 plots them graphically. The results provide a crucial intuition about the advantages of using the Bayesian Lasso estimation for subgroup effects. First, data is sparse for most of the parties that might render bias in the parameters' local estimation. Second, the results somewhat converge to those reported in the paper. Except for the PCdoB, a strong programmatic communist party in Brazil, which have positive and statistically significant treatment effects, all the other 5 five parties identified by the Bayesian Lasso model also appear in the local estimation with positive and significant results. The main issue here related to the identification of false negatives; the local linear model finds a negative and statistically significant effect for some other parties for which the samples are ridiculously small. I direct the reader to the cases of the PRTB and the PSL with 21 and 53 cases, respectively, as an example.

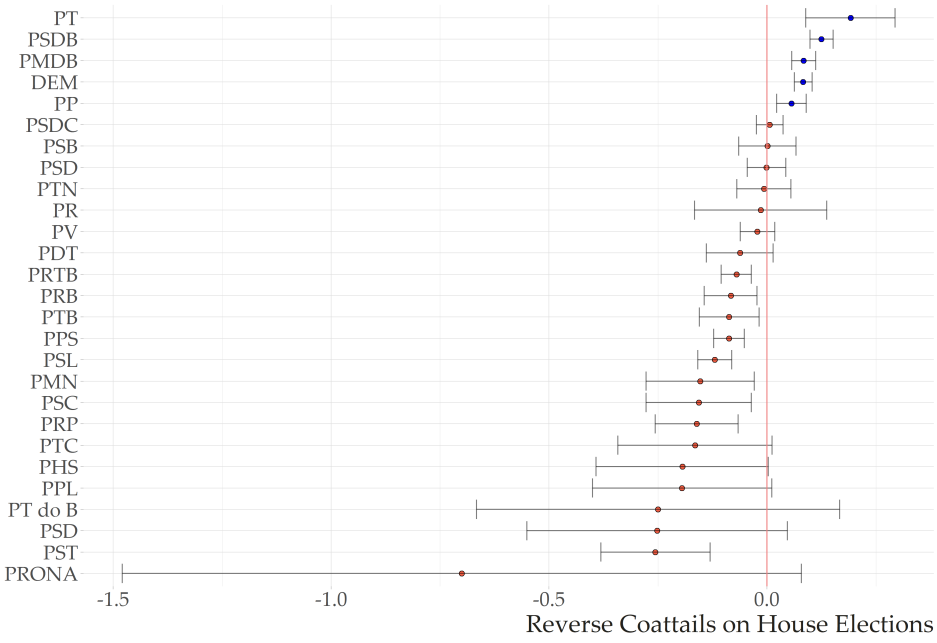


Figure 3: Treatment subgroup Party Effects using Local Estimators.

Table 6: Regression Discontinuity for Party Effects using Local Estimators

Outcome: Vote Share Co-partisans for the House Election					
Party	Number of Cases	Estimate	Lower 95% CI	Lower 95% CI	Bandwidth
PC do B	64	0.177	0.089	0.294	16.089
PT	1292	0.124	0.099	0.152	19.563
PMDB	2829	0.086	0.063	0.104	15.391
PSDB	1504	0.079	0.057	0.112	11.076
DEM	1423	0.060	0.022	0.090	13.518
PP	1295	0.004	−0.024	0.037	13.308
PSB	616	0.002	−0.045	0.043	14.366
PSD	288	−0.006	−0.069	0.055	12.764
PSDC	14	−0.016	−0.065	0.067	7.526
PR	833	−0.026	−0.061	0.018	17.493
PTN	18	−0.032	−0.166	0.137	16.824
PV	184	−0.054	−0.139	0.014	17.450
PDT	881	−0.070	−0.105	−0.036	18.926
PRTB	21	−0.074	−0.144	−0.023	10.874
PRB	82	−0.081	−0.155	−0.018	13.321
PTB	853	−0.083	−0.122	−0.052	13.949
PPS	530	−0.121	−0.159	−0.081	20.445
PSL	53	−0.138	−0.276	−0.029	17.574
PSC	115	−0.149	−0.256	−0.066	12.840
PMN	100	−0.156	−0.277	−0.036	19.996
PHS	27	−0.175	−0.400	0.011	11.235
PRP	52	−0.177	−0.342	0.012	11.976
PTC	37	−0.187	−0.392	0.003	18.221
PPL	3	−0.197	−0.666	0.167	7.602
PT do B	25	−0.230	−0.551	0.047	8.754
PSD	68	−0.242	−0.381	−0.130	12.578
PST	8	−0.535	−1.479	0.079	6.782

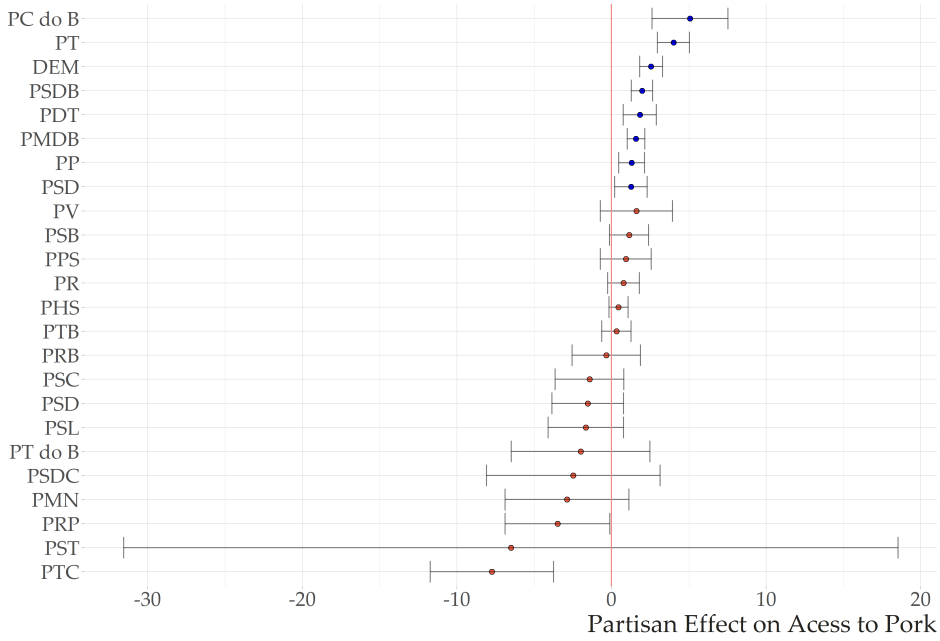


Figure 4: Access to Pork by Parties using Local Estimators.

5 Validity of RD Designs

In this section, I discuss the validity of the RD design used for the paper's main model. To analyze the change in the outcome occurring at the cutoff as being the causal effect of winning local elections, I must show that the continuity assumption for the RD design holds in this case. I discuss in this section some empirical evidence supporting the validity of the continuity assumption.

The main empirical challenge here is to show no other factors related to the outcome, and the running variable is discontinuous at the cutoff. I first plot the density of the running variable for the pooled data and by year, for each subsample of the mediators and the five parties with positive conditional effects identified using the Bayesian LASSO model. If parties could influence whether they lose or win, one would be likely to observe very few parties that barely lose, and many more parties that barely win. At least since the adoption of electronic ballots, Brazil has tremendously reduced cases of electoral manipulation (Hidalgo, 2010). However, it is paramount to verify this empirical pattern to validate the RD design. Figure presents histograms for the margin of victory and p-values of the null hypothesis that the density of the running variable is continuous at the cutoff using the local polynomial density estimator developed by Cattaneo, Jansson, and Ma (2018). The graphs 5, 6, and 7 indicate that there is no evidence of sorting in any of the cases (p-values range from 0.11 to 0.99).

Furthermore, I estimate "placebo" RD effects on pretreatment covariates. The treatment here being assigned after these covariates are measured, then I can assume winning local elections have effects indistinguishable from zero. Significant effects would be an indication of unobserved confounders affecting the outcome. I run tests estimating the treatment effects of winning at t on the party vote share at t_{-2} in the House elections for the pooled data, for each year, and for the five parties, I find significant subgroup effects. Table 7 presents the results. The assumption here is the same; if winning at t has any relationship with the dependent variable measured before the treatment occurs, it indicates the presence of unobservable covariates. I should note I do not run this test on the election of 2000 because in the lagged case - house election for 1998 - the country was not yet using electronic ballots, and then electoral fraud was still a possibility. Except for the PMDB, actually, with negative results, none of the models are statistically indistinguishable from zero at 95% level of confidence using the robust standard

errors and data-driven bandwidths.

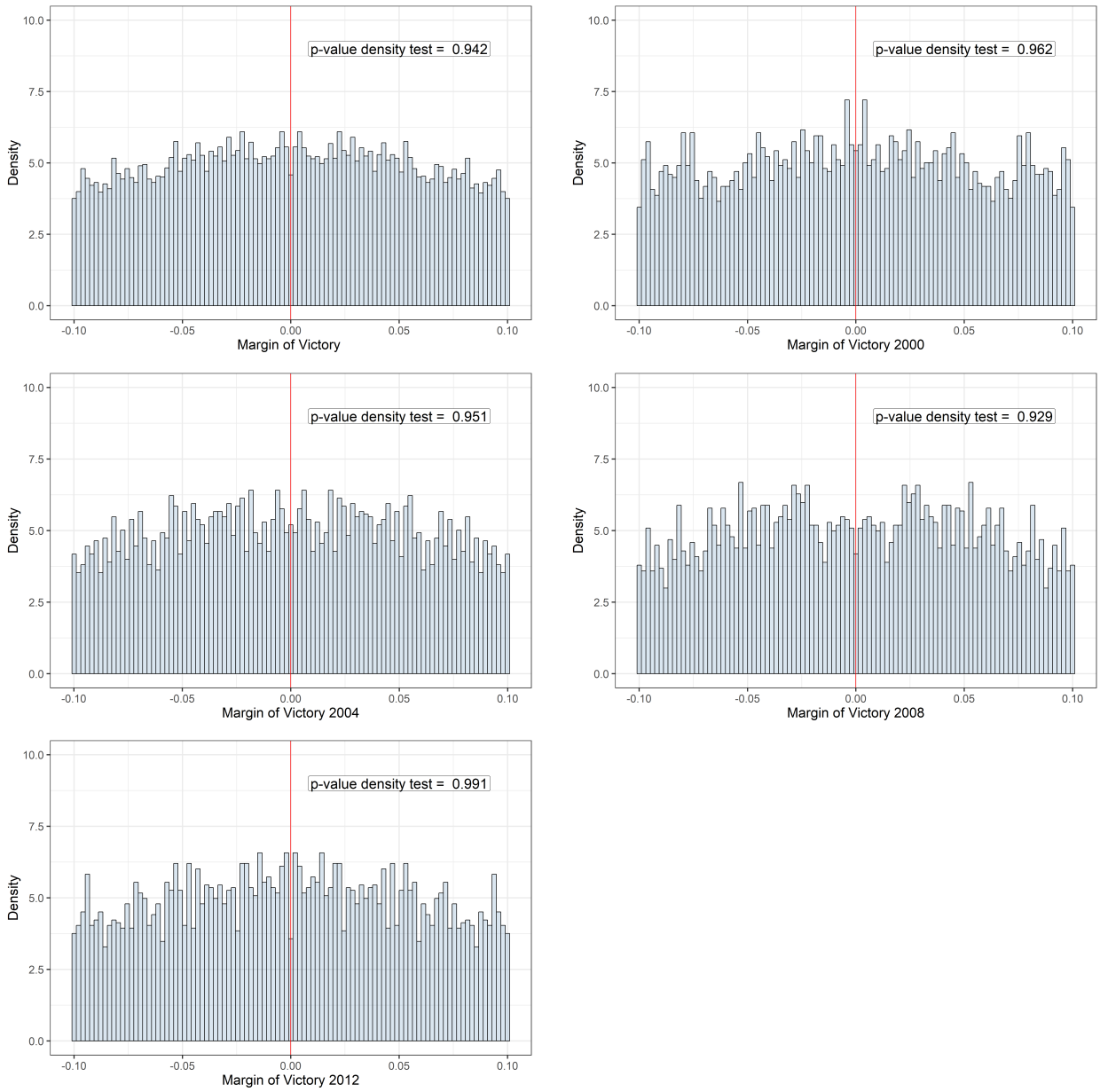


Figure 5: Histogram of margin of victory for the pooled data and divided by electoral cycle. P-value robust density tests developed by Cattaneo, Jansson, and Ma (2018) in each figure.

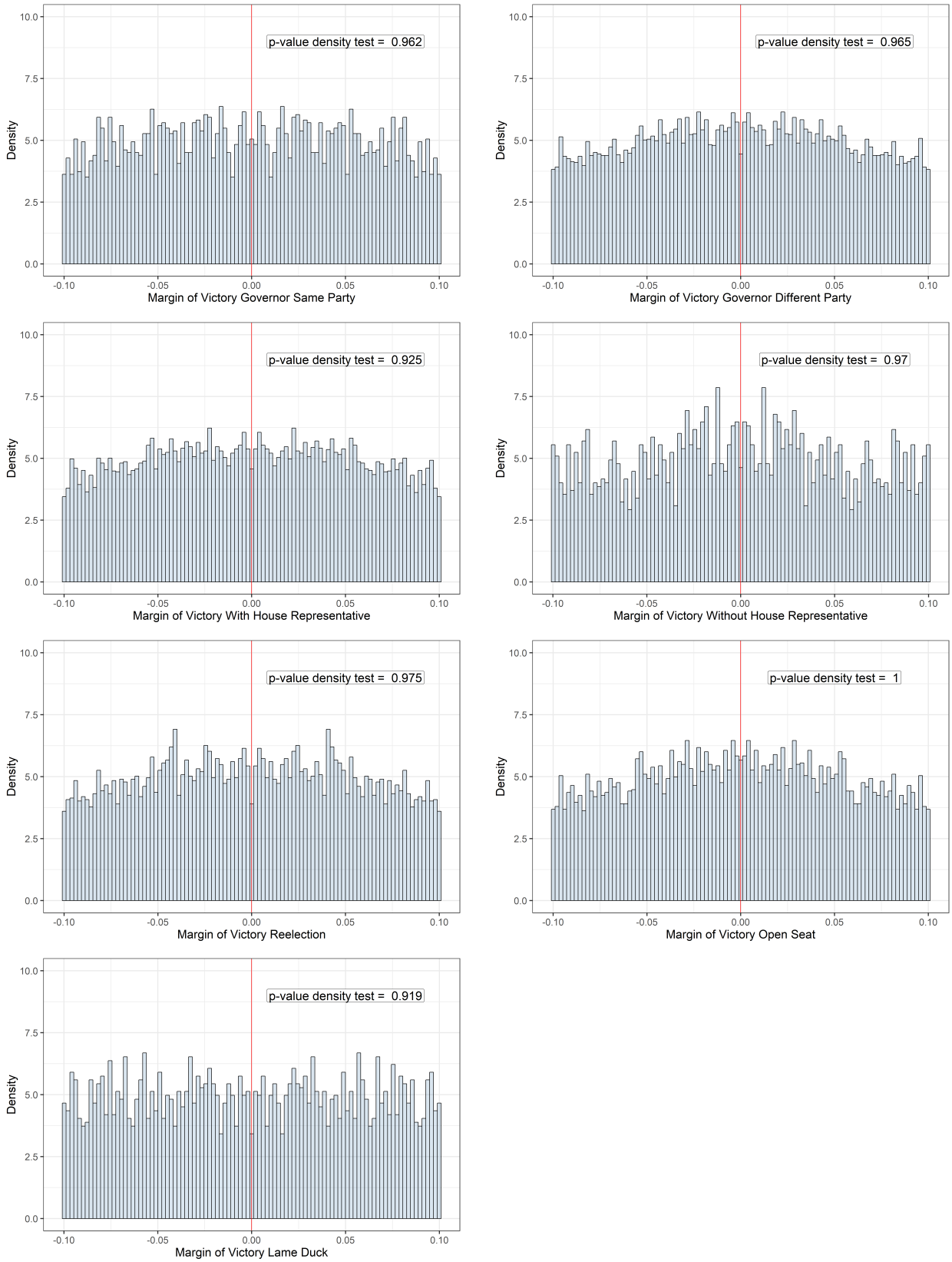


Figure 6: Histogram of margin of victory for the mediators subsample. P-value robust density tests developed by Cattaneo, Jansson, and Ma (2018) in each figure.

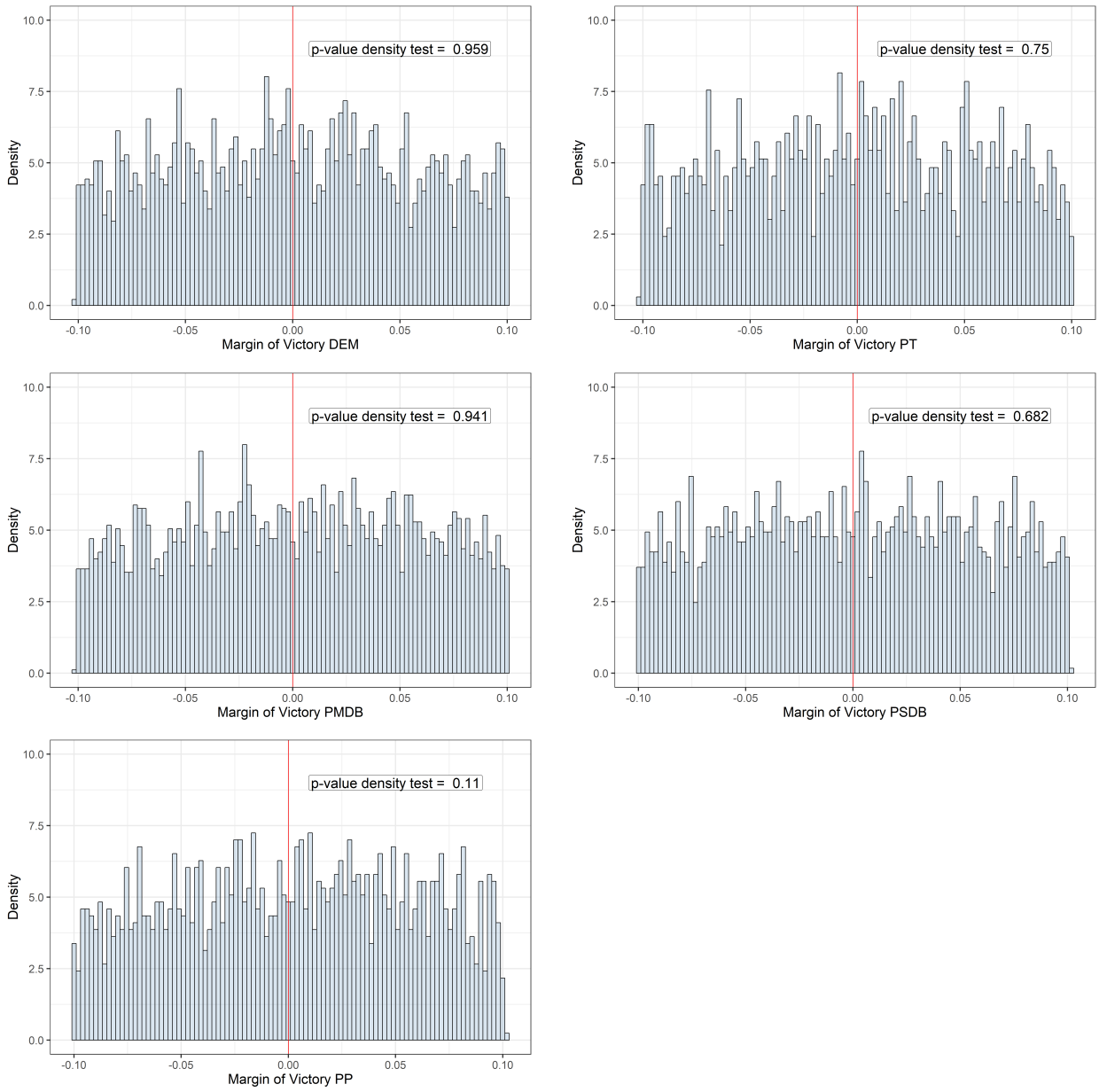


Figure 7: Histogram of margin of victory for each of the five parties with positive conditional treatment effects. P-value robust density tests developed by Cattaneo, Jansson, and Ma (2018) in each figure.

Table 7: Regression Discontinuity on Lagged Values Validity

Outcome: Vote Share Co-partisans for the House Election in the previous election						
Outcome	p-value	Estimate	Lower 95% CI	Lower 95% CI	Number of cases	Bandwidth
Lagged Vote Share: Incumbent	0.325	−0.005	−0.018	0.006	9894	14.264
Lagged Vote Share: 2004	0.071	−0.019	−0.039	0.002	3941	18.389
Lagged Vote Share: 2008	0.085	0.018	−0.002	0.038	3431	16.109
Lagged Vote Share: 2012	0.306	−0.009	−0.027	0.009	3661	16.453
Lagged Vote Share: PT	0.752	0.002	−0.027	0.038	1380	15.668
Lagged Vote Share: PSDB	0.226	0.017	−0.011	0.047	937	15.146
Lagged Vote Share: PMDB	0.040	−0.026	−0.056	−0.001	2001	14.725
Lagged Vote Share: PP	0.280	−0.018	−0.067	0.019	796	11.679
Lagged Vote Share: DEM	0.899	−0.003	−0.050	0.044	931	13.787

6 Robustness Checks: Rate of change of Reverse Coattails for House Elections, Probability of Winning Local, and Support for State legislators

To ensure the robustness of the findings, I present results using different models specifications for the Regression Discontinuity Design. Table 8 presents six different models. Column 2-4 uses a local regressor, as in the main paper, with a triangular kernel, and different choices of the polynomial functions and bandwidth selection. Columns 5 presents a simple difference in means model, and columns 6-7 uses a linear models with quadratic and cubic polynomial terms for the running variable. Overall, results provide evidence of robustness for the existence of reverse coattails. Across all the specifications, point-estimates are vastly positive, and in models that demand less data, as in the linear models, results are significant even on narrow bandwidths.

Table 8: Regression Discontinuity Results: Robustness Checks

Outcome: Vote Share Co-partisans for the House Election						
Bandwidth	Local Linear	Local Quadratic	Local Cubic	Diff-in-Means	Linear Quadratic	Linear Cubic
MSE-Optimal	0.021 (0)	0.021 (0)	0.02 (0.002)			
bw <1 %	0.031 (0.271)	0.035 (0.359)	0.017 (0.726)	0.02061 (0.00519)	0.01767 (0.24281)	0.01629 (0.4283)
bw <5 %	0.015 (0.17)	0.02 (0.163)	0.023 (0.214)	0.02608 (0)	0.02183 (0.00107)	0.01337 (0.1322)
bw <10 %	0.016 (0.033)	0.017 (0.083)	0.016 (0.195)	0.03391 (0)	0.02206 (0)	0.01681 (0.00796)
bw <15 %	0.017 (0.008)	0.016 (0.052)	0.017 (0.103)	0.03597 (0)	0.0259 (0)	0.01947 (2e-04)
bw <25 %	0.022 (0)	0.016 (0.013)	0.014 (0.085)	0.04257 (0)	0.02289 (0)	0.02504 (0)
bw <100 %	0.023 (0)	0.024 (0)	0.022 (0)	0.05183 (0)	0.02848 (0)	0.02196 (0)

Note: Running variable is party's margin of victory for the local executive election at t, outcome is mayor/runner-up's copartisans vote-share for the House election at t + 2. The main result in the first row uses a MSE-optimal bandwidth selection procedure (Calonico et al., 2014) for the local models, and present robust p-values for the local models. Difference in means and the other linear models were estimated using benchmark OLS

Then, I re-estimate the models for the main effects and mediators using different dependent variables. My theory would also predict the existence of reverse coattails. I first estimate the treatment effect on the rate of change of the partisan vote share for House elections before and after electing the mayor; second, I use vote share of state legislators between the incumbent and the runner up's party. If winning the local matters to explain different electoral gains between the incumbent and the runner up in the upcoming election, it is reasonable to expect the incumbents' vote share *vis-a-vis* the runner up candidate also increases comparing the moment before and after winning the control over the local executive. I replicate precisely the same models of the paper and present the results below.

Second, I estimate the same models of the paper using a different manipulation for the dependent variable. In the main paper, I measure reverse coattails using the incumbent/runner-up party vote-share in a given municipality in the forthcoming House election. Here, I use two different set of dummies indicating if the party of the incumbent/runner-up is: i) the most-voted party in the t_{+2} upper-level House election in municipality i; or ii) one of the top-three most voted parties in the t_{+2} upper-level House election in municipality i. Although both variables are similar proxies for the dependent variable discussed in the paper, especially considering the high levels of fragmentation in Brazil, using these rank-order dummies provide a harder assessment for the presence of reverse coattails in Brazil.

Finally, I do the same tests for State legislators' elections, which also occur on the same day of House elections for all the States in Brazil.

The effects of the rate of change are higher than those reported on the paper for my original dependent variable. In other words, winning the local executive generates a substantial impact on the incumbent party vote share's growth compared to the previous House election. All the results are aggregated at the municipal level. For the mediators, the results are somewhat similar in the case of the career ambition variables, while party coordination capacity seems to explain most of the variation. In conclusion, the results confirm our theory that controlling the local matter for partisan national gains.

Figure 8: Smoothed Regression Discontinuity of the Treatment Effect using the variation in vote share for the incumbent's party before and after winning the local election (Red lines represent the optimal bandwidth decision).

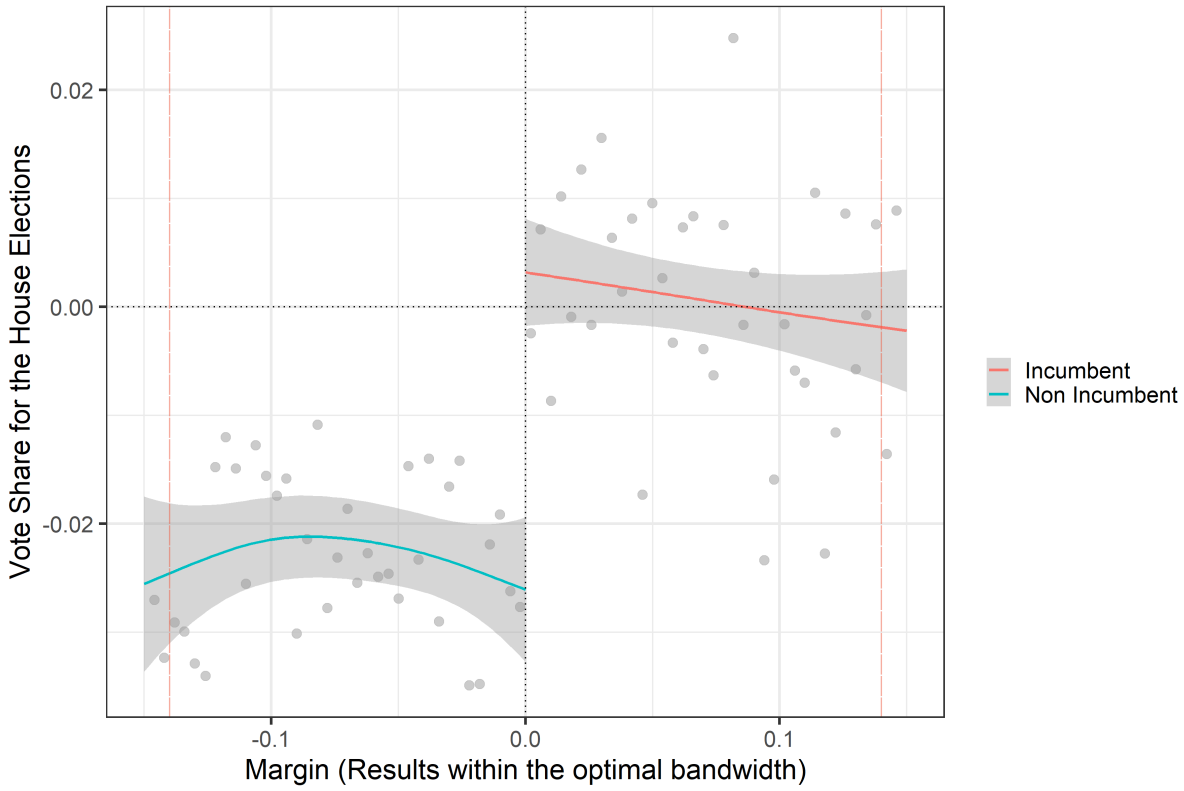


Table 9: Regression Discontinuity Results

Outcome: Rate of Change of the Vote Share of co-partisans for the House Election					
Subsample	Optimal Bandwidth)	Estimate	Lower 95% CI	Lower 95% CI	Number of cases
Incumbent	14.7	0.031	0.022	0.041	13239
Year: 2000	18.561	0.030	0.012	0.052	3637
Year: 2004	15.617	0.022	0.001	0.041	3576
Year: 2008	15.563	0.033	0.016	0.052	3352
Year: 2012	12.088	0.034	0.019	0.053	2966
Open Seat Sample	17.711	0.016	0.002	0.028	6311
Reelection Sample	11.456	0.061	0.046	0.080	4569
Lame Duck Sample	18.441	−0.014	−0.037	0.010	2552
Governor Different Party	16.817	0.033	0.023	0.043	11178
Governor Same Party	20.889	0.015	−0.003	0.036	3686
Without a House Representative	16.847	0.018	−0.003	0.040	2251
With a House Representative	16.594	0.032	0.023	0.043	12033

Besides, the models for the probability of being the most-voted party and the top-three most-voted party are also positive, and statistically distinct from zero. Tables 10 and 11 presents the results. Electing a mayor increases in almost eight percentage points the probability of being the most-voted party at municipality i compared with the runner-up party, and four percentage points of being in the top three most voted party. Intuitively, the effect is greater for the first because when comparing the top three most voted parties, the party of the runner-up candidate appears more often, making the differences smaller. The effects are consistent over time.

Regarding the results for state legislators, the effects are weaker than I expected, although still positive. Here, the effects are only restricted to larger parties and are weaker on average. As I discuss in the paper, I read this result as an indication that the economy of scale I suggest shape parts of the effects are weaker for state legislators.

Table 10: Regression Discontinuity (Most Voted Party)

Subsample	Optimal Bandwidth	Estimate	Lower 95% CI	Lower 95% CI	Number of cases
All years	14.40	0.079	0.054	0.104	13287
2000	18.25	0.067	0.020	0.114	3588
2004	17.11	0.043	−0.002	0.087	3788
2008	16.51	0.150	0.102	0.198	3488
2012	15.54	0.071	0.026	0.116	3546

Table 11: Regression Discontinuity Results (Top Three Most Voted Party)

Subsample	Optimal Bandwidth	Estimate	Lower 95% CI	Lower 95% CI	Number of cases
All years	14.40	0.039	0.009	0.069	12799
2000	18.25	−0.011	−0.066	0.044	3547
2004	17.11	−0.005	−0.062	0.051	3564
2008	16.51	0.107	0.048	0.166	3189
2012	15.54	0.079	0.022	0.137	3237

Figure 9: Smoothed Regression Discontinuity of the Treatment Effect using the state legislators vote share (Red lines represent the optimal bandwidth decision).

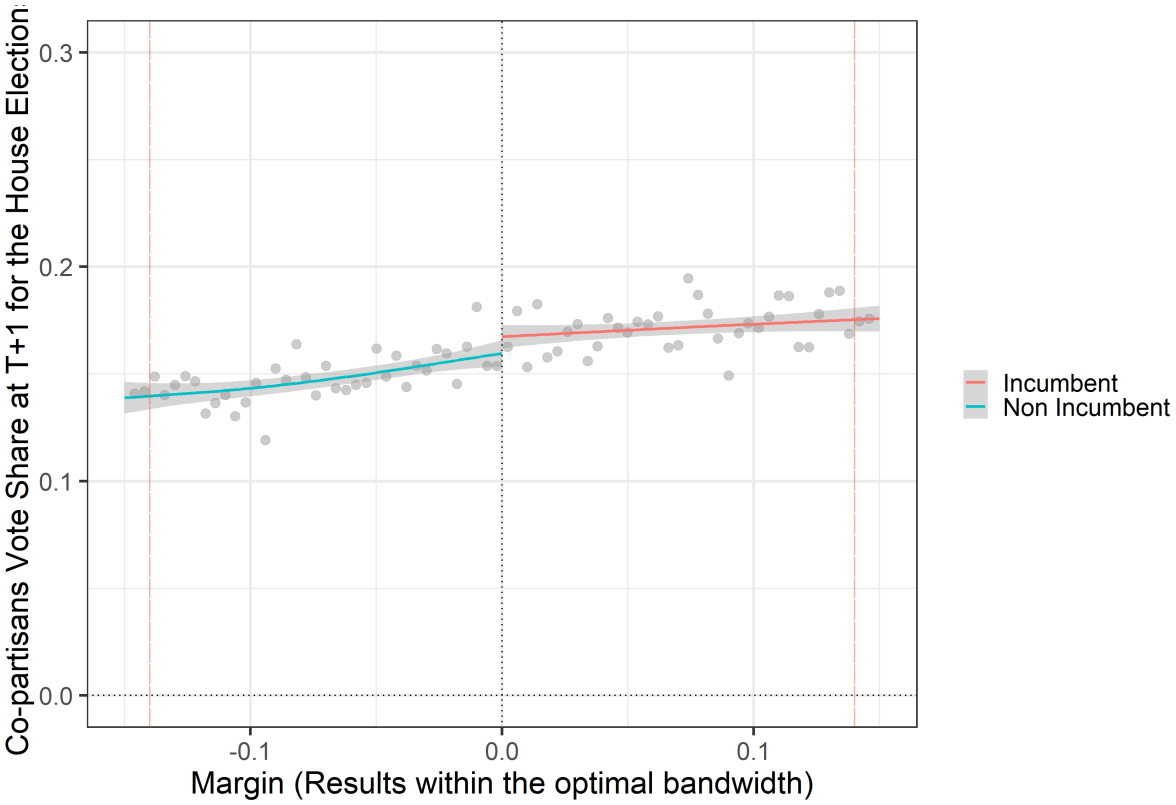


Table 12: Regression Discontinuity Results

Outcome: Vote Share Co-partisans for the State Legislators					
Subsample	Optimal Bandwidth (Margin of Victory)	Estimate	Lower 95% CI	Lower 95% CI	Number of cases
Incumbent	13.1	0.004	−0.007	0.013	12201
Year: 2000	15.826	0.001	−0.020	0.020	3265
Year: 2004	13.756	−0.006	−0.029	0.011	3305
Year: 2008	14.390	0.022	0.004	0.043	3203
Year: 2012	18.008	0.004	−0.012	0.019	3874
Open Seat Sample	13.912	0.009	−0.005	0.024	5438
Reelection Sample	13.633	−0.005	−0.022	0.009	5178
Lame Duck Sample	16.906	0.026	−0.001	0.047	2391
Governor Different Party	12.674	−0.032	−0.045	−0.023	9299
Governor Same Party	18.893	0.132	0.114	0.153	3490
Without a House Representative	20.906	−0.071	−0.091	−0.053	2539
With a House Representative	13.563	0.019	0.007	0.029	10569

References

Calonico, S., Cattaneo, M.D., Titiunik, R., 2014. Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs. Econometrica 82, 2295–2326. URL: http://dx.doi.org/10.3982/ECTA11757, doi:10.3982/ECTA11757.

Cattaneo, M.D., Jansson, M., Ma, X., 2018. Simple local polynomial density estimators. arXiv preprint arXiv:1811.11512 .

Hidalgo, F.D., 2010. Digital democratization: Suffrage expansion and the decline of political machines in Brazil. URL: politics.as.nyu.edu/docs/IO/17524/hidalgo.pdf.