

Do Political Parties Matter?

Evidence from Brazilian Municipalities

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Objectives

- Empirical evaluation of the causal effects of party control.
- Evidence from Brazilian cities and mayoral administration.
- Party effects on economic outcomes:
 - Size of government (taxation, spending, public employees).
 - Resource Allocation.
- Regression Discontinuity Design (RDD) exploiting mayoral races decided by narrow margin.

Theory

- What are the motivations of voters and politicians? Are party effects expected?
- Median Voter Model - Downs (1957)
 - Politicians' motivation is to maximize votes and hold office.
 - Victorious candidate represents the median voter.
 - Party competition to the center. No partisan effects.
- Citizen-candidate Model - Alesina; Besley & Coate.
 - Outcome motivated candidates.
 - Incumbents rule according to their political preferences.
 - Parties do matter for economic outcomes.

Theory

- Tiebout's Hypothesis - Tiebout (1956).
 - Local communities marked by high mobility levels.
 - People move towards towns whose local governments better satisfy their set of preferences (taxation and public goods).
 - Local policies reflect its citizens preferences.
 - Limited room for partisanship.
- Strategic Extremism Model - Glaeser et al. (2005).
 - Parties compete for voters against rivals, but also concern in motivating their own supporters (turnout, donations, etc...).
 - A move away from the center energizes a party's supporters more than discourages non-supporters.
 - Political extremism and different party performance due to a vote-maximizing rational strategy.

Empirical Evidence

- Empirical estimates at the national and state level attest for the partisan importance:
 - Besley and Case (2003): Democratic led states increase spending per capita and family assistance in the U.S.
 - Moretti (2004): Party identification significantly explains U.S congressional voting behavior.
- Conclusions reached at the city level analysis are not as unanimous.

Empirical Evidence

U.S bipartisan context

- Ferreira and Gyourko (2009):
 - RD estimates show no significant party effects on the size of government, resource allocation and crime rates.
 - Tiebout competition between jurisdictions reduces party importance in city's outcomes.
- Gerber and Hopkins (2011):
 - Mayoral effects depend on the autonomy to rule. The shared authority between local, state and federal administrations.
 - Less impacts expected when overlapping authority is greater.
 - RD design estimates point that democrats spend smaller budget share on public safety.
 - No party effects on taxation and social policy.

Empirical Evidence

Multi-party contexts

- Pettersson-Lidbom (2008):
 - Swedish cities analysis.
 - RDD classifying parties as belonging to the left or right-wing.
 - Left-wing administrations spend and tax 2-3% more, employ 4% more workers and hold 7% lower unemployment rates.
 - Parties do matter for economic outcomes.
- Left and right-wing classification commonly used:
 - Solé-olle (2013): significant party effects in spanish municipalities, considering land use policies.
 - Basile (2014): Left-wing administrations impact real state markets in Italy.
- This essay empirically assess the causal party effects in the Brazilian multi-party context and at the city level.

Brazilian Municipalities

- Focus on municipal governments:
 - Large amount of data. Useful for RDD.
 - Possible to compare with Tiebout's predictions.
- Local government's expenditures:
 - Education, Health, Transportation, Local Infrastructure...
 - Constitution rules that at least 25% of the budget share is allocated for education and 15% for health.
- Local government's revenues:
 - Transfers from federal or state levels (no mayoral discretion).
 - Municipal taxes (mayoral discretion).

Political Setting

- Brazil is a multiparty democracy marked by high level of political fragmentation.
- We follow Pettersson-Lidbom (2008) approach of estimating a party coalition effect, comparing left and right-wing mayors.
- Labeling Brazilian parties on the left-right scale is considerably more difficult, however.
- The classification strategy is:
 - ① Review of related political science studies.
 - ② Unanimously classified parties.
 - ③ Statistical models both accounting for centrist parties or not.

Political Setting

Author:	Fernandes (1995)	Mainwaring, Power and Meneguello (2000)	Rodrigues (2002)	Power (2000)	Power and Zucco (2011)	Final
Method:	Voting in congress during constituent	Congress votes and parliamentary opinion polls	Interviews with political analysts	Questionnaires Applied to Party Elites	Interviews with parliamentarians	
Party:						
PCB/PPS	L	-	L	-	4.8	Left-Wing
PCdoB	L	-	L	-	2.6	Left-Wing
PDT	L	-	L	L	4	Left-Wing
PSB	L	-	L	-	3.7	Left-Wing
PT	L	-	L	L	3.6	Left-Wing
PV	L	-	L	-	4.5	Left-Wing
PSOL	-	-	-	-	1.6	Left-Wing
PPS	-	-	-	L	-	Left-Wing
PDC/PSDC	-	CR	-	R	-	Center
PMDB	C	-	C	C	5.9	Center
PSC	R	CR	R	-	-	Center
PSDB	C	-	C	C	5.8	Center
PSL	-	CR	-	-	-	Center
PST	-	CR	R	-	-	Center
PTB	R	CR	C	R	6.5	Center
PTR	C	CR	-	-	-	Center
PDS/PP	R	R	R	R	7.6	Right-Wing
PFL/DEM	R	R	R	R	7.8	Right-Wing
PJ/PRN/PTC	-	R	-	R	-	Right-Wing
PL	R	R	R	R	-	Right-Wing
PRONA	R	R	R	-	-	Right-Wing
PRP	R	-	-	-	-	Right-Wing
PSD	R	R	R	-	-	Right-Wing
PR	-	-	-	-	6.9	Right-Wing
PMN	E	CD	E	-	-	Undefined

Data Sources

- Electoral data: Tribunal Superior Eleitoral (TSE):
 - Information on election results, vote-shares and parties.
 - Municipal races ran in 2000, 2004, 2008 and 2012.
 - Subset of cities below 200.000 voters
 - Contests between two candidates: left-wing vs center/right-wing opponent.
 - 3909 observations when accounting for elections with centrist parties, and 1357 otherwise.
- Municipal public finance information: FINBRA dataset published by Secretaria do Tesouro Nacional (STN).
 - Municipal expenditures and revenues, detailed by category.
 - **Size of Government:** total Expenditures, total revenues and local tax revenues (per capita and as a share of income).
 - **Resource allocation:** budget share spent in health, education, social assistance, urbanism and transportation.

Data Sources

- Data on municipal temporary public employees: MUNIC dataset published by IBGE. Related to the government's size.
- Demographic variables: IBGE's Brazilian Census. These variables are used as covariates and for robustness checks.

Summary Statistics

Variables	Mean	Std. Dev.	Min	Max
Economic Outcomes				
Total Expenditures per capita	2648.74	1286.62	648.38	12948.98
Total Expenditures as a share of income (%)	21.85	11.52	1.97	77.24
Total Revenues per capita	2718.96	1385.37	656.10	16484.98
Total Revenues as a share of income (%)	22.16	11.49	1.95	77.26
Tax Revenues per capita	137.40	158.08	0.02	3250.97
Tax Revenues as a share of income (%)	0.86	0.58	0.0004	12.37
Comission Employees (per 1000 residents)	5.21	4.99	0.00	86.41
% spent on Education	29.46	8.17	5.24	62.30
% spent on Health	21.51	4.43	5.83	53.05
% spent on Social Assistance	3.97	1.94	0.00	18.71
% spent on Urbanism	7.65	4.59	0.00	34.73
% spent on transportation	5.01	5.23	0.00	38.30
Assignment Variable				
Left Vote Share Margin of victory (%)	-3.76	22.79	-98.53	100.00
Control Variables:				
Income per capita	16929.61	16298.28	2350.75	275554.70
Population Size	14015.06	20949.65	822	314272
Proportion of young (0-15) (%)	25.06	4.99	12.07	51.26

Identification: Regression Discontinuity

- Since party control is a choice citizens make through elections, a simple comparison of outcomes between localities governed by different parties is probably plagued by selection bias.
 - Omitted Variables Bias (unobservable preferences).
 - Reverse Causality Bias (economic situation).
- Focus on a Regression Discontinuity Design:
 - Precise knowledge of the rules determining treatment
 - Treatment status is as good as randomized in a local neighborhood of c .
 - "Jumps" in outcomes at $X = c$ have causal interpretation.
- RD key assumptions:
 - No precise manipulation of the forcing variable X_i .
 - Covariates are balanced between both sides of the cutoff c .

Estimation

- Present context:
 - **Treatment variable:** left-wing party indicator.
 - **Forcing variable:** left party vote share margin of victory.
- **Parametric RD:**
 - Use of polynomial functions to address the relation between the forcing variable and the outcomes.
 - Use of all observations in sample.
 - Controlling for the polynomial (of correct order) is sufficient to obtain unbiased estimates of the party effects.

$$Y_{it} = \rho_0 + \pi_0 T_{it} + \theta f(MV_{it}) + \beta W_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

$$Y_{it} = \sum_{k=0}^p (\rho_k MV_{it}^k) + T_{it} \sum_{k=0}^p (\pi_k MV_{it}^k) + \beta W_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Estimation

- **Non-Parametric RD - Local Linear Regression (LLR):**
 - Fitting linear regression functions to the observations within a small distance δ on either side of the discontinuity point.
 - Restricted sample.

$$Y_{it} = \rho_0 + \rho_1 MV_{it} + \pi_0 T_{it} + \pi_1 T_{it} \cdot MV_{it} + \mu_i + \lambda_t + \epsilon_{it} \quad (3)$$

Results

- Results are presented for several specifications:
 - 1 OLS with municipality and mandate fixed effects.
 - 2 Linear parametric RD.
 - 3 Cubic parametric RD.
 - 4 Non-parametric RD: Local Linear Regression.
- Standard errors clustered at the municipality level, and inclusion of covariates to enhance precision.
- Models are applied for different samples:
 - 1 Left vs center/right-wing races.
 - 2 Left vs right-wing races.

Results

Left vs center/right-wing sample

- OLS (1):
 - Most coefficients indicate smaller governmental size for left-wing administrations, but none statistically significant.
 - Left-wing administrations significantly (at 1%) associated with 0.4 p.p more spending in social assistance. Insignificant estimates for other categories.
 - OLS estimates probably plagued by selection bias. Signal of coefficients might be misleading.
- Linear Parametric RD (2):
 - Significant (at 5%) coefficients of -5.1% and -5.3% for total expenditures and total revenues, respectively.
 - No significant effects estimated for other outcomes.
 - Linear specification might not be flexible enough to fit the relation between the assignment variable and the outcomes.

Results

Left vs center/right-wing sample

- Cubic Parametric RD (3):
 - Estimates of government's size are not all pointing for a smaller size of left-wing administrations.
 - Similar estimates for resource allocation.
 - All estimates indicate no significant party effects on economic outcomes.
- Local Linear Regression (4):
 - Coefficients considerably similar to those observed in (3), sharing the same sign of the effect and hypothesis test conclusion.
 - Estimates for all measures indicate no party effects on economic outcomes.
- Specifications (3) and (4) most reliable for causal inference.

Results

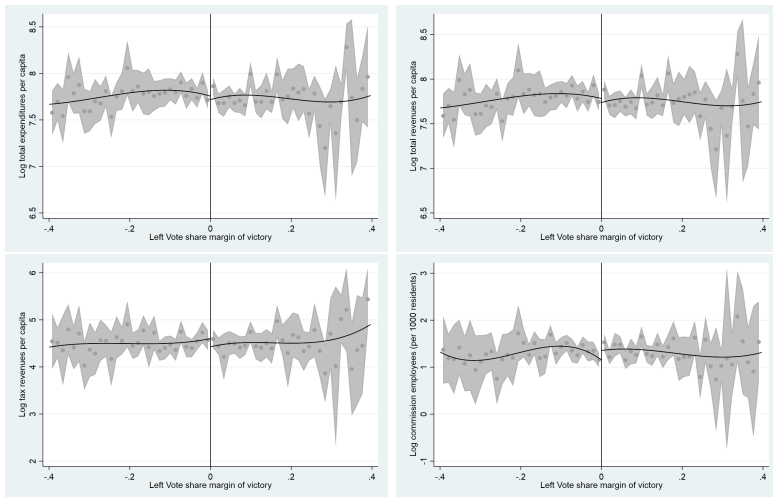
Left vs right-wing sample

- Estimates are of a more considerable size. That is, party effect becomes more noticeable.
- Main results remain the same: no significant estimates for almost every outcome analyzed.
- Exception for budget share spent in education: estimates point for a causal effect of 2.7 and 2.8 percentage points in specifications (3) and (4), respectively. Significant at 5% level.

All previous models yield similar results when further restricting the sample to only consider the last year of mayoral tenure.

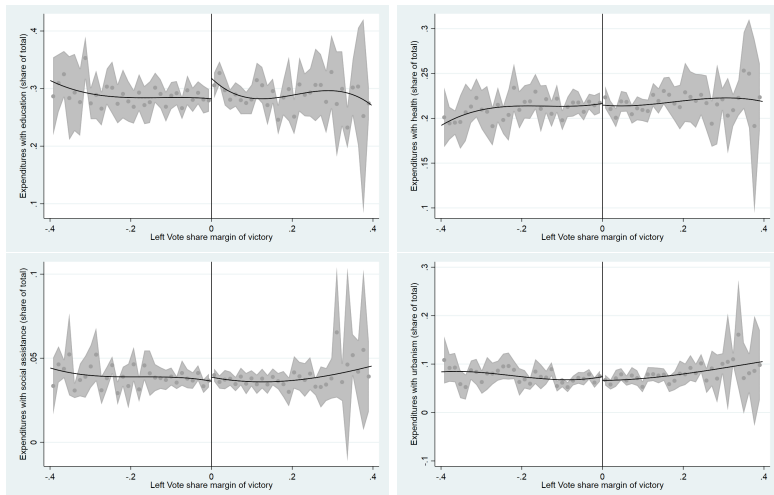
Results: Visual Inspection (Size of Government)

- Low correlation between outcomes and the margin of victory.
- No visual discontinuities around the cutoff.



Results: Visual Inspection (Resource Allocation)

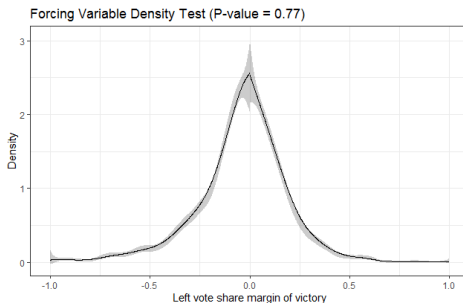
- Visual discontinuity for the educational outcome, in agreement to point estimates. Noticeable "jump" of the polynomial fit.



Validity Checks

Manipulation Test/Continuity Test

- Any bumping of the forcing variable's density in either side of the cutoff might evidence the practice of precise manipulation.
- Cattaneo et al. (2018) test for continuity hypothesis.
- Visual inspection shows that there is no precise sorting.



- P-value of 0.77 indicates that we cannot reject the null hypothesis of continuity.

Validity Checks

Balance of covariates

- Check for the balance of predetermined covariates on both sides of the cutoff. Analogous step compared to RCT.
- Local Linear Regressions (equation 3), but using covariates as dependent variables instead of economic outcomes.

	Income per capita	Percentage Young (0-15)	Percentage Old (65+)	Percentage Male	Percentage Urban	Percentage White
Party Effect	-871.309 (1351264)	0.006 (0.008)	-0.001 (0.004)	0.002 (0.002)	-0.049* (0.025)	-0.025 (0.040)
Obs	3898	1081	1081	2097	2095	1081

- No significant (5%) party effect for every covariate considered.
- In sum, both validity checks indicate party control as randomized in a local neighborhood of the threshold.

Discussion

What makes party control such an unimportant matter for municipalities throughout the country?

- Possibilities:
 - Politicians are not outcome motivated, caring only to maximize votes (paralleling the Downsian model).
 - Outcome motivated candidates (paralleling the citizen-candidate model) that are constrained in office and cannot act in their desired manner.
- Unanimous results of party importance in state/national levels suggests that incumbents are outcome motivated, making the citizen-candidate setting seem more plausible.
- What kind of constraints could make citizen-candidate mayors unable to rule with total discretion?

Discussion

Shared Authority Constraints

- Size of government:
 - Average local tax revenues per capita (R\$ 137.40) are just a very small fraction of the average total revenues per capita (R\$ 2718.96). Common pattern in Brazilian small towns
 - Sample constituted of small towns (average 14.000 inhabitants).
 - Lack of local discretion to set revenues implies in lack of local discretion to set expenditures.
- Resource allocation:
 - Brazilian constitution mandates municipalities to spend at least 25% of their total revenues on education and 15% on health.
 - However, average budget shares spent in both education and health (29.5% and 21.5%, respectively) are considerably above these lower bounds (not binding).
- Shared authority seems to explain the lack of party importance for the size of government, but not for resource allocation.

Discussion

Tiebout Competition Constraints

- Theory's assumptions (high mobility level between communities) are perfectly fit for cities located in the same metropolitan area.
- Present sample excludes cities under 200.000 voters. Mainly very small towns (average 14.000 inhabitants).
- Assumptions not clearly valid for our sample, and so its implications. Less jurisdictional competition expected.
- Tiebout's competition might reduce partisanship at the local level, but probably not entirely explain the results.

Discussion

Strategic Extremism Constraints

- Ferreira and Gyorko (2009) show that small towns have more homogeneity of income and political preferences.
 - Extreme position voters become a thinner minority, making strategic extremism behavior less feasible for winning elections.
- Small towns also tend to have more limited number of local media sources.
 - Harder for politicians to strategically target messages to specific groups of voters.
- Limited size of cities reduces the ability or rationality of parties to engage in strategic extremism, which implies in little space for partisanship.
- Constraints to the engagement in strategic behavior is a mechanism likely to explain the lack of party effects on the resource allocation.

Final Remarks

- Limitations:
 - RD identifies causal effects elections marked by a high degree of competition. No clue for the case where two left-wing candidates face each other.
 - The discussion presented above is just an informal assessment regarding the link between theoretical mechanisms and the empirical results
- Possible extensions:
 - Empirically measure what is precisely the role of Tiebout competition, Shared authority restrictions and strategic extremism to explain the main results of this study.
 - Analyze what is the relationship between close mayoral races and the local legislative composition.
 - Analyze two-round elections in bigger cities.