# Appendix: Campaign Resources and Pre-Electoral Coalitions

# A Campaign Materials

Figure A.1: Campaign Materials from Argentina and Brazil


(a) Argentina

(b) Brazil

*Note*: Panel (a): On the left, Mauricio Macri (presidential candidate from PRO. On the right, Mario Cimadevilla (senatorial candidate from UCR). CAMBIEMOS is the name of the PEC. Panel (b): Mauricio Costa (state deputy candidate from PPS). Serra 45 is a reference to the presidential candidate, José Serra, from PSDB. At the bottom, Colombo is a reference to the gubernatorial candidate, Raimundo Colombo, from PPS in the state of Santa Catarina.

Figure A.2: Campaign Materials from Chile and Mexico


(a) Chile


(b) Mexico

*Note*: Panel (a): Michelle Bachelet, presidential candidate from the *Partido Socialista de Chile*, appears in campaign materials of senatorial and local legislator candidates from her PEC. Panel (b): On the left, Benjamín Robles, federal deputy candidate from *Partido del Trabajo*. On the right in the poster is López Obrador, presidential candidate from MORENA.

# B Free Broadcast Time Allocation

Although the amount of time reserved for campaign ads has changed over time, the underlying logic behind the allocation has remained constant. Specifically, a share of the time is allocated equally among all parties and the remaining is allotted proportionally to the results of the federal lower chamber (*Câmara dos Deputados*) elections. In the period analyzed, the percentage of time equally allocated diminished from one-third – the amount defined in 1997 and used until 2015 – to 10%.[1] Another modification that happened during this period concerned the criteria used to allocate the advertisement time when parties form a pre-electoral coalition. In the 2008 and 2012 elections, the total amount of time for each candidate running in a PEC was defined by the sum of the advertisement time of all parties in the coalition; whereas, in 2016, the total time was defined by the sum of the advertisement time of the largest six parties in the PEC.

Regarding the structure of the FBT, until 2015, FBT comprised twice-daily blocks of 30 minutes per day — with mayoral candidates campaigning on Mondays, Wednesdays, and Fridays, and legislative candidates on Tuesdays, Thursdays, and Saturdays — and 30 minutes daily for spots during radio and television broadcast programming dedicated only to mayoral candidates. In 2015, the Brazilian Congress approved an electoral reform that reduced FBT to twice-daily blocks of 10 minutes, dedicated exclusively to the mayoral election campaign. The same reform increased the airtime for spots during radio and television broadcast programming to 70 minutes daily and divided it in two: 60% to mayoral and 40% to legislative candidates.[2] It is worth noticing that this division of FBT into separate blocks guarantees that, by joining a PEC, parties do not lose airtime in the legislative election.

[1] Federal Laws 9,504/1997 and 13,165/2015. See: `http://www.planalto.gov.br/ccivil_03/LEIS/L9504.htm` and `http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/l13165.htm`.

[2] Federal Law 13,165. See: `http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/l13165.htm`

# C Free Broadcast Data - Brazil

Even though the TSE data provide complete coverage of the municipalities that used FBT, there is one drawback to these data. As mentioned in theory section, the electoral law guarantees to parties the opportunity of requesting that the electoral justice attempts to provide access to radio and television in districts that do not have stations. Therefore, parties have one opportunity to affect the access of radio/TV during the campaign. One solution to this issue would be to remove municipalities in which the electoral justice conceded the use of radio/TV to parties. However, the TSE does not track this information. Instead, I searched for decisions related to the matter on the official websites of the TSE and the regional electoral authorities (*Tribunais Regionais Eleitorais* - TREs.)

I used two types of searches. First, I searched for all decisions that contain the words "horário eleitoral" – electoral time in literal translation – in the period between June 1st and the first day of Free Broadcast Time in each election year. Second, I searched for decisions that mention the article 48 of the Federal Law n.9,504 – the legal provision that allows parties to require the use of radio and television – using the same time span. I found 27 judicial decisions on the matter. I also submitted inquiries to the TREs about decisions that guaranteed the use of radio and television in the campaign. I use the results of those procedures to identify and remove from the analysis the municipalities where parties requested the use of radio/TV. Using those, I identified six municipalities in the three elections in which the electoral justice granted the use of radio/TV to parties.[1] I did not remove municipalities in which the electoral justice decided positively about the use of television, but that parties would already have access to radio – such as the municipalities in the Rio de Janeiro metro area.

[1] According to the TSE and TREs, all judicial decisions are public records and available for search on their websites.

Table C.1: Municipalities excluded from the analysis

| Municipality | State | Year | Petition/Protocol Number |
|---|---|---|---|
| Porto Seguro | BA | 2008 | 1,142 |
| Fortim | CE | 2008 | 11,929 |
| Aparecida de Goiania | GO | 2012 | 44,210 |
| Aparecida de Goiania | GO | 2016 | 54,790 |
| Contagem | MG | 2012 | 480-89 |
| Contagem | MG | 2016 | 317-70 |

*Note*: *TRE* Bahia, *TRE* Ceará, *TRE* Goias, and *TRE* Minas Gerais.

# D Descriptive Statistics

Table D.1: Differences of Means (Municipalities without and with *Free Broadcast Time*)

| | Difference of Means (T-Test) |
|---|---|
| Population (Log) | −1.050 |
| | (−1.058, −1.043) |
| Rural Population | 16.611 |
| | (16.458, 15.750) |
| GDP per capita (Log) | −0.442 |
| | (−0.447, −0.437) |

*Note*: Table's entries are Welch Two Sample t-test results. 95% confidence intervals in parentheses.

Table D.2: Descriptive Statistics - Party-Level Analysis

| Statistic | N | Mean | St. Dev. | Min | Pctl(25) | Pctl(75) | Max |
|---|---|---|---|---|---|---|---|
| Solo | 299,442 | 0.021 | 0.143 | 0 | 0 | 0 | 1 |
| Lead | 299,442 | 0.122 | 0.327 | 0 | 0 | 0 | 1 |
| Join | 299,442 | 0.536 | 0.499 | 0 | 0 | 1 | 1 |
| Not Run | 299,442 | 0.322 | 0.467 | 0 | 0 | 1 | 1 |
| Vote Share$_{t-1}$ | 299,442 | 0.053 | 0.082 | 0 | 0 | 0.1 | 1 |
| FBT | 299,442 | 0.638 | 0.481 | 0 | 0 | 1 | 1 |
| ENPv | 299,442 | 7.189 | 2.782 | 1.100 | 5.105 | 8.909 | 20.292 |
| Run-off | 299,442 | 0.018 | 0.134 | 0 | 0 | 0 | 1 |
| Lack of Competitiveness | 299,442 | 0.159 | 0.171 | 0.000 | 0.049 | 0.205 | 1.000 |
| Ran Previously | 299,442 | 0.605 | 0.489 | 0 | 0 | 1 | 1 |
| Incumbent | 299,442 | 0.052 | 0.222 | 0 | 0 | 0 | 1 |
| Population (Log) | 299,442 | 9.673 | 1.151 | 6.690 | 8.839 | 10.337 | 16.298 |
| GDP per capita (Log) | 299,442 | 2.349 | 0.776 | 0.365 | 1.794 | 2.871 | 6.435 |
| Rural Population (%) | 299,442 | 35.553 | 22.257 | 0.000 | 16.770 | 52.660 | 100.000 |
| N of Small Parties | 299,442 | 14.374 | 5.552 | 0.000 | 10.000 | 18.000 | 32.000 |

*Sources*: Solo, Lead, Join, Not Run: coded by the author using TSE data; Vote Share$_{t-1}$: TSE. FBT: TSE; ENPv: calculated by the author using TSE data; Run-off: calculated by the author using TSE data; Lack of Competitiveness: calculated by the author using TSE data; Ran Previously: calculated by the author using TSE data; Incumbent: calculated by the author using TSE data; Population: DataSUS (2015, 2011, and 2007); GDP per capita: IBGE (2015, 2011, and 2007); Rural Population: IBGE (Census 2000 and 2010); N of Small Parties (less than 5% of vote share in the previous election): coded by the author using TSE data.

# E Complete Results

Table E.1: Association between FBT and Party Strategy conditional upon Vote Share-Random Effects by municipality

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.030 | −0.094 | −0.012 |
| | (−0.014, 0.073) | (−0.146, −0.042) | (−0.101, 0.078) |
| Vote Share | 6.008 | 8.109 | 6.989 |
| | (5.663, 6.353) | (7.679, 8.539) | (6.404, 7.574) |
| Vote Share × FBT | 0.399 | 1.836 | −0.356 |
| | (−0.031, 0.829) | (1.295, 2.377) | (−1.05, 0.339) |
| Run-off | 0.365 | 0.847 | 1.179 |
| | (0.151, 0.579) | (0.587, 1.108) | (0.916, 1.442) |
| ENPv | 0.051 | 0.095 | 0.034 |
| | (0.041, 0.06) | (0.085, 0.104) | (0.018, 0.049) |
| Lack of Competitiveness | 0.096 | 0.163 | 0.365 |
| | (0.005, 0.188) | (0.057, 0.269) | (0.193, 0.537) |
| Incumbent | −0.608 | 0.991 | −0.163 |
| | (−0.680, −0.536) | (0.917, 1.065) | (−0.319, −0.008) |
| Ran Previously | 0.589 | 0.557 | 0.285 |
| | (0.561, 0.617) | (0.509, 0.606) | (0.204, 0.366) |
| GDP per capita (log) | 0.033 | 0.009 | 0.207 |
| | (0.002, 0.065) | (−0.021, 0.040) | (0.152, 0.262) |
| Population (log) | 0.405 | 0.246 | 0.404 |
| | (0.380, 0.430) | (0.220, 0.272) | (0.360, 0.449) |
| Rural Population (%) | −0.002 | −0.001 | −0.002 |
| | (−0.003, −0.001) | (−0.002, 0.000) | (−0.004, 0.000) |
| Intercept | −4.069 | −4.696 | −7.925 |
| | (−4.312, −3.825) | (−4.958, −4.434) | (−8.407, −7.443) |
| $\sigma_{mun}$ | 0.581 | 0.333 | 0.581 |
| Party Fixed Effect | | Yes | |
| Year Fixed Effect | | Yes | |
| N of Groups | | 5,467 | |
| N of Observations | | 299,442 | |

*Note*: Table's entries are unstandardized regression coefficients from multinomial logit model with a random intercept by municipality. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality in parentheses.

# F Robustness Checks

## F.1 Pooled Model

Table F.1: Change in the predicted probability of each *Party Strategy* when *FBT* is available, varying *Vote Share*—Pooled Model

| *Vote Share* | Not Run | Join a PEC | Lead a PEC | Solo |
|---|---|---|---|---|
| 0.00 | −0.005 | 0.021 | −0.016 | 0.000 |
| | (−0.013; 0.002) | (0.014; 0.029) | (−0.019; −0.013) | (−0.001; 0.001) |
| 0.05 | −0.009 | 0.019 | −0.010 | 0.000 |
| | (−0.016; −0.002) | (0.012; 0.026) | (−0.011; −0.008) | (−0.001; 0.000) |
| 0.50 | −0.049 | −0.024 | 0.078 | −0.004 |
| | (−0.081; −0.015) | (−0.053; 0.004) | (0.060; 0.095) | (−0.006; −0.002) |

*Note:* Columns 2 to 4 show the difference in predict probability: $Pr(PartyStrategy = i|FBT = 1, VoteShare = x) - Pr(PartyStrategy = i|FBT = 0)$, where x ={0, 0.05, 0.50} and i = {Not Run, Join a PEC, Lead a PEC, Solo}. 95% Confidence Intervals in parentheses using a clustered-robust variance-covariance matrix by municipality.

Table F.2: Association between FBT and Party Strategy conditional upon Vote Share-Pooled Model

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.054 | −0.169 | 0.022 |
| | (0.016, 0.092) | (−0.216, −0.123) | (−0.072, 0.115) |
| Vote Share | 5.169 | 8.615 | 9.560 |
| | (4.848, 5.490) | (8.214, 9.015) | (8.901, 10.219) |
| Vote Share × FBT | 0.225 | 1.950 | −0.548 |
| | (−0.179, 0.628) | (1.453, 2.448) | (−1.356, 0.260) |
| Run−off | 0.368 | 0.686 | 0.997 |
| | (0.161, 0.576) | (0.475, 0.897) | (0.761, 1.234) |
| ENPv | 0.101 | 0.121 | 0.050 |
| | (0.093, 0.108) | (0.113, 0.128) | (0.036, 0.065) |
| Lack of Competitiveness | −0.012 | −0.013 | 0.337 |
| | (−0.095, 0.071) | (−0.099, 0.072) | (0.185, 0.490) |
| Incumbent | −0.426 | 0.815 | −0.081 |
| | (−0.490, −0.362) | (0.745, 0.886) | (−0.203, 0.040) |
| Ran Previously | 0.682 | 0.492 | 0.151 |
| | (0.654, 0.709) | (0.447, 0.536) | (0.067, 0.235) |
| GDP per capita (log) | 0.012 | −0.002 | 0.162 |
| | (−0.014, 0.039) | (−0.027, 0.024) | (0.112, 0.213) |
| Population (log) | 0.288 | 0.301 | 0.384 |
| | (0.267, 0.309) | (0.28, 0.322) | (0.344, 0.424) |
| Rural Population (%) | −0.001 | −0.001 | −0.002 |
| | (−0.002, −0.001) | (−0.002, −0.001) | (−0.004, 0.000) |
| Intercept | −3.325 | −5.297 | −7.803 |
| | (−3.536, −3.114) | (−5.512, −5.081) | (−8.238, −7.368) |
| Party Fixed Effect | | Yes | |
| Year Fixed Effect | | Yes | |
| N of Groups | | 5,467 | |
| N of Observations | | 299,442 | |

*Note*: Table's entries are unstandardized regression coefficients from a pooled multinomial logit model. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality in parentheses.

## F.2 Fixed Effects Model

Table F.3: Change in the predicted probability of each *Party Strategy* when *FBT* is available, varying *Vote Share*—Fixed Effects Model

| *Vote Share* | Not Run | Join a PEC | Lead a PEC | Solo |
|---|---|---|---|---|
| 0.00 | 0.000 | 0.030 | −0.030 | 0.000 |
| | (−0.002; 0.001) | (0.020; 0.040) | (−0.04; −0.018) | (0.000; 0.000) |
| 0.05 | 0.000 | 0.016 | −0.016 | 0.000 |
| | (−0.004; 0.000) | (0.012; 0.022) | (−0.022; −0.009) | (0.000; 0.000) |
| 0.50 | −0.001 | −0.126 | 0.127 | 0.000 |
| | (−0.028; 0.000) | (−0.148; −0.066) | (0.094; 0.149) | (−0.001; 0.000) |

*Note:* Columns 2 to 4 show the difference in predict probability: $Pr(PartyStrategy = i|FBT = 1, VoteShare = x) - Pr(PartyStrategy = i|FBT = 0)$, where x ={0, 0.05, 0.50} and i = {Not Run, Join a PEC, Lead a PEC, Solo}. 95% Confidence Intervals in parentheses using a clustered-robust variance-covariance matrix by municipality.

Table F.4: Association between FBT and Party Strategy conditional upon Vote Share-Fixed Effects by municipality

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.041 | −0.114 | −0.009 |
| | (−0.020, 0.103) | (−0.194, −0.034) | (−0.155, 0.138) |
| Vote Share | 6.190 | 8.230 | 6.514 |
| | (5.841, 6.539) | (7.781, 8.678) | (5.900, 7.127) |
| Vote Share × FBT | 0.502 | 1.954 | −0.118 |
| | (0.067, 0.937) | (1.387, 2.521) | (−0.856, 0.620) |
| Run−off | −0.236 | −0.346 | 0.826 |
| | (−0.917, 0.445) | (−1.472, 0.781) | (−0.417, 2.070) |
| ENPv | −0.039 | −0.048 | −0.047 |
| | (−0.052, −0.026) | (−0.065, −0.031) | (−0.076, −0.017) |
| Lack of Competitiveness | 0.114 | 0.331 | 0.371 |
| | (0.011, 0.217) | (0.202, 0.460) | (0.139, 0.603) |
| Incumbent | −0.632 | 0.933 | −0.157 |
| | (−0.704, −0.560) | (0.857, 1.008) | (−0.328, 0.014) |
| Ran Previously | 0.531 | 0.478 | 0.225 |
| | (0.503, 0.559) | (0.427, 0.528) | (0.142, 0.308) |
| GDP per capita (log) | 0.071 | 0.048 | −0.074 |
| | (−0.033, 0.175) | (−0.083, 0.178) | (−0.293, 0.146) |
| Population (log) | 0.498 | 0.417 | −0.437 |
| | (0.180, 0.815) | (0.037, 0.798) | (−1.217, 0.343) |
| Rural Population (%) | 0.002 | 0.001 | 0.001 |
| | (−0.003, 0.006) | (−0.005, 0.006) | (−0.009, 0.012) |
| Municipality Fixed Effect | | Yes | |
| Party Fixed Effect | | Yes | |
| Year Fixed Effect | | Yes | |
| N of Groups | | 5,463 | |
| N of Observations | | 299,394 | |

*Note*: Table's entries are unstandardized regression coefficients from a conditional multinomial logit model. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality in parentheses.

## F.3 Random Effects with More Interactions

Table F.5: Change in the predicted probability of each *Party Strategy* when *FBT* is available, varying *Vote Share*—Random Effecs including More Interactions

| *Vote Share* | Not Run | Join a PEC | Lead a PEC | Solo |
|---|---|---|---|---|
| 0.00 | −0.003 | 0.011 | −0.008 | −0.001 |
| | (−0.011; 0.006) | (0.005; 0.018) | (−0.010; −0.006) | (−0.002; 0.000) |
| 0.05 | −0.009 | 0.012 | −0.003 | −0.001 |
| | (−0.016; 0.000) | (0.005; 0.019) | (−0.004; −0.002) | (−0.002; 0.000) |
| 0.50 | −0.059 | 0.006 | 0.053 | 0.000 |
| | (−0.098; −0.022) | (−0.018; 0.031) | (0.043; 0.064) | (−0.003; 0.003) |

*Note:* Columns 2 to 4 show the difference in predict probability: $Pr(PartyStrategy = i|FBT = 1, VoteShare = x) - Pr(PartyStrategy = i|FBT = 0)$, where x ={0, 0.05, 0.50} and i = {Not Run, Join a PEC, Lead a PEC, Solo}. 95% Confidence Intervals in parentheses using a clustered-robust variance-covariance matrix by municipality.

Table F.6: Association between FBT and Party Strategy conditional upon Vote Share-Random Effects by municipality

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.027 | −0.080 | −0.066 |
| | (−0.017, 0.070) | (−0.132, −0.028) | (−0.155, 0.023) |
| Vote.Share | 6.790 | 7.305 | 12.552 |
| | (6.072, 7.507) | (6.498, 8.111) | (11.527, 13.577) |
| Vote Share × FBT | 0.494 | 1.600 | 0.620 |
| | (0.051, 0.936) | (1.063, 2.138) | (−0.125, 1.365) |
| Run-off | 0.371 | 0.849 | 0.958 |
| | (0.168, 0.574) | (0.586, 1.112) | (0.700, 1.217) |
| Vote Share × Run-off | −0.719 | 0.744 | 5.244 |
| | (−5.789, 4.350) | (−4.176, 5.664) | (−0.932, 11.419) |
| ENPv | 0.054 | 0.080 | 0.080 |
| | (0.045, 0.064) | (0.069, 0.092) | (0.063, 0.096) |
| Vote Share × ENPv | −0.121 | 0.275 | −1.213 |
| | (−0.226, −0.015) | (0.149, 0.402) | (−1.397, −1.028) |
| Lack of Competitiveness | 0.124 | 0.375 | 0.598 |
| | (0.029, 0.219) | (0.252, 0.499) | (0.414, 0.782) |
| Vote Share × Lack of Competitiveness | −0.875 | −3.704 | −5.857 |
| | (−2.129, 0.379) | (−5.200, −2.208) | (−8.146, −3.567) |
| Incumbent | −0.603 | 0.977 | −0.108 |
| | (−0.675, −0.531) | (0.903, 1.052) | (−0.279, 0.063) |
| Ran Previously | 0.592 | 0.553 | 0.382 |
| | (0.564, 0.620) | (0.505, 0.602) | (0.304, 0.461) |
| GDP per capita (log) | 0.032 | 0.010 | 0.187 |
| | (0.001, 0.064) | (−0.020, 0.041) | (0.132, 0.243) |
| Population (log) | 0.405 | 0.245 | 0.409 |
| | (0.380, 0.430) | (0.219, 0.271) | (0.364, 0.454) |
| Rural Population (%) | −0.002 | −0.001 | −0.003 |
| | (−0.003, −0.001) | (−0.002, 0) | (−0.005, −0.001) |
| Intercept | −4.090 | −4.650 | −8.136 |
| | (−4.334, −3.847) | (−4.914, −4.385) | (−8.621, −7.652) |
| $\sigma_{mun}$ | 0.581 | 0.334 | 0.572 |
| Party Fixed Effect | | Yes | |
| Year Fixed Effect | | Yes | |
| N of Groups | | 5,467 | |
| N of Observations | | 299,442 | |

*Note*: Table's entries are unstandardized regression coefficients from a multinomial logit model with a random intercept by municipality. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality in parentheses.

## F.4 Random Effects by Municipality-Year

Table F.7: Change in the predicted probability of each *Party Strategy* when *FBT* is available, varying *Vote Share*—Random Effects Model by Municipality Year

| *Vote Share* | Not Run | Join a PEC | Lead a PEC | Solo |
|---|---|---|---|---|
| 0.00 | −0.007 | 0.015 | −0.008 | 0.000 |
| | (−0.015; 0.000) | (0.010; 0.021) | (−0.009; −0.006) | (−0.001; 0.000) |
| 0.05 | −0.012 | 0.015 | −0.002 | −0.001 |
| | (−0.019; −0.005) | (0.009; 0.021) | (−0.004; −0.001) | (−0.001; 0.000) |
| 0.50 | −0.059 | −0.002 | 0.063 | −0.003 |
| | (−0.089; −0.023) | (−0.027; 0.019) | (0.053; 0.073) | (−0.004; −0.003) |

*Note:* Columns 2 to 4 show the difference in predict probability: $Pr(PartyStrategy = i|FBT = 1, VoteShare = x) - Pr(PartyStrategy = i|FBT = 0)$, where x ={0, 0.05, 0.50} and i = {Not Run, Join a PEC, Lead a PEC, Solo}. 95% Confidence Intervals in parentheses using a clustered-robust variance-covariance matrix by municipality-year.

Table F.8: Association between FBT and Party Strategy conditional upon Vote Share-Random Effects by Municipality Year

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.052 | −0.072 | 0.005 |
| | (0.013, 0.091) | (−0.122, −0.022) | (−0.084, 0.094) |
| Vote Share | 6.178 | 8.441 | 7.468 |
| | (5.829, 6.527) | (8.020, 8.862) | (6.903, 8.033) |
| Vote Share × FBT | 0.400 | 1.815 | −0.465 |
| | (−0.026, 0.827) | (1.291, 2.339) | (−1.146, 0.215) |
| Run-off | 0.431 | 0.944 | 1.277 |
| | (0.205, 0.658) | (0.677, 1.212) | (1.042, 1.512) |
| ENPv | 0.111 | 0.095 | 0.023 |
| | (0.104, 0.119) | (0.086, 0.104) | (0.009, 0.038) |
| Lack of Competitiveness | −0.046 | 0.091 | 0.299 |
| | (−0.140, 0.047) | (−0.016, 0.198) | (0.126, 0.473) |
| Incumbent | −0.633 | 0.996 | −0.209 |
| | (−0.708, −0.558) | (0.919, 1.072) | (−0.369, −0.048) |
| Ran Previously | 0.665 | 0.534 | 0.253 |
| | (0.638, 0.693) | (0.487, 0.581) | (0.174, 0.332) |
| GDP per capita (log) | −0.044 | −0.101 | 0.044 |
| | (−0.067, −0.020) | (−0.129, −0.074) | (−0.006, 0.094) |
| Population (log) | 0.344 | 0.243 | 0.436 |
| | (0.322, 0.366) | (0.218, 0.268) | (0.394, 0.478) |
| Rural Population (%) | −0.002 | −0.002 | −0.004 |
| | (−0.003, −0.002) | (−0.003, −0.001) | (−0.006, −0.002) |
| Intercept | −3.695 | −4.491 | −8.030 |
| | (−3.908, −3.482) | (−4.740, −4.242) | (−8.493, −7.567) |
| $\sigma_{mun-year}$ | 0.801 | 0.443 | 0.741 |
| Party Fixed Effect | | Yes | |
| N of Groups | | 15,821 | |
| N of Observations | | 299,442 | |

*Note*: Table's entries are unstandardized regression coefficients from a multinomial logit model with a random intercept by municipality-year. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality-year in parentheses.

## F.5 Additional Control: Number of Small Parties in the Municipality

Table F.9: Change in the predicted probability of each *Party Strategy* when *FBT* is available, varying *Vote Share*—Random Effects Model with control for Number of Small Parties

| *Vote Share* | Not Run | Joining | Leading | Solo |
|---|---|---|---|---|
| 0.00 | −0.006 | 0.015 | −0.009 | 0.000 |
| | (−0.014; 0.002) | (0.009; 0.021) | (−0.011; −0.007) | (−0.001; 0.000) |
| 0.05 | −0.011 | 0.014 | −0.003 | −0.001 |
| | (−0.018; −0.003) | (0.007; 0.021) | (−0.004; −0.001) | (−0.002; 0.000) |
| 0.50 | −0.058 | −0.012 | 0.075 | −0.005 |
| | (−0.092; −0.022) | (−0.035; 0.008) | (0.063; 0.088) | (−0.006; −0.003) |

*Note:* Columns 2 to 4 show the difference in predict probability: $Pr(PartyStrategy = i|FBT = 1, VoteShare = x) - Pr(PartyStrategy = i|FBT = 0)$, where x ={0, 0.05, 0.50} and i = {Not Run, Join a PEC, Lead a PEC, Solo}. 95% Confidence Intervals in parentheses using a clustered-robust variance-covariance matrix by municipality.

Table F.10: Association between FBT and Party Strategy conditional upon Vote Share-Random Effects by Municipality with control for Number of Small Parties

| | Join a PEC | Lead a PEC | Run Solo |
|---|---|---|---|
| FBT | 0.046 | −0.075 | −0.012 |
| | (0.004, 0.089) | (−0.127, −0.023) | (−0.102, 0.077) |
| Vote Share | 6.072 | 8.226 | 6.986 |
| | (5.724, 6.419) | (7.792, 8.661) | (6.402, 7.570) |
| Vote Share × FBT | 0.394 | 1.834 | −0.355 |
| | (−0.038, 0.826) | (1.290, 2.377) | (−1.049, 0.339) |
| Run-off | 0.462 | 0.953 | 1.176 |
| | (0.245, 0.678) | (0.690, 1.216) | (0.911, 1.441) |
| ENPv | 0.051 | 0.087 | 0.034 |
| | (0.042, 0.060) | (0.078, 0.097) | (0.018, 0.049) |
| Lack of Competitiveness | 0.079 | 0.144 | 0.366 |
| | (−0.012, 0.170) | (0.038, 0.250) | (0.194, 0.537) |
| Incumbent | −0.614 | 0.991 | −0.163 |
| | (−0.686, −0.542) | (0.916, 1.065) | (−0.318, −0.008) |
| Run Previously | 0.584 | 0.544 | 0.286 |
| | (0.556, 0.612) | (0.495, 0.592) | (0.205, 0.367) |
| GDP per capita (log) | 0.056 | 0.030 | 0.207 |
| | (0.025, 0.087) | (−0.001, 0.061) | (0.151, 0.262) |
| Population (log) | 0.300 | 0.160 | 0.407 |
| | (0.270, 0.329) | (0.129, 0.191) | (0.352, 0.462) |
| Rural Population (%) | −0.001 | −0.001 | −0.002 |
| | (−0.002, 0.000) | (−0.002, 0.000) | (−0.004, 0.000) |
| N of Small Parties | 0.030 | 0.028 | −0.001 |
| | (0.025, 0.036) | (0.022, 0.034) | (−0.011, 0.009) |
| Intercept | −3.483 | −4.207 | −7.941 |
| | (−3.74, −3.225) | (−4.483, −3.93) | (−8.459, −7.422) |
| $\sigma_{mun}$ | 0.561 | 0.326 | 0.581 |
| Party Fixed Effect | | Yes | |
| Year Fixed Effect | | Yes | |
| N of Groups | | 5,467 | |
| N of Observations | | 299,442 | |

*Note*: Table's entries are unstandardized regression coefficients from a multinomial logit model with a random intercept by municipality. 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality in parentheses.

# G Dyadic Analysis

In this Appendix, I present the results from a logit model in which the dependent variable is whether two parties formed a PEC. I follow studies on presidential and parliamentary systems (Golder, 2005; Ibenskas, 2016; Kellam, 2017) and structure the data in a dyadic manner. As Kellam (2017), I split parties into two categories: those running an executive candidates and those that are not running candidates. Using the list of parties in each of these categories, I create a vector of the dyads in each municipality-year. One disadvantage of this method compared to the one presented in the body of paper is that it not possible to estimate the association between FBT and types of strategies that a party may opt for during an election. However, the dyadic analysis makes feasible the inclusion of a variable for the ideological distance between two parties.

To code the ideological position of the parties, I use first data from the Political Representation, Parties and Presidents Survey - PREPPS (Wiesehomeier and Benoit, 2009). The 2006/2007, 2011, and 2015 rounds of PREPPS contain the ideological position for 14, 14, and 18 parties in Brazil, respectively. PREPPS uses a scale of 0-20, in which 0 means 'Left' and 20 represents 'Right.' I coded parties that scored less than 7.5 as 'Left', more than 12.5 as 'Right,' and the remaining parties as 'Center.' One issue with PREPPS is that these surveys lack coverage of more than half of the political parties in Brazil. To supplement PREPPS, I employ data from an expert survey with Brazilian political scientists fielded during the $7th$ Meeting of Brazilian Political Science Association (Tarouco and Madeira, 2015). In this survey, respondents were asked to place Brazilian Parties using a 7-point scale, in which 1 means 'Left' and 7 means 'Right.' Using this data, I coded those parties not present in PREPPS as 'Left' if they scored less than 3, 'Right' if they scored more than 4, and 'Center' otherwise. Finally, a few parties were not covered in either of these sources. In these cases, I coded the parties using newspaper coverage and other online resources. Table G.1 contains the ideological position of each party in each election and the source of the classification.

Table G.1: Ideological Positions

| Party | 2008 | | 2012 | | 2016 | |
|---|---|---|---|---|---|---|
| | Position | Source | Position | Source | Position | Source |
| DEM | Right | W&B | Right | W&B | Right | W&B |
| PCB | Left | BPSA | Left | BPSA | Left | BPSA |
| PC do B | Left | W&B | Left | W&B | Left | W&B |
| PCO | Left | BPSA | Left | BPSA | Left | BPSA |
| PDT | Center | W&B | Left | W&B | Center | W&B |
| PHS | Right | BPSA | Right | BPSA | Right | BPSA |
| PMDB | Center | W&B | Center | W&B | Center | W&B |
| PMN | Right | BPSA | Right | BPSA | Right | BPSA |
| PP | Right | W&B | Right | W&B | Right | W&B |
| PPS | Center | W&B | Center | W&B | Center | W&B |
| PR | Right | W&B | Right | W&B | Right | W&B |
| PRB | Right | BPSA | Right | BPSA | Right | W&B |
| PRP | Right | BPSA | Right | BPSA | Right | BPSA |
| PRTB | Right | BPSA | Right | BPSA | Right | BPSA |
| PSB | Center | W&B | Left | W&B | Center | W&B |
| PSC | Right | W&B | Right | W&B | Right | W&B |
| PSDB | Right | W&B | Center | W&B | Right | W&B |
| PSDC | Right | BPSA | Right | BPSA | Right | BPSA |
| PSL | Right | BPSA | Right | BPSA | Right | BPSA |
| PSOL | Left | W&B | Left | W&B | Left | W&B |
| PSTU | Left | BPSA | Left | BPSA | Left | BPSA |
| PT | Left | W&B | Left | W&B | Left | W&B |
| PTB | Right | W&B | Right | W&B | Right | W&B |
| PTC | Right | BPSA | Right | BPSA | Right | BPSA |
| PT do B | Right | BPSA | Right | BPSA | Right | BPSA |
| PTN | Right | BPSA | Right | BPSA | Right | BPSA |
| PV | Left | W&B | Center | W&B | Center | W&B |
| PPL | — | — | Left | Author | Left | Author |

*Continued on next page*

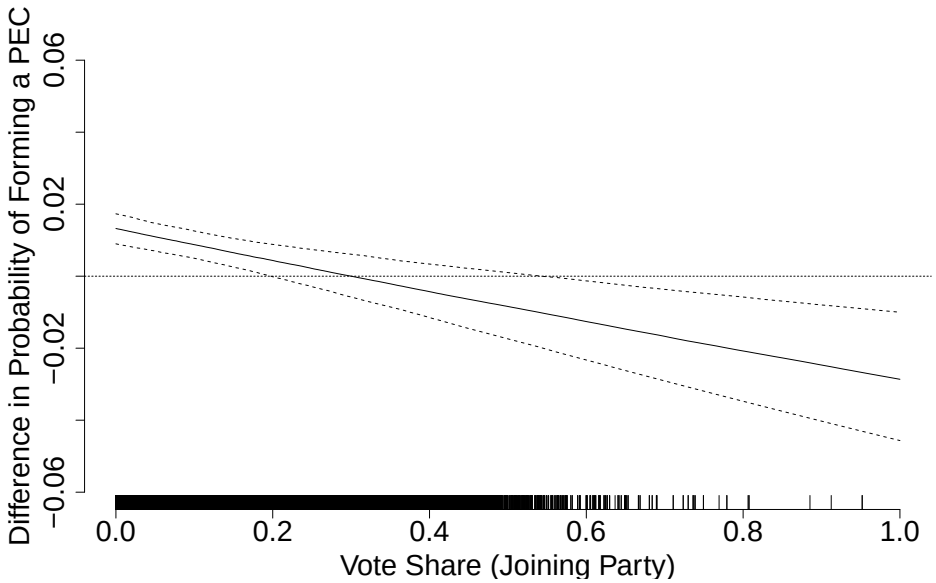
*Continued from List Previous page*

| Party | 2008 | | 2012 | | 2016 | |
|---|---|---|---|---|---|---|
| | Position | Source | Position | Source | Position | Source |
| PSD | — | — | Right | W&B* | Right | W&B |
| NOVO | — | — | — | — | Right | Author |
| PEN | — | — | — | — | Right | Author |
| PMB | — | — | — | — | Right | Author |
| PROS | — | — | — | — | Right | W&B |
| REDE | — | — | — | — | Left | Author |
| SD | — | — | | — | Right | W&B |

*Note:* W&B: 2006/2007, 2011, and 2015 PREPPS (Wiesehomeier and Benoit, 2009); W&B*: Imputed from 2015 PREPPS (Wiesehomeier and Benoit, 2009); BPSA: Brazilian Political Science Association (Tarouco and Madeira, 2015); Author: Coded by the author, based on newspapers and online resources

With the information in Table G.1, I created *Ideological Difference* between parties. This variable assumes 0 if both parties share the ideological position, 1 if the dyad is formed by a centrist and a rightist (leftist) party and 2 if the dyad is composed by a leftist and a rightist party. Using this new covariate, I estimate a logit model with a random intercept by municipality. This model includes the same set of covariates used in the main model (Table E.1). The difference is that the variables *Vote Share*, *Incumbent*, *Run Previously* are measured in terms of the potential partner (the party not running an executive candidate).

Figure G.1: Change in the predicted probability that two parties will form a Pre-Electoral Coalition when *FBT* is available, varying *Vote Share (Joining Party)*




Note: Figure shows the difference between the probabilities that two parties will form a PEC when *FBT* is equal to 1 and 0. Remaining variables are held at their means. 95% confidence intervals calculating using clustered-robust variance-covariance matrix by municipality.

Figure G.1 shows the main result from model using a dyadic data. Similar to the findings in the body of the paper, FBT is positively associated with forming a PEC, when the party not fielding the candidate is small. When these parties had between 0 and 5% of the votes in the previous legislative election, the probability of forming a PEC increases between 0.013 and 0.004. This value is equivalent to a numerical increase that varies between 9,409 and 2,895 additional alliances formed between dyads. Considering that 22% of the dyads eventually formed a PEC, this association represents a 6% (to 1.8%) increase in the base probability. The complete set of result for the model are in Table G.2 below.

Table G.2: Association between FBT and Forming a PEC conditional upon Vote Share

| | Estimated Beta | 95% CI |
|---|---|---|
| FBT | 0.075 | (0.050, 0.100) |
| Vote Share (Joining Party) | 2.616 | (2.512, 2.719) |
| Vote Share (Joining Party) × FBT | −0.247 | (−0.370, −0.123) |
| Ideological Difference | −0.181 | (−0.192, −0.169) |
| Incumbent (Joining Party) | −0.194 | (−0.215, −0.173) |
| Run Previously (Joining Party) | 0.463 | (0.450, 0.476) |
| Run-off | −0.367 | (−0.440, −0.294) |
| ENPv | −0.002 | (−0.006, 0.003) |
| Lack of Competitiveness | −0.110 | (−0.161, −0.059) |
| Population (log) | −0.068 | (−0.080, −0.055) |
| GDP per capita (log) | 0.006 | (−0.010, 0.022) |
| Rural Population (%) | 0.001 | (0.000, 0.001) |
| Intercept | 0.148 | (0.128, 0.168) |
| $\sigma_{mun}$ | 0.540 | |
| Party Fixed Effect | Yes | |
| Year Fixed Effect | Yes | |
| N of Groups | 5,467 | |
| Observations | 723,798 | |

*Note*: Column 1's entries are unstandardized regression coefficients from a random effects logit model with a random intercept by municipality. Column 3's entries are 95% confidence intervals calculated using a clustered-robust variance-covariance matrix by municipality.

# H Legislative Election - Counterfactual Scenario

This Appendix presents a counter-factual analysis of the legislative seat distribution had parties not formed pre-electoral coalitions. The objective is to examine which parties would have had a better performance in terms of seat share had they not created PECs.

The distribution of legislative seats is made proportionally to the number of votes that each list (parties running solo or in PECs) receives — the sum of the party label and personal votes. Seats are allotted using an electoral quotient combined with the D'Hondt method. If parties run as part of a PEC, their votes are pooled together to determine how many seats the coalition win.[1]

To produce the analysis, I take advantage of the fact that the Brazilian Electoral Authority reports the number of votes received by each individual party. As a result, even parties that were part of a PEC have their results reported individually. Using this data, I compute the distribution of seats had parties' seat share depended only on their own performance, ignoring whether some parties ran as part of PECs. After computing the new seat share, I divide both the real and the simulated numbers of seats won by each party by the district magnitude to get the parties' seat share. Then, I code two dependent variables. First, I take the differences between the real world seat share and the simulated one (*Difference in Seat Share*). Second, I recode *Difference in Seat Share* into a dichotomous variable (*Gained Fewer Seats*) that assumes 1 if *Difference in Seat Share* is negative and 0, otherwise. [2]

I fit a linear model for *Difference in Seat Share* and probability linear model for *Gained Fewer Seats*, in which I include fixed effects by municipality, election, and party, apart from social-demographic controls (*Population*, *Rural Population*, and *GDP per capita*). The

[1]PECs in legislative elections may be subsets of the PEC in the executive election. Parties that are supporting different mayoral candidates cannot form PECs with each other. Parties that do not take part in the executive election are free to form alliances with parties that are in an executive PEC.

[2]I exclude 372 municipality-year because the total number of elected candidates in the TSE's data differs from the district magnitude in TSE's data. I also remove another 83 groups (municipality-year) because there are ties among parties in the distribution of seats when PECs are not considered. Finally, the number of parties included in the analysis also differ from the one in the paper's main analysis because some parties opted for not fielding a candidate in the legislative election.

variables of interest are those that represent the party's strategy in the real election, *Lead*, *Run Solo*, *Join a PEC*, and *Not Run*.

The results in Table H.1 indicate that parties that *Lead* a PEC lose seats because of this strategy. On average, these parties have a seat share −1.42 lower than those parties that *Run Solo* (Model 1). Not surprisingly, parties that *Join* a PEC are the most benefited in the legislative election. These parties have an average increase of 3.06 in their seat share compared with a scenario in which they would have run solo. Model 1 also reveals that parties that do not support an executive candidate also gain more seats than those that run an executive candidate (either solo or leading a PEC). One possible explanation to this finding is that these parties can join a PEC to run exclusively in the legislative election.

Table H.1: Counter-factual scenario in which parties could not form PECs

| | Model 1 | Model 2 |
|---|---|---|
| | Difference in Seat Share | Gained Fewer Seats |
| Not Run | $2.053^{***}$ | $-0.092^{***}$ |
| | (1.904, 2.203) | (−0.104, −0.079) |
| Join | $3.067^{***}$ | $-0.135^{***}$ |
| | (2.934, 3.201) | (−0.147, −0.124) |
| Lead | $-1.425^{***}$ | $0.143^{***}$ |
| | (−1.575, −1.275) | (0.131, 0.156) |
| Socio-Demographic Controls | Yes | Yes |
| Party Fixed Effects | Yes | Yes |
| Election Fixed Effects | Yes | Yes |
| Municipality Fixed Effects | Yes | Yes |
| Observations | 205,415 | 205,415 |
| $R^2$ | 0.096 | 0.132 |

*Note*: Columns 1 and 2 entries are unstandardized regression coefficients from linear models. Reference category is "Run Solo." 95% Confidence intervals using clustered robust standard error by municipality in parentheses. $^{*}$ $p < 0.05$; $^{**}$ $p < 0.01$; $^{***}$ $p < 0.001$.

The estimates for the model using *Gained Fewer Seats* as the dependent variable reveal a similar pattern. Parties *Lead* a PEC are 14.3% more likely to lose seats than parties *Run Solo*. Parties that *Join* a PEC or *Not Run* in the executive election are −13.5% and −9.2%

less likely, respectively, to lose seats when compared to parties that a field candidate and *Run Solo*.

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