

# Going Local to Win the Nation: Political Boosting in Mayoral Politics

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## **Abstract**

In federal democracies, political parties often invest in local politics for national gains. This strategy is crucial, particularly in noisy democracies where politicians need to find informational shortcuts to attract inattentive voters. I define this strategy as political boosting, and investigate its dynamics in Brazil, a textbook example of a fragmented party system. Using a regression discontinuity design (RD), I show that parties in Brazil boost their national performance earning more votes on House elections in districts where their members control the local office. Additionally, by using a novel Bayesian LASSO algorithm to address data sparsity in RD designs, I find the existence of a pro-large party bias on boosting. Ultimately, my analysis highlights how the institutional strength and differential access to pork explain why boosting is more effective for large parties. By disentangling the effects of winning local elections, the paper explains a venue by which parties build electoral strength in fragmented democracies.

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## Introduction

Parties often invest in local politics to win national elections. I define this as political boosting, borrowing from the statistical process with the same name. In statistics, the term refers to a family of algorithms that converts weak learners to strong predictors. The Boosting algorithm allows researchers to gain precision when noisy data makes it difficult to measure a specific event. In politics, the study of information-transfer between political parties and constituents is also inherently noisy. Fragmented environments further complicate this informational setting in which politicians are battling for a critical commodity: voters. Political boosting is the process of augmenting the precision of the political signal of parties by deploying local political capital to increase national gains. I argue that winning a local election allows parties to use the benefits from the local offices to improve their performance when competing for upper-level positions. This paper provides both a theoretical and a statistical model to understand how parties "go local" to win nationally.

I investigate this question systematically by comparing the electoral effects of electing mayors in Brazil with the performance of their parties in upper-level legislative elections. I analyze all Brazilian mayoral polls between 2000 and 2012 using a regression discontinuity design (RD) to identify the effect of political boosting. In doing so, I outline a mechanism by which parties build electoral strength in fragmented polities. Brazil is a typical example of a young democracy in which the importance of partisanship, at least as commonly depicted by the specialized scholarship on advanced democracies ([Campbell et al., 1980](#); [Lipset and Rokkan, 1967](#)), is considered of minor importance in voters' decision-making.. The Brazilian party system is commonly depicted as weakly institutionalized ([Mainwaring, 1991, 1999](#)), with candidate-centered incentives dominating politicians' behavior ([Samuels, 2003](#); [Ames, 2001](#)). The electoral system is also rec-

ognized by engendering extraordinary levels of non-ideological post-election legislative coalitions (Amorim Neto et al., 2003; Zucco, 2009) induced by pro-small party bias on legislative seats allocation (Calvo et al., 2015), and party-switching in Congress (Desposato, 2006). Although some recent scholarship has challenged some of these preconceptions, showing that partisan and anti-partisan sentiments do matter for candidates evaluation and policy perceptions among voters (Samuels and Zucco, 2018; Power and Rodrigues-Silveira, 2018; Baker et al., 2016), the detection of a boosting effect due to partisan alignments on upper-level elections is, still, an unlikely phenomenon in such a hostile environment. Beyond providing a general theory for the effect of local incumbency on multilevel democracies, this paper uses the unlikely case of Brazil to show a new venue for which parties build electoral strength on hostile environments.

I divide the analysis into three major parts. First, I ask whether winning a local election increases the party vote share for the coming House election in the respective municipality. I find that winning the local executive, even by a small margin, increases the vote share of the incumbent's party in the forthcoming legislative election. On average, the vote share of the incumbent's party on the forthcoming House Election increases by 2%. By design, the treatment effect refers to the increase, taking as a baseline the vote-share of the party who barely lost the local dispute. In a fragmented democracy such as Brazil, an increase in 2% of the party vote-share might be the difference between gaining a seat or not.

Secondly, I empirically assess the presence of heterogeneous subgroup treatment effects by parties. I define effect heterogeneity as the degree to which the treatment has differential causal effects, conditional on each subgroup. In an environment with high levels of party fragmentation, it is unlikely that different parties will be able to extract the same electoral advantages from political boosting. In fact, as a consequence of the mechanisms behind political boosting, I expect

larger parties to be inherently more effective in building a local-national electoral connection. To tease this out, I focus on identifying which parties are more impactful in local elections, and which channels parties successfully utilize to make local politicians align their local capital with the party's national goals.

To estimate the effect of parties, I implement a novel methodological strategy by applying a Bayesian estimator, developed to deal with data sparsity across subgroups, to identify heterogeneous subgroup effects in the context of Regression Discontinuity Designs ([Anastasopoulos, 2018](#)). I use the LASSOplus method developed by Ratkovic and Tingley ([2017](#)) to identify the subgroup effects of the more than 30 political parties in Brazil who elected mayors from 2000 to 2012. The results indicate that political boosting is most successful for large parties—specifically, larger parties have a positive conditional treatment effect, larger than the treatment values. Larger parties succeed at a higher degrees on converting local capital to national gains. Small parties do not show non-zero effects using the aforementioned estimation strategy.

Lastly, I investigate the mechanisms behind political boosting. I argue that a party's institutional strength and their subsequent access to pork makes boosting more effective for large parties in Brazil. First, I argue that parties with strong representation in the national legislative branch, and particularly those aligned with upper-level executive chiefs, benefit from an economies of scales' effect, which is predominant in fragmented democracies; therefore, the costs for their incumbents to engage in national campaigns are marginally lower. Additionally, larger parties also have higher capacity to punish shirking behavior by their incumbents. As a consequence, these major parties succeed at higher rates to push their local mayors to work for their co-partisans running in upper-level elections. As the literature has consistently shown, partisan alignment means more access to a variety of federal grants in Brazil, and the evidence

shows that voters reward such behavior ([Brollo and Nannicini, 2012](#); [Bueno, 2017](#); [Firpo et al., 2015](#)).

I empirically demonstrate that mayors from larger parties gain marginally more in pork from a national representative than mayors from small parties. When a large party wins a local election, their national representatives in the House more effectively ‘bring home the bacon.’ I measure access to pork using a regression discontinuity design to estimate the effect of winning a local election on the probability of having an individual budgetary amendment proposed by their co-partisan legislators in the House in the following two years after the local election. As a robustness check, I also analyze the conditional effect of career incentives on political boosting, which thus far has been primarily used to explain local politics in Brazil ([Titiumik et al., 2015](#); [Novaes, 2017](#)), and find null effects for this explanation.

The article proceeds as follows: In the next section, I expand on the theory of political boosting in noisy democracies, and offer the theoretical arguments of the paper. Then, I introduce the reader to the institutional environment in Brazil. The following section presents the identification strategy and research design employed in the paper. I then discuss the results for political boosting in federal democracies, the heterogeneous effects of parties, and how institutional strength and access to pork explain the effectiveness of boosting for large parties. I end by considering broader contributions of this paper.

## Political Boosting in Multilevel Democracies

Scholars of multilevel democracies have long investigated how elections of different scales might affect each other. Using the concept of coattails, much of the literature supports that horizontal forces from executive races shape the performance and levels of fragmentation of

legislative parties (Golder, 2006; Magar, 2012; Meredith, 2013; Samuels, 2000a), while vertical effects between multilevel executive positions make presidents a key player in gubernatorial races (Borges and Lloyd, 2016; Rodden and Wibbels, 2010). Likewise, scholars have shown mixed findings on how the reverse effects of local politics can impact - or not - national electoral competition (Ames, 1994; Broockman, 2009). Furthermore, a consistent pattern on this scholarship relates to the conditional effects over time; coattail effects are notably mitigated when elections are non-concurrent (Golder, 2006; Borges and Lloyd, 2016; Samuels, 2000a).

But while the debate on the dynamic of coattail effects on concurrent elections is relatively well-understood, our understanding of how non-concurrent elections on federal democracies affect each other is still flawed. Little research has discussed how winning local elections can affect partisan perspectives on the national level when the elections do not occur simultaneously. The theory of political boosting provides a road map to close this gap in the literature on partisan politics in federal democracies. Does winning local elections make parties more competitive in national elections when upper-level races are not concurrent ? How do, and which, institutional features make parties able to extract marginally more benefits from their local politicians when those are not on the ballot as well?

In democracies where partisanship is weak, upper-level candidates have incentives to structure their campaigns around local intermediaries. Previous literature commonly depicts these agents as brokers (Novaes, 2017; Stokes et al., 2013). In these noisy environment of weak party signals, more needs to be done by candidates competing for votes in order to gain the support of inattentive voters. A way to increase the effectiveness of this endeavor consists of using powerful local allies and the resources at their disposition to convince voters to support the incumbents' co-partisans. Parties, therefore, depend on the support of their local members who have higher

local endowments and possess more information about voters to increase the efficiency of their candidates running for upper-level positions. Not surprisingly, previous research has shown how voters incorporate information coming from local dynamics when deciding about upper-level offices in new democracies ([Feierherd, 2018](#); [Bueno, 2017](#); [Lucardi, 2016](#)).

Local incumbents, in this case mayors, have a variety of tools to deploy to help a co-partisan running in an upper-level election. Winning control over the local executive gives the local party leader access to clientelistic (jobs and pork) and non-clientelistic goods (local reputation of a good manager, or as a honest, and ethical politician) that can be crucial to help co-partisans running for upper-level legislative positions. In federal democracies with high decentralization, as in Brazil, mayors usually control both types of goods, and voters interact mostly with social services provided by these local offices. Scholars have frequently called attention to the intertwined use of these resources with specific political interests. Evidence for the Brazilian case suggests mayors' affiliation with the President's party guarantee higher access to upper-level executive grants ([Brollo and Nannicini, 2012](#); [Bueno, 2017](#)), including the allocation of legislative budget amendments ([Luz and Dantas, 2017](#)).

The incumbent's decision to help a candidate from her same party competing in an upper-level election involves a critical trade-off. Because boosting here refers to non-concurrent elections, when the mayor decides to use policy or non-policy resources under her control to exclusively generate partisan gains, voters are directly losing individual benefits. For this mayor, the use of policy and non-policy resources to directly benefit her party renders a sub-optimal provision of policy for the local voters. Examples of such a trade-off can be as simple as the mayor going to a partisan activity during their work hours, to the illegal use of local resources on campaign activities.

In this framework, the main dilemma consists of a agent - the local incumbent - answering to two distinct principals - the national party, and the voter (Klašnja and Titunik, 2017; Besley and Case, 1995). The incumbent maximizes her utility by remaining in office; to do this, the mayors has an incentive to provide a policy closer to the voter’s ideal point, but should also work to avoid costs imposed by the party. The incumbent’s party does not have the same incentive to be truthful to the local voter’s preferences.<sup>1</sup> The main concern of national party leaders is to maximize their electoral gains on upper-level elections. To achieve this, the party asks for the support of the local incumbent, which can move the incumbent away from the voter’s ideal point. This movement towards the national party preferences represent some costs payed by the incumbent, using local capital to help the party’s candidates in upper-level, non-concurrent elections.

However, voters are not the only ones who can punish incumbents. National leaders also provide benefits to local incumbents which might be crucial for his career perspective—thus inherently establishing a tension between the two principals. Therefore, a simple ”no” from the mayor to the party leaders imposes costs on the mayors’ utility function. Examples of costs imposed by national parties can be as simple as a decision to not support the incumbent in future elections, or as serious as reducing the flow of resources controlled by the party to the local level. Under this structure of incentives, local politicians need to find the optimal combination between the two principals.

The political boosting dilemma then becomes: When subjected to the risk of being punished by the party, should local incumbents shirk and move towards the voter’s ideal point? Or should local incumbents comply with the party proposal, therefore facing the risk of being punished

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<sup>1</sup>Although national leaders also want to have their mayors reelected, their constrains and information about local conditions are lower. To relax this assumption, a model can assume national leaders have a larger uncertainty compared to incumbents, about how much a mayor can move from the ideal point of the voter. The theoretical intuition would be the same on both models.



by the voter? The answer for the political boosting dilemma depends inherently on how much damage each principal can make upon the agent. I argue and empirically assess how two distinct mechanisms explain the occurrence of boosting: first, the institutional strength of the party families in Brazil; and second, the benefits the local incumbent extracts from boosting, which alleviates the costs of diverging local capital to upper-ballot elections.

I expect Political boosting to render higher benefits when parties have an economy of scale capable of decreasing the costs for the incumbent to convince voters to support his co-partisans. Under the incentive structure mentioned above, parties with a strong institutional presence in a district have an economy of scale in motion at their disposition. More information about the voters and a previously constituted partisan network decreases the costs for the local incumbent to engage in a partisan effort. In conclusion, the marginal costs of moving further from the voter ideal point in the principal-agent model decrease when the parties are stronger. On the other side, the capacity to punish incumbents who shirk is also conditional on partisan strength. A party that controls cabinet positions at the local-level, or it is aligned with the governor, for example, can make more credible threats on local incumbents, conditional on their decision to boost.

I measure institutional strength using two empirical strategies. First, I assess to which degree political boosting varies according to the affiliation of the mayor with the State Governor's Party and if the incumbents' party holds at least one seat in the House when the coming Federal election occurs. Although these variables do not adequately measure when punishment indeed occurs, it is easy to assume that, under these conditions, parties have more channels to which they can force mayors to comply with their national interests.

However, not only do constraints on local incumbents' behavior affect their decision to engage

in national politics, but the costs of boosting are marginally lower when the incumbent can be compensated for some loss of utility by gaining extra benefits from her party. National legislators have a variety of tools to help local incumbents, and promises and the credibility of those promise work well as a tool to convince local politicians to engage in national partisan efforts. These tools vary from more direct benefits, such as introducing local incumbents to a national network of bureaucrats, to the more direct benefits of pork allocated to municipalities. To measure this mechanism, I use data on individual budgetary amendments proposed by their legislators to the local level. First, I argue that if boosts matter, the municipality  $i$  should receive more resources from the party of the mayor than from the party of the runner-up candidate. Second, to examine the interaction with party strength, I show how the difference in the allocation of pork from individual amendments after winning a local election is higher for stronger parties. In other words, for the cases of small parties, winning and losing make no difference in the money sent by a national legislator to their local incumbent/runner up, while the opposite occurs for large parties.

In conclusion, I expect political boosting to occur in federal democracies as a consequence of national leaders using local co-partisans as instruments to increase their performance on low-informational political environments. However, conditional on the strength of some parties and their access to pork, I show boosting is partisan dependent. As a consequence, the theory predicts a pro-large party bias on the effects on winning local on upper-level elections; larger parties win more nationally from investing in local rather than small parties. In conclusion, beyond explaining how parties build their strength on fragmented democracies, my theory of boosting also provides insight on both which parties extract larger benefits, but also their strategic motivation behind investing in local politics.

## Institutional Background

Brazil is administratively divided into 27 states, which are further subdivided into 5,570 municipalities. The political structure at the local level mirrors the presidential arrangement of the central government, except that states and cities have a unicameral legislature while the national level has an Upper and Lower level chamber. The chief of the executive in all three federal levels are directly elected using a runoff majority rule, although, for mayors of municipalities with under 200,000 eligible voters who represent the absolute majority of the towns, mayors are chosen through plurality rule. Brazil has used the same electoral rules for electing its legislative representatives since the democratization of the country, including the period here discussed. Legislators are selected in an open-list proportional system in which coalition-building occurs at extraordinary levels ([Calvo et al., 2015](#); [Amorim Neto et al., 2003](#); [Figueiredo and Limongi, 2000](#)). Municipal governments answer for a relevant share of the provision of public goods and services, mainly those related to education, health, and infrastructure projects. Elections for all national and state-level offices take place at the same time every four years, whereas all municipal elections occur by two years and also take place every four years.

The Brazilian party system is famous for exhibiting high levels of fragmentation. After the most recent 2018 national election, the largest party in the House, the Worker's Party, holds only slightly more than 10% of the seats, whereas thirty parties won at least one seat for the House. Even though the Legislative Branch has approved some minor changes over time to reduce the partisan fragmentation, the trend of the number of effective parties has consistently moved upward in the last two decades. Based on the Laakso-Taagepera index which uses vote share as the unit of analysis, Brazil had in 1998 a total of 8.16 effective parties in the Lower Chamber. In 2014, the last year under scrutiny here, the total number of effective parties almost doubled,

achieving the impressive mark of 14.1 effective parties. Besides, party fragmentation is not limited to the national level. Not surprisingly, the local level of party fragmentation resembles the findings depicted above for the House composition. In 2000, the number of effective parties winning local executive offices was 7.38, while in 2012, the value jumped to 11.

Figure 1 depicts the parties' vote share for the House elections aggregated at the municipal level. The left figure plots the evolution of the number of effective parties using the vote share of the parties for the Lower Chamber, while the right plot shows the average vote share of the parties in each municipality<sup>2</sup>. The figures reveal a worrisome indication of the growing partisan fragmentation in Brazil over the years.

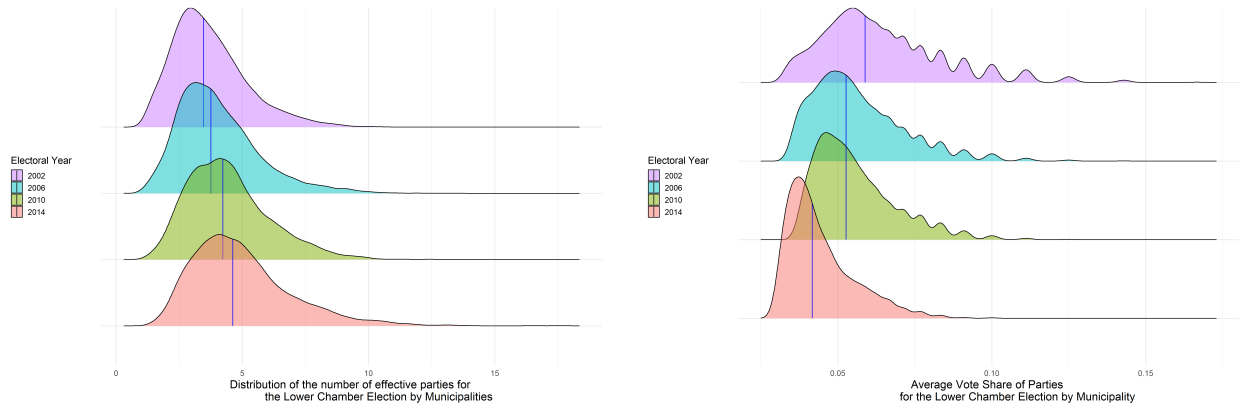


Figure 1: Distribution for the Effective Number of Parties and the average vote share for the House by municipalities. The vertical blue line indicates the median for each distribution. The mean over the years and the standard deviation for the number of Effective Parties are 4.29 and 1.74, respectively. Whereas, the mean and the standard deviation for the vote share are 5.5% and 1.1%

An important remark about the party system in Brazil relates to the uniqueness of the Workers Party (PT) in the context of a fragmented party system. The scholarship on political parties in Latin America points to the PT as an example of a leftist, unlikely example of a mass-based party in the continent. Previous research suggests various peculiarities about the

<sup>2</sup>The Superior Electoral Court does not provide information of the parties who had zero votes for the years of 2002, 2006 and 2010; therefore, I exclude these cases to calculate the average

PT compared to other large parties in Brazil. For example, the strength of the PT’s label (Feierherd, 2018; Samuels and Zucco, 2018), the PT’s capacity to mobilize and activate local grassroots organizations (Samuels and Zucco, 2015; Keck, 1992), and the party’s capacity to discipline its members in the national and local level (Klašnja and Titiunik, 2017; Amaral, 2013; Hunter, 2010). I extend the discussion about the uniqueness of the PT when discussing the partisan effects of political boosting in Brazil. The findings indicate that although the PT does effectively connect local and national non-concurrent electoral performance, the effects of boosting are not restricted to the PT.

Brazil offers a unique opportunity for a thorough investigation of strategies of parties in fragmented polities. First, the Brazilian political system adopts institutions that produce few incentives for intra-partisan cooperation, as we have extensively discussed. Second, due to the non-coincidence of the local and national election, I can disentangle without further problems the boosting effect of local politicians on upper-level elections, therefore filling a critical gap in the literature on coattails effects. Finally, Brazilian parties vary significantly in their strength, thus providing to the research enough variation to discuss mechanisms and heterogeneous effects across the political parties.

## Data and Methods

I measure mayors’ political boosting by assessing at what degree electing a local executive chief affects the party performance for the subsequent Lower Chamber (national) election. I analyze all the elections between 2000 and 2014. The years of 2000, 2004, 2008, and 2012 represent years with local elections ( $t$ ), while 2002, 2006, 2010, and 2014 ( $t + 2$ ) are years with state and national elections. Therefore, the analysis covers a total of four electoral cycles. The

data is available from the Superior Electoral Court in Brazil. All the other variables related to the electoral dynamics are extracted from the same source.

The pressing empirical challenge for this paper relates to the chance of omitted or reverse bias affecting the party vote share for the House ( $y$ ) and the election of the co-partisan mayor ( $T$ ) simultaneously. In other words, in municipalities where the mayor for party  $j$  is elected, the level of support for the same party is likely to be higher; therefore, party  $j$  has, from the beginning, a distinct baseline in its likelihood of being better off on the upcoming legislative race in this particular district. Thus, positive results might be spurious due to this different baseline propensity instead of related to the effort of the mayor on delivering support for their co-partisans. To overcome this empirical challenge, I use a regression discontinuity design. This design has become one of the most credible and accessible strategies in political science to deal with causal effects using observational data and has been extensively applied on close elections in Brazil (Avelino et al., 2012; Klašnja and Titiunik, 2017; Novaes, 2017; Boas and Hidalgo, 2011; Brollo and Nannicini, 2012), as well as other countries (Lee, 2008; Eggers et al., 2015; Broockman, 2009). The model provides a clear identification for political boosting, which I measure as the effect of electing the mayor on the vote share of the incumbents' co-partisans for upper-level legislative elections .

A variety of methods have been proposed to estimate regression discontinuity designs. I follow the recommended setting of using non-parametric local linear regression (LLR) to approximate the treatment effect at the cutoff point (Titiunik et al., 2015; Gelman and Imbens, 2018). I employ a local polynomial with one degree to fit two separate regression functions above and below the cutoff of zero margin of victory in the mayoral dispute, with the treatment effect being the difference in the limits of the cutoff, or in other words, the intercepts from each direction.

To smooth the local regression function, I employ triangular kernel weights as a function to the distance between each observation's score and the cutoff. Therefore, observations far away from the cutoff are under-weighted on the estimation strategy, allowing for a better approximation of the treatment effect. I use a data-driven search to select an optimal bandwidth for the estimation which minimizes the Mean Square Error (MSE) of the model. To address bias on the treatment effects due to approximation errors, I report the robust confidence intervals developed by Calonico, Cattaneo, and Titiunik (2014). In the appendix 1 (p. 3) I report results using different bandwidths on the treatment effect for winning local elections.

## Identifying the effect and the mechanisms of Political Boosting

For the baseline setup of the paper, I estimate the effects of when the party  $j$  barely wins (loses) the mayoral election at  $t$  on the vote share of the party  $j$  co-partisan candidates to the congressional race at  $t_{+2}$ . I cover the last four electoral cycles in Brazil; hence,  $t$  represents the local election, and  $t_{+2}$  represents the national elections that occur two years later. The dependent variable employed is the vote share of the two top candidates (the mayor and the runner up) from party  $j$  for the House election at  $t_{+2}$  in the municipality  $i$ . Therefore, the causal effect indicates the increase/decrease in the vote share of the incumbents' party at  $t_{+2}$  *vis-a-vis* the vote share of the runner up candidate's party.

My theory predicts that two broader mechanisms explain the existence of boosting. First, local incumbents comply when their parties are strong enough to reduce the costs of a local incumbent to engage in partisan national politics; second, when national parties can faithfully promise access to public resources to the local incumbents, the risk of mayors to be punished by voters decreases, therefore, boosting occurs. To empirically assess the first mechanism, I estimate whether boosting from electing the local incumbent changes if i) the state governor is

from the same party of the barely elected mayor; ii) the party of the incumbent has a House Representative running for reelection on  $t_{+2}$ . Table 1 describes these subgroups. I use the same regression discontinuity model described above to estimate the models.

To estimate the returns mayors receive from boosting, I first estimate the effects when the party  $j$  barely wins (loses) the mayoral election at  $t$  on the access to pork allocations proposed by House members of party  $j$ . I restrict the analyzes only to the individual budgetary amendments proposed by the party  $j$  legislators in the following two years after the local election. This quantity provides a well-identified effect of electing a mayor on promises of pork from one’s national co-partisans <sup>3</sup>. However, the most interesting effect is the partisan heterogeneity in access to pork. I employ a similar research design, however, using a distinct estimation strategy more carefully described in the next section to estimate how the effect of access to pork varies by parties. The model reduces the estimation to detect the effect by parties, which renders an estimator that compares the access to pork when the same party barely wins or loses a local election. The estimator allows the identification of partisan variation on how effective these political parties reward their local incumbents. Table 2 describes this design.

To rule out concurrent mechanisms, I estimate if local incumbents’ career perspectives affect political boosting. If career incentives matter, mayors elected at  $t$  who run for reelection ( $t_{+4}$ ) in the following local contest would exhibit stronger incentives to help their co-partisans in their “midterm” legislative races ( $t_{+2}$ ). The perspective of being reelected makes boosting a dominant strategy for a local incumbent who needs the support of her party at  $t_{+4}$ . On the other side, lame-duck mayors and open-seat incumbents have weaker incentives to engage in this partisan

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<sup>3</sup>Scholars have long discussed how the payment of budget amendments proposed by House members relates to presidential coalition-management and parties strategy in Brazil (Luz and Dantas, 2017; Vasselai and Mignozzetti, 2014; Raile et al., 2011; Limongi and Figueiredo, 2005). Here, I analyze only the effects of individual proposals, not the decision to pay. The decision to pay the individual amendments relies on the executive and relates to dynamics of coalition-management that I do not analyze in the paper.



effort since those candidates do not face an electoral challenge in the future. These expectations might be easily derived from the model for the incumbency advantage proposed by Klasnja and Titiunik (2017). To estimate these models, I subset the data according to these variables. For the career-centered incentives, I split the data into three subgroups: i) Incumbent; when the mayor runs for reelection at  $t_{+4}$  ii) Lame-duck, when the mayor hits term limits and could not run for reelection; iii) Open Seat, when mayor could but decided not to run for reelection.

Table 1: Description of RDD for the Party Institutional Strength Mechanism

#### **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 2: Description of RDD 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 members of the House from the party of incumbent or the runner up.

### 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  $j$ .

## Subgroup effects using Bayesian Lasso Regression Discontinuity Designs

To estimate the heterogeneous effect of political boosting by parties, I use a novel methodological strategy applying a Bayesian sparse estimator to a regression discontinuity design. Previous work on heterogeneous partisan effects relying on RDD as an identification strategy commonly handpicks the largest parties for their analyzes ([Boas et al., 2014](#); [Klašnja and Titiunik, 2017](#); [Novaes, 2017](#)), which renders statistical and theoretical problems. First, ad-hoc decisions about subgroup effects can generate false discoveries when no true relationship exists, notably under the condition of sparsity on the data ([Pocock et al., 2002](#); [Imai and Strauss, 2011](#)). Second, throwing out part of the data might render inefficient estimators. Third, local linear models with sparse data, as in [Boas et al. \(2014\)](#)’s example in which some models have less than 50 observations, are likely to render instability in the asymptotic properties of the treatment effect and raises warranted suspicion about the findings.

To overcome this limitation, I employ the LASSOplus method developed by Ratkovic and Tin-

gley (2017) to identify the subgroup effects in the case of close-races in Brazil. A simple LASSO model works by zeroing out non-relevant parameters when dealing with high-dimensional data (Tibshirani, 1996; Tibshirani et al., 2015). In the Bayesian setup, the LASSO estimator uses some form of prior distribution over the parameters for the regularization process <sup>4</sup>. Anastopoulos (2018) shows that when data is sparse, the Bayesian LASSO estimation of treatment effects has superior performance compared to local linear models minimizing false negative and false positive rates under small sample sizes. To estimate the model, I estimate the LASSO-plus model using the Gibbs sampler with 1,000 burn-in iterations, 1,000 posterior samples, and thinning every 30 samples, which yields 1,000 draws. I use the same bandwidth calculated by the data-driven approach for the general model (Calonico et al., 2014). The implementation of sparse modeling to regression discontinuity designs is a methodological contribution of this paper to the emerging literature combining machine learning methods to improve the causal identification of statistical parameters (Grimmer et al., 2017; Athey and Imbens, 2015; Imai and Ratkovic, 2013; Ratkovic and Tingley, 2017; Green and Kern, 2012; Hainmueller and Hazlett, 2014).

## Results

I start by providing evidence for the effects of winning the local executive on the party vote share for House seats. Figure 2 presents the results for the RD estimation, pooling all of the years together. Analyzing all electoral years, the average effect of controlling the local executive leads to an increase of two percentage points in the vote share of the incumbent’s party for the

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<sup>4</sup>The Bayesian version of the estimator has been proved to exhibit better performance compared to its frequentist counterparts. First, the broad family of Bayesian methods has been shown to work better when groups have few observations (Stegmueller, 2013). Second, it deals appropriately with the estimation of standard errors in the LASSO setting; in particular, it may provide measures of uncertainty for the parameters in which the penalty term shrinks to zero (Kyung et al., 2010)

House. The results are aggregated at the municipal level; therefore, it should be understood as an increase on average at the local level.

Figure 2: Smoothed Regression Discontinuity of the Treatment Effect (Red lines represent the optimal bandwidth decision)

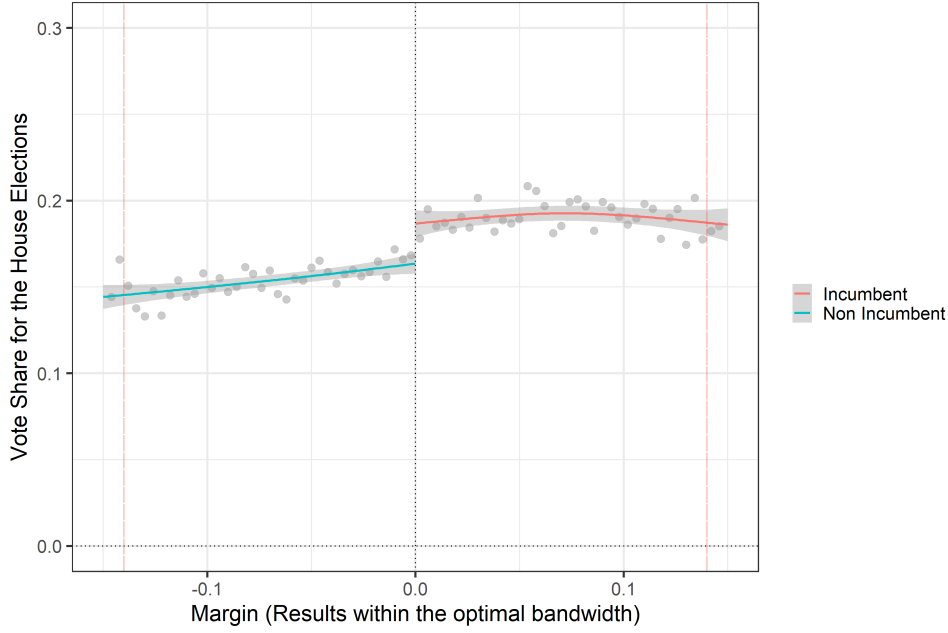


Table 3: REGRESSION DISCONTINUITY RESULTS: IMPACT OF ELECTING THE MAYOR

Outcome: Vote Share Co-partisans for the House Election				
Bandwidth (Margin of Victory)	Estimate	Lower Bound CI	Upper Bound CI	Number of Pairs
Optimal Bandwidth (14.4%)	0.022	0.011	0.032	12768
1%	0.019	-0.024	0.086	1080
5%	0.018	-0.006	0.036	5374
10%	0.019	0.001	0.031	9962
25%	0.024	0.012	0.032	17482
100%	0.025	0.017	0.030	21384

Figure 2 visually presents the treatment effect of winning a local election on the vote share of the incumbent’s co-partisans for the House election. The numerical results for the treatment effect are displayed on table 3. Electing the mayor ( $t$ ) increases the vote share for the mayors’ co-partisan candidates for the House election ( $t_{+2}$ ) by 2.2 percentage points, compared to the

runner-up party vote share. Under different specifications for the bandwidth, the results remain positive, although with some variation on statistical significance within very narrow windows.

The average vote-share per party for the House across all the electoral years is 5.5%, with a standard deviation of 1.1% in each city (See figure 1). Therefore, electing the mayor increases, on average, two standard deviations in the vote share of the parties for the Brazilian House election in each municipality. Undoubtedly, an increase of two standard deviations is a substantial effect on elections. More important, considering how competitive House Seats are in Brazil, (Calvo et al., 2015), a two standard deviation increase in the party vote share might be the difference between winning or losing a seat.

## The Effects of Political Boosting by Parties

Figure 3 presents the Bayesian LASSO non-zero coefficients for the party effects. The results indicate five parties have treatment effects different from zero: the *Partido do Movimento Democrático Brasileiro* (PMDB), the *Democratas* (DEM, formerly Partido da Frente Liberal), the *Partido da Social Democracia Brasileira* (PSDB), and the *Partido Progressista* (PP), and the *Partido dos Trabalhadores* (PT). The effects are positive, statistically distinct from zero, and the PP has the largest conditional effect.

These five parties are the largest in the Brazilian system regarding seats in the House and the number of elected mayors over the last three decades <sup>5</sup>, which indicates that party size matters notably for the successful alignment between local-national politicians. The PP, a non-programmatic, clientelistic party, appears in our results as having the largest effect, suggesting that the treatment is hardly related to the strength of party labels, as the literature supposes when analyzing incumbency effects (Titiunik et al., 2015).

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<sup>5</sup>The exception here is the emergent PSL, the party of President Jair Bolsonaro, which elected the President and the second largest number of representatives in the 2018 National election.

Second, programmatic preferences and coattail-presidential effects also seem to have no impact on boosting. These five parties represent a fair amount of variation regarding policy preferences, and with the exception of the PT and PSDB, none of the other three parties have had competitive presidential candidates in the recent Brazilian elections. To test for presidential coattails, I provide some models of robustness checks in appendix 4. The results show no consistent effects of having a competitive presidential candidate on the treatment effect.

Finally, the existence of partisan bias on boosting in favor of larger parties validates theories on party strength, moderating the effect of boosting. Larger parties in Congress have more representatives spread throughout the districts as well as governors elected, therefore exhibiting a higher ability to coordinate the mayors' behaviors. The next section provides empirical evidence for this.

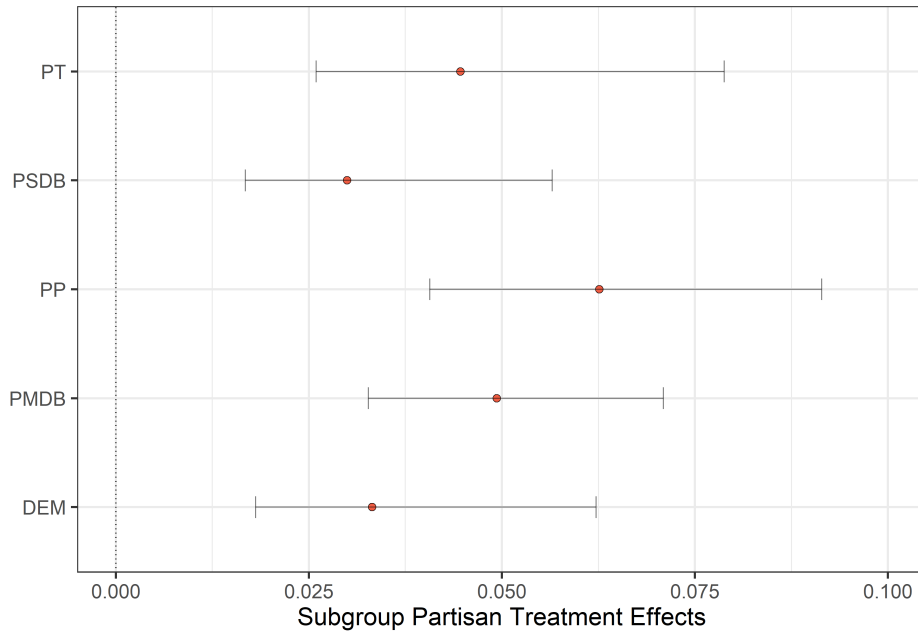


Figure 3: Nonzero conditional treatment effects by parties using the Bayesian Sparse LASSO algorithm. The estimation uses a data-driven bandwidth selection and presents the median point estimates with 95% confidence intervals.

## Party Strength, Access to Pork, and Political Boosting

In this section, I present evidence for the importance of party strength on political boosting. Figure 4 presents the conditional treatment effect using the conditions depicted in table 1. The results show that conditional on being from the same party of the governor, winning the mayoral race increases the party vote share for the House election by 13.5% percentage points. This conditional effect on the governor subsample is six times larger than the average treatment effect, indicating the importance of vertical alignment for political boosting. This substantial effect confirms previous research about the relevance of governors for electoral dynamics in Brazil (Samuels, 2003; Abrucio, 1998). Figure 4 shows a similar effect for the mayors who have at least one elected house representative at the time of the election in  $t_{+2}$ . The effect is twice the size of the average treatment effect

These results make sense with the theory of political boosting. In an economy of scale, political elites have more loyal allies at the local level when party strength in the district is higher. For the cases of large parties, the costs for the incumbent to help her co-partisans running on upper-level elections decrease, rendering the incumbent's effort to help her co-partisans more effective. The increase in efficiency might come from different channels: promises of access to state-level or national resources, stronger partisan network controlled by the governor, or merely the threat of being punished. I test the first in the later parts of this section.

As a robustness check, I estimate the effect of career incentives of local incumbents on boosting. Figure 4 indicates no consistent difference between different career paths and the effect of winning local elections for the House results. Across the three subsamples - incumbents, open-seat, and lame-duck mayors - the effects are similar in magnitude to the average treatment effect of a 2% increase in the vote share for the House elections. However in the Lame-Duck sample,

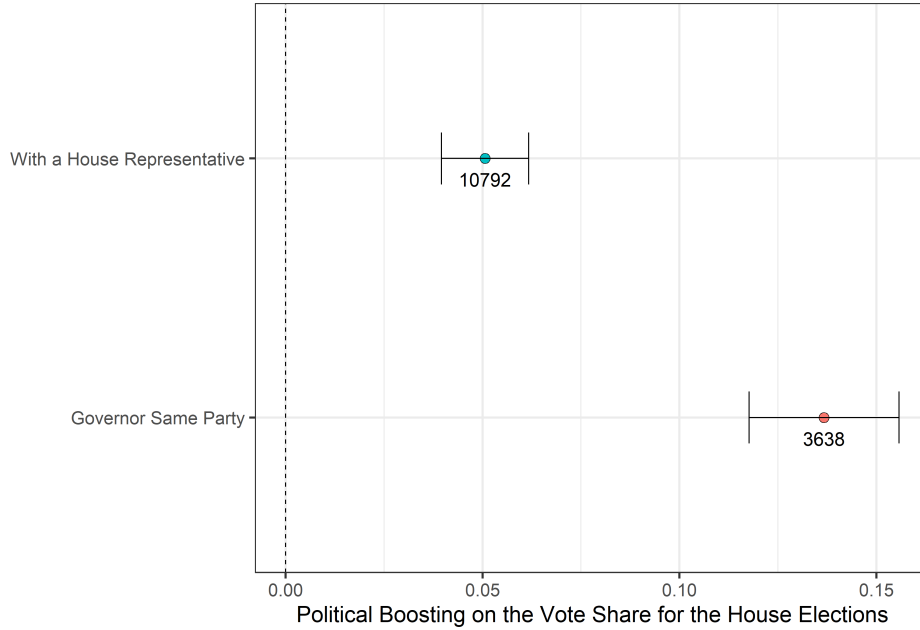


Figure 4: Conditional Treatment effect for the Party Coordination mediator on Political Boosting. The figures plot robust 95% confidence intervals. The number of cases is printed above each point estimate.

the effect is not statistically different from zero using the robust 95% confidence intervals, which is a consequence of sparsity in this subgroup. To summarize, political boosting occurs independently of the mayors' career ambition. Party institutional strength has stronger mediator effects on political boosting in federal democracies.

A plausible explanation for the effects of party strength on boosting relates to access to pork. As discussed before, the incumbents' decision to help in the election of a co-partisan might be motivated by the expectation to access resources defined by House members. Figure 6 presents the effect of winning a local on access to the allocation of pork from the House by the incumbents' co-partisans. After a local election, a municipality increases the probability of having an allocation of pork by the party of the incumbent by 12 percentage points, compared to the runner-up. In other words, House members send more money to municipalities that their party wins, versus the places where the parties were barely defeated.



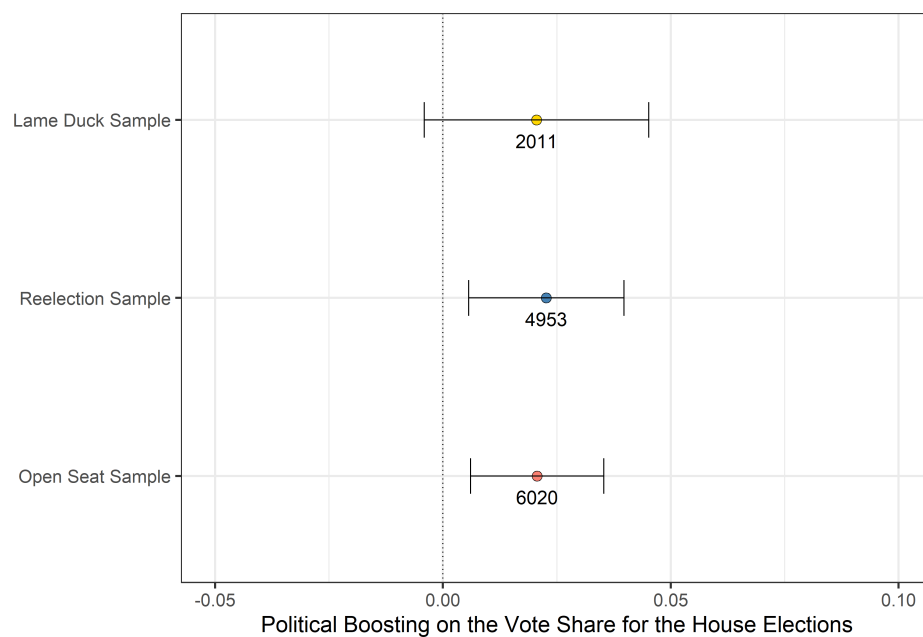


Figure 5: Conditional Treatment effect for Mayors' career ambition on political boosting. The figures plot robust 95% confidence intervals. The number of cases is printed above each point estimate.

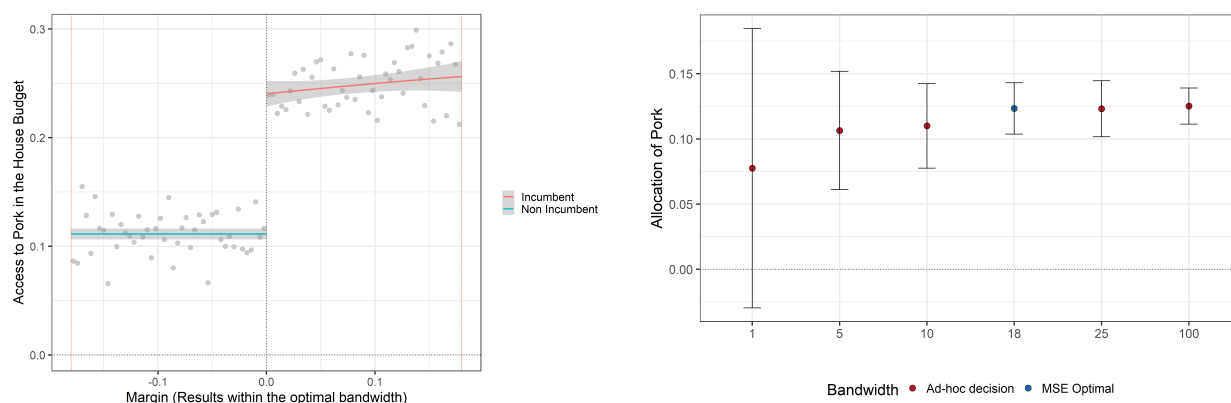


Figure 6: The treatment effect of winning a local election on the allocation of pork by House Members from the same party. The left plot visually shows the discontinuity. The right plot shows the robust 95% confidence intervals using different bandwidths.

Figure 7 presents the conditional effect of access to pork by parties using the Bayesian LASSO estimator. For the theory of boosting, the existence of differential effects on the allocation of pork explains how the benefits provided by boosting varies by parties. In the same direction of the partisan effects of boosting, the results indicate that the four largest parties in Brazil are more efficient in rewarding their local incumbents that win election. The effects by parties is roughly similar to the average effect, except for the case of the PT; large parties increase, on average, the chances that their local incumbent will receive a individual amendment in the following two years after being elected by 15 percentage points . On the other side, smaller parties show no substantial effects. When a large party wins local, their co-partisans bring 'home the bacon' by sending resources under their control to the municipalities controlled by their co-partisans. Meanwhile, smaller parties, even when successful in electing a mayor, do not receive the support of their co-partisans in the House. From the perspective of the local incumbent therefore, boosting, or using her local capital to help a co-partisan running for a upper-level election, is more efficient for only a few major parties in the Brazilian system <sup>6</sup>

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<sup>6</sup>The supplemental files show similar results when estimating a single model for each party using the local linear estimator (Titiunik et al., 2015). Although more positive cases appear when using a local modeling strategy, the general findings about a large party bias do not change.

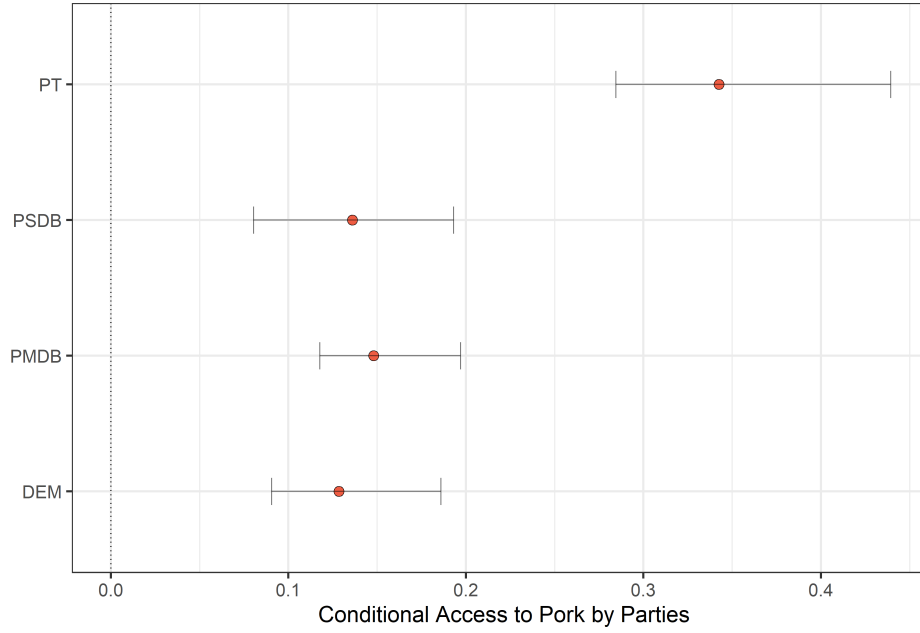


Figure 7: Nonzero conditional effects by parties on access to pork using the Bayesian Sparse LASSO algorithm. The estimation uses a data-driven bandwidth selection and presents the median point estimates with 95% confidence intervals.

## Robustness Checks

For the discontinuity design to be internally valid, the continuity assumption must hold (De la Cuesta and Imai, 2016; Skovron and Titiunik, 2015; Imbens and Lemieux, 2008). Although the continuity assumption is untestable, best practices suggest looking carefully for signs of violations. In this case, it is standard procedure to provide empirical evidence that no unobserved cofounders exist in the running variable and outcome. I perform two sorts of tests for the validity of the RD design. In appendix 5 (p.10), I first show no evidence of sorting on the margin of victory in the pooled data, the data by year, the subsamples, and the five parties with positive conditional effects; none of the cases have robust p-values for the null hypothesis of sorting smaller than .11 using the test developed by Cattaneo, Jansson, and Ma (2018). I also run a "placebo" test regressing the treatment on lagged values for the vote share for House Election

( $t_{-2}$ ) for the pooled data, for the year subsamples, and the five parties. The results using the lagged vote share are particularly reassuring regarding the validity of the RD setup, as it implies that predetermined electoral outcomes are not related to close races. Except for the case of the PMDB, with a negative coefficient which is statistically distinct from zero, I find no evidence of spurious correlation with the pre-treatment vote share.

To further test the robustness of the results, I re-estimate the treatment effect in appendix 6 (p. 15) using the rate of change of party support for House elections before and after electing the mayor and the vote share of state legislators as the dependent variables. If winning locally matters to explain different electoral gains between the incumbent and the runner up in the upcoming elections, it is reasonable to expect the incumbent's vote share *vis-a-vis*, as well as the runner-up candidate's vote share, to increase over time. Therefore, in appendix 6 (p. 15), I re-estimate the models using the rate of change of the barely elected (loser) mayor's vote share from the previous to the next election as explanatory variables. The logic applies correspondingly for state legislators who win elections on the same day of House members in Brazil; if informational shortcuts run from below, I should expect that winning locally also matters to co-partisans state legislators. I direct the reader to the appendix 6 (p. 15) for a more extended discussion, where I report in the detailed results.

In brief, the findings converge for change of electoral support over time; indeed, the treatment effect is more substantial when the baseline of the vote share in previous elections enters in the model. However, the effects on state legislators do not seem as strong. In the latter case, boosting is more dependent on party strength than in the general case of House election. The findings for state-level elections speak to the fact that state deputies usually are closer to local political dynamics than their co-partisans in the House, therefore both relying less upon, but

also having less to offer local incumbents. I also test in appendix 2 (p. 4) if having nationally competitive candidates for the presidency works as a mediator for political boosting. The effects do not provide evidence for this argument.

## Conclusion

In this paper, I propose a theory to understand if and how parties invest in local political capital, and whether that action renders substantial national gains. I label the process of aligning local capital to national gains as political boosting, and I test this theory in Brazil—a noisy, fragmented political environment. I find strong evidence that electing a mayor increases the incumbents’ party vote share for future House elections. However, not all parties win from going local to boost their national performance. Large parties are more efficient, using their local incumbents for national gains, compared to their smaller contenders. The paper discusses different mechanisms behind the partisan bias on boosting. Parties with considerable institutional presence in the local districts can more effectively extract benefits from their local incumbents. When the state governor belongs to the same party as the mayor or the party holds at least one House seat in the district, the effects of winning local elections are positive and substantively larger than the average treatment effect. The access to pork for local incumbents is also higher among larger parties. Mayors from strong parties receive more resources upon winning than do incumbents from small parties.

The findings of this paper make several contributions. I contribute to the literature on multi-level democracies by discussing the existence of political effects on non-concurrent elections. The theory of political boosting and its empirical findings show that voters incorporate information from local politics to decide upper-level elections on federal democracies with non-concurrent

elections. Therefore, I offer a new explanation to the null finding in the coattails literature when dealing with non-concurrent races ([Golder, 2006](#); [Samuels, 2000b](#); [Borges and Lloyd, 2016](#)).

The theory of political boosting speaks highly to the literature on information shortcuts in democratic regimes. In the opposite direction of Rodden and Wibbels' ([2010](#)) argument, when elections are non-concurrent, I argue that information runs from below, from the local to the upper level. In this sense, controlling the local information becomes key for party building in fragmented polities. Voters seem to pay attention to local politics, in our case, affiliation with the mayor, to reward her co-partisans running for House election. The importance of party strength detected in our empirical findings shows voters reward large parties, with higher capacity to access upper-level grants. This paper also detects that the heterogeneous effects of winning local are mostly independent of the mayors' decisions about their career; partisan institutional strength seems to dominate the career ambition incentives at the local level.

The findings of this paper are also relevant to the literature on political parties in Brazil. Most of this scholarship converges to a conclusion about the uniqueness of PT in the Brazilian hostile environment ([Klašnja and Titiunik, 2017](#); [Feierherd, 2018](#); [Samuels and Zucco, 2018](#)). Even though the PT exhibits consistent positive effects in our models, other political parties also have some remarkable capacity to articulate local politicians to work towards their national interests. The results here seem to be more connected to national parties' strength and the occupation of political offices, than the importance of labels and party discipline features commonly argued to be exclusive of the PT in Brazil. Additionally, the paper also adds a new piece to the puzzle of partisan-building in hostile environments. Previous research has identified the presence of small-party bias for House elections in Brazil, due to the rule for coalition-building ([Calvo et al., 2015](#)). Combined with these findings, this paper offers a road map to understand how parties

utilize different strategies to pursue national goals. While small parties extract positive rewards from building ideologically heterogeneous coalitions, large parties have a distinctively dominant strategy: to boost their political performance, large parties in Brazil go local to win the nation.

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