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#### ARTICLE

# Mapping Ideological Preferences in Brazilian Elections, 1994-2018: A Municipal-Level Study\*

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This article investigates the electorally expressed ideology of Brazilian voters via ecological analysis at the municipal level between 1994 and 2018. Our purpose is to analyze the main conditioners of aggregated patterns of ideology measured at a high spatial resolution. We test four major explanations for the variation in ideology at the municipal level: the effect of incumbent alignments, social modernization, political pluralism, and social inclusion. We find that although the Brazilian electorate as a whole leans to the right, there has been a 'gravitational effect' exerted by presidential incumbents over local ideology, and during the PT years this was visible in municipal outcomes. However, the vast majority of municipalities tended to the right even during the period of PT national government. During the late Dilma Rousseff years there was a return to a more conservative vote-revealed ideology at the local level, with a sharper veer to the right in the 2016 municipal and 2018 federal elections under Michel Temer. Overall, when we examine local voting in PR elections, we observe that there was no durable electoral realignment in the period under study.

**Keywords:** Ideology; Brazilian Legislative Survey; Coattail Effects; Party Ideology; Legislative Ideology.

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The recent upheaval in Brazilian democracy is allegedly marked by a 'right turn' towards a more conservative political equilibrium. This shift does not represent a rupture from some previously stable position. Since the transition from military rule, the country has experienced significant political transformations altering the 'ideological center of gravity' of the system (GROSS and SIGELMAN, 1984), with the most remarkable such change being the breakthrough victory of the leftist Worker's Party (PT) in the 2002 presidential elections. Brazil also underwent a constant increase in party fragmentation combined with the formation of ideologically non-contiguous coalitions, forcing dominant political groups to negotiate with partners located at very different positions across the left-right scale. These intersecting phenomena demand more in-depth analysis of the factors related to ideological change in recent Brazilian politics.

The present article seeks to understand the factors behind the fluctuations in the ideological preferences of the Brazilian electorate over the past two decades. Our goals are descriptive and explanatory. On the one hand, we provide a comprehensive and spatially detailed measurement and description of ideological variation in all municipalities between 1994 and 2018. On the other hand, we assess the adequacy of several conventional approaches to ideology in Brazil in order to unravel the potential sources of recent transformations.

We document the electorally expressed ideology of Brazilian voters via ecological analysis at the municipal level. We leverage the variance provided by Brazil's 5,570 municipalities over the course of 13 electoral cycles between 1994 and 2018. We build on existing measures of party system ideology (BAKER and GREENE, 2011; GROSS and SIGELMAN, 1984) and apply them to the municipal level to operationalize a Municipal Ideological Score (MIS). Our MIS is a measure of vote-revealed ideology.

We then conduct preliminary tests of four possible explanations for ideological outcomes in Brazilian PR elections. We refer to these variously as hypotheses or approaches rather than formal 'models', because none of them rises to the level of a general theory of voting: more accurately, they are theoretical clues extracted from the past 75 years of research on Brazilian politics. The first hypothesis refers to 'vertical political alignments' (or 'governismo') and focuses on the alleged tendency of parties to align with the president in order to obtain influence and material resources (LEAL, 1948; ZUCCO, 2010); if they do, then local ideology should shadow presidential ideology. The second, a 'modernizationist' approach, asks whether more developed and large cities tend to support the left to a higher degree than do rural hinterlands (SOARES, 1973; ZUCCO, 2010). The third approach, centered on 'political pluralism', inquires if left parties perform best in fragmented and polarized political systems (GROSS and SIGELMAN, 1984). Finally, the 'social inclusion' model sees redistributive policies originating in the Lula years as a source of electoral support for the left (BORGES, 2011; HUNTER and POWER, 2007; MONTERO, 2012; ZUCCO, 2008). We assess the plausibility of these rival hypotheses, first separately, then in an integrated

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model.

In the following sections, we describe our methodology and results. Section two explains our dependent variable in detail. The third section undertakes an exploratory analysis of the MIS, comparing it to covariates that undergird dominant hypotheses on political ideology in Brazil, and offering hypotheses for subsequent testing. Section four inspects our multivariate analyses. The final section offers some general conclusions.

## Measuring Ideology in Brazilian Municipalities: The MIS

Our dependent variable is the Municipal Ideological Score (MIS). This indicator is calculated by computing the fractional vote shares won by each party in a given municipality, multiplying these shares by each party's left-right ideological placement as recorded in elite surveys, and summing these values. The MIS, therefore, is an aggregate measure that locates the municipality's electorally expressed ideology on a traditional left-right scale. It is based on the notion of 'Ideological Center of Gravity' representing the average weighted ideological position of each mini-political system (GROSS and SIGELMAN, 1984). Employed mainly in cross-national comparative studies, this approach has so far had limited application to local or regional studies of politics (see SELLERS et al., 2013; SOLÉ, 2001).

Ideological scores for the main political parties are derived from the Brazilian Legislative Surveys (BLS), which are based on written questionnaires administered to members of the National Congress. We take the value of each party as observed in the BLS wave closest in time to the election. We use the same left-right scale as the BLS, which is centered at zero and ranges from approximately -1 (left) to 1 (right). Because the eight waves of BLS data have already been rescaled to account for party ideological movements over the past three decades (POWER and ZUCCO, 2012), the MIS provides an efficient way to compare the ideological preferences of municipal electorates across space and time.

Using only elections to the national lower house and to city councils, we track the performance of 42 political parties that nominated 2,275,501 candidates for PR offices between 1994 and 2018. This mass of candidates includes 341,687 who were successfully elected, with some 3,591 taking seats in the Chamber of Deputies in Brasília and the remaining 338,096 entering municipal legislatures (Câmaras de Vereadores). Our units of analysis are municipality-years, of which we have 74,040 observations over the course of 13 electoral cycles. Our analysis also includes the votes received by the 85% of candidates who were unsuccessful in these contests. We aggregate 'both winners and losers at the party level' in order to generate as complete a portrait as possible of party performance in PR elections. With this information in hand, we can combine the data with the known ideological positions of Brazilian parties, thus mapping aggregate ideological preferences over time.

Our method of analysis is, therefore, different from two other established ap-

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proaches to Brazilian electoral sociology. The first is the use of executive elections as a barometer of voter sentiment (e.g., BOHN, 2011; CARREIRÃO, 2007; HUNTER and POWER, 2007; LIMONGI and GUARNIERI, 2015; SINGER, 1999). Presidentialism exists at all three levels of government in Brazil (national, state, and local), and voters are frequently asked to fill a unipersonal office. While executive offices are the most important in Brazilian politics, these elections are heavily personalized, and the noise introduced by actor-level variables (name recognition, charisma, media projection, debate performance etc.) renders these elections less suitable for the study of latent ideological preferences. Moreover, while executive elections involve a small number of candidates, PR elections take place every two years with a vastly larger pool of competitors. Data generated by PR elections, especially when aggregated to include votes awarded to unelected candidates, have been underutilized in the study of Brazilian voting to date. We assume that the party choice to support a particular set of candidates guarantees a relatively coherent ideological preference for two main reasons. Firstly, parties tend to attract candidates with similar political views in the candidate selection process (BRAGA; BOLOGNESI, 2013). Secondly, the level of agreement of opinions of elected officials tends to be high, with low levels of variance among members of the same party (FIGUEIREDO and LIMONGI, 2007).

The other mainstream approach in the literature is the voter survey tradition. The national election study (Estudo Eleitoral Brasileiro, or ESEB) dates from 2002, interviewing approximately 2000 voters in presidential election years. The ESEB asks for self-reported votes, sometimes with a lag after the election. The ESEB has generated excellent contributions to individual-level analysis of voter behavior. However, it has been undertaken in only four election cycles to date, and its national-level focus means that the results, once again, may be driven by campaign effects in presidential contests.

National election studies have the virtue of generating individual-level data, which remain the gold standard in electoral analysis. Our method is ecological, using municipalities as the units of analysis, so is subject to various well-known pitfalls. The most obvious one is the ecological fallacy: we are unable to make generalizations about the ideological preferences of individual voters. Another is difficulty in the proper interpretation of average effects. In this study, we track the movement of municipalities within a unidimensional left-right space. Movements are small, and as we demonstrate below, the mean MIS is located significantly to the right of center (zero). A municipality that moves from an MIS of 0.78 to a value of 0.65 is 'shifting left' but still has a decidedly right-leaning electorate. Our data should not be interpreted as signifying victories or losses for parties of the left or the right; instead, 'the data trace small changes in average effects', aggregating thousands of party-level results.

The method we use here has significant advantages. First, we are 'mostly' removing the effect of personalism in high-politics executive contests. We do not fully eliminate these influences because congressional PR elections are concurrent with presidential and

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gubernatorial elections, and city council PR elections are concurrent with mayoral races. However, the aggregate results of PR elections, including both elected and unelected candidates, are by far the most valid indicator of overall voter support for political parties in Brazil. High district magnitude saturates the electoral market with candidates, whose extremely high numbers help to randomize the noise typical of unipersonal elections. The aggregate vote share of a party, including unsuccessful candidates, is therefore very meaningful.

Second, our method of aggregating PR results is an appropriate methodological answer to the frequency of party switching and new party entry in Brazil. In the 1990s and 2000s, typically between a quarter and a third of federal deputies would change parties in a four-year electoral cycle. These changes may have little effect on aggregate ideological distributions: studies of federal deputies have shown that when politicians switch parties, they tend to choose a new party that is ideologically adjacent (DESPOSATO, 2006; MELO, 2004). We note that political scientists typically focus on party switching among office holders; they are less likely to pay attention when losing (unelected) candidates move from party to party, but this is also a common practice. Aggregating the votes of large numbers of both successful and unsuccessful candidates again helps to cancel out the random noise introduced by party-shopping among ambitious politicians, regardless of whether it occurs via interparty migration or new party creation.

Third, our method is blind to the electoral coalitions (coligações) and vote-pooling practices that determine seat distribution in PR elections in Brazil. By disaggregating interparty coalitions and accounting for all votes cast at the original party level (successful or not), we neutralize the distorting effects of parties' attempts to 'game the system' in PR contests.

Fourth, our data are sensitive to time. The BLS measures ideology through both self-identification and reputation of parties. Respondents place themselves and all parties (but not their own) on a traditional left-right scale. With this information, Power and Zucco (2012) standardized the ideological scores of parties to avoid distortions derived from idiosyncratic usage of the scale and changes in the average position over time<sup>1</sup>. The method is demonstrably superior to using individual self-placements in mass surveys of the electorate<sup>2</sup>.

Fifth, we take nationally captured ideology data and bring these values down to the municipal level. This is a pragmatic solution to the problem of how to measure ide-

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<sup>&</sup>lt;sup>1</sup>Power and Zucco (2012) describe the standardization process in detail.

<sup>&</sup>lt;sup>2</sup>We reiterate that the BLS asks each respondent to place all parties—but not their own—on the ideological spectrum. Individual self-placement, a favored method adopted by most surveys with ordinary citizens, leads to noisy results, since people either do not know how to or feel free to position themselves on some sensitive scales (most people choose 6 on a 1-10 scale, when asked to define themselves ideologically). It is much easier for respondents to estimate relative distances between parties than to make absolute judgments about their own position on an abstract scale. This methodological choice solves the anchoring problem, since elite respondents perceive the scale as a metric via which to place parties relatively.

ology in multilevel political systems. The application of national-level BLS party ideology scores to the proportion of votes obtained in subnational elections facilitates the estimation of the average ideological position<sup>3</sup>. This procedure employs the same criteria for the classification of parties across all political units and levels.

#### **Results**

## **Descriptive Statistics**

The aggregate preferences of the Brazilian electorate are consistently to the right of center (Figure 01). Nonetheless, we can identify clear fluctuations in 1994-2018. The rescaled BLS ideology metric ranges from approximately minus one (-1), representing the extreme left, to one (1) for the extreme right. A reduction in the unweighted national mean from 0.312 (the rightmost average, in 1996) to 0.083 (the leftmost value, in 2010) represents a pronounced turn to the left, but even so, the 2010 outcome still displays a positive value (right of center).

We present two versions of the MIS: one in which we include only votes given to parties included in the BLS surveys, and a second 'imputed' version in which we assign ideology scores to missing or ephemeral parties (see the Methodological Notes)<sup>4</sup>. Descriptive statistics for the imputed version of the MIS reveal an increase in the mean and the median during the FHC years<sup>5</sup>. From 2002 to 2010, during the Lula years, the mean shifts leftward, reaching a score of 0.083 in 2010. The incumbency of Dilma Rousseff displaced the mean again slightly to the right in the 2012 municipal elections, a trend continued in the 2016 and 2018 contests under her successor Michel Temer. Under Temer, the MIS returned almost to the level recorded under the second term of FHC in 2000. This behavior suggests at least some degree of linkage between presidential ideology and left-right oscillations at the local level; as we suggest below, this relationship is likely mediated by the level of presidential approval at the time of the election.

We also note the gradual convergence of municipalities toward the center. The ideological range (maximum minus minimum values of the MIS) diminishes over time. The leftmost value falls from -0.654 in 1994 to -0.321 in 2006, a centrist trajectory. The rightmost observed value moves from 0.848 in 1996 to 0.547 in 2010, again a drift toward

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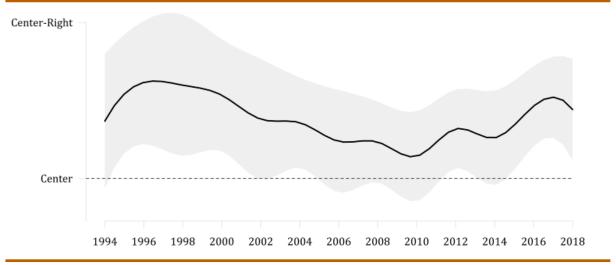
<sup>&</sup>lt;sup>3</sup>We are aware of the possibility of regional variations within parties. Unfortunately, there is no regional survey that allows us to capture these variations. One of the main utilities of our measure of ideology is to provide an alternative method to assess regional variation through the combination of existing national surveys and administrative results at the local level.

<sup>&</sup>lt;sup>4</sup>The Methodological Notes for this article, together with data and replication files, are available at https://doi.org/10.7910/DVN/5P03UL.

<sup>&</sup>lt;sup>5</sup>We detail the distribution of the MIS for each year in Figure A1 in the Appendix. The violin plots show each year and method of computation, i.e. whether BLS-only or imputed ideological cores, and whether these scores are weighted by the size of the electorate. This figure enables us to compare the effect of imputation on the distribution of the DV. The difference between the BLS-only and imputed versions of the MIS is usually small. Table 02 in the Methodological Notes shows the number of observations and the percentage of vote imputed in each electoral year.

the center. Most intriguing is the sharp decline in the standard deviation, which falls from 0.227 in 1998 to 0.125 in 2016. The convergence towards a center-right ideological center of gravity combined with a constant reduction in the SD suggests an increasingly nationalized ideological pattern.

**Figure 1:** Unweighted mean and SD intervals for the Municipal Ideological Score (1994-2018)



Source: BLS and TSE.

If we visualize the MIS cartographically (Figure 02), we can observe both stable patterns and noticeable changes over time<sup>6</sup>. To facilitate visual inspection, we employ a gradated grey scale for different degrees of right-wing orientation. The reader will observe that municipalities in two states, Santa Catarina (SC) and Tocantins (TO), present stable ideological positions (relative to other states) for the entire 1994-2018 time series.

More concretely, we confirm a general trend observed in other studies: convergence through fragmentation (KRAUSE et al., 2016). In 1996, our first electoral year for municipal councils, most of the votes in SC and TO were won by the PP (Partido Progressista), PFL (Partido da Frente Liberal), and PMDB (Partido do Movimento Democrático Brasileiro). In 1996, only ten parties received more than 10% of the vote in any municipality. On the other hand, in 2016, most of the votes in SC and TO went to PMDB, PSD (Partido Social Democrático), PR (Partido da República), and PV (Partido Verde). The first three of these are moderate center-right parties. The main difference between 1996 and 2016 has to do with the total number of parties obtaining more than 10% of the vote in any given location within either of these states. In 2016, no fewer than 26 parties achieved this feat (eight more than in 2012). Municipalities in Santa Catarina and Tocantins exhibit an interesting pattern of aggregate ideological stability combined with accelerating party fragmentation.

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<sup>&</sup>lt;sup>6</sup>The values represent the spatial lagged version of the MIS. This smoothing technique represents the average value for all neighboring municipalities of each respective location. This procedure facilitates the identification of regional clusters and the visualization of general trends.

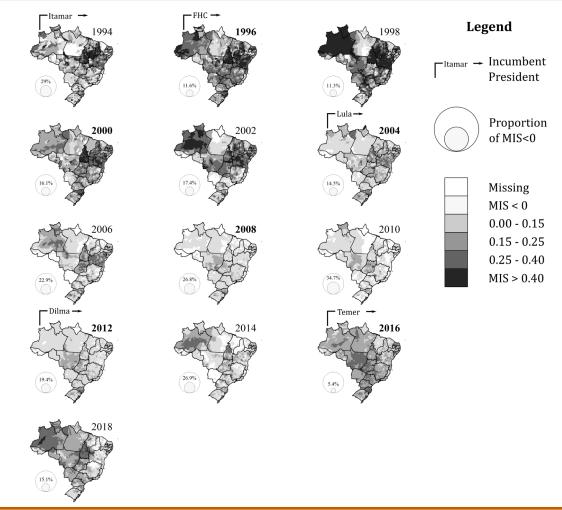


Figure 2: Municipal Ideological Score (1994-2018)

Source: BLS and TSE.

In some states, municipalities present a more consistently leftward position when compared to other regions. In Ceará, the most successful parties are the center-right PSDB (Partido da Social Democracia Brasileira) and PMDB and the center-left PT (Partido dos Trabalhadores) and PSB (Partido Socialista Brasileiro). Something similar occurs in Espírito Santo, with PMDB, PSDB, PSB, and PDT (Partido Democrático Trabalhista) dominating the competition across our time series.

In Amazonas, there is a cyclical pattern related to the type of election. Right-wing forces such as PP and PFL/DEM (Democratas) perform particularly well in the national legislative elections, while PMDB, PSDB, PR, and PTB (Partido Trabalhista Brasileiro) outperform these two parties in the municipal-level contests. This disconnection between local and national elections is a peculiar feature observed only in Amazonas.

There are also some noticeable changes over time. In Piauí, municipalities shift to the left after 2006, mainly due to the decline of PFL/DEM and PP and the rise of the PSB and PT in the state. A similar phenomenon occurs in Bahia after 2008, with the PT displacing the PFL/DEM (BORGES, 2007; MONTERO, 2012). The expansion of the right in

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the South and Southeast in the last two municipal cycles (2012-2016) also merits attention. This growth happens in part as a response to the success of the PT in the North and Northeastern regions and the consequent regional reorganization of political opposition.

We now compare the Municipal Ideological Score to other ideological indicators describing the Brazilian political system. According to Linz (1990), presidential systems are prone to problems of dual legitimacy: presidents are elected separately from Congress, thus generating conditions for conflict between the executive and the legislature. In this regard, it is useful to compare the differences among local voting for legislative offices, for the national presidency, and the observed average ideology of incumbent national legislators. This highlights an observed duality in Brazil between the presidential vote, which is concentrated mostly on the center-left, and the legislative vote, which tends to be massed on the center-right. Brazilian scholars (e.g. FURTADO, 1965) had already noted this duality prior to the coup of 1964, thus inspiring Packenham's hypotheses about modernizing presidents and conservative legislatures (PACKENHAM, 1971), but similar concepts have been revived in recent studies of the 'left turn' in Latin America. Baker and Greene (2011) argue that, while presidents are the main actors responsible for driving nationwide reforms, legislators tend to behave based on local and clientelistic ties. This localistic effect is reinforced by the fact that most countries in Latin America also exhibit strong malapportionment in favor of rural areas, skewing the legislative vote towards the right. In sum, in presidential systems, executive and legislative elections follow different logics, and these are reflected in vote-revealed ideology.

Here we compare the two MIS values to the mean ideological placement of the national Chamber of Deputies (in seats), to some key parties in the Chamber, and to the MIS computed for the presidential elections (Figure 03)<sup>7</sup>. The first thing that stands out is the ideological bifurcation of the presidential and PR vote. The value of the MIS for presidential entrants<sup>8</sup> is located on the center-left of the scale, while the legislative value is on the center-right. This incongruence may be explained by national-level issue-framing (as per Baker and Greene) and/or by the personalizing characteristics of presidential elections. In the Brazilian case it also maps well onto the political polarization between the PT, on the center-left, and the PSDB, on the center-right (LIMONGI and CORTEZ, 2010; MELO and CÂMARA, 2012). Our data advise caution when inferring an absolute ideological position for presidents and the legislature. As we will argue below, the ideology of the incumbent president appears to influence the legislative vote, with leftist presidents attracting the ideological average toward the center and right-wing executives pushing it even further to

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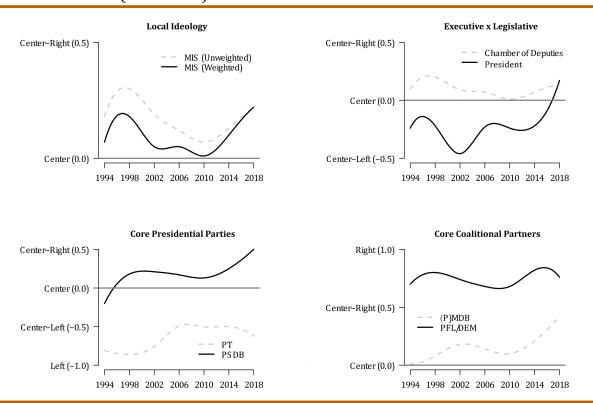
<sup>&</sup>lt;sup>7</sup>Here, we base the placement of the national Chamber of Deputies on the distribution of party seats resulting from each quadrennial election.

<sup>&</sup>lt;sup>8</sup>We computed the MIS for presidential contests using the proportion of votes of each competing party in the first round of the election. As with the MIS for the PR elections, it is an average ideological position for the municipality. In this case, instead, the indicator represents the average ideological preferences for the parties of presidential candidates.

the right.

When it comes to the comparison between the MIS and the seat composition of the CD (Chamber of Deputies), both are located on the center-right at all times. The position of the CD is always closer to the weighted rather than the unweighted average of the MIS, meaning that the lower house approximates the ideological profile of the national electorate. The two trend lines (MIS and CD) are remarkably similar: we observe an initial displacement to the right in 1998, which is then followed by a gradual drift to the left until 2010, and finally by a shift to the right in 2014. The high correlation of MIS and CD is expected, since the MIS is an aggregate measure based on the votes obtained by all parties in national legislative elections, and the representation of parties in the Chamber is highly proportional. Only in 2014 is the Chamber seat distribution located noticeably to the left of the MIS, but the difference is small.

**Figure 3:** Local Ideology, Chamber of Deputies Composition, Presidential Voting, and Dominant Parties (1994-2018)



Source: BLS and TSE.

Note: The MIS for the president-elect Jair Bolsonaro was computed using the score for the rightmost observes party in 2017 (0.76). Our choice is conservative, since it probably understimates the real swing to the right.

The average ideology of the Chamber of Deputies is calculated using seat distributions resulting from each election, and applying the BLS ideology scores from the survey closest in time.

Inspection of the leading political parties shows clear patterns. For each party, the BLS ideology estimate represents its average reputation in the National Congress, as attributed by those federal legislators who are not members of the party being rated. The PT and PFL/DEM are the most distant from zero, while both the PMDB and PSDB are close

to the local and CD averages. In most years, the main parties track the general trend observed in municipal voting.

Nonetheless, this apparent equilibrium is punctuated by political breakthroughs. The PSDB and the PT were the parties with the most prominent shifts toward the center, and the largest 'jumps' occurred when these parties assumed presidential office for the first time. As for the PMDB, Brazil's pivotal party for many years, it has closely approximated the position of small municipalities since 2002. The PFL/DEM has been the most ideologically consistent of the main parties. Despite occupying a position very distant from zero, the PFL/DEM appears sensitive to small shifts in the ideological position of the electorate.

Over time, the left-wing PT moderated its ideology and became closer to the national average. The right-wing PFL/DEM has chosen not to follow suit. This choice could explain the DEM's consistent losses in votes, seats, and municipalities. As recently as 1998, the PFL/DEM was the largest party in the Chamber of Deputies, with 105 seats, but elected a paltry 21 deputies in 2014; at the same time, the party went from 923 mayors elected in 2000 to only 265 in 2016. On the other hand, the more consistent size and territorial capillarity of PMDB were crucial factors allowing it to remain a pivotal actor in government formation.

Since 2002, the PSDB has competed with the PMDB within a narrow range that is slightly to the right of the central tendency. The two parties behave pragmatically (CAR-REIRÃO, 2007) with almost no daylight between them. The PMDB elected the largest number of mayors in each of our six local electoral cycles. Until 2002, the PSDB and PFL/DEM fought for second place in mayors, but the PSDB performed better after both parties moved into opposition to the PT. For the PFL/DEM, the sizeable ideological distance from the national mean, combined with exclusion from the presidential cabinet in the PT years (RIBEIRO, 2014), was corrosive to the party.

These results suggest that ideological extremists need to be included in the national coalition to survive. There is always a significant political risk in being distant from the ideological average, but the magnitude of this risk is conditional upon the party's participation in national government. These results could shed some light on the electoral results of the PT in the 2016 local elections. Although ideological distance could not be regarded as the main driver of the spectacular collapse of the PT in the 2016 municipal elections (from 643 mayoralties in 2012 to 248 in 2016), the party had been excluded from national government six months earlier, for the first time since 2002. In this sense, the similar experience of the PFL/DEM after 2002 is instructive.

The fact that participation in national government brings advantages for the incumbent party in subnational elections is well documented (MENDES and ROCHA, 2004; SIMAS et al., 2016). In a recent study, Borges, Paula and Silva (2016) show that candidates to the CD whose parties belong to the ruling coalition of the governor or president

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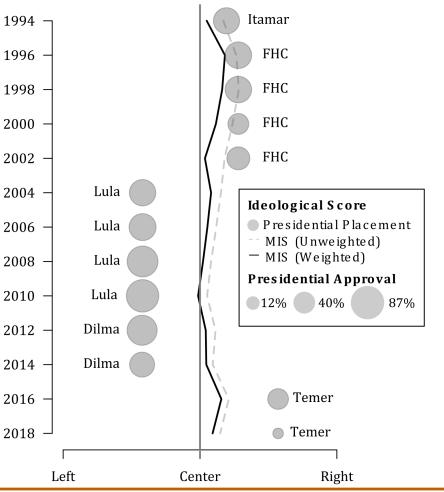


Figure 4: Presidential Ideology, Approval, and Municipal Outcomes

Source: BLS and TSE.

are much more likely to dominate their municipalities. Our interest in the incumbency effect is somewhat different: we want to know whether the incumbent president affects the overall distribution of votes in PR elections at the municipal level. In Figure 04, we compare the MIS values to the ideological position of the president (fixed for their entire administration) and to mean presidential approval in the third quarter of each election year.

The results suggest that both presidential ideology and presidential approval exert a gravitational effect on vote-revealed ideology at the local level. The MIS values tend to move toward the president's left-right placement, and the effect is magnified when the president is highly popular. The only exception is Lula in 2004. In 1996, FHC moves to the right of Itamar Franco, and so do the municipal averages. The subsequent decline in popularity of FHC opens up space for opposition parties (generally on the left). During the FHC years, the weighted MIS (accounting for the size of municipal electorates) is much more divergent from the presidential position than is the unweighted MIS (which always inflates the influence of the right). The weighted MIS can be interpreted as the position

of the national electorate. Due to the controversial nature of his reforms (privatization and state shrinking, earning strong opposition from labor), opposition to FHC tended to be more urbanized than during other presidencies.

In 2002, the diminished popularity of the incumbent FHC resulted in the historic presidential breakthrough by the PT, pulling the MIS to the left. Nonetheless, the MIS once again shifts rightward in the 2004 local elections. This shift could be explained by the reduced penetration of left parties in local politics — something that will notably change once Lula is reelected in 2006 — and also by the absence of concurrent presidential elections. In the next two cycles, the MIS average moves to the left, accompanied by a rise in Lula's approval. The year 2010 has both the highest presidential approval and the most left-leaning outcome in our dataset. The incumbency of Dilma Rousseff is then accompanied by a localized drift to the right, even in 2012 when Dilma was still basking in high approval ratings. The shift to the right is consolidated in the 2016 municipal elections in the early months of Michel Temer. In the third quarter of 2016, Temer's approval was low, but the MIS shifts to its rightmost position in a decade. This is apparently not due to a presidential popularity effect: the context and temporal sequencing suggest that it was driven by the collapse of the PT during the 2015-2016 political and economic crisis. A massive decline in PT party identification was already visible a year before the election (MAINWARING, POWER and BIZZARRO NETO, 2018).

In the FHC-Lula years, popular incumbents tended to draw the local vote towards their ideological positions, but the Dilma-Temer cycles see a decoupling of these variables. Two contextual factors bear noting. Firstly, for Lula and Dilma, their ideological distance from the municipal averages was significantly higher than for other presidents. This divergence made non-contiguous (disconnected) coalitions almost mandatory for their administrations. Secondly, there was a progressive reduction in the distance between the unweighted and weighted values of the MIS. The PT years saw a convergence between large and small cities, as the left nationalized and penetrated the Northeast. The most substantial gap between the two MIS values is visible in 2002 (Figure 03). The election of 2002 saw low presidential approval, fatigue with neoliberal reform, a temporary divorce between the PSDB and PFL/DEM, and three of the four major presidential candidates (Lula, Ciro Gomes, and Anthony Garotinho) emerging from a left-of-center space to challenge FHC's heir apparent, José Serra. In this unusual context, left parties performed particularly well in larger cities, and we observe the sharpest divergence between large and small municipalities. Conversely, the smallest difference between the two MIS values is visible in 2018, when unusually the presidential race was dominated by two 'extremist' parties (the PT and PSL).

## Four Approaches to Electorally Expressed Ideology: Multivariate Analysis

We now test four simple hypotheses regarding cross-sectional and temporal variation in electorally expressed ideology. We recognize that these hypotheses vary in scope

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from simple univariate predictors to approximations of more universal theoretical models, and they are in no way exhaustive. However, in this exploratory study we dialogue with four mainstream understandings of electoral outcomes in Brazil, each with an established lineage in the literature.

First, based on a long line of research running from Nunes Leal (1948) to Zucco Jr. (2010), we might assume that what affects municipal electoral outcomes are the vertical connections running from mayors to presidents. We call this the 'Incumbent Alignments' hypothesis, but it could also be referred to colloquially as 'governismo'. Voting outcomes should be influenced by the nature of municipal linkages to the federal government.

Second, following the electoral sociology approach that dominated studies of Brazil's first experience with democracy (1946-1964), we can also return to the hegemonic theoretical framework of that time—modernization theory—to rescue a simple, directional hypothesis about electorally expressed ideology. Municipal electoral outcomes should be driven mainly by socioeconomic change, i.e. rising levels of human development. Processes of 'Modernization' (our shorthand term for this hypothesis) should undercut the right and empower the left (SOARES, 1973).

Third and similarly, we also reason that the democratization of local political systems should break down the power of traditional elites and open up space for modernizing and progressive forces, especially on the left. We assume that the status quo ante was conservative hegemony. Following Dahl (1971), we expect that democratization entails both greater contestation and greater political participation. We call this approach the 'Political Pluralism' hypothesis. We expect that political pluralization should be associated with a leftward shift in electorally expressed ideology.

Fourth and finally, we reference a more contemporary debate: numerous scholars have identified significant political changes occasioned by poverty reduction under post-2003 PT governments. In its standard version, this approach sees PT-introduced social policies as explaining both presidential outcomes (HUNTER and POWER, 2007; ZUCCO, 2008) and the advance of the left in the Northeast (BORGES, 2011; MONTERO, 2012). In a more ambitious version, the pro-poor policies of the PT were expected to lead to a whole-sale political 'realignment' in Brazil (SINGER, 2012). To simplify, we call this the 'Social Inclusion' hypothesis, and we expect that poverty reduction under the PT should have a leftward impact on electorally expressed ideology. We now proceed to test these four hypotheses empirically, leveraging our 71,040 observations of municipal voting outcomes between 1994 and 2018, while including appropriate controls.

The first approach, the 'Incumbent Alignments' hypothesis, evaluates the effect of vertical political alliances on local electoral outcomes. We assume that popular presidents aligned with local political forces tend to influence the local vote in favor of candidates adjacent to their ideological positions. If this is correct, we should observe a gravitational effect attracting local ideology towards the presidential placement. To proxy the various

moving parts in this approach, we deploy several independent variables: the ideological placement of the president, the ideological proximity between the mayor and the president, the alignment of the mayor's party with the president, presidential approval (popularity), as well as interaction terms between ideology and proximity and between ideology and approval.

Ideological proximity was calculated as one minus the absolute distance between the ideological score for the party of the incumbent mayor and the (individual) ideological placement of the incumbent president<sup>9</sup>. Higher values indicate higher ideological congruence. For political alignment, we use a binary variable indicating whether the party of the incumbent mayor participates in the incumbent president's floor coalition in the national Chamber of Deputies. Presidential approval is the average of national polls conducted in the third quarter (July-September) of each election year as per the popularity dataset of Campello and Zucco (2016), whose methods we followed in estimating a value for Temer in the third quarter of 2016 and for the first semester of 2018.

The 'Modernization' hypothesis tests the effect of socioeconomic development on the DV (Dependent Variable). According to classical contributions to Brazilian electoral sociology (e.g., SOARES, 1973), more modern locations would tend to provide stronger support to the left than rural hinterlands, and socioeconomic modernization would erode the position of the right over time<sup>10</sup>. To capture development, we use the Municipal Human Development Index (UNDP, 2013). This appears in our models as an aggregate predictor, yet HDI is actually a multidimensional indicator synthesizing education, life expectancy, and income. Since HDI is available only for census years, we estimated the values for election years between 1994 and 2010 by using intercensal linear interpolation. For the last four electoral cycles, we used the HDI trend line for 2000-2010 in each municipality to extrapolate values up to 2018.

Our third approach, the 'Political Pluralism' hypothesis, tests the supposition that more competitive political systems open up new spaces for progressive forces. Since conservative local machines largely dominated the Brazilian political system before the transition to democracy, political pluralization should shift the MIS to the left. To round out this hypothesis, we include voter turnout, party fragmentation calculated in votes (RAE, 1971), an index of electoral competition (the share of votes won by all parties other than the first-placed party), and Dalton's measure of political polarization for multiparty systems (DALTON, 2008).

According to several recent studies (HUNTER and POWER, 2007; SOARES and

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<sup>&</sup>lt;sup>9</sup>In Waves 7 and 8 of the BLS, respondents were asked to assign ideological placements to presidents Sarney, Collor, Itamar, FHC, Lula, and Dilma. The ideological scores for these presidents are the average scores for these two waves. We did not have an individual-level value for Temer in Wave 7, so we assigned him the score obtained in Wave 8.

<sup>&</sup>lt;sup>10</sup>In a study of the 1946-1964 democracy, Soares' linear regression estimated that conservative parties were losing 1.66% of Congressional seats with each passing year; if there had been no military coup, the right would have disappeared from Congress altogether in 1993 (SOARES 1984: 49).

TERRON, 2008), poverty reduction policies promoted during PT administrations strongly affected recent presidential races. Therefore our fourth approach, the 'Social Inclusion' hypothesis, asks if this argument can also explain changes in electorally expressed ideology at the municipal level. The indicators used here are the municipal variation in poverty between two elections, a binary variable indicating a PT presidency, and the interaction term between these two variables.

We operationalize these four simple hypotheses separately so that readers can inspect the empirical purchase of each intuitive approach. Yet we also opt to estimate a fifth, integrated model which includes all independent variables used in the four previous estimations. The purpose is to contrast the hypotheses tested in the previous models and to examine whether coefficients remain stable and significant. In this last model, we do not include the binary variable for PT presidents nor its interaction with the variation in poverty: the PT dummy is too highly correlated with the presidential ideology variable already present in the 'Incumbent Alignments' estimation.

To check their robustness, we run all models for two dependent variables: the MIS computed only with BLS data and the same indicator with imputed ideologies for parties not measured in the elite surveys<sup>11</sup>. We also inspect how varying degrees of imputation might affect our results (see Table 04 in the Methodological Notes)<sup>12</sup>. All models include as control variables the election year, the size of the electorate, and a binary variable identifying concurrent elections (ceteris paribus, presidential campaigns should pull legislative results to the left). Together, these controls account for the effects of city size, time, and nationalization of the political debate. To deal with the autocorrelation derived from our data, we employed a Generalized Least Squares (GLS) model, using a maximum likelihood estimation method and a correlation matrix assuming a first-order autoregressive model<sup>13</sup>.

## **Discussion**

The 'Incumbent Alignments' or 'governismo' model is consistent with presidential ideology (higher scores meaning more rightist) and political alignment. As we observed in Figure 04, presidents located on the center-right are closer to the average distribution of local ideology than center-left ones, thus reinforcing MIS movement to the right. The general trend is that changes in president tend to move the municipal ideology to the right.

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<sup>&</sup>lt;sup>11</sup>See Table 02 in the Methodological Notes for details on imputation.

<sup>&</sup>lt;sup>12</sup>The regression models in Table 04 (in the Methodological Notes) test for the inclusion of a progressive share of imputed data in the analysis. The first model only contain those cases with votes cast exclusively to BLS parties. The successive models incorporate threshold percentages for the proportion of votes obtained by non-BLS parties into the DV: municipalities up to 10% of votes cast for non-BLS parties, up to 20%, and so on.

<sup>&</sup>lt;sup>13</sup>In order to determine if there was autocorrelation and the type of model to be employed, we first ran OLS models and performed Durbin-Watson tests on each of them to test for autocorrelation. The results confirmed the existence of autocorrelation on the DV, hence the use of GLS in this article.

This shift happened in 1996 with FHC, in 2004 with Lula, in 2012 with Dilma Rousseff, and in 2016 with Michel Temer. Although significant in most models, presidential approval does not present a consistent effect on the imputed values of the MIS for all cases.

We advise care in interpreting the effects of ideology and the interaction terms in this model. Because ideology ranges from minus one to one, the contribution of all these variables will change according to the ideological location of presidents. In the cases of Itamar, FHC, and Temer, the impact will be positive, while PT presidents assume a negative value<sup>14</sup>.

Therefore, the BLS presidential placements represent the absolute contribution of presidential ideology to the DV, regardless of whether the incumbent leans left or right. The sign will depend on the president in office. The same interpretation holds for the interaction terms. In the first interaction term (proximity \* presidential ideology) presidents tend to moderate the system by attracting the ideological center of gravity to the center. In this regard, leftist presidents close to leftist mayors will produce a positive effect on the DV. Right-wing presidents close to right-wing mayors will behave in the opposite direction, moving to the left. Therefore, leftist and popular presidents will pull the DV to the right, and the opposite for conservative presidents. This explains the reduction of the standard deviation of the mean for the MIS during the period analyzed.

The 'Modernization' estimation behaves as expected for both DVs (although it is significant only for the imputed values of the DV). The higher the level of local HDI, the more leftward is the position of the MIS. Size, and concurrent elections, as in other models, also push municipal ideology to the left.

The 'Political Pluralism' approach also corresponds to our expectations. Greater party fragmentation, competition, and voter participation exert a leftward impact on the MIS. Only polarization presents a positive coefficient. Most likely, this is due to the average distribution of the system to the right. There is a higher probability of electoral success of hard-right parties when compared to hard-left parties. In most municipalities, polarization likely results from a strong presence of conservative parties and a moderate impact of center or hard-left parties.

The 'Social Inclusion' equation is the one that is most sensitive to the version of the DV. In the BLS-only version of the DV, the variation in poverty rate is not significant, and the effect of concurrent elections and the interaction term are positive. We cannot consider poverty reduction under the PT government as a significant explanation for the DV, since its effect is not sufficiently robust to be significant in both models.

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 $<sup>^{14}</sup>$  For instance, a coefficient of 0.528 for presidential ideology in the GLS model will be multiplied by the ideological score for the president. For FHC in 1998, the contribution of presidential ideology would be 0.528\*0.280=0.148. In the case of Lula 2008, the same procedure would generate a negative impact on the DV (0.528\*-0.420=-0.222).

**Table 1:** GLS regressions for the municipal ideological score (z-scores)

	Incumbent Alignments		Modernization		Pluralism		Social Inclusion		Pooled	
	BLS	Imputed	BLS	Imputed	BLS	Imputed	BLS	Imputed	BLS	Imputed
MIS lagged	0.340***	0.348***	0.389***	0.391***	0.377***	0.388***	0.380***	0.381***	0.323***	0.337***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ideological Proximity	-0.004	0.011**							0.020***	0.017***
Mayor/President	(0.005)	(0.006)							(0.005)	(0.006)
Proximity * Pres. Ideology	0.478***	0.504***							-0.153***	-0.094***
	(0.011)	(0.011)							(0.015)	(0.016)
Presidential Ideology	0.006	-0.017							0.531***	0.528***
	(0.014)	(0.015)							(0.011)	(0.012)
Presidential Approval	0.128***	0.172***							0.093***	0.151***
	(0.007)	(0.007)							(0.007)	(0.007)
Approval * Ideology Pres.	0.252***	0.300***							0.213***	0.271***
	(0.008)	(0.008)							(0.008)	(0.009)
Political Alignment	0.025***	0.022***							0.014***	0.017***
	(0.004)	(0.004)							(0.004)	(0.004)
Human Development Index			-0.007	-0.056***					0.018***	-0.036***
			(0.006)	(0.006)					(0.006)	(0.007)
Party Fragmentation (RAE's F)					-0.251***	-0.138***			-0.241***	-0.118***
					(0.006)	(0.007)			(0.006)	(0.007)
<b>Electoral Competition</b>					-0.048***	-0.012**			-0.049***	-0.010
					(0.005)	(0.006)			(0.005)	(0.006)
Turnout					-0.038***	-0.062***			-0.016***	-0.024***
					(0.004)	(0.004)			(0.004)	(0.005)
Polarization					0.155***	0.041***			0.151***	0.042***
					(0.004)	(0.004)			(0.004)	(0.004)

**Table 1:** GLS regressions for the municipal ideological score (z-scores) (continuation)

	Incumbent Alignments		Modernization		Pluralism		Social Inclusion		Pooled	
	BLS	Imputed	BLS	Imputed	BLS	Imputed	BLS	Imputed	BLS	Imputed
Variation in Poverty Rate							0.009**	0.003	0.015***	0.012***
							(0.004)	(0.004)	(0.003)	(0.004)
PT President							-0.254***	-0.214***		
							(0.005)	(0.006)		
Var. Pov. * PT Pres.							0.011***	-0.001		
							(0.003)	(0.004)		
Voters (ln)	-0.120***	-0.080***	-0.122***	-0.071***	-0.074***	-0.056***	-0.130***	-0.088***	-0.076***	-0.052***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Concurrent Elections	-0.120***	-0.216***	-0.113***	-0.192***	-0.239***	-0.271***	-0.029***	-0.119***	-0.230***	-0.269***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
Year	0.076***	0.107***	-0.132***	-0.085***	-0.018***	-0.064***	-0.052***	-0.053***	0.127***	0.149***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.008)	(0.009)
Constant	0.184***	0.206***	-0.001	0.019***	-0.0001	0.014***	-0.011***	-0.010**	0.150***	0.180***
	(0.007)	(0.007)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.007)	(0.008)
Observations	58,954	51,988	58,936	51,97	58,946	51,98	56,378	49,412	56,370	49,404
OLS R-Squared	0.379	0.353	0.284	0.272	0.345	0.294	0.338	0.307	0.421	0.365
Log Likelihood	-68,137	-61,663	-71,221	-64,015	-69,148	-63,511	-67,23	-60,637	-63,735	-58,746
Akaike Inf. Crit.	136,301	123,351	142,458	128,046	138,317	127,044	134,481	121,294	127,508	117,531
Bayesian Inf. Crit.	136,417	123,466	142,53	128,117	138,416	127,141	134,57	121,382	127,678	117,698

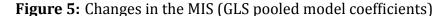
Source: UNDP, BLS and TSE.

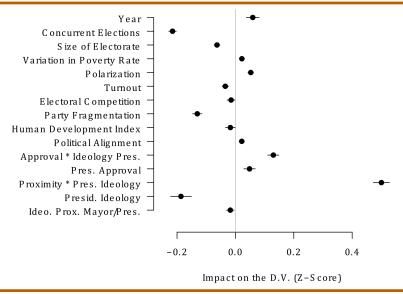
Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

When we estimate the 'Social Inclusion' approach on the imputed MIS, which includes 100% of votes cast in each cycle, the model behaves more closely to our expectations. Variation in poverty, in general, presents a positive effect, although small. This could be explained by two phenomena. Firstly, right-wing parties perform better in poor, rural places (as the 'Modernization' estimation suggests). These are localities that benefited, during the 1990s, from poverty reduction derived from the Plano Real and real increases in the minimum wage and, during the 2000s, from Bolsa Família and other CCTs (conditional cash transfer programs). Secondly, the same localities moved to the left during PT administrations. This explains the negative effects of both the dummy for PT governments and the interaction term between variation in poverty and PT.

Readers will be most interested in the final model integrating all rival hypotheses. This pooled model confirms most of our expectations, with minor exceptions. The BLS-only and imputed versions diverge in terms of the significance of electoral competition. They also differ on the sign of the effects of socioeconomic modernization and concurrent elections.

Figure 05 permits easy visual inspection of the performance of each coefficient in the pooled model. What clearly pulls municipalities to the left is size, human development, party system fragmentation, and especially concurrent elections. This reflects the strong influence of progressive modernizers in presidential elections. Conversely, in the years of stand-alone municipal elections, conservative local machines are less constrained by nationalizing alliances, thus pulling municipal outcomes to the right. This suggests rather strongly that de-linking the presidential and congressional electoral cycles could push Congress in a more conservative direction<sup>15</sup>.





Source: Authors' elaboration.

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<sup>&</sup>lt;sup>15</sup>The presidential term was shortened from five to four years in 1993, causing presidential and legislative elections to be concurrent from 1994 onward.

What is most striking in Figure 05 are the point estimates for the various presidential influences: approval, ideology, and alliance with the local mayor. Nunes Leal (1948) was correct that local politics is heavily influenced by upward linkages to the national executive ('governismo'). However, Figure 05 suggests two intervening variables — ideology and approval — that Nunes Leal overlooked. Writing about a pre-ideological era (the Old Republic), Nunes Leal could not have anticipated that the ideology of the national executive would have such a strong effect on local voting outcomes. Writing before the advent of opinion polls, he could not have foreseen that the 'governista' effect is strongly magnified by presidential popularity. Our analysis shows evidence of 'conditional governismo'.

Overall, our pooled model shows the value of incorporating insights from rival traditions in the study of Brazilian voting. Variables drawn from four different approaches, all of them well consolidated in the extant literature, are highly successful at predicting variance in vote-revealed ideology at the local level.

#### **Final Remarks**

The present study assessed ideology through a combination of the national left-right placements of parties and their local-level vote shares. The purpose was to map changes in the aggregate ideological preferences of Brazilian voters at the municipal level over an extensive period (1994-2018). This diverges from conventional approaches wherein researchers rely on survey data or exit polls to gauge the ideological positions of voters. While such polls exist for some large cities, equivalent data covering all small and medium-sized municipalities are unavailable.

We propose here a methodology to overcome this limitation and generate comparable measures of local ideological structure and change. This methodological choice is applicable to other types of political phenomena, but only when a 'combination' of survey and voting records can be exploited simultaneously. By way of comparison, a similar approach has been adopted in recent studies of nationalism in countries as Spain, Italy, or the United Kingdom, all of which possess both survey data (on the degree of support for separatism) and detailed records of voting for regionalist or nationalist parties. As we tried to demonstrate, the approach employed be applied to various levels of analysis, from the infra-municipal (neighborhoods or even blocks) to the national level (comparing political systems).

Overall, the general trend drawn from our study is a convergence towards a center-right position in the Brazilian electorate. This effect is significant even when we neutralize the personalist effect inherent to presidential elections by focusing only on PR votes for legislatures. Over the past two decades, municipalities became ideologically slightly more clustered toward the center. The sharp reduction of the standard deviation provides strong evidence of an ideological convergence. This phenomenon could be explained by an increasing fragmentation of the political party system via small pragmatic parties ('nani-

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cos') located at the center-right of the spectrum. This generates a paradoxical situation in which the Brazilian party system is becoming both more nationalized and more fragmented at the same time.

Although the average ideological position of presidential contenders can be described as center-left, the average vote for legislative candidates is located squarely on the center-right. This duality comes from the fact that historically progressive parties (PDT, PPS [Partido Popular Socialista], PSB, PSOL [Partido Socialismo e Liberdade], and PT) have been able to launch high-profile candidates to the presidency. In the three presidential elections (2006, 2010 and 2014) preceding the emergence of Jair Bolsonaro, seven of the nine candidates nominated by these parties were former PT militants, and the other two were Lula and Dilma themselves.

The ideological duality mentioned above is vital for understanding aggregate changes at the local level, especially since incumbent presidents have a substantial impact on vote-revealed ideology in PR contests. This effect is magnified when the approval of the president is considered. Popular presidents tend to exert a 'gravitational effect' on the average ideological position of municipalities. This effect is so robust that even unpopular presidents manage to attract the average ideological position toward their own location. This behavior provides solid empirical evidence for a structural effect of the presidency on local ideology.

The political alignment ('governismo') approach tested here lent support to long-standing hypotheses about the effect of executive power on local electoral outcomes. Local political elites tend to align with the national government, presumably because their political survival depends on transfers and other resources usually granted by Brasília. An evident manifestation of this was the adaptability of local governing coalitions observed in the North and Northeast regions after the PT assumed the presidency in 2003. These results need to be further explored since they seem to contradict recent research on the erosion of traditional political machines (BORGES, 2007, 2001; MONTERO, 2012). While our MIS cannot be interpreted as a direct measure of machine politics, it does suggest that voters continued to supply significant electoral support to right-of-center candidates throughout the PT years, with a significant rebound of conservative preferences beginning in 2012.

The study also reinforces older hypotheses concerning the ideological by-products of fractionalization and modernization. The increased fragmentation of the system generated convergence toward the center. Nonetheless, this effect could change sign if successive right-leaning presidents are elected in the future.

Overall, our pooled model reveals that electorally expressed ideology in Brazilian municipalities is a function of presidential coattails, vertical coalitional linkages between national and local elites, concurrent elections, party system fractionalization, electoral participation, and aggregate political polarization.

Perhaps the most substantive implication of our study is that the Brazilian elec-

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torate, on the whole, leans decisively to the right. This, at least, is the only conclusion one can draw from analysis of the last 13 cycles of proportional elections in the country, a period in which the leading left-wing party occupied the presidency for more than half of the time. The manifestation of a 'Pink Tide' or turn to the left in Brazil was mainly a presidential phenomenon, associated with the PT's four consecutive victories from 2002 to 2014. While PT presidents did affect local political outcomes in PR elections — which constitute, by far, the best way to diagnose average ideological preferences in Brazil — this effect was neither revolutionary nor lasting. In 2010, the high water mark of progressivism, about 35% of Brazilian municipalities were located to the left of the center position on the MIS scale. By the late Dilma years, vote-revealed ideology began to drift rightward again, and underwent a sharp turn to the right in the 2016 municipal elections held under Michel Temer. In 2016, only 5% of municipalities displayed an MIS to the left of center. The lesson here is that no meaningful realignment occurred, and analysts should be cautious when drawing conclusions from presidential evidence alone.

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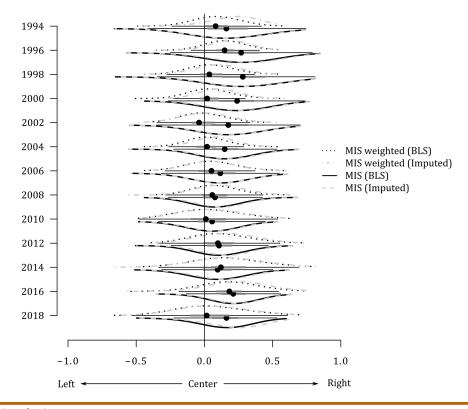
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## **Annexes**

Figure A1: Violin plots for the municipal ideological score (1994-2018).



Source: BLS and TSE.

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