

2024 BRAZILIAN MUNICIPAL ELECTIONS: WHAT CAN WE UNDERSTAND FROM THE "SCALE VOTE"?

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Abstract: This paper explores the 2024 municipal elections in Brazil, emphasizing the importance of geographic scale for a nuanced understanding of electoral phenomena. Through geostatistical analyses and mapping, the study addresses the hypothesis that municipal election results are often viewed as indicators for federal elections, overlooking the unique dynamics of local scale. Findings reveal a stronger "game of scales" effect in the Workers' Party (PT), with a correlation between municipalities with high support for Lula in 2020 and the election of PT mayors in 2024. In contrast, no such correlation was observed for the Liberal Party (PL), suggesting greater independence between local and federal scales. Furthermore, the study confirms the presence of a coattail effect – where executive performance boosts votes for legislative candidates of the same party – at the municipal level for PT and PL in 2024, underscoring the autonomous and distinctive dynamics of the municipal scale.

Keywords: geographic scale, municipal elections, coattail effect, 2024 elections.

ELEIÇÕES MUNICIPAIS DE 2024 NO BRASIL: O QUE PODEMOS ENTENDER DO VOTO DE ESCALA?

Resumo: O artigo investiga as eleições municipais de 2024 no Brasil, destacando a importância da escala geográfica para uma compreensão mais precisa dos fenômenos eleitorais. Por meio de análises geoestatísticas e mapeamento, examina-se a hipótese de que os resultados das eleições municipais são frequentemente interpretados como precursores das eleições federais, desconsiderando as dinâmicas próprias da escala local. Os resultados demonstram que há um efeito de "jogo de escalas" mais significativo no caso do Partido dos Trabalhadores (PT), onde existe uma correspondência entre municípios com maior votação em Lula em 2020 e a eleição de prefeitos do PT em 2024. No caso do Partido Liberal (PL), essa correlação não foi observada, indicando uma independência maior entre as escalas local e federal. Além disso, o estudo comprova que o efeito *coattail* – onde o desempenho de um candidato ao executivo influencia votos para candidatos do mesmo partido no legislativo – está presente na esfera municipal para o PT e o PL em 2024, reforçando que a escala municipal apresenta dinâmicas autônomas e específicas.

Palavras-chave: escala geográfica, eleições municipais, efeito *coattail*, eleições 2024

2024 ÉLECTIONS MUNICIPALES AU BRÉSIL : QUE PEUT-ON COMPRENDRE DU VOTE PAR ÉCHELLE ?

Résumé: Cet article analyse les élections municipales de 2024 au Brésil, en mettant en avant l'importance de l'échelle géographique pour une compréhension plus précise des phénomènes électoraux. À travers des analyses géostatistiques et une cartographie, il examine l'hypothèse selon laquelle les résultats des élections municipales sont souvent interprétés comme des indicateurs des élections fédérales, sans tenir compte des dynamiques propres à l'échelle locale. Les résultats montrent qu'un effet de "jeu d'échelles" est plus marqué dans le cas du Parti des Travailleurs (PT), où une correspondance est observée entre les municipalités ayant enregistré une forte votation pour Lula en 2020 et l'élection de maires du PT en 2024. En revanche, pour le Parti Libéral (PL), cette corrélation n'a pas été constatée, suggérant une plus grande indépendance entre les échelles locale et fédérale. De plus, l'étude confirme la présence de l'effet *coattail* – où la performance d'un candidat à l'exécutif influence les votes en faveur des candidats du même parti au législatif – à l'échelle municipale pour le PT et le PL en 2024. Ces résultats renforcent l'idée que l'échelle municipale possède des dynamiques autonomes et spécifiques.

Mots-clés: échelle géographique, élections municipales, effet *coattail*, élections 2024.

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Introduction

In October 2024, 5,568 Brazilian municipalities participated in the municipal elections, in a process that involved around 150 million voters nationwide. With an electoral system marked by geographical and political diversity, the elections were held in two rounds in 51 municipalities, while most municipalities held the process in a single round³.

Immediately after the first round, the release of the municipal election results sparked reflections on supposed new phenomena that occurred in 2024: the record abstention rate (except for the pandemic year), the highest re-election rate in mayoral offices ever recorded, and the rise of the right-wing across the country. Electoral maps for the local executive position, particularly those in which the parties of the elected candidates were represented according to the degree of their ideological field, revealed the dominance of center-right, right-wing, and far-right groups.

In general, it is noted that the 2024 municipal elections are being interpreted by the media as a preview of the movements that are expected to shape the political competition in the 2026 general elections⁴. According to these arguments, several factors from these municipal elections point to potential trends and realignments in the national political landscape. The prevailing narrative in analyses has established the municipal elections as a "preview" for the upcoming presidential contest, suggesting that the local results would mirror the political behavior at the national level. This view, fueled by media coverage, characterizes local elections as a direct and simplified reflection of presidential trends, contributing to a reductionist perception of electoral dynamics.

In Vasconcellos' (2024) analysis, this media argument is questioned. The author conducts several tests between the 2020 and 2022 elections to understand the relationship between a municipal and a national election. He concludes that the votes for mayoral candidates from MDB, PSD, PL, PP, and PT in 2020 did not show a consistent association with votes for Luiz Inácio Lula da Silva and Jair Bolsonaro in the second round of 2022⁵. In this article, we expand the perspective on this issue and start from the hypothesis that, by reducing municipal elections to a "miniature" version of the national scenario, the complexity of local political processes and the specificities that motivate the electorate in different regions of the country are overlooked.

In this sense, the objective of this article is to analyze to what extent the geographical scale is important for understanding the electoral phenomenon, avoiding positioning the local executive election (especially in 2024) as an early national election. In other words, we question the idea that municipal elections are determinative for the presidential choice, arguing that such a view ignores the structural and political differences that characterize these two levels of competition. Throughout the text, we aim to demonstrate that voters' choices in local elections are driven by distinct logics, and that projecting municipal results as a harbinger of presidential elections overly simplifies the complexity of electoral behavior.

³ Out of the 103 municipalities with more than 200,000 inhabitants eligible for the second round, the second election was held in 51, as none of the candidates reached the absolute majority (more than half of the valid votes).

⁴<https://www.estadao.com.br/politica/sergio-denicoli/com-a-direita-fragmentada-esquerda-no-diva-e-centro-no-protagonismo-o-que-se-pode-esperar-de-2026/>

<https://www.estadao.com.br/politica/candidatos-lula-jair-bolsonaro-eleicoes-municipais-2024-veja-desempenho-resultados-nrp/>

<https://www.jornalopcao.com.br/colunas-e-blogs/conexao/eleicoes-de-2024-gabaritam-potencias-politicas-para-2026-652983/>

⁵ We thank Fabio Vasconcellos, data journalist, professor, and researcher at the National Institute of Science and Technology | Network of Representation and Democratic Legitimacy (ReDem), for providing the 2024 municipal electoral data set, which enabled the quantitative analyses presented here.

We use electoral geography techniques, such as mapping and geo-statistical analysis, in order to investigate whether the 2024 elections can be understood from the results of 2022, which were marked by strong national polarization between the elected president, Luiz Inácio Lula da Silva (Workers' Party – PT), and the then-president seeking re-election, Jair Messias Bolsonaro (Liberal Party – PL). This analysis is grounded in the theoretical discussion on the relationship between geographical scales and social phenomena presented in the first section. To reinforce the argument, we conduct analyses on a possible coattail effect at the municipal level. The coattail effect is a classic concept in the literature used to explain how a strong candidate in executive elections transfers votes to candidates from the same party running for other offices, often in the legislature. This effect has typically been investigated in national and state elections. The literature has considered the coattail effect non-existent at the federal level for the PT, and we will test it at the municipal level.

Geographical Scale and Elections: A Necessary Theoretical Framework

In geography research, it is common to encounter reflections on scale for delimiting the object of study, whether in research related to physical and natural aspects or in those closer to what is called Human Geography (Paasi, 2004). As a manual followed by students and researchers, scale is a component of the geographical gaze (Gomes, 2013)⁶, despite significant divergence and controversy over its epistemological meaning.

The discussion of geographical scale transcends the idea of a mere spatial categorization, constituting a dimension for understanding how social and natural phenomena manifest and are interpreted. Scale functions not only as a "size" of observation but as an epistemological construction that defines the contours and possibilities for analyzing a phenomenon. In other words, geography has long discussed the idea that changing the scale of a phenomenon is not simply a transformation in size—making it either larger or smaller—but rather a change in the phenomenon itself (Castro, 1996). Analyzing topics such as the capitalist economic system at the local scale is not an abbreviation of its global analysis. This perspective reveals that, in geography, scale is an indispensable tool for understanding that local phenomena cannot simply be transposed to a global scale, and vice versa. Each scale creates a new configuration of the phenomenon, with specific implications for analysis and interpretation.

This perception of scale has great relevance both as an epistemological and methodological resource (Castro, 2014), as it helps us understand that any phenomenon must be situated within a specific spatial range for its dynamics and consequences to be adequately understood. This conceptual discussion leads us to think that a municipal election is not just a "reduced" version of a national phenomenon, such as a presidential election. The local dimension carries its own issues, influences, and logics that do not directly reproduce on the national scale. Therefore, when dealing with phenomena of different scales, it is essential to recognize that they have a particular configuration at each level of analysis, being transformed by the spatial, social, and cultural specificities of the context. That is, "changing scale corresponds to a change in the level of conceptualization" (Lacoste, 1988, p.45). This differentiation highlights the importance of situating the phenomenon within a specific scale and interpreting its dynamics within the possibilities and limitations of that dimension.

⁶ It is important to emphasize that the geographical scale discussed here is not synonymous with cartographic scale, which refers to the mathematical relationship between the map and the Earth.

In this sense, research in electoral geography has already demonstrated the impact of federal public policies on the spatial pattern of voting at the national level, such as the famous case of the *Bolsa Família* program and the split between the Workers' Party and Lula electoral spatial pattern (Terron; Soares, 2010). This reflection leads us to understand that this does not necessarily occur in elections at the municipal level, for either the Executive or Legislative branches. Various authors have pointed out how the local scale has historically been marked by center-right and right-wing parties, even in national contexts led by left-wing parties (Fleischer, 2002; Lavareda; Telles, 2020).

In the context of electoral geography, the municipal scale reveals itself as a space for the manifestation of local particularities, where networks of influence, socio-economic conditions, and cultural contexts play a central role in shaping electoral preferences. Azevedo (2023) points out that the contextual effect, which is easier to grasp at the local scale, differs from the compositional effect observed in a national aggregate analysis. The contextual effect focuses on the characteristics and influences inherent to the specific space, which determine unique electoral dynamics that cannot be seen as a mere subdivision of the national context.

Despite the fundamental importance of understanding a phenomenon in its scale, this does not mean that they can be considered isolated, without connection or power of influence. As authors demonstrate (Castro, 1996; 2014; Massey, 2008; Souza, 2013), there is an important interplay of scales to be known and analyzed. It is necessary to consider that many processes operate on multiple scales simultaneously. Phenomena such as globalization, social networks, and environmental policies, for example, have consequences that manifest from the local to the global level, interacting and transforming across these scales. In a world marked by globalization and space-time compression, multiscale demands an approach that recognizes the interaction between different spatial dimensions and how the dynamics of one scale can influence those of another, in a continuous "game of scales" (Castro, 1996), or what Massey (2008) refers to as "place as the meeting of scales." In this sense, an effective analysis must consider the complexity of these interactions and how they alter the configuration of the phenomenon at each scale, seeking to understand in which context it is possible to trace connections between municipal and national elections.

For example, in the study of municipal elections, the presence of community support networks and local leadership, as well as the importance of social assistance policies at the local level, such as *Bolsa Família*, demonstrates that electoral behavior in cities is shaped by factors that carry different meanings and weight from those observed in a national election. The analyses of Soares and Terron (2008) highlight that the impact of these policies tends to be more relevant in specific regions, where living conditions and local support networks play a structuring role in the configuration of votes, forming clusters of political behavior that do not reproduce uniformly on larger scales. Therefore, the relationship between national and local scale is evident.

However, there are different perspectives on how this relationship is established. A deep theoretical debate on this has already been conducted by other authors (Castro, 1996; Souza, 2013; Grandi, 2015; Azevedo, 2020). Nevertheless, it is important to emphasize the overcoming of a hierarchical and structuralist view (e.g., Flint; Taylor, 1985). Traditionally, geographical approaches considered that broader scales, such as national or global levels, were somehow "superior" to local scales (Howitt, 2002). Today, geography recognizes that each scale has its analytical value and that no scale is inherently more important than another (Dahlman, 2010; Harod, 2011). The importance of a scale depends on the phenomenon being studied and the purpose of the research. Thus, the local scale, where daily experiences are lived and fundamental activities such as work and consumption take place, holds an intrinsic value that cannot be reduced or disregarded in favor of a larger scale.

In the Brazilian political system, the local scale often overlaps with the municipal dimension in the federative system, making geographical scale and political scale (Rodrigues; Moscarelli, 2015) synonymous. The naturalization of the municipality as the local scale can, on the one hand, facilitate research on elections, but on the other, hinder intraurban research, which has demonstrated its importance in recent years. Although "local" is not necessarily the same as "municipal," the strengthening of the municipality in Brazil since the 1988 Constitution, with multiple responsibilities and certain autonomy (Abrúcio, 1998), has made municipal territory a space where political and social actors base their daily practices on a specific spatial metric (Mackinnon, 2010). Important issues for citizens, such as public transportation, basic education, and primary health care, begin to have a municipal territoriality.

The use of scale leads us to an approach that avoids simplifications and recognizes the complexity of phenomena, whether in their local, regional, or global manifestation. It is this relationship between social practices and materiality that defines scale and makes it indispensable for a deeper understanding of the processes that shape society and space.

Thus, scale functions both as a category of practice, something lived and experienced by individuals in their daily lives, and as a category of analysis, used by scientists to interpret and theorize about these phenomena in a more abstract perspective (Moore, 2008). Although scales do not possess a concrete and invariable materiality, they are shaped by social practices and, consequently, assume their own materiality within a particular context.

In this sense, the municipal scale is a distinct arena where social interactions have a direct and contextualized effect on electoral behavior. The concept of scale becomes central to electoral geography because it prevents the treatment of municipal elections as an extension of national electoral behavior. The municipal scale exposes how space actively shapes political preferences, making visible the particularities of each territory. These local specificities, influenced by socio-economic and cultural factors, show that space is not merely the "stage" on which political action takes place, but a force that affects electoral outcomes in a particular way at each scale of the phenomenon.

Methodological Procedures

We start from the initial hypothesis and the conceptual discussion regarding the relevance of the geographical scale for electoral geography, to the empirical exploration of primary data resulting from the 2022 and 2024 elections, aggregated at the municipal level. Our database integrates the results of the 2022 presidential election and the municipal elections in the 5,568 Brazilian municipalities where there were municipal elections. The analyzed variables are the percentages of votes received by candidates from the Workers' Party (PT) and the Liberal Party (PL) for the positions of mayor and city councilor in 2024, and the percentages of votes received by Lula (PT) and Bolsonaro (PL) in the second round of the 2022 election.

We created tables with party-aggregated data and maps showing the locations of municipalities where PT and PL elected mayors in 2016, 2020, and 2024. We used GeoDa, an open-source and freely accessible system, to conduct exploratory analyses on the spatial base of municipal electoral data.

We explored the possible correlations for each party, between the municipal percentages of votes for mayor and city councilor candidates (2024), and between these and the municipal percentages for their respective presidential candidates, Bolsonaro and Lula (2022). First, we checked for the existence of spatial autocorrelation among the variables through linear regressions associated

with the neighborhood matrix of the 5,570 municipalities. Since the results indicated the absence of specific spatial effects to be modeled, we adopted bivariate linear regression, analyzed through scatter plots.

In bivariate linear regression, the equation of the regression line is:

$$Y = a + bX$$

where Y is the dependent variable, X is the independent variable, a is a constant value indicating where the line starts (the intercept), and b is the slope of the line.

In the scatter plot, the X-axis corresponds to the independent variable, and the Y-axis corresponds to the dependent variable. The pairs of observations (x, y) are represented as points on the diagram. In our case, each point represents a municipality. At the bottom of the graph, various statistics for the regression line are listed. This includes the Pearson correlation coefficient (R^2) and the estimate, standard error, t-statistic, and p-value for both the intercept (a) and the slope coefficient (b).

The R^2 correlation coefficient provides information about the quality of the linear fit of the bivariate correlation. In bivariate analysis, R^2 measures the relationship between X (dependent variable) and Y (dependent variable) and represents how well the regression line fits the observations. R^2 varies between 0 and 1, with a value of 1 indicating that the regression line fits the data perfectly—i.e., each unit of X corresponds to one unit of Y. A value of 0 represents the absence of correlation. R^2 is often interpreted as the proportion of data variation explained by the regression line. In the case of bivariate correlation, it is interpreted as the proportion of X that explains Y.

Regarding the interpretation of coefficients, we are interested in the slope coefficient (b), which in bivariate analysis represents the effect of the independent variable on the dependent variable. From a substantive perspective, the slope coefficient represents the variation in Y resulting from a one-unit variation in X, being positive when the variables change in the same direction, and negative when they change in opposite directions. The reported probability refers to the significance level of the coefficient⁷.

We also present another geostatistical analysis technique used to produce the spatial autocorrelation map of Lula's municipal vote percentages in the second round of the 2022 election. Regarding the second round, the map for Lula's variable also allows for interpreting the results for Bolsonaro.

In this type of map, the Local Spatial Autocorrelation Indicator (Moran Local) or Local Indicator of Spatial Autocorrelation (LISA) is used. The indicator is a statistic, like other similar ones, capable of revealing hot spots. In our case, the hot spots are formed by municipalities with high vote percentages. The formation of hot spots considers the neighborhood, identified here by a first-order matrix that indicates neighboring municipalities by contiguity. The Local Indicator is used to identify local clusters of non-stationarity, or hot spots, where adjacent units share similar values (Anselin, 1995)⁸.

We used the Local Moran Indicator to operationalize the concept of Electoral Territory (Terron, 2009), establishing a hypothetical correspondence between the groups of municipalities (hot spots) with high vote percentages in regions with statistically similar values, with the “territorial conquest” of

⁷ For bivariate linear regression, see Barbetta 2019.

⁸ For GeoDa and geostatistical analyses, see Anselin (1995, 2024a, 2024b), GeoDa documentation (2019), Smith, Goodchild, and Longley (2018).

the candidate in that election. These groupings correspond to the first category of Moran Local, known as High-High, composed of municipalities with high vote percentages in neighborhoods with statistically significant similar values.

Results and Discussion

The data from the Superior Electoral Court reveal that both PT and PL increased the total number of mayors elected in 2024. In the case of PT, the growth was nearly 27% (from 182 to 248), while for PL, it was 32% (from 351 to 517). However, this result is not being viewed as positive for the current president's party, as it is far below the peak reached in 2012 (637 mayors). More than a matter of absolute numbers, Tables 1 and 2 demonstrate the growth of PL in the so-called "medium-sized cities" with over 100,000 inhabitants, while the opposite is happening with PT. These data reveal that the president's victory two years ago does not necessarily imply the dominance of his party and candidates at the municipal level over PL⁹.

Table 1 – Elected Mayors of PL by Population Range of Municipalities

Classification (number of inhabitants)	2016	2020	2024	Variation (%) 2016 -2024
Up to 10.000	130	150	187	+27
10.000-50.000	141	159	223	+37
50.000-100.000	15	23	43	+65
100.000-500.000	12	15	51	+76
500.000-1.000.000	1	1	1	0
Above 1.000.000	0	0	2	+200

Data: Tribunal Superior Eleitoral

Table 2 – Elected PT mayors by population size of municipalities

Classification (number of inhabitants)	2016	2020	2024	Variation (%) 2016 -2024
Up to 10.000	125	87	103	-21
10.000-50.000	102	77	120	-15
50.000-100.000	17	7	13	-31
100.000-500.000	9	8	6	-50
500.000-1.000.000	0	2	2	+200
Above 1.000.000	0	0	0	0

Data: Tribunal Superior Eleitoral

⁹ Bolsonaro joined PL in 2019, having been elected in 2018 by PSL.

PL showed growth in almost all population ranges, with the highest percentage increases in medium-sized cities (50,000–100,000 and 100,000–500,000 inhabitants), and made its debut in cities with more than one million inhabitants in 2024. This pattern suggests a strategy of strengthening in medium to large urban areas, which may reflect a shift in its electoral base and an effort to consolidate influence in areas with higher population density.

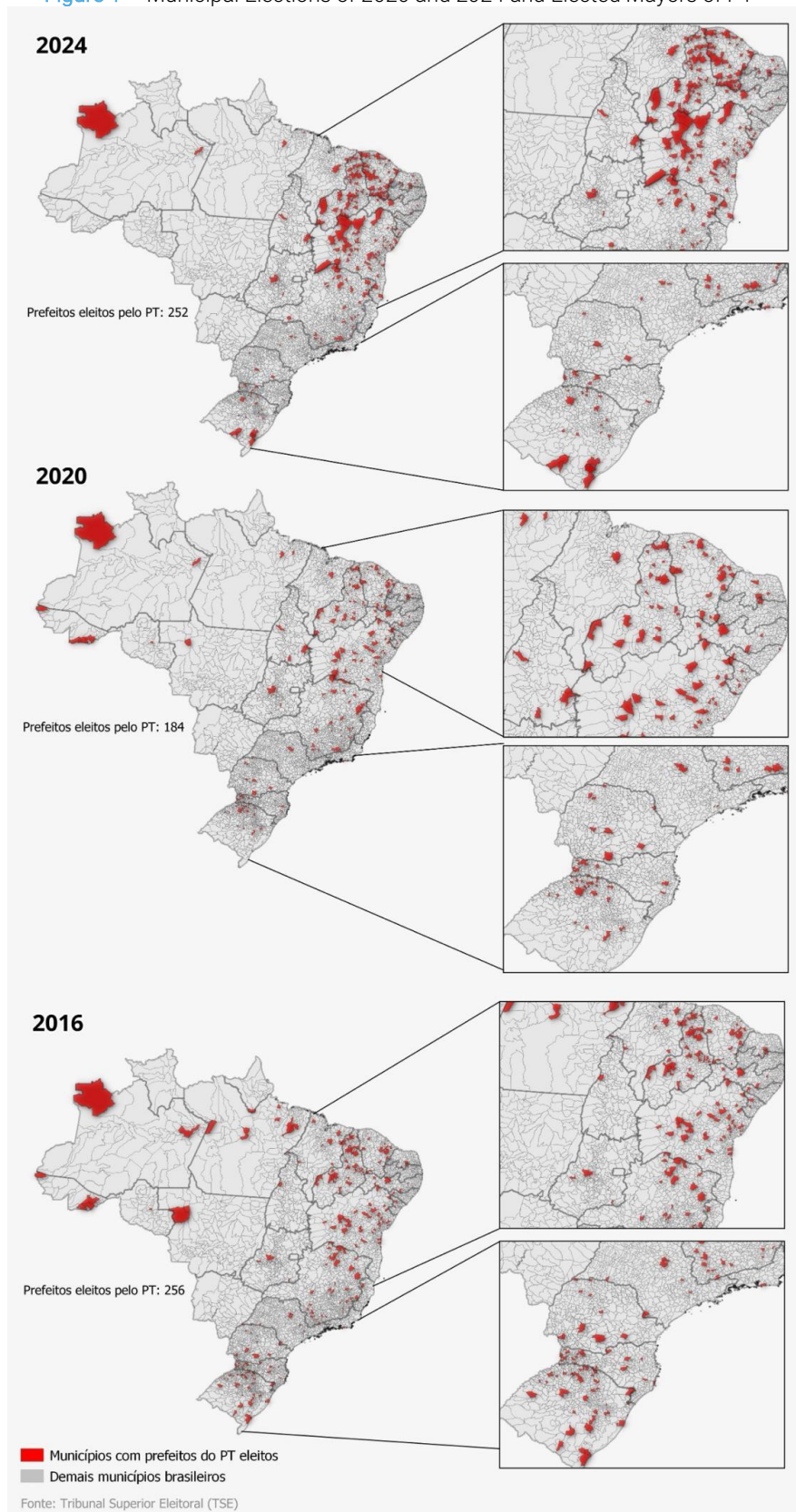
It is interesting to note that the PL's significant growth in medium-sized cities, particularly those with the possibility of a second round, i.e., with more than 200,000 inhabitants, goes against what political literature suggests regarding the existence of the second round. Authors argue (NICOLAU, 2004) that the second round tends to favor candidates positioned closer to the center, eliminating options at the extremes of the ideological spectrum. However, the growth of PL, considered a far-right party (BOLOGNESI; RIBEIRO; CODATO, 2023), in these medium-sized cities challenges the theoretical logic and indicates a shift in local electoral behavior. According to a report from Poder 360, PL is the party that elected the most mayors in municipalities with more than 200,000 voters, where a second round is possible¹⁰. This phenomenon, which had already occurred in 2018 with Bolsonaro's election, now seems to have reached medium-sized cities.

Another interesting point is that PL does not show significant representation in larger metropolitan areas, revealing a support pattern concentrated in medium-sized municipalities, but not consolidating with the same strength in the largest capitals. This data suggests that the political theory regarding the second round and the extremes might, perhaps, make more sense in larger metropolises than in medium-sized city contexts. While not part of the proposed objective here, research in this direction needs to be analyzed to try to understand this theoretical debate in light of spatial differences.

The spatial analysis of electoral results provides a detailed view of the geographic distribution of votes, allowing for a deeper understanding of local political dynamics. Figures 1 and 2 were created to demonstrate the spatial distribution of votes in the 2020 and 2024 municipal elections in Brazil, enabling some descriptive analyses of the growth or decline of support for PT and PL in Brazilian municipalities and their respective spatial patterns. The goal of these maps is to visualize the spatial dynamics of electoral geography, identifying specific regional patterns of support for different parties and candidates.

¹⁰ <https://www.poder360.com.br/poder-eleicoes/saiba-quantos-prefeitos-cada-partido-eleceu-nas-grandes-cidades-em-2024/>

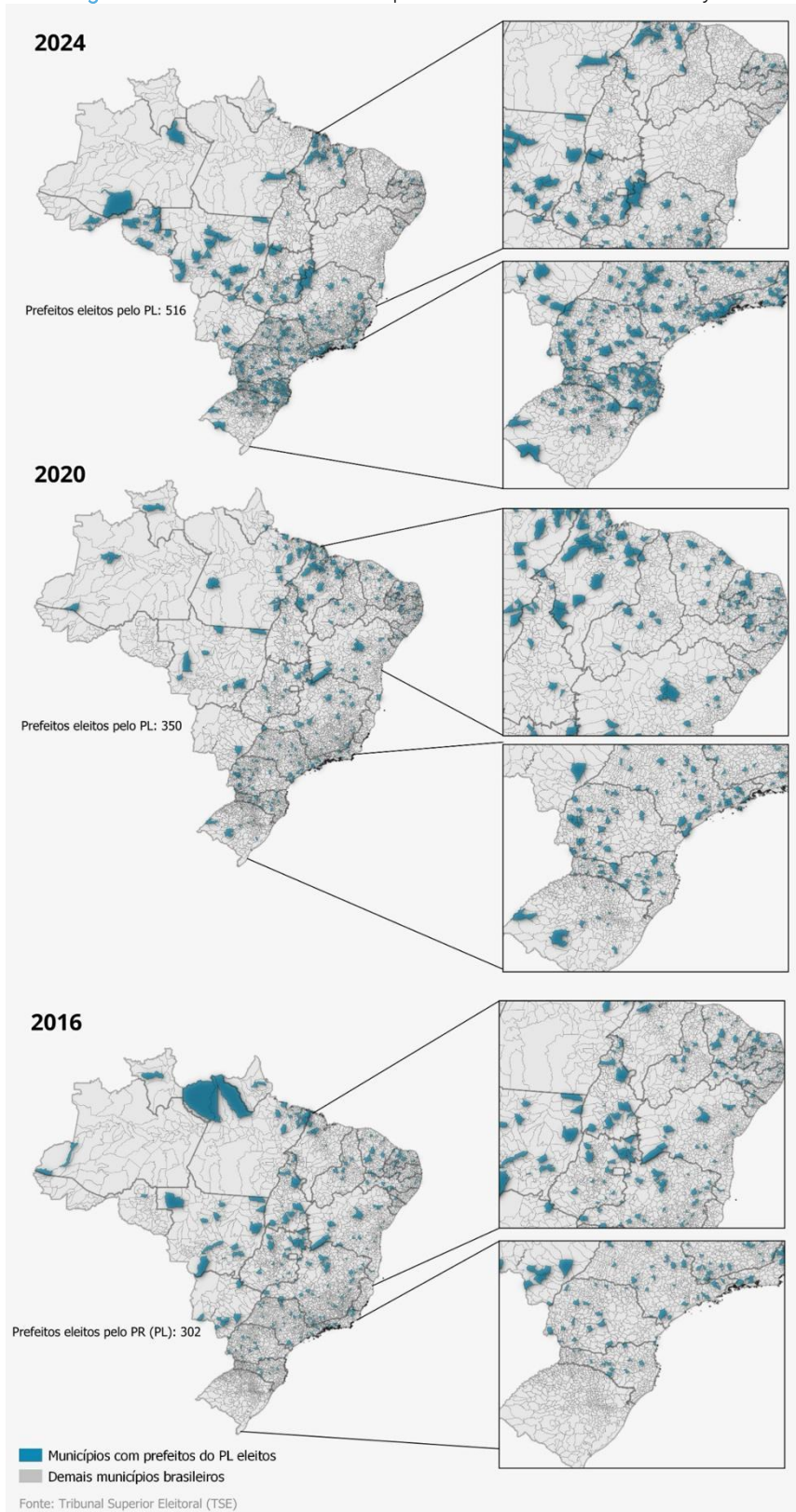
Figure 1 – Municipal Elections of 2020 and 2024 and Elected Mayors of PT¹¹



Source: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

¹¹ We thank undergraduate student Allan da Silva Ramalho, a member of the Studies and Research Group on Space and Democracy (GPEDEM/UnB), for creating the maps.

Figure 2 – 2020 and 2024 municipal elections and elected PL mayors



Source: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

The first map shows the distribution of municipalities where PT elected mayors in different regions of the country, highlighting areas of greater concentration and electoral support. There is a noticeable trend of electoral success in the Northeast region, which has intensified from 2020 to 2024. While the party's mayors disappear from states like Mato Grosso and Acre, there is a densification in Bahia, Piauí, and Ceará – in the latter case, it seems to indicate a surpassing of the traditional left-wing party in the state (PDT)¹².

The second map shows the expansion of PL towards the North and Central-South compared to the 2020 election. There is also a marked internalization of the party from the northern part of Rio Grande do Sul to the southern part of Minas Gerais, while the opposite trend is observed in the Northeast, particularly in Maranhão and Bahia. It is also interesting to note the strong expansion of PL in areas of Mato Grosso, Rondônia, and Acre, which, up until 2020, had remained scattered.

To achieve the research objective, it is necessary to complement the analysis of PT and PL's electoral success in the mayoral elections. We need to examine the municipalities where the parties launched their candidacies and analyze the municipal votes, which reveal the choices of the voters. This analysis, combined with the respective geographic distributions, is crucial for validating our argument.

In 2024, PT launched mayoral candidates in 1,321 municipalities and city council candidates in 3,338. PL did so in 1,448 municipalities for the executive and in 3,010 municipalities for the legislative.

We chose to analyze the municipalities where each party launched candidacies for both positions, resulting in distinct subsets of municipalities. PT did so in 1,252 municipalities, and PL in 1,378. The variables analyzed are the percentage of votes for the mayoral candidate in each municipality and the percentage of votes for the party's city council candidate in the same municipality, or the sum of the votes for all candidates, when there was more than one.

It is interesting to note that the numbers of municipalities mentioned do not differ much between the two parties for both positions, even in the simultaneous candidacies for mayor and city councilor (Tables 3 and 4).

Table 3 – Number of municipalities with PT and PL candidacies in 2024

Political position	Municipalities (PT)		Municipalities (PL)	
	Total	% *	Total	% *
Mayor Candidate	1321	24	1448	26
Municipal Councilor Candidate	3338	60	3010	54
Mayor + Councilor Candidates	1252	22	1378	25

Data: Tribunal Superior Eleitoral

Prepared by the authors

(*) Percentage relative to the 5,570 Brazilian municipalities

The similarity remains in the classification of municipalities according to the size categories of the electorate. We classified only the municipalities from the subsets to be analyzed, where the parties launched candidates for both positions.

¹² <https://oglobo.globo.com/politica/eleicoes-2024/noticia/2024/10/08/com-queda-de-67-para-cinco-prefeituras-em-quatro-anos-pdt-quase-desaparece-no-ceara-em-meio-a-briga-entre-ciro-e-cid.ghml>

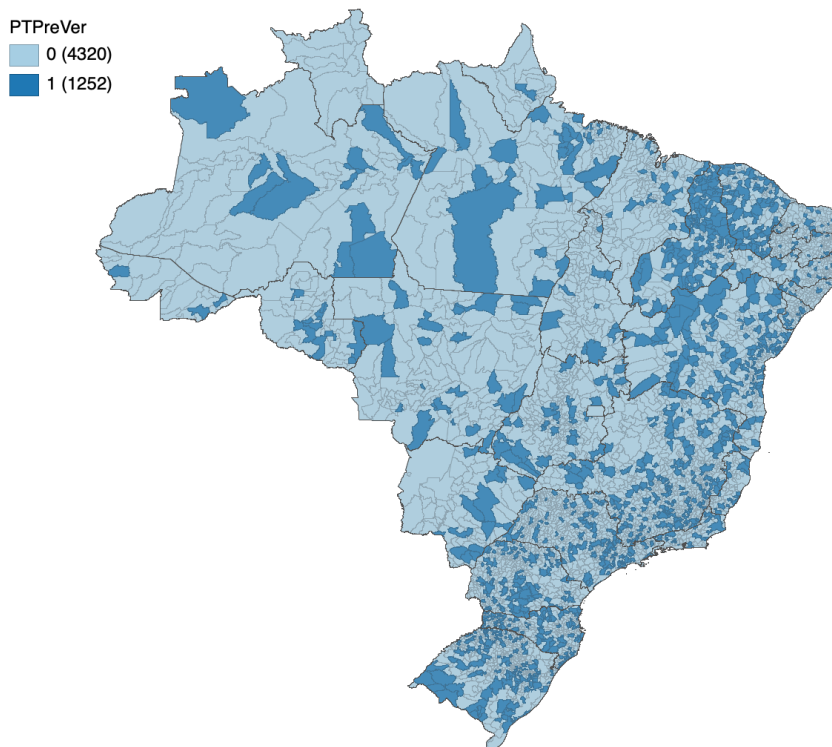
Table 4 – Number of municipalities with simultaneous mayoral and city council candidacies from PT and PL, by size of the municipal electorate, in 2024

Electorate size categories (2024 municipal elections)	Municipalities with PT candidates		Municipalities with PL candidates	
	Total	%	Total	%
Above 2 million	0	0,00	1	0,07
Between 1million and 2 millions	4	0,32	4	0,29
Between 500 thousand and 1 million	12	0,96	7	0,51
Between 150 thousand e 500 thousand	64	5,11	69	5,01
Between 50 thousand e 150 thousand	144	11,50	167	12,12
Between 20 thousand e 50 thousand	235	18,77	254	18,43
Less than 20 thousand	793	63,34	876	63,57
Total de municípios	1252	100,00	1378	100,00

Data: Tribunal Superior Eleitoral
Prepared by the authors

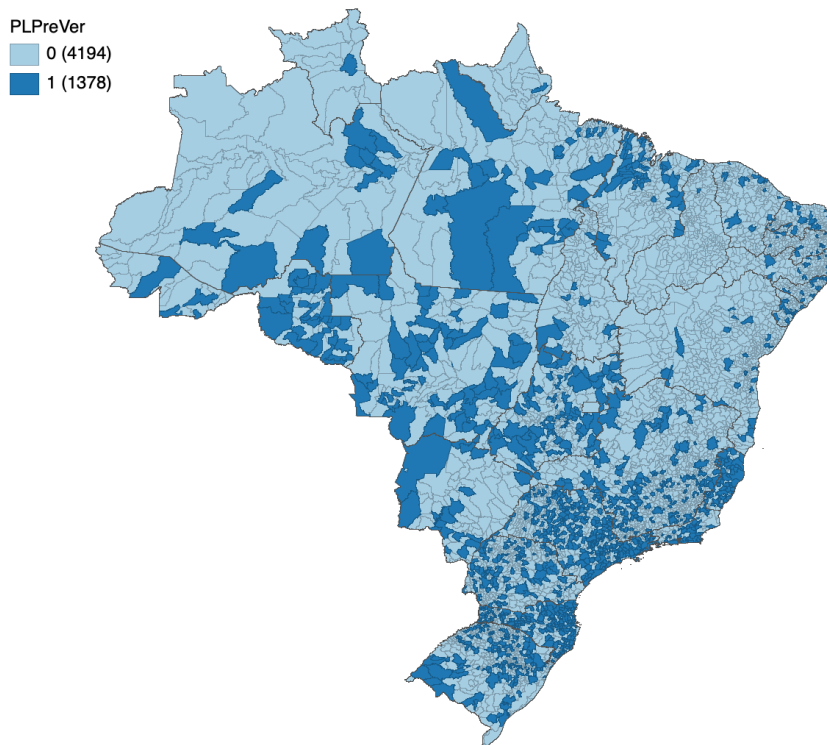
We analyzed the geographical distribution of each subset. As seen in Figures 3 and 4, although the scale is small to observe details, the patterns of PT and PL are different. There seems to be more complementarity than similarity between them. The similarity, in terms of the number of municipalities and their respective electorate sizes by categories, did not reproduce in the electoral geography of 2024.

Figure 3 – Municipalities (1252) with simultaneous mayoral and city council candidacies from PT in the 2024 municipal elections



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

Figure 4 – Municipalities (1378) with simultaneous mayor and councilor candidacies from PL in the 2024 municipal elections

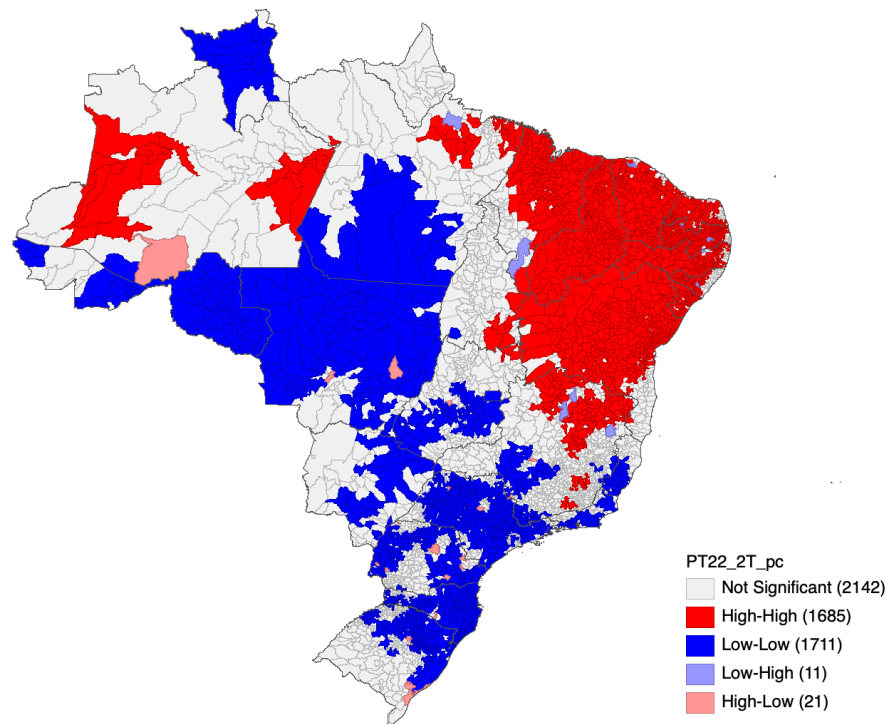


Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

By comparing the geographical distribution of municipalities with simultaneous mayoral and city council candidacies from PT (Figure 3) and PL (Figure 4) with the electoral territories of Lula and Bolsonaro in 2022 represented on the map in Figure 5, it is possible to identify some similarity between the territories of 2022 and the concentration of municipalities in 2024 for the respective parties.

The polarized territorial configuration in large clusters of municipalities has been recurring since 2006, in the disputes between PSDB and PT, up to 2014; and between PSL and PT in 2018, as analyzed by Alkmim and Terron (2022). This same configuration repeats in 2022 (Figure 5), with the PT's extensive electoral territory concentrated in municipalities of the Northeast region (1685 municipalities represented in red on the map), and the PL's electoral territories in the South, Southeast, North, and Central-West regions (1711 municipalities represented in blue on the map). The similarity arises from the many municipalities with PT candidates for mayor and city council in the Northeast, while many of the PL's municipalities are in the Southeast, South, Central-West, and North regions.

Figure 5 – Local Spatial Autocorrelation Map of Lula’s municipal vote percentage in the second round of the 2022 presidential election



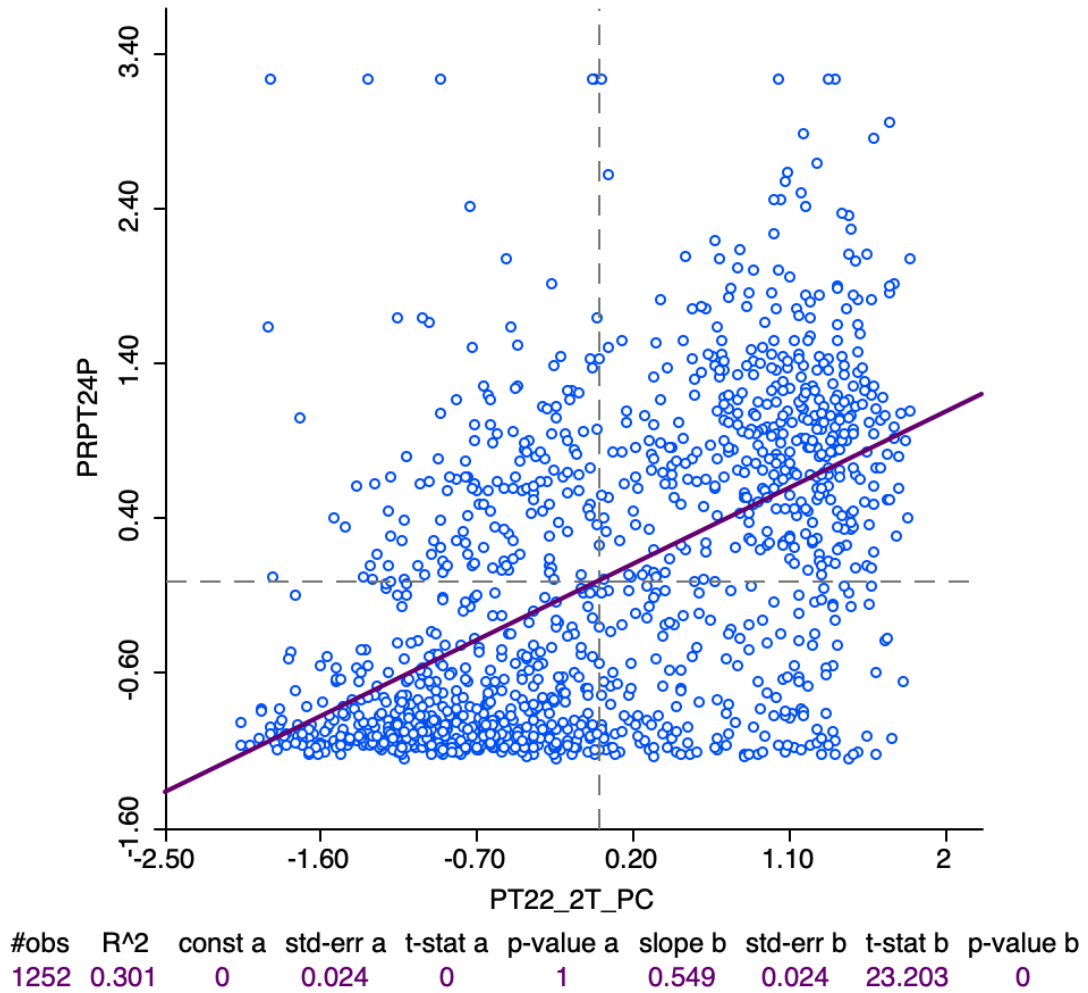
Prepared by the authors

Given the context of similarities, we investigated the scale effect for both parties. We analyzed whether there is any relationship between their respective votes for president in 2022 and their party's performance in 2024. Regardless of the discussion around Lulismo and Petismo, we aimed to identify the correlation, which seems likely, between Lula’s votes and the PT’s performance, and to analyze whether Bolsonaro’s 2022 vote influenced the PL’s electoral performance in the 2024 municipal elections¹³.

The scatter plots show significant differences (Figures 6 and 7). In the case of PT, the Pearson correlation coefficient (R^2) between the percentage of votes received by Lula in the second round of 2022 and the votes for mayor in the 1252 municipalities is 0.30 (Figure 6). In the correlation between Lula’s vote and the PT city council votes, we found a coefficient of 0.25 (Figure 7). The regression lines are positive and upward, meaning that an increase in Lula’s municipal vote percentage in 2022 results in an increase in the percentage of votes for PT mayor and city council candidates in the same municipality.

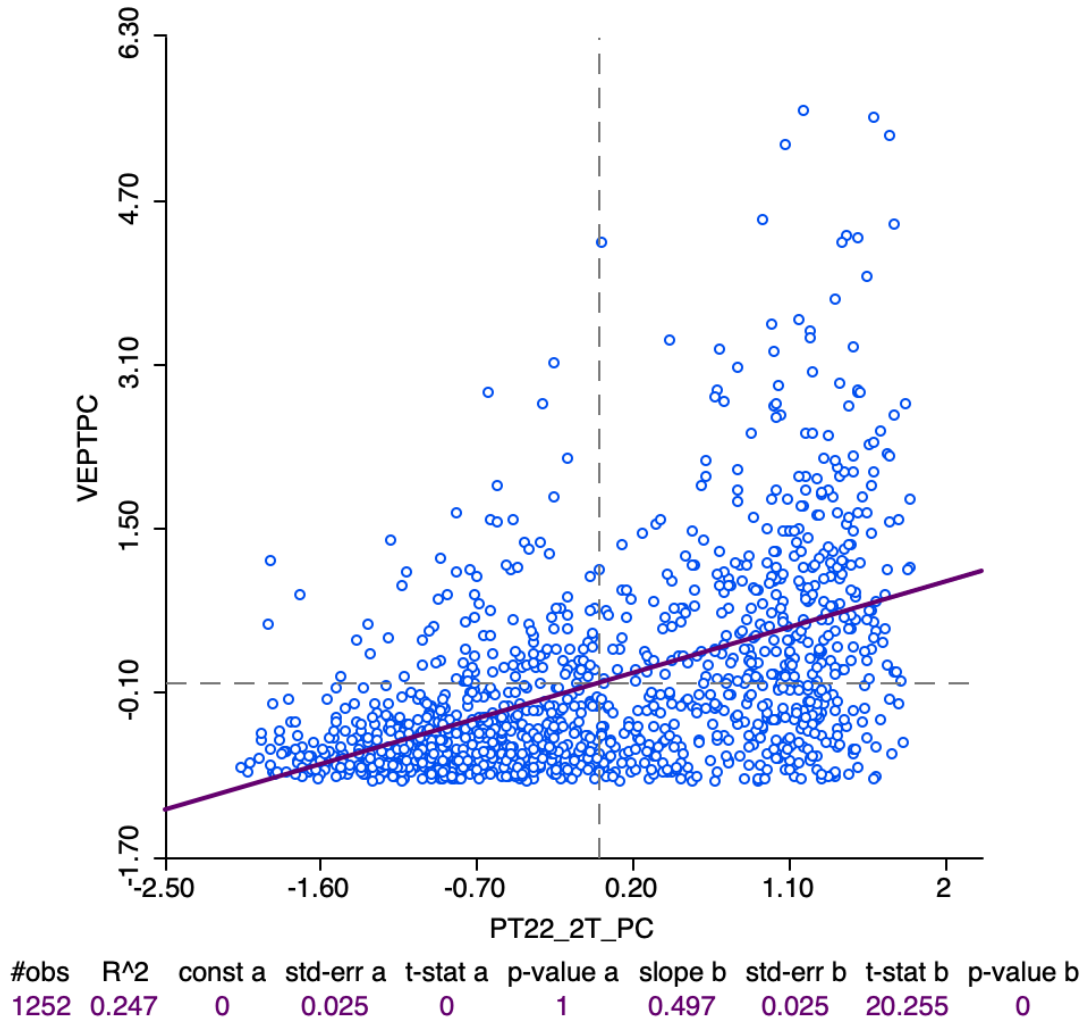
¹³ We are not analyzing the support provided by Lula and Bolsonaro to the PT and PL candidates, respectively, as they also supported candidates from other parties. We are exclusively investigating the correlation between the percentages of municipal votes received by Lula and Bolsonaro and the percentages of municipal votes for all candidates from their respective parties in the elections for mayor and councilor.

Figure 6 – Scatter plot of Lula's municipal vote percentage (%) in 2022 (X-axis, independent variable) and the PT mayoral vote percentage (%) in 2024 (Y-axis, dependent variable).



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

Figure 7 – Scatter plot of Lula's municipal vote percentage (%) in 2022 (X-axis, independent variable) and the municipal vote percentage (%) for PT city council candidates in 2024 (Y-axis, dependent variable)

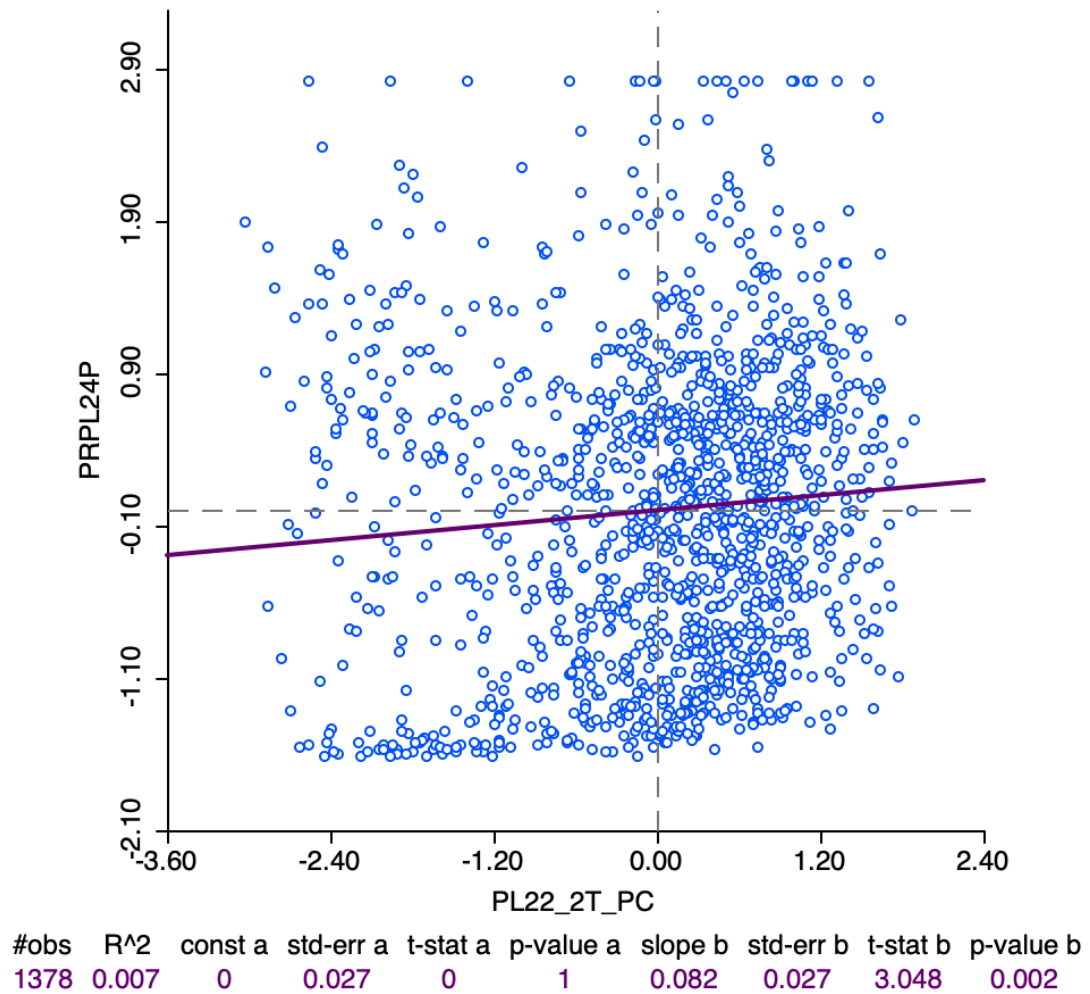


Data:

Tribunal Superior Eleitoral e IBGE
Prepared by the authors

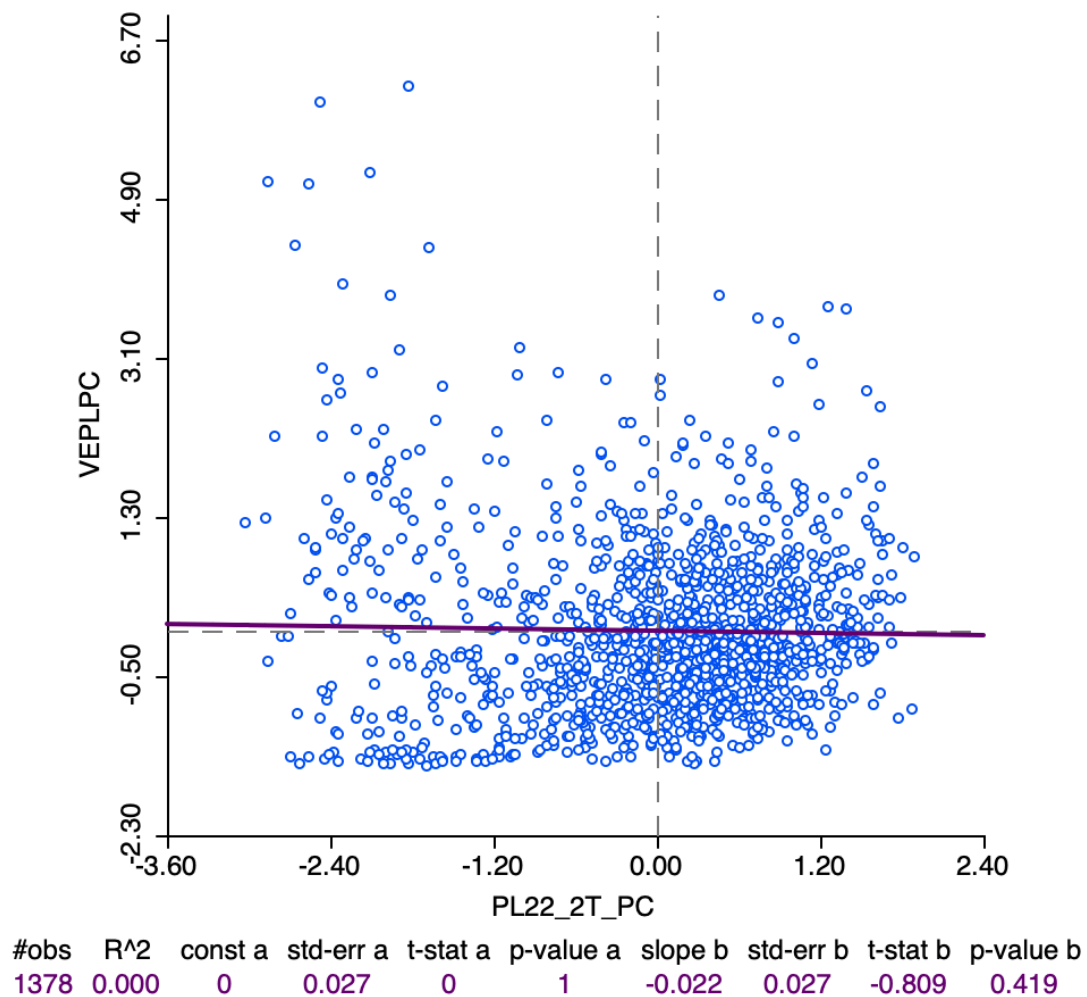
In the case of PL, we did not find any correlation between the percentage of municipal votes cast for Bolsonaro in 2022 and the percentage of votes given to mayoral candidates (Figure 8) and councilor candidates (Figure 9) of the party in the 1,378 municipalities analyzed.

Figure 8 – Scatter plot of Bolsonaro's municipal vote percentage (%) in 2022 (X-axis, independent variable) and the municipal vote percentage (%) for PL mayoral candidates in 2024 (Y-axis, dependent variable).



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

Figure 9 – Scatter plot of the municipal vote percentage (%) for Bolsonaro in 2022 (X axis, independent variable) and the municipal vote percentage (%) for PL's councilor candidates in 2024 (Y axis, dependent variable)



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

The analysis of the results reveals the convergence between Lulismo and Petismo at the municipal level. The support base for Lula in the national elections seems to translate into support for the PT in local elections. However, the same pattern does not repeat itself regarding Bolsonaro and the PL. This differentiated relationship suggests a "scaling effect," where the national and municipal scales interact differently for the two political fields. In the case of PT, support for the party and former president Lula demonstrates continuity and consistency across scales, reflecting an ideological and social base that remained cohesive, both in the 2022 presidential election and the 2024 municipal elections. This scaling effect reinforces the hypothesis that Petismo and Lulismo operate interdependently and aligned, consolidating a support structure that can adapt to local specificities, while also carrying the strength of the former president's national representativeness.

On the other hand, the relationship between Bolsonarismo and PL does not follow the same logic. Although Bolsonaro achieved significant votes in 2022, particularly in specific areas, these regions do not necessarily represent the electoral success bases of PL in 2024. This misalignment suggests that while Bolsonarismo is strong on the national scale, it does not influence PL at the

municipal level in 2024. This dissociation leads us to think that the electoral geography of Bolsonarismo depends more on Bolsonaro's individual figure than on a cohesive party structure, as is the case with PT and Lula. Thus, while Lulismo articulates with Petismo in a scaling dynamic that integrates national and municipal levels, Bolsonarismo seems to operate on a more fluid and individualized scale, hindering PL's consolidation as a direct reflection of his support. This scaling effect, therefore, highlights the complexity of interactions between political spheres and the challenges faced by PL in translating national support into consistent local results.

This result suggests that the scaling effect in elections tends to be more effective when the political party has a consolidated historical trajectory and a well-defined ideological identity. In the case of PT, the long trajectory and the consistency of its political platform over the decades have created a support base that moves more easily between national and municipal scales. The party is widely recognized, which allows it to operate with a cohesive and easily identifiable identity, strengthening the link between Lulismo and Petismo across different scales. In contrast, PL, which in recent years has gained notoriety as the main party supporting Bolsonarismo, has a history marked by ideological transformations, including periods in which it adopted centrist positions. A notable example is its alliance with Lula in 2002, when José Alencar, then a PL member, was vice president. This more fluid and recent trajectory of PL indicates a less stable party identity and a less deeply rooted connection with Bolsonarismo at the local spheres. Thus, the lack of ideological consistency over time makes it difficult to build a support base that organically reflects across scales, reinforcing that the alignment between a party and political leader depends not only on circumstantial support but also on a well-established political identity.

National and local scales, therefore, connect more evidently depending on the phenomenon being analyzed. However, as discussed at the beginning of this article, the electoral phenomenon at the local scale still needs to be understood from its own logic, not reduced to the national one. To that end, we analyze the performance of PT and PL now from another perspective. What we want to know is whether, in 2024, there was any association between the electoral performance of mayoral candidates and city council candidates from each party, i.e., a municipal coattail effect.

The coattail effect is a classic concept developed in American literature to explain how a strong candidate in executive elections can transfer votes to candidates from their party running for other offices, frequently at the legislative level¹⁴. In the specific case of PT in presidential and federal deputy elections, the literature points out that since 2006, this phenomenon has not occurred on the national scale, as there has been a distancing between Lulismo and Petismo. In other words, Lula's votes in 2006 (Terron and Soares, 2010; Borges and Turgeon, 2010) and Dilma's in 2010 (Maciel, 2012) did not necessarily translate into higher votes for their party's federal deputy candidates¹⁵. Therefore, it remains to be seen if this effect, nonexistent on the national scale, exists at the local level for PT and PL in 2024.

We found Pearson correlation coefficients similar for both parties, although the one for PL is smaller than for PT. The correlation coefficient for PT in the 1252 municipalities was 0.56 (Figure 10), and for PL in the 1378 municipalities, it was 0.43 (Figure 11). Considering that the coefficient ranges from 0 to 1, with 0 indicating no correlation and 1 indicating maximum correlation, we can say that both are in the middle of the range. Both correlations are positive, indicating that an increase in one of the variables reflects an increase in the other.

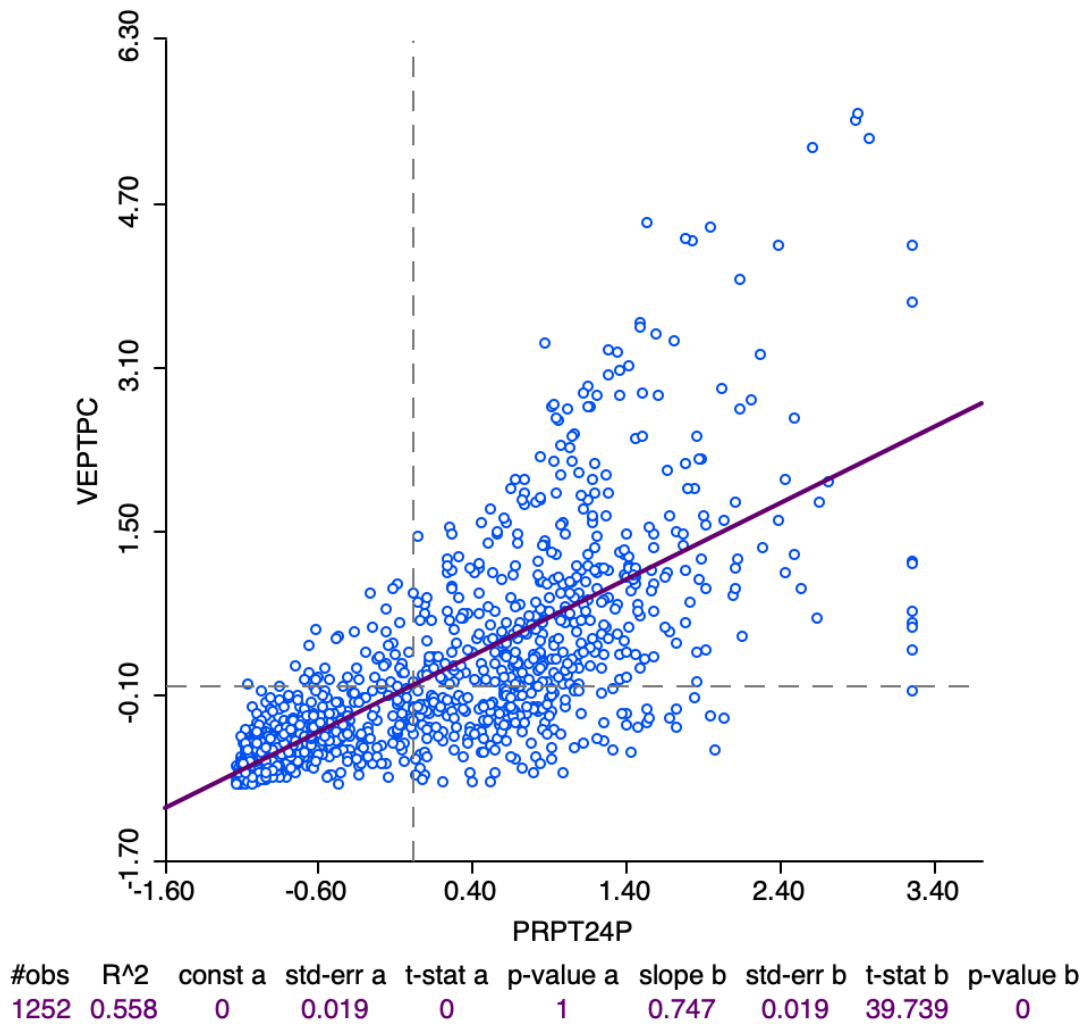
¹⁴ Matheus (2023) engages in an extensive dialogue between foreign and national literature dedicated to the analysis of the coattail effect.

¹⁵ We did not find specific studies on the coattail effect in the PT's national elections after 2010.

From the theoretical interpretation of the regression line's slope coefficient (b), considering that R² values are significant, and taking into account only the effect of one variable on the other, we can say that for PT, each unit (percentage point) increase in the vote (%) for mayor correlates to an increase of 0.75 percentage points in the vote (%) for city council candidates from the same municipality.

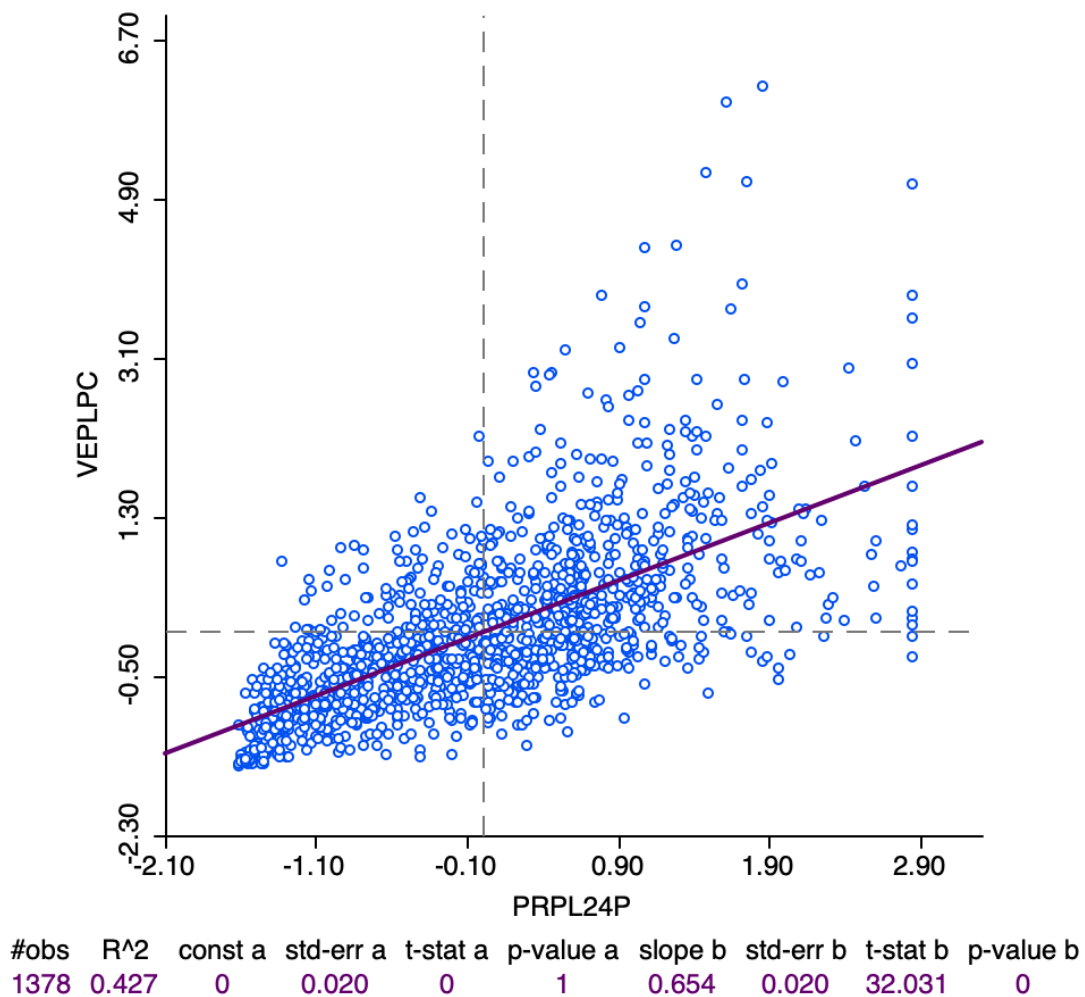
In the case of PL, under the same conditions, each percentage point increase in the vote (%) for mayor corresponds to a 0.65 percentage point increase in the vote (%) for the party's councilor candidates in the same municipality.

Figure 10 – Scatter plot diagram of the municipal vote (%) for mayor (X-axis, independent variable) and the municipal vote (%) for PT councilors in 2024 (Y-axis, dependent variable)



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

Figure 11 – Scatter plot diagram of the municipal vote (%) for mayor (X-axis, independent variable) and the municipal vote (%) for PL councilors in 2024 (Y-axis, dependent variable)



Data: Tribunal Superior Eleitoral e IBGE
Prepared by the authors

In summary, our results indicate that the phenomenon known as the coattail effect – where the performance of an executive candidate boosts votes for legislative candidates from the same party – manifests significantly at the municipal level in 2024, both for candidates from the PT and PL parties. The effects for both parties are very similar in intensity, according to the regression coefficients. These results support the conclusions of Vasquez, Curi, and Silva (2021) and Matheus (2023), regarding the existence of the coattail effect in municipal elections.

The case of the PT corroborates our initial hypothesis. The literature shows that the coattail effect does not occur consistently at the national scale for the PT. At the federal level, voting for Lula as president has not historically led to an automatic increase in votes for PT candidates for the Chamber of Deputies. This separation between the vote for the executive and the vote for the legislature suggests that voters, at least in national elections, differentiate their choices based on the office, prioritizing the presidential candidate rather than automatically following the party in their vote for Congress. This phenomenon reveals an independence at the national level, weakening the coattail effect for the PT and pointing to a disconnection between Lulismo, personified in the figure of Lula, and the PT as a party structure.

However, when we look at the municipal level, the dynamic is quite distinct. Our analysis shows a high correlation between the vote for PT mayors and the vote for PT councilors in the same municipality in 2024, indicating that the coattail effect manifests strongly at the local level. This result suggests that, in municipal elections, party alignment is more cohesive and direct, possibly due to the proximity between voters and candidates and the lower fragmentation of agendas and discourses compared to the federal scenario. The logic of the municipal scale seems to favor a more integrated identification between the executive and legislative positions, where the voter tends to trust their choice in the personal figure (of the mayor or a specific councilor) and their support for another individual. This difference between the national and municipal scales highlights the importance of the geographical context and political proximity, reinforcing that the coattail effect is stronger where party ties are closer and more immediate, as in cities, while the national scenario is characterized by greater voter autonomy in choosing representatives for different spheres.

Conclusions

Throughout this study, the analysis of the 2024 municipal elections in Brazil highlighted the importance of the geographical scale as an essential variable for understanding electoral dynamics. Voter behavior at the municipal level cannot simply be treated as a reflection or an extension of behavior observed in federal elections. Electoral geography, by considering scale as an analytical category, allows for a more complex and detailed view of political behavior, especially in local contexts where specific social and cultural factors exert strong influence.

The results of this article reinforce the thesis that municipal elections have their own dynamics and are relatively autonomous from national elections. This relative autonomy is clearly manifested in the analysis of the "scale game" effects and the coattail phenomenon. It was observed that, for the Workers' Party (PT), there is continuity between support for Lula in 2020 and the party's electoral success in 2024 at the municipal level, indicating a cohesive and integrated ideological and social base across different spheres of power. In the case of the Liberal Party (PL), this correlation was not found, suggesting that support for Bolsonaro at the federal level does not directly translate into consistent support for the party at the municipal level. This misalignment highlights the fragmented nature of Bolsonarismo, more dependent on Bolsonaro's personal figure than on a cohesive and ideologically consolidated party structure.

Another key aspect revealed by the research was the presence of the coattail effect at the municipal level, where the performance of a local executive candidate (mayor) positively influences the performance of candidates from the same party for local legislative positions (councilors). In contrast, this effect is not observed at the federal level, where voting for a presidential candidate does not necessarily boost candidates from the same party in Congress. This discrepancy reinforces the idea that the municipal scale operates with its own logic, where proximity between voters and candidates generates more cohesive party and personal ties, in contrast to the fragmentation and complexity observed in federal elections.

Therefore, by considering scale as a fundamental variable, electoral geography offers a differentiated view of electoral behavior, where each scale of the phenomenon reveals its own specificities. Municipal elections represent a distinct configuration, incorporating social interactions and local peculiarities in a way that is not observed, or is observed very differently, in national elections. This highlights the need to understand each electoral scale as an independent phenomenon, shaped by specific contextual factors that cannot be reduced to mere miniatures of a national dynamic. Space

as context thus assumes a central role in the geographical analysis of elections, highlighting the influence of local socioeconomic, cultural, and political contexts.

Furthermore, by treating municipal elections as a preview of federal elections, academia and the media often overlook the political significance of the local scale. This practice perpetuates a distance between academic discourse and the daily reality of citizens, as the municipal scale is the closest to the voter and the most relevant for addressing everyday issues such as public health, basic education, and local infrastructure. Ignoring the specifics of this scale also means disregarding the crucial role of municipal governments as spaces where the immediate needs of the population are met. In a federative system like Brazil's, the municipal scale is not only relevant but also plays a structuring role in people's daily lives.

In summary, the study of the municipal scale as an autonomous and fundamental dimension of Brazilian politics broadens our understanding of electoral behavior and emphasizes the importance of geographical approaches aligned with the specificity of each context. Valuing the local scale and the detailed analysis of its dynamics allows for a richer and more accurate understanding of Brazilian politics, offering insights that can contribute to the development of public policies and electoral strategies more attuned to the realities and needs of each region.

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