

More Turnover, Less Turnout? Domestic Migration and Political Participation across Communities

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Abstract

Why do some areas experience lower voter turnout even under compulsory voting systems? This paper examines the impact of migration turnover—encompassing both in- and out-migration—on voter turnout across communities. While past research has focused on migrant/non-migrant differences or in-/out-migration separately, we propose that both migratory movements tend to decrease political participation due to increased transaction and social costs. Using surveys and a new panel dataset combining census and voting records from over 5,000 Brazilian municipalities, we identify a robust negative association between local migratory turnover and voter turnout. This relationship holds across various time frames, levels of aggregation, analytical approaches, and definitions of variables. Analyses using individual-level data further corroborate these results. Additional tests suggest social costs constitute a key mechanism deterring turnout. These findings highlight the need to consider the broader consequences of population mobility for democratic processes and representation, particularly in areas experiencing higher levels of turnover.

Keywords: Internal Migration, Electoral Participation, Voting Costs, Social Cohesion

Introduction

Although the effects of international migration on political outcomes have been extensively explored (Halla, Wagner, and Zweimüller 2017; Kapur 2014; Kyriazi et al. 2023), more recent studies have shifted focus to domestic mobility, analyzing its impact on citizens' political preferences and electoral participation (Gimpel and Schuknecht 2001; Hansen 2016; Lueders 2023). These studies have revealed that individuals who relocate tend to vote less than those who remain residentially stable (e.g. Squire, Wolfinger, and Glass 1987; Highton 2000; Highton and Wolfinger 2001). However, the wider consequences of domestic mobility on local communities are less well-understood. While existing research has examined the individual costs of moving and their direct effects on voter turnout among migrants, as well as the isolated impacts of in-migration or out-migration on origin and destination communities, the influence of overall migratory turnover on community-wide electoral participation remains underexplored.

This paper investigates the broad effects of population mobility on electoral participation, examining how both internal in-migration and out-migration shape voter turnout across and within communities. We argue that although geographic mobility can sometimes have positive effects, it tends to reduce electoral participation on average. This decline is driven by two primary mechanisms: increased transaction costs and social costs (Highton 2000; Hansen 2016). Specifically, in-migration expands the pool of residents who may not register to vote locally due to barriers such as lack of information, interest, or access. Out-migration, in turn, often results in a higher proportion of voters who might continue to be registered in their former residences but be unable or unlikely to vote there. Additionally, both in- and out-migration can disrupt community cohesion—reducing residents' capacity to apply social pressure—and alter descriptive norms of participation, both of which are recognized as key drivers of turnout (see, e.g., Fowler 2005; Alesina and Giuliano 2011; Gerber, Green, and Larimer 2008; Gerber and Rogers 2009; Panagopoulos 2011). Ultimately, these concurrent migratory flows can undermine both the logistical and social dimensions of voting, reducing political participation among both newcomers and long-standing residents.

To test our hypothesis, we have compiled a novel time-series cross-sectional dataset that combines census data and voting records from municipalities across Brazil, from 2000 to 2010. Our analysis focuses on *migratory turnover*, a well-established demographic measure defined as the *sum* of in-migration and out-migration relative to the total population over a given period. This measure

captures the full extent of residential instability by quantifying the total volume of population change, accounting for both inflows and outflows within localities (Dennett and Stillwell 2008). Previous research that relies on net migration—calculated as the *difference* between in-migration and out-migration—fails to fully capture the impact of population mobility on political outcomes, as this measure tends to obscure the distinct effects of each type of migration. Net migration figures may suggest stability in regions that are, in fact, experiencing significant population turnover. Additionally, studies that examine in-migration and out-migration separately risk misattributing the effects of these interrelated phenomena. In contrast, by considering the combined effects of both inflows and outflows—which can either counteract or exacerbate each other—migratory turnover provides a more accurate understanding of how population mobility influences local political participation.

Our results reveal a strong negative association between migratory turnover and voter turnout, consistent across local and national elections, various migration measures (stocks or flows, shares or logarithmic counts), and different geographic scales—municipalities, Minimum Comparable Areas, or micro-regions. This pattern holds under different analytical approaches, including cross-sectional and panel data analyses. Individual-level survey evidence provides further support for these results, showing that residents in high-turnover areas are less likely to vote regardless of their migration status. Additionally, we show that higher migration turnover is associated with lower levels of social cohesion, suggesting a potential mechanism beyond the direct costs of voter registration.

This paper contributes to a growing literature on the effects of domestic migration on political attitudes and behavior (Bishop and Cushing 2009; Jurjevich and Plane 2012; Gori Maia and Lu 2021; Kim 2022; Knight and Zhang 2024). To the best of our knowledge, this is the first empirical study to examine the simultaneous effects of in-migration and out-migration on community-level turnout, utilizing both stock and flow measures to assess these relationships. Our analysis advances previous findings in several key ways. First, while existing research indicates that out-migration can increase voter turnout among specific groups of voters, our findings suggest that it is generally related to lower political participation across communities. Similarly, our analysis shows that in-migration also tends to have a negative association with local turnout. Second, we find that migratory turnover can have a more detrimental impact on voter turnout than is apparent from models analyzing the effects of either in-migration or out-migration separately. Finally, complementing previous findings that highlight the lower participation barriers faced by non-migrants (Squire, Wolfinger, and Glass 1987;

Highton 2000), our study reveals that even among these stayers, those in high-mobility areas are less politically active than their counterparts in more stable environments.

Internal Migration and Turnout

The seminal study by Squire et al. (1987) identified residential mobility as a key factor affecting electoral participation. Employing validated US voting data, the authors found that individuals who had moved within the country were 5–8% less likely to vote compared to those who had not relocated. They attributed this reduced turnout among migrants to *transaction costs* related to common re-registration requirements after moving and suggested measures aimed at streamlining these processes as a possible solution.

Subsequent research exploring the causes of lower voter turnout among domestic migrants has shown that elevated direct voting costs, including the challenges of re-registration and learning about new candidates and voting locations, do not fully explain their reduced participation (Hansen 2016). Rather, it is also essential to consider the social disconnection that often accompanies mobility (Highton 2000). Political behavior is shaped not only by individual characteristics like economic status and education but also by social dynamics, including information sharing and peer pressure (Fowler 2005; Gerber and Rogers 2009; Panagopoulos 2010). This perspective emphasizes that social rewards and the repercussions of abstaining from voting influence people's intrinsic sense of duty toward their political community (Gerber, Green, and Larimer 2008; Panagopoulos 2013). Supporting this notion, recent studies demonstrate that the disruption of social connections caused by relocation is a primary factor explaining the reduced voter turnout observed among migrants (Hansen 2016).

Beyond explaining lower voter turnout among migrants, these findings also offer insights into how migration can influence the behavior of those who stay. Community members use social rewards and sanctions to shape behavior within their social space, thereby influencing others' motivation to participate. Research has shown that pro-voting norms are most effective when individuals value their peers' opinions and when information about deviance or compliance can spread easily (Anoll 2018). Moreover, increased community integration is associated with stronger motivations to comply with prevailing social norms (Dowding, John, and Rubenson 2012; Sinclair 2012). Therefore, when

migration disrupts the “glue that holds societies together”¹—for instance, by decreasing generalized interpersonal trust—it imposes social costs on communities, weakening their ability to enforce civic norms and thereby diminishing individual incentives to participate (Knack 1992; Gerber, Green, and Larimer 2008).

Our study expands on existing research by analyzing the role of migration turnover, combining the effects of both in- and out-migration on local voter turnout. This more comprehensive approach is essential, as analyzing in-migration or out-migration in isolation can misrepresent their impacts on political participation due to their interconnected nature. By analyzing these migratory movements together, we can more accurately evaluate the cumulative influence of local population mobility on voter engagement, thus avoiding misattributions that might otherwise overestimate or underestimate the true effects on turnout.

Why Migration Turnover Tends to Negatively Affect Turnout

To evaluate the effect of local population mobility on political participation, two approaches are available. The first involves including both in-migration and out-migration as predictors in regression analyses. This method not only assesses the overall impact of population mobility but also distinguishes the unique influence of each type of migration on voter turnout. Including both variables is essential because they have become increasingly correlated over time, and failing to do so could introduce omitted variable bias.

The second method utilizes a demographic metric known as *migratory turnover*, which calculates the proportion of the population moving into and out of a specific area. This measure, when used as a single predictor, allows for the evaluation of the overall effect of population mobility without breaking it down into its constituent parts. Moreover, it provides insights into the dynamics between in-migration and out-migration. This is evident when the coefficient of the turnover variable deviates from the sum of the coefficients for in- and out-migration, signaling either a synergistic or counteracting interaction between these migration flows.

Elevated turnover rates, regardless of the measurement used, reflect a lack of residential stability. This instability may indicate a greater sense of transience among residents, weaker social ties, and a more fluid social fabric within the community, potentially impacting various aspects of local life,

1. See, e.g., Chan, To, and Chan's (2006) definition of social cohesion.

including political participation. In contrast, the more commonly used *net migration* measure—which quantifies the difference between in-migration and out-migration—primarily reflects the degree of population growth or decline due to migration and is not expected to influence social cohesion or voter turnout.²

In Figure 1, we provide a breakdown of two key mechanisms through which migration turnover is expected to influence turnout. For clarity, we categorize these mechanisms by the type of movement—in-migration and out-migration—and by the type of impact. This distinction separates effects that function through the “transaction costs” mechanism from those that operate via the “social costs” channel. Furthermore, we specify whether these migratory flows affect the registered voters (RV) population and/or the voting-eligible population (VEP).

Figure 1. Negative Contextual Effects of Migration Turnover on Turnout

		Effect Type	
		Transaction costs ↑ difficulty to vote for migrants only	Social costs ↓ motivation to vote for migrants and non-migrants
Migration Type	In-migration	When new residents move into a community, they are less likely to be registered and familiar with local affairs (captured by VEP)	When new residents move into a community, they have fewer social ties and can disrupt established norms of participation (captured by VEP and RV)
	Out-migration	When residents move out of a community where they remain registered, they become more physically removed and less engaged with local issues (captured by RV)	When residents move out of a community, remaining residents lose social ties, which can weaken local norms of participation (captured by VEP and RV)

The *transaction costs* associated with migration refer to the increased difficulties migrants face when voting (Squire, Wolfinger, and Glass 1987). Moving to a different jurisdiction raises these costs by requiring individuals to navigate bureaucratic procedures to transfer their legal residence or by demanding longer journeys to vote in their original place of residence. At the aggregate level, in-migration tends to increase the number of local residents who are eligible to vote but not registered, thus enlarging the local voting-eligible population (VEP) but not immediately affecting

2. Net migration is more commonly adopted because it can be derived from standard demographic indicators such as birth and death rates, eliminating the need to collect migration statistics.

the number of registered voters (RV). Conversely, out-migration leads to an increase in voters who, although still registered in a particular locality, now reside elsewhere and are thus less likely to participate in elections. These individuals continue to be counted as registered voters but are excluded from the VEP.

Social costs refer to the ways in which migration impacts voter turnout by disrupting social cohesion and altering perceptions of social norms related to political participation. Migration can weaken social cohesion by diminishing generalized interpersonal trust (Baldassarri and Abascal 2020), a key factor in fostering civic duty and political engagement (Dowding, John, and Rubenson 2012). This erosion reduces community members' responsiveness to social rewards and sanctions (Hansen 2016), thereby limiting the community's ability to exert social pressure—an important driver of political participation (e.g., Gerber, Green, and Larimer 2008, 2010; Panagopoulos 2010). In addition to affecting cohesion, migration alters perceptions of overall levels of political engagement, shifting descriptive norms of participation. Scholars have shown that individuals tend to align their behavior with what they believe others are doing (Cialdini and Goldstein 2004; Gerber and Rogers 2009; Goldstein and Cialdini 2011). Therefore, if migrants appear less engaged in civic duties, it can reduce others' motivation to vote. As Fowler's (2005) "turnout cascades" model illustrates, even small correlations in behavior among acquaintances can trigger chain reactions that result in substantial aggregate changes in turnout. In short, the combined effects of migration-driven changes in social cohesion and descriptive norms can lead to a substantial decrease in voter participation. In Appendix B, we provide a more detailed discussion of how these mechanisms operate in the contexts of both out-migration and in-migration.

Certainly, under specific conditions, migration has the potential to increase local turnout by altering the composition of the population or mobilizing non-migrants. For instance, previous research has shown that out-migration can enhance voter participation in origin communities when accompanied by economic or political remittances (Gori Maia and Lu 2021; Kapur 2014; Pérez-Armendáriz and Crow 2010). However, these positive effects are not systematic; they arise only when migrants possess certain demographic characteristics or when specific political conditions prevail in origin and destination areas. Furthermore, even when these conditions are favorable, transaction and social costs often prevent their benefits from materializing in the short term (for a detailed discussion, see Appendix B, Section 2). In contrast, the obstacles to participation arising from the increased

transaction and social costs of migration are more pervasive and consistent. These challenges erode citizens' ability and motivation to vote, regardless of the migrants' profiles or the specific attributes of the local communities involved.

Finally, it is important to note that the denominator selected for calculating turnout rates significantly influences the dynamics we observe (Wigginton, Stockemer, and Schouwen 2020). Variations in the turnout-to-registered voters ratio (turnout/RV) reveal both the social and transaction costs linked to out-migration, while the turnout-to-voting-eligible population ratio (turnout/VEP) predominantly reflects social costs. Conversely, when considering in-migration, the turnout/RV ratio specifically reflects the social costs associated with in-migration, whereas the turnout/VEP ratio captures both its social and transaction costs.

Examining Migration Turnover and Turnout in Brazil

Brazil, a vast decentralized nation, is characterized by significant domestic migration, low levels of social cohesion (e.g., Kustov and Pardelli 2024), and the world's largest electorate governed by compulsory voting (Power 2009). Despite these national characteristics, there is considerable local variation in voter turnout and migration across the country (Bell et al. 2015; Dassonneville et al. 2023) (see Figures A1 and A2).

Internal migration patterns in Brazil have undergone significant shifts over the past two decades. São Paulo exemplifies the complexity of recent trends. After serving as the primary destination for internal migration for over half a century, São Paulo has begun to witness significant migratory losses to states in the Midwest, South, and North, while also resuming population retention from several Northeastern states, albeit at lower levels than before. Consequently, the state has become an area characterized by high migratory turnover. Like São Paulo, other localities can no longer be categorized solely as 'migratory retention' or 'migratory loss' areas, due to the increasing frequency of population turnover (Baeninger 2012). Overall, the increased mobility of the Brazilian population in recent decades has led to the proliferation of regions characterized by increased back-and-forth movements with shorter duration and distances (Baeninger 2012; Carvalho and Charles-Edwards 2019).

An important question concerns how these shifts in internal migration affect voter participation across the country. Under the Brazilian Constitution, voting is mandatory for literate citizens aged

18–70, while it remains optional for young people aged 16–17, individuals over 70, and illiterate citizens. If a registered voter fails to vote and does not provide a valid justification within 60 days after the election, they are subject to a fine typically ranging from 3% to 10% of the minimum wage. Non-compliant voters who fail to vote, justify their absence, or pay the fine are subject to additional administrative penalties. These include restrictions on obtaining essential documents, receiving public salaries or benefits, accessing loans, and enrolling in public job examinations.

Given this legal framework, one might expect migration turnover to have minimal influence on overall voter turnout. However, this is not necessarily the case. Voter abstention rates are significant, with an average of 21% of eligible voters abstaining in recent decades. Despite standardized voting regulations throughout the country, turnout displays substantial geographic disparities, ranging from 65% in some municipalities in Minas Gerais to 98% in Rio Grande do Sul. Figure A1 provides a visual representation of the average turnout rates across *municípios* from 2000 to 2010. Municipalities in the south generally exhibit the highest turnout rates, while some of the lowest are observed in the Midwest and Northern regions.

One contributing factor to the elevated voter abstention rates in Brazil is the requirement for voters to cast their ballots in their designated electoral districts. This poses a challenge for migrants, who may find themselves far from their registered voting locations. If voters are outside their designated district during an election, they must either provide a valid justification for their absence or face penalties. Although transferring registration to a new electoral district is an option, the bureaucratic hurdles involved may deter many from undertaking this process soon after relocating.³

Data and Empirical Strategy

To test our argument, we utilize an original dataset encompassing all 5,565 Brazilian municipalities as identified in the 2010 census. We analyze migration using both *flow* and *stock* measures. Flow measures capture the number or proportion of individuals migrating within a relatively short timeframe, typically one year, offering insights into rapid changes in migration dynamics. In contrast, stock measures aggregate the total number or proportion of migrants over a longer period—such as the five-year intervals recorded by the Census—providing a more comprehensive view

3. During the period of our study, voters were required to visit the nearest electoral office in person to change their electoral domicile, bringing a set of required documents. They needed to have lived in the new municipality for at least three months, and at least one year had to have passed since their initial registration or last transfer. Furthermore, polling location updates had to be completed at least 150 days before the election.

of long-term, stable migration patterns.⁴ Our primary dependent variable, voter turnout rate, is quantified as a percentage of locally registered voters (see, e.g., Martínez i Coma and Leiva Van De Maele 2023). However, to address the nuances previously mentioned, we also conduct analyses using turnout both as a percentage of the local voting-eligible population and in log counts.

We begin our empirical investigation by examining the cross-sectional relationship between different types of migration and voter turnout, controlling for potential confounders (Frank and Martínez i Coma 2023). We then extend our analysis to panel data and spatial models. Following this, we use survey data to explore the association between local migratory turnover, migration status, and voting behavior at the individual level. Finally, we assess the association between migratory turnover and social cohesion across municipalities.

All models control for a range of variables, including (the log of) total population, voting-age residents, population above age 16, registered voters, as well as average per capita income, poverty levels, income Gini coefficient, urban population, and the proportion of the population with higher education. Geographic variables such as latitude, longitude, distance from the state capital, and distance from the coast are also included. For analytical robustness, cross-sectional models incorporate state fixed effects, while two-way fixed effects models adjust for both municipality and year fixed effects. For a detailed description of the data and models, see the Appendix.

Analysis and Results

Cross-Sectional Analysis

In Table 1 (left) we present our cross-sectional analysis results. The dependent variable is defined as the average voter turnout during the first round of all elections between 2000 and 2010. The migration variables are calculated as average stock shares from the 2000 and 2010 census data.⁵ Across all models, both in-migration and out-migration are consistently associated with decreased voter turnout. Notably, separate analysis of out-migration and in-migration leads to overestimated negative coefficients, as shown in models 1 and 2 compared to model 3. Turnover always shows a strongly negative association with turnout, with a coefficient larger than that of in-migration and out-migration individually but smaller than their combined sum. These effects are substantively significant. In a typical scenario, a one SD increase in average out-migration (4%) or in-migration

4. Beyond these periods, individuals are no longer classified as migrants. This approach reflects the expectation that the transaction costs of migration and the disruptive effects of population mobility on social ties gradually subside over time.

5. The 2022 census migration data has not yet been released.

(5%) stock rates is linked to a decrease of approximately 0.9 or 0.7 percentage points (0.2 SD) in average turnout rates. Comparing locations with no migration to ones with the maximum turnover reveals a 14–18 percentage point decrease in voter turnout. Notably, the commonly used net migration variable does not consistently correlate with voter turnout rates. In Appendix Tables A1 and A2, we present results using average turnout for local and national elections separately. Table A3 replicates the cross-sectional analysis for the years 2000 and 2010. The results remain consistent across all specifications.

Panel Data Analysis

Although our cross-sectional analysis considers several potential confounders, unobserved contextual factors might still bias the results. To mitigate this concern, we use two-way fixed effects models that account for potential endogeneity stemming from time-invariant omitted variables. We incorporate both stock and flow measures of migration in these models (for details, see the Appendix). Table 1 (right) displays results using flow measures of migration, and Table A4 in the Appendix uses stock measures. The magnitudes of our coefficients are similar to those observed in the cross-sectional analysis, and our substantive findings remain consistent.⁶

Table 1. The Relationship Between Migration Shares and Turnout Rates Across Space and Time

	Cross-Sectional Analysis					Panel Analysis				
	Migration Stock Measure					Migration Flow Measure				
	Average Turnout Rate (2000-2010)					Biennial Turnout Rate (2002-2010)				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Out-migration	-0.902*** (0.176)		-0.828*** (0.193)			-0.498*** (0.063)		-0.474*** (0.058)		
In-migration		-0.781*** (0.185)	-0.683*** (0.191)				-0.261*** (0.091)	-0.203** (0.086)		
Migration Turnover				-1.183*** (0.119)					-0.535*** (0.096)	
Net Migration					-0.028 (0.233)					0.138** (0.054)
Unit FE	State	State	State	State	State	Municipal	Municipal	Municipal	Municipal	Municipal
Year FE	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,559	5,559	5,559	5,559	5,559	27,389	27,541	27,374	27,374	27,374
Adjusted R ²	0.590	0.585	0.599	0.598	0.573	0.737	0.736	0.737	0.737	0.735

Notes: The left panel displays results from cross-sectional OLS regressions using stock measures of migration averaged over the period 2000–2010. In contrast, the right panel presents findings from two-way fixed effects models, employing migration flow measures from 2002 to 2010, with outcomes assessed biennially. Robust standard errors are clustered at the state level for the left panel and at the municipality level for the right panel. *p<0.05; **p<0.01; ***p<0.001.

6. In Table A5, we interact each migration variable with a local election indicator to assess heterogeneous effects. The results suggest that turnout is generally higher in local elections, and the negative association between migration and turnout is stronger in national elections.

Robustness Checks. To ensure the robustness of our findings, we conduct a series of additional tests. A key limitation of earlier analyses is the assumption that each geographic unit operates independently, overlooking the possibility that voting patterns in one municipality may influence neighboring ones. To differentiate the effects of migratory turnover from potential spatial spillover effects, we draw on insights from previous research on voting behavior (Gori Maia and Lu 2021) and employ spatial models (see Table A6).

Additionally, we assess the robustness of our panel specifications through several alternative approaches. First, we explore different operationalizations of both migration and turnout. In Table A7, turnout is measured as a proportion of registered voters (RV) and as a proportion of the voting-eligible population (VEP). In Table A8, we employ the log count of both turnout and migration variables, rather than using their respective shares. Next, we assess the reproducibility of our findings using alternative units of analysis (see Table A9). Additionally, to address recent critiques that have raised concerns about the interpretability of TWFE models (Kropko and Kubinec 2020), we present separate results for municipality- and time-fixed effects models, which examine how within-unit and across-unit variation in migration affect voter turnout (see Tables A10 and A11). Lastly, following Lipcean and McMenamin (2024), we employ a within-between random effects (WBRE) model, often described as ‘hybrid’ since it combines features of more traditional fixed and random effects approaches (Table A12).

Additional Empirical Tests

Mechanism. We also investigate the hypothesis that the negative relationship between migration and voter turnout can be attributed to the disruption of local social cohesion. Cross-sectional evidence presented in Table A13 suggests that municipalities experiencing higher migratory turnover, in-migration, and out-migration tend to show reduced levels of social cohesion.

Individual-level Survey Evidence. Using consolidated survey data from LAPOP (2008–2019), we explore the relationship between voting behavior, migration status, and the level of population mobility in the respondents’ municipalities. Our findings, presented in Table A14, corroborate the idea that non-migrants are more likely to vote. Furthermore, the results indicate that individuals in municipalities with high migratory turnover are less likely to vote, even after controlling for the respondents’ own migration status.

Discussion

Understanding the influence of migration on political participation is crucial as it influences not only the behavior of migrants but also that of those who stay behind, transforming the political dynamics of both origin and destination communities. These changes can ripple outward, extending their influence beyond local contexts and potentially reshaping national political outcomes. Our study builds on existing research by showing that in-migration, out-migration, and local migratory turnover are consistently associated with lower voter participation among both migrants and non-migrants. We explain these patterns through the lens of transaction and social costs, highlighting the challenges migration imposes on political engagement. While our primary focus is on the overall relationship between population mobility and voter turnout, we recognize that the effects may vary across communities. Heterogeneous outcomes may emerge due to factors such as differences in migrants' demographic profiles or variations in the political contexts of origin and destination areas. Nonetheless, as detailed in Appendix B, Section 2, while migrant characteristics may influence the degree of migration's negative effects on turnout—either amplifying or mitigating them—they are unlikely to reverse these effects, particularly in the short term.

A key limitation of our study is the challenge of establishing the causal effects of migration on political outcomes, as population movements are likely endogenous to other time-varying factors affecting municipalities. Despite this, the consistency of our results across various measures of electoral turnout and different empirical approaches strongly supports the argument that population mobility can undermine democratic development in both sending and receiving areas, particularly when these flows coincide, intensifying local residential instability. Furthermore, the absence of individual-level longitudinal data in Brazil constrains our ability to track changes in individual behavior or determine how long the effects of migration persist. Additionally, our dataset does not allow us to examine the impact of migration on informal political participation, which can differ significantly from formal voting behavior (Lueders 2023).

Future research should explore how institutional factors influence the relationship between migration turnover and voter turnout. For instance, mechanisms that lower barriers to voter re-registration can help alleviate *transaction costs*, while initiatives that foster interpersonal trust and strengthen participatory norms can mitigate the *social costs* of migration, even when transaction costs remain high. Examining these scope conditions, along with the moderating influence of factors such

as migrant and community characteristics, is essential for clarifying the short- and long-term effects of migration on political participation across diverse contexts.

From a policy perspective, our findings highlight a potential conflict between promoting voter turnout and encouraging migratory movements. Recognizing the role of migration in stimulating development and its value for human freedom as a form of ‘voting with one’s feet’ (Somin 2020), governments face strong incentives to resolve this conflict. One strategy could involve reducing the direct costs of voting and improving access to information about local candidates (for a review, see Blais and Daoust 2020). However, addressing the broader social costs associated with increased population mobility may prove more challenging, requiring innovative mechanisms to reinforce social norms related to civic duty, even without strong social ties. In summary, our research contributes to a deeper understanding of the relationship between migration and political participation, and it underscores the challenges that increasingly mobile populations pose to effective democratic engagement (Knight and Zhang 2024).

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Data Availability Statement Replication packages will be made available on the BJPoLS Dataverse.

Competing Interests The authors declare none.

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Appendices

More Turnover, Less Turnout? Domestic Migration and Political Participation Across Communities

Appendix A

Description of Variables

Turnout Rates (0-100%)

Electoral data were obtained from the publicly available website of the Superior Electoral Court (TSE). From this source, we calculated registered voter (RV) turnout rates by dividing the total number of votes cast in each round of local and national elections from 2000 to 2010 by the total number of registered voters in each municipality, as reported by the TSE, and multiplying by 100.¹

In particular, election data are available for the following years: 2000, 2002, 2004, 2006, 2008, and 2010. Of these, 2000, 2004, and 2008 correspond to local elections, while 2002, 2006, and 2010 correspond to national elections.

In-migration, out-migration, net migration, and migration turnover: stock and flow shares

Our migration flow measures are obtained from the Brazilian Population Census Survey of 2010, and are available annually from 2001 to 2010. Using microdata and retrospective migra-

¹In instances where the number of voters in a given election exceeded the electorate size, we capped the turnout rate at 100%. Notably, this adjustment was required in only three municipalities, and our results remain unchanged if we use the unadjusted turnout rates.

tion questions—which ask individuals their duration of residence in the current municipality along with their municipality of origin—we construct an annual panel tracking migration between municipalities. Migration flow shares are calculated as the number of migrants who enter or leave a municipality in a given year as a fraction of the local population.

To construct our stock measures of migration turnover, in-migration, out-migration, and net migration, we use data obtained from demographic Censuses carried out in the years 2000 and 2010. The census asks all household members where they lived five years ago, defining migrants as those who did not reside in the current municipality five years earlier. The key explanatory variable is the total number of out-migrants (in-migrants) who left (joined) the municipality between year $t - 5$ and t , expressed as a share of the local population. Compared to the annual flow measures, using lagged migration stocks ($t - 5$ to t) reduces potential reverse causality between migration and voter turnout.

The measure of *net migration* (flows or stocks) shares reflects the difference between the population shares of migrants arriving and those leaving the municipality. The measure of *migration turnover* shares, on the other hand, is defined by the sum of these two values. For better interpretability, we standardize all migration variables with a mean of zero and a standard deviation of one.

Social Cohesion

We capture various dimensions of local social cohesion in an index using a number of objective and subjective indicators (for details on the data construction, see Kustov and Pardelli, 2024). Most importantly, we create municipal-level estimates of generalized social trust, institutional trust, civic participation, and feelings of national belonging by aggregating all available relevant survey data (Latinobarometer, LAPOP, ESEB) and improving the resultant estimates with the MRP technique. To obtain an objective measure of civic participation, we include IPEA data on the number of civil society organizations per capita (log) across municipalities. We also include one major outcome that is commonly viewed as a

direct manifestation of social cohesion (or its absence), namely, homicide rates. To minimize measurement error, all of these measures are averaged across the 2000-2020 period. Collectively, these variables are intended to reflect the “social fabric” of communities. Therefore, we aggregate them in a single indicator, which we use in our main specifications (see Table A13).

Control Variables

Our contemporary covariates incorporate a set of municipal characteristics that can influence the turnout and migration shares in municipalities. We control for the following variables: total population (log), population with higher education (log), population over 16 years (log), voting-age population (ages 18 to 70) (log), registered voters (log), poverty rate, per capita average income, municipal area, urban population (log), and income inequality. We also include a set of geographic covariates such as latitude, longitude, distance from the coast, and distance from the capital. When necessary, we use linear interpolation to align the control variables with electoral outcomes.

Appendix B

1 How Migration Can Impact Non-Migrant Turnout: Mechanisms

Migration has been shown to affect voter turnout in both destination and origin communities through various direct and indirect mechanisms, such as increased transaction and social costs. In this section, we focus specifically on the indirect social costs that migration imposes on non-migrants. We categorize these mechanisms into two main groups: migration-induced (1) changes in local social cohesion, and (2) changes in local perceptions of descriptive social norms regarding political participation.

First, migration can affect local social cohesion, often described as “the glue that holds societies together.”² Strong and cohesive social networks play a crucial role in disseminating information, mobilizing voters, and applying peer pressure to encourage political participation. Therefore, when migration disrupts this “glue”—through decreases in interpersonal trust, for instance—it can undermine socialization processes and diminish a community’s capacity to enforce civic norms and apply social sanctions, thereby lowering individual incentives to participate (Knack, 1992; Gerber et al., 2008).

Additionally, migration can affect non-migrants’ perceptions of social norms around political participation. Research has shown that people tend to align their behavior with what they believe others do in similar situations. These “descriptive” social norms can significantly shape a wide range of behaviors (Cialdini and Goldstein, 2004; Goldstein and Cialdini, 2011). In the context of migration, when residents observe that those leaving or entering their com-

²Although approaches to operationalizing social cohesion vary, recent research has embraced a conceptualization rooted in “organic” solidarity, where prosociality extends beyond close-knit networks (Portes and Vickstrom, 2011; Baldassarri and Abascal, 2020). This perspective views social cohesion as a multifaceted concept encompassing three fundamental aspects that define the quality of social cooperation within a collective: resilient social relations, positive emotional connectedness, and an orientation toward the common good (Dragolov et al., 2016; Schiefer and van der Noll, 2017; Kustov and Pardelli, 2024).

munity are disengaged from civic duties, they may lower their expectations about overall levels of political engagement. This in turn reduces their motivation to participate (Gerber and Rogers, 2009).

These two mechanisms—changes in social cohesion and descriptive social norms regarding participation—can operate simultaneously or independently but typically push voter turnout downward. While positive effects are possible, they are typically contingent on the specific characteristics of both migrants and the community and often take time to manifest. Conversely, the negative impacts of migration on expected levels of participation are immediate and pervasive. In the sections below, we draw on the existing literature on international migration to explore how these mechanisms may operate in the context of both out-migration and in-migration.

Out-migration and Social Cohesion

The idea that increased migration can weaken a community’s social cohesion is rooted in social disorganization theory. This theory argues that residential mobility, along with factors like disadvantage and diversity, undermines a community’s ability to regulate its members’ behavior (Shaw and McKay, 1942). Originally developed to explain variations in crime rates—often viewed as indicators of weakened social cohesion—the theory suggests that mobility disrupts communication among residents and hinders the development of social ties that provide informal control mechanisms. This makes it harder for communities to monitor behavior effectively, leading to diminished cohesion and the emergence of norms that encourage non-compliance. In other words, social ties play a key role in enforcing norms and fostering accountability (Panagopoulos, 2011), so when out-migration erodes these ties, a community’s ability to encourage participation declines. Empirical evidence supports this, as migration flows have been found to damage trust in origin communities (Jo, 2019). In contrast, communities with more long-term residents are typically better at building and maintaining social cohesion (Rupasingha et al., 2006).

Out-migration and Descriptive Social Norms

Out-migration can also reduce voter turnout by altering the descriptive social norms related to political participation. When residents depart—regardless of their roles within the local network—it signals to those who remain that turnout in the upcoming election is likely to be low, thereby shifting expectations and influencing behavior. In communities experiencing high out-migration, residents may expect lower turnout because many migrants, though still registered, are unlikely to vote. This perception can further depress turnout, as people are less motivated to vote when they anticipate others will abstain (see, e.g., Blais and Hortala-Vallve, 2021).

Research confirms that beliefs about descriptive norms are strong predictors of behavior (Nolan et al., 2008), and that effectively communicating these norms increases compliance (Cialdini and Goldstein, 2004; Goldstein and Cialdini, 2011). As Gerber and Rogers (2009) note, “a citizen’s expectation of turnout has a causal impact on her likelihood of voting.” In essence, emphasizing descriptive norms—whether positive or negative—significantly increases the likelihood that individuals will behave consistently with them. This also aligns with Fowler’s 2005 “turnout cascades” model, which demonstrates how even a small conditional correlation between acquaintances can initiate chain reactions that result in significant aggregate changes in turnout. His findings suggest that one person’s decision to vote can influence four others in their network and, as connections expand, this influence grows exponentially.

In-migration and Social Cohesion

In-migration introduces new individuals into the community, which tends to elevate social uncertainty and diminish trust among members. For example, Abascal and Baldassarri (2015) found a strong negative relationship between residential instability and trust. At the same time, Rupasingha et al. (2006) showed that communities with a higher proportion of long-term residents are more likely to generate social cohesion. Recent studies indicate that

in-migration tends to dilute social cohesion (Hotchkiss et al., 2022), and to negatively affect trust, political engagement, and organizational membership (Kesler and Bloemraad, 2010), with these effects varying based on institutional differences across countries.

Although in-migration could theoretically strengthen social cohesion by fostering in-group identity among long-term residents, this would not necessarily lead to increased turnout. Research shows that stronger family ties, for example, can actually reduce political participation, as reliance on close-knit networks often substitutes for broader, generalized social trust (Alesina and Giuliano, 2011). Fowler (2005) similarly found that when social networks become too clustered, individuals lose touch with the broader community, reducing their motivation and capacity to influence participation beyond their immediate circles. This diminishes their incentives to engage in civic activities and encourages others to do the same.

In-migration and Descriptive Social Norms

In-migration can also shift descriptive norms around political participation. Research on cooperation in social dilemmas suggests that stable group composition promotes prosocial behavior and contributions to the common good. Stable interactions allow group members to establish and reinforce social norms, setting clear expectations and holding each other accountable for uncooperative behavior (Duffy and Ochs, 2009; Ambrus and Pathak, 2011; Fehr and Schurtenberger, 2018; Otten et al., 2022). Conversely, uncertainty and lack of information about newcomers' values and behavioral intentions can lead to diminished expectations about their adherence to social norms (see, e.g., McCarter and Sheremeta, 2013).

In the context of political participation, this uncertainty may prompt long-term residents to expect lower turnout from newcomers. Consequently, they may adjust their own voting behavior to match the perceived norm of reduced political engagement, which can ultimately result in lower overall voter turnout. This notion is supported by previous studies, which have shown that changes in group composition can negatively impact cooperation levels (e.g., Fehr and Schurtenberger, 2018; Salmon and Weber, 2017; Grund et al., 2015).

2 Conditional Effects

The previous section explored the mechanisms through which migration influences voter turnout in both origin and destination communities, focusing on its aggregate effects. This analysis assumed that migrants and non-migrants are similar in characteristics associated with political participation. While this assumption may raise questions, we argue in this section that variations in migrant characteristics are unlikely to significantly alter the negative effects of migration on turnout, particularly in the short term. This supports our focus on aggregate effects as the primary lens of analysis.

Research on the political characteristics of migrants is limited, and existing findings are mixed. The “brain drain” debate, initiated by Gruber and Scott (1966) and Bhagwati and Hamada (1974), argues that emigration depletes communities of their most skilled individuals. Applied to the political arena, this logic suggests that migrants might also be the most politically engaged individuals, leaving high-migration communities with residents less inclined to participate in formal politics. However, empirical evidence supporting this claim is limited. Most studies on self-selection into migration focus on economic or educational characteristics rather than political behavior (see, e.g., Borjas et al., 2019), and the few that do primarily examine international migration. For example, Douarin and Radu (2021) find that individuals planning to migrate are more likely to protest but less likely to vote. These patterns, however, may not generalize to domestic contexts. Consequently, there is little reason to believe that domestic migrants are systematically more or less politically engaged than non-migrants.³ Nevertheless, it remains important to consider whether variations in migrants’ traits could affect turnout by altering the composition of the electorate in origin or destination communities.

In destination communities, migrants’ ability to influence local turnout rates by altering the composition of the electorate is limited in the short term, even if they possess sys-

³Though see Lueders (2023) for evidence from Germany suggesting that domestic migrants may be more engaged in national politics while being less involved in local political activities.

tematically different and favorable traits. Politically active newcomers, for instance, might theoretically boost participation by increasing the proportion of the electorate likely to vote. In practice, however, transaction costs hinder their immediate involvement in elections. Logistical challenges, such as registering to vote, delay their integration into the electorate. Additionally, their ability to influence long-term residents through mechanisms like "positive peer pressure" is further constrained, as building new social connections requires time. In contrast, migration's negative effects on descriptive norms are immediate and operate regardless of migrant characteristics. As discussed in the previous section, long-term residents often perceive newcomers as less politically engaged, leading to shifts in local norms that reduce voting among established residents. Consequently, even when migrants are politically active, their potential to positively influence turnout is delayed, while negative effects, such as the erosion of participation norms, take hold quickly. These dynamics make it unlikely that migration will increase turnout in destination communities, regardless of the migrants' profiles.

In origin communities, the departure of predominantly politically disengaged individuals could theoretically increase the rate of political participation by altering the composition of the electorate. However, transaction costs prevent these compositional benefits from materializing in the short term, as such migrants often remain registered to vote in their origin communities, artificially inflating the denominator of the turnout rate. Moreover, the departure of residents—regardless of their level of political engagement—disrupts local networks, weakening the enforcement of norms that sustain political participation. Even the exit of less-engaged migrants can erode perceptions of participation, further diminishing engagement among those who remain. Consequently, while out-migration might theoretically boost turnout under certain compositional scenarios, the combined impact of transaction and social costs makes such outcomes highly unlikely to materialize in the short term.⁴

⁴Another important scenario to consider is when out-migrants are *more* politically engaged than non-migrants. In these cases, their departure depletes the electorate of its most engaged individuals, potentially weakening overall political participation. This compositional shift, when combined with the disruptive effects of transaction and social costs, exacerbates the decline in turnout within the origin community,

Financial and social remittances also influence the impact of migration on political participation. Financial remittances have been shown to reduce reliance on state-provided public goods, diminishing incentives for political engagement in origin communities (Adida and Girod, 2011; Pfutze, 2014). Social remittances, however, have more ambiguous effects. The norms and ideas that migrants transmit can either foster civic engagement or introduce less favorable norms (for a review, see Ivlevs, 2021). Importantly, in both cases, these effects unfold gradually, as migrants need time to assimilate and convey these norms (Batista et al., 2021).

Overall, in both origin and destination communities, migrant characteristics may amplify or mitigate the negative effects of migration on turnout but are unlikely to reverse them, particularly in the short term. In destination communities, transaction costs delay any potential benefits of politically active newcomers, while negative effects on local norms tend to emerge more immediately. In origin communities, social and transaction costs impede the realization of potential benefits from compositional changes, while the disruptive impact of migration on networks and participation norms continues to undermine turnout. Financial and social remittances can also play a role in influencing political participation, but these are only sent by a subset of migrants. Their positive effects are limited to specific contexts and require time to materialize, making them unlikely to offset the broader challenges migration poses to turnout in the short term.⁵ Together, these factors underscore the robustness of the negative relationship between migration and turnout, despite potential variations in migrant characteristics or local conditions.

exacerbating the overall negative impact of migration on voter participation.

⁵This is consistent with Gori Maia and Lu (2021), who provide evidence of political remittance transmission in Brazil and demonstrate that this effect depends on the level of democratic development in origin localities. Despite that, the authors still find the overall impact of migration on turnout rates to be negative.

Appendix C

Robustness Checks and Additional Analyses

Panel Data Analysis

Our two-way fixed effects specifications are based on either migration flow or stock measures as main independent variables. The model is as follows:

$$Y_{it} = \beta_1 M_{it} + \beta_2 \mathbf{X}_{it} + \lambda_t + \gamma_i + \epsilon_{it} \quad (1)$$

Where Y_{it} represents the turnout rate in municipality i at time t , M_{it} denotes the share of in- or out-migrants, turnover, or net migration in municipality i at time t (for the flow measures) or between time $t - 5$ and t (for the stock measures), \mathbf{X}_{it} is a vector of control variables, λ_t represents election year fixed effects, γ_i reflect the municipality fixed effects, accounting for unobservable time-invariant local characteristics, and ϵ_{it} is the error term. Following the literature, all regressions are weighted by population Dix-Carneiro et al. (2018); Egger (2022).

Different Turnout Measures (VEP and RV)

When calculating turnout as a proportion of registered voters, in-migrants who have moved to a new area but not yet registered to vote are typically not included in either the numerator (those who voted) or the denominator (total registered voters). As a result, the effect of in-migration on the turnout rate calculated this way does not reflect the transaction costs involved in moving; only the social costs associated with migration are reflected in this measure. Conversely, the VEP (voting-eligible population) includes all residents eligible to vote, regardless of their registration status. Thus, in-migrants are counted in the VEP upon establishing residency. In sum, voter turnout measured against the VEP is more likely to reflect the comprehensive impact of in-migration, as it accounts for both the transaction

costs (such as registration difficulties) and the social costs associated with moving to a new location.

In contrast, out-migrants who have moved away but have not yet transferred their voter registration are still counted in the total number of registered voters. This inclusion tends to skew turnout calculated against registered voters (RV) downward since these individuals are less likely to vote locally if they no longer reside in the area. This calculation reflects both the transaction costs associated with changing one's voter registration after relocating and the social costs stemming from the loss of local social ties, both of which negatively impact turnout. Unlike the RV count, the VEP (voting-eligible population) only includes actual residents of the locality, excluding out-migrants who have relocated. This results in a smaller, more accurate denominator that only includes those genuinely eligible to vote in that locality. Consequently, voter turnout calculated against the VEP can appear higher in the presence of out-migration, as the denominator does not include those who have relocated. This measure therefore primarily reflects the social costs of out-migration, as it does not account for the reduction in turnout due to transaction costs.

Given our focus on the simultaneous effects of in- and out-migration on voter turnout, no single measure of turnout rate is suitable across all specifications. To accurately capture the local effects of out-migration through both proposed channels, we must calculate turnout as a ratio of the registered voter population (turnout/RV). Conversely, to effectively evaluate the impact of in-migration, we must use turnout as a percentage of the voting-eligible population (turnout/VEP). Thus, to capture the influence of both transaction costs and social costs and to ensure that our results are not dependent on a specific measure of turnout, in Table A8, we adopt the logarithm of total turnout as our dependent variable. Additionally, we include both the size of the registered voter population and the voting-eligible population as control variables, accounting for variations in each measure due to different migration dynamics. The results remain consistent with our previous findings, adding confidence in the robustness and reliability of our analysis across different specifications.

Different Units of Analysis

Although the municipality is the most relevant unit of analysis for examining the influence of mobility on electoral participation, changes in municipal boundaries over time present a concern, potentially skewing the analysis. Between 1991 and 2010, the number of municipalities increased from 4,491 to 5,565 due to boundary changes. To address this issue, we adopt the Instituto de Pesquisa Econômica Aplicada (IPEA) methodology, aggregating municipalities into 4,267 minimum comparable areas (MCAs) with consistent borders throughout our analysis period (Ehrl, 2017). We also estimate the effect of migratory turnover on turnout at the micro-region level – larger geographic units characterized by shared labor markets and economic activities Egger (2022). For these analyses, we only consider migrations that cross these broader boundaries, excluding local moves between nearby towns. Table A9 shows that these longer-distance moves have a more pronounced negative impact on voter turnout, possibly because migrants moving shorter distances can still return to their registered locations to vote, and the disruption to their social networks might be less severe.

Appendix D

Additional Figures and Tables

Figure A1: Average Turnout Across Brazilian Municipalities (2000-2010)

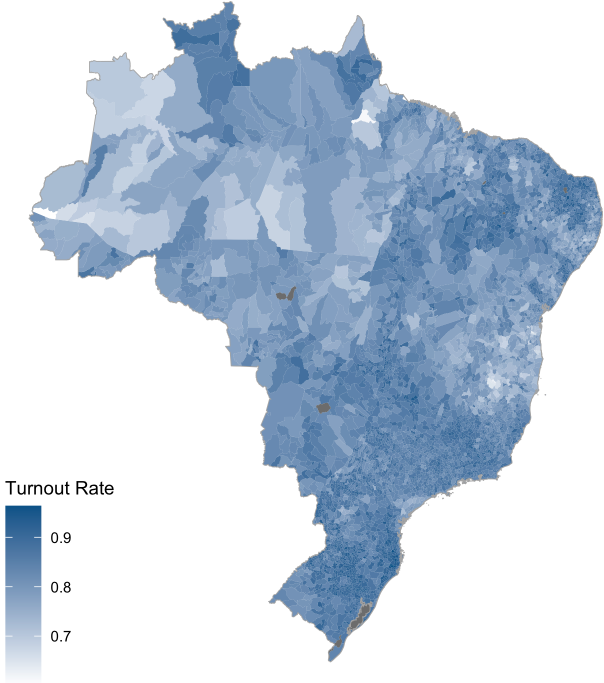


Figure A2: Average Migration Shares in Brazilian Municipalities (Stock Measure, 2000-2010)

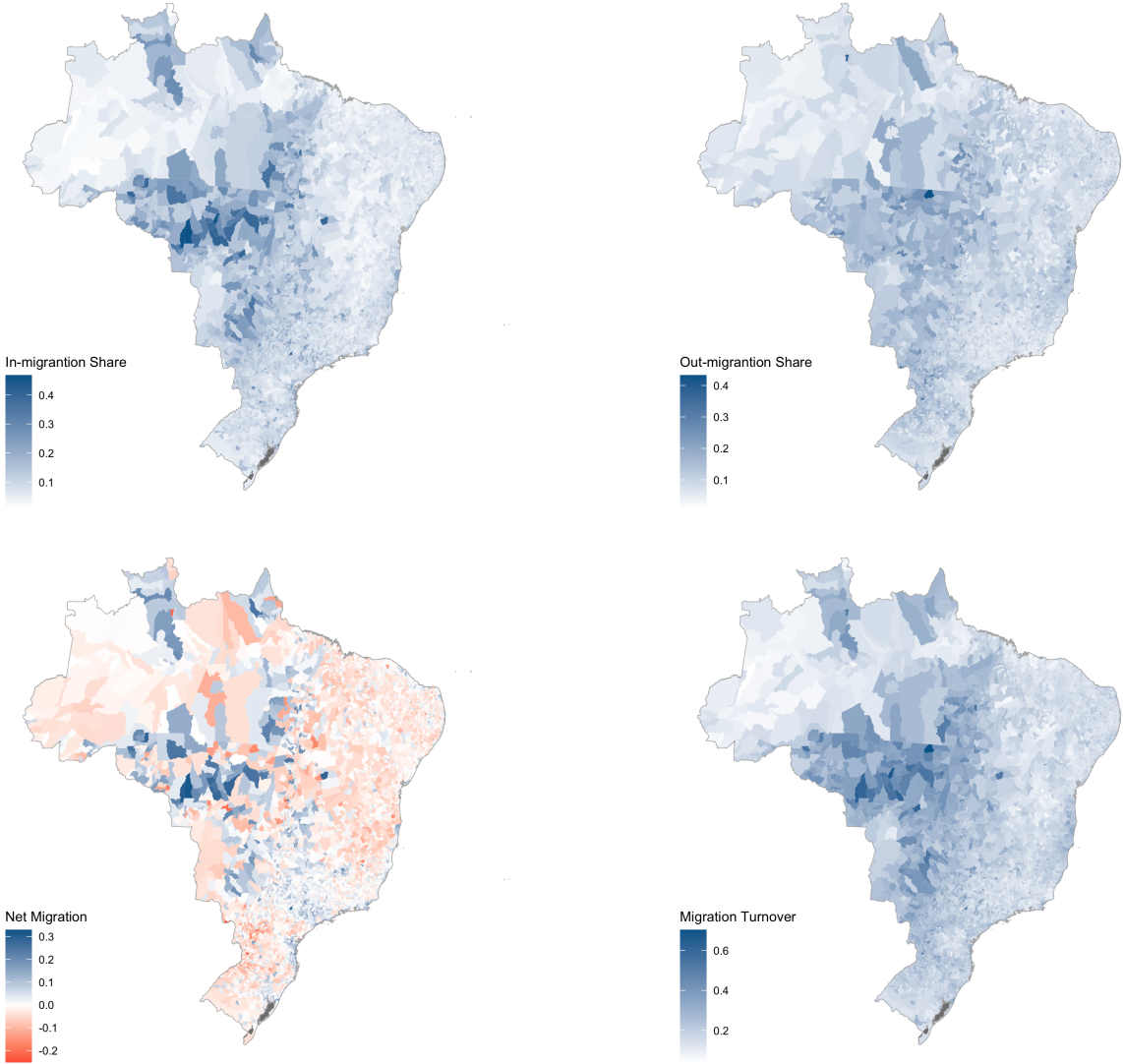


Table A1: **Cross-Sectional Analysis: Average Migration Shares and Turnout in Local Elections (2000-2008)**

	Average Turnout Rate in Local Elections				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-0.743*** (0.195)		-0.685** (0.212)		
In-migration		-0.625*** (0.171)	-0.544** (0.180)		
Migration Turnover				-0.960*** (0.119)	
Net Migration					-0.009 (0.230)
State FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Observations	5,557	5,557	5,557	5,557	5,557
Adjusted R ²	0.497	0.493	0.504	0.503	0.484

Notes: All models are OLS regressions. Robust SE clustered at the state level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A2: Cross-Sectional Analysis: Average Migration Shares and Turnout in National Elections (2002-2010)

	Average Turnout Rate in National Elections				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-1.057*** (0.169)		-0.970*** (0.181)		
In-migration		-0.929*** (0.210)	-0.815*** (0.212)		
Migration Turnover				-1.398*** (0.142)	
Net Migration					-0.043 (0.243)
State FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Observations	5,558	5,558	5,558	5,558	5,558
Adjusted R ²	0.695	0.690	0.704	0.703	0.679

Notes: All models are OLS regressions. Robust SE clustered at the state level are given in parentheses, +p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A3: **Cross-Sectional Analysis: Turnout Rate and Migration Shares (Stock Measure)**

Panel A					
	Turnout Rate 2000, Local Election				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-0.987*** (-0.145)		-1.035*** (-0.180)		
In-migration		-0.786*** (-0.111)	-0.850*** (-0.145)		
Migration Turnover				-1.369*** (-0.234)	
Net Migration					0.105*** (0.005)
State FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Observations	5,502	5,502	5,501	5,501	5,501
Adjusted R ²	0.507	0.501	0.517	0.516	0.493
Panel B					
	Turnout Rate 2010, National Election				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-1.506*** (-0.031)		-1.325*** (-0.020)		
In-migration		-1.154*** (-0.083)	-0.818*** (-0.103)		
Migration Turnover				-1.721*** (-0.095)	
Net Migration					0.077 (-0.074)
State FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Observations	5,549	5,549	5,549	5,549	5,549
Adjusted R ²	0.607	0.591	0.615	0.611	0.574

Notes: All models are OLS regressions. Robust SE clustered at the state level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A4: **Two-Way Fixed Effects Analysis: Turnout Rate and Migration Shares (Stock Measure)**

	Turnout Rate				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-0.416*** (0.143)		-0.616*** (0.144)		
In-migration		-1.450*** (0.191)	-1.559*** (0.192)		
Migration Turnover				-1.641*** (0.198)	
Net Migration					-0.523*** (0.131)
Municipality FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.698	0.706	0.708	0.706	0.699
Observations	10,784	10,784	10,784	10,784	10,784

Notes: All models include municipality and year fixed effects. The migration variables are derived from stock measures taken from the 2000 and 2010 census data. Robust SE clustered at the municipality level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A5: **Two-Way Fixed Effects Analysis: Turnout Rate and Migration Shares, Interaction with Local-Election Indicator**

	Turnout Rate				
	(1)	(2)	(3)	(4)	(5)
Local Elections	3.130*** (0.280)	3.103*** (0.261)	3.113*** (0.265)	3.102*** (0.250)	3.122*** (0.295)
Out-migration	-1.014*** (0.075)		-0.908*** (0.063)		
Out-migration × Local Elections	0.884*** (0.164)		0.784*** (0.164)		
In-migration		-0.653*** (0.121)	-0.454*** (0.122)		
In-migration × Local Elections		0.534** (0.227)	0.384* (0.226)		
Migration Turnover				-1.061*** (0.116)	
Migration Turnover × Local Elections				0.871*** (0.206)	
Net Migration					0.141 (0.096)
Net Migration × Local Elections					-0.036 (0.215)
Municipality FE	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Observations	27,389	27,541	27,374	27,374	27,374
Adjusted R ²	0.735	0.731	0.737	0.736	0.727

*Notes:*All migration variables are interacted with an indicator that equals one for local election years and zero for national election years. Migration shares are based on flow measures for the 2001-2010 period, derived from the 2010 census. The models include only municipality fixed effects, as adding year fixed effects would absorb the local election dummy. Robust standard errors, clustered at the municipality level, are reported in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A6: **Spatial Autoregressive Analysis: Turnout Rate and Migration Shares (Stock Measure)**

	Turnout Rate 2000 Local Election			Turnout Rate 2010 National Election		
	(1)	(2)	(3)	(4)	(5)	(6)
Out-migration	-0.581*** (0.080)			-0.822*** (0.074)		
In-migration	-0.376*** (0.070)			-0.684*** (0.064)		
Migration Turnover		-0.691*** (0.082)			-1.232*** (0.072)	
Net Migration			-0.092 (0.069)			-0.121+ (0.065)
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,425	5,425	5,425	5,549	5,549	5,549

Notes: SAR models with state fixed effects. Models 1-3 utilize variables from the 2000 Census, while models 4-6 use data from the 2010 Census. Migration shares based on stock measures. Variables are standardized.
⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A7: Panel Data Analysis: Turnout Rates (RV and VEP) and Migration Shares (Flow and Stock)

	Migration Flow				Migration Stock			
	Turnout/RV (1)	Turnout/RV (2)	Turnout/VEP (3)	Turnout/VEP (4)	Turnout/RV (5)	Turnout/RV (6)	Turnout/VEP (7)	Turnout/VEP (8)
Out-migration	-0.474*** (0.058)		-0.574*** (0.067)		-0.616*** (0.144)		-0.999*** (0.156)	
In-migration	-0.203** (0.086)		-0.278*** (0.101)		-1.559*** (0.192)		-1.640*** (0.233)	
Migration Turnover		-0.535*** (0.096)		-0.673*** (0.113)		-1.641*** (0.198)		-2.010*** (0.224)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,374	27,374	27,374	27,374	10,784	10,784	10,784	10,784
Adjusted R ²	0.737	0.737	0.915	0.915	0.708	0.707	0.924	0.924

Notes: Two-way fixed effects models are estimated with turnout as the dependent variable, measured both as a proportion of registered voters and as a proportion of the voting-eligible population. Migration shares are calculated using flow measures (columns 5-8) for the 2001-2010 period, and stock measures (columns 1-4) derived from the 2000 and 2010 censuses. Robust SE clustered at the municipality level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A8: **Panel Data Analysis: Turnout and Migration Counts (Flow and Stock)**

	Migration Flow			Migration Stock		
	(1)	(2)	Turnout Rate (3)	(4)	(5)	(6)
Out-migration (log)	-0.005*** (0.001)			-0.006** (0.003)		
In-migration (log)	-0.006*** (0.002)			-0.034*** (0.005)		
Turnover (log)		-0.013*** (0.002)			-0.046*** (0.006)	
Net Migration			-0.001** (0.000)			0.000 (0.001)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,374	27,374	27,374	10,784	10,784	10,784
Adjusted R ²	0.999	0.999	0.999	0.999	0.999	0.999

Notes: Two-way fixed effects models with both migration and turnout variables measured as counts. Migration counts are calculated using flow measures (columns 1-3) for the 2001-2010 period, and stock measures (columns 4-6), derived from the 2000 and 2010 censuses. Robust SE clustered at the municipality level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A9: Panel Data Analysis: Turnout Rate and Migration Shares (Stock Measure), MCA and Micro-region Levels

	MCA		Micro-region			
	(1)	(2)	Turnout Rate		(5)	(6)
			(3)	(4)		
Out-migration	-1.372*** (0.518)			-1.356*** (0.267)		
In-migration	-2.289*** (0.738)			-1.523*** (0.396)		
Migration Turnover		-2.825*** (0.885)			-2.262*** (0.397)	
Net Migration			-0.699** (0.337)			-0.033 (0.287)
Unit FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,492	8,492	8,492	1,114	1,114	1,114
Adjusted R ²	0.295	0.295	0.284	0.820	0.821	0.803

Notes: Two-way fixed effects models at the MCA and Micro-region levels. Migration shares are calculated using stock measures derived from the 2000 and 2010 censuses. All variables are standardized. Robust SE, clustered at the relevant unit level (MCA or micro-region), are provided in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A10: Municipality Fixed Effects: Turnout Rate and Migration Shares (Flow and Stock Measures)

	Migration Flow			Migration Stock		
	(1)	(2)	(3)	(4)	(5)	(6)
			Turnout Rate			
Out-migration	-0.686*** (0.057)			-0.601*** (0.142)		
In-migration	-0.402*** (0.079)			-1.545*** (0.189)		
Turnover Rate		-0.864*** (0.090)			-1.619*** (0.194)	
Net Migration			0.129** (0.051)			-0.525*** (0.133)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,374	27,374	27,374	10,784	10,784	10,784
Adjusted R ²	0.732	0.731	0.727	0.705	0.704	0.696

Notes: Municipality fixed effects models with standardized variables. Migration shares are calculated using flow measures (columns 1-3) for the 2001-2010 period, and stock measures (columns 4-6) are derived from the 2000 and 2010 censuses. Robust SE clustered at the municipality level are given in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A11: Year Fixed Effects: Turnout Rate and Migration Shares (Flow and Stock Measures)

	Migration Flow			Migration Stock		
	(1)	(2)	(3)	(4)	(5)	(6)
			Turnout Rate			
Out-migration	-0.916*** (0.114)			-1.131*** (0.117)		
In-migration	-0.627*** (0.080)			-0.958*** (0.111)		
Turnover Rate		-1.220*** (0.101)			-1.608*** (0.112)	
Net Migration			0.100 (0.095)			0.100 (0.122)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,374	27,374	27,374	10,784	10,784	10,784
Adjusted R ²	0.407	0.406	0.386	0.471	0.470	0.432

Notes: Time fixed effects models with standardized variables. Migration shares are calculated using flow measures (columns 1-3) for the 2001-2010 period, and stock measures (columns 4-6) are derived from the 2000 and 2010 censuses. Robust SE clustered at the municipality level are given in parentheses, +p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A12: **Within-Between Random-Effects Models: Turnout Rate and Migration Shares (Flow Measure)**

	(1)	(2)	Turnout Rate (3)	(4)	(5)
Out-migration (within)	-0.219*** (0.044)		-0.172*** (0.045)		
In-migration (within)		-0.219*** (0.041)	-0.209*** (0.042)		
Migration Turnover (within)				-0.187*** (0.028)	
Net Migration (within)					-0.024 (0.032)
Out-migration (between)	-1.056*** (0.099)		-0.991*** (0.101)		
In-migration (between)		-0.426*** (0.079)	-0.260** (0.080)		
Migration Turnover (between)				-0.561*** (0.054)	
Net Migration (between)					0.195** (0.069)
Additional Covariates	Yes	Yes	Yes	Yes	Yes
Observations	27,336	27,487	27,321	27,321	27,321
RMSE	0.06	0.06	0.06	0.06	0.06

Table A13: Migration Shares and Social Cohesion Across Municipalities

	Social Cohesion				
	(1)	(2)	(3)	(4)	(5)
Out-migration	-0.075*** (0.013)		-0.064*** (0.013)		
In-migration		-0.130*** (0.012)	-0.126*** (0.012)		
Migration Turnover				-0.099*** (0.009)	
Net Migration					-0.043*** (0.009)
State FE	Yes	Yes	Yes	Yes	Yes
Additional covariates	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Observations	5,505	5,505	5,505	5,505	5,505
Adjusted R ²	0.815	0.818	0.819	0.819	0.815

Notes: All models are OLS regressions. Stock measures of migration shares are derived by calculating the mean of each relevant variable from the 2000 and 2010 censuses. Municipal-level demographic and socio-economic covariates include total population, voting-age residents, population over age 16, registered voters, poverty levels, income Gini coefficient, urban population, and the proportion of the population with higher education. Geographic controls encompass municipal area, distance to the capital, distance to the coast, as well as latitude and longitude. Robust standard errors, clustered at the municipality level, are indicated in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

Table A14: Individual Voting Behavior, Migration Status, and Local Turnover

	Voted in Last Election			
	(1)	(2)	(3)	(4)
Non-Migrant Status	0.086*** (0.027)		0.086*** (0.027)	0.086*** (0.027)
Municipal Turnover Share (Stock Measure)		-0.224*** (0.072)	-0.185*** (0.070)	-0.195** (0.075)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual-level covariates	Yes	No	Yes	Yes
Municipal-level covariates	No	Yes	Yes	Yes
Geographic characteristics	No	No	No	Yes
Adjusted R ²	0.162	0.016	0.165	0.165
Observations	11,046	11,189	11,046	11,046

Notes: All models are OLS regressions with state and year fixed effects. Stock measures of migration shares are calculated as averages across municipalities between the 2000 and 2010 censuses. Individual-level characteristics, such as stated turnout and migration status, are sourced from LAPOP data spanning 2006 to 2019. Non-migrant status equals 1 when respondents say they lived in the same municipality 5 years ago and 0 otherwise. Other individual covariates are age, gender, race, education level, and a dummy for missing migration status (if not recorded). Municipal-level demographic and socio-economic covariates include total population, voting-age residents, population over age 16, registered voters, poverty levels, income Gini coefficient, urban population, and the proportion of the population with higher education. Geographic controls encompass municipal area, distance to the capital, distance to the coast, as well as latitude and longitude. Robust standard errors, clustered at the municipality level, are indicated in parentheses, ⁺p<0.1; *p<0.05; **p<0.01; ***p<0.001.

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