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The footprint of segregation:

The influence of migrant distribution on Italian electoral
geography

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STATEMENT OF ORIGINALITY

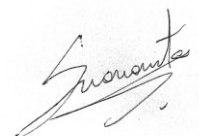
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Student's signature

A handwritten signature in black ink, appearing to read 'Giovanni', is written over a faint, circular official stamp.

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The present thesis is the result of a complex process, which, despite its notoriously quantitative approach, could not be more human. I owe thanks to many people, some of whom I will not name explicitly, but I trust they know how deeply grateful I am.

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1. ABSTRACT

The link between migration and the perception of the local population has been a focus of attention in academia in recent years, as it has real implications, such as electoral behavior and its consequent results, for example, in the increase of votes received by the radical right in Europe. In this research, we delve into this relationship by proposing a mediating factor of interaction: migrant residential segregation, given its potential to affect the probability of contact between groups. Using a place-based, spatial, and relational approach, this interdisciplinary study examined two dimensions of segregation: isolation and dissimilarity, as well as their spatial aggregation, to analyze how they interact with the electoral results obtained by the radical right in Italy's last national election, held in 2022. The results expose that both dimensions of segregation are relevant, but that they act in opposite directions being isolation the most relevant to understand the variability on the electoral results of the radical right parties in Italy for the analyzed elections, so it is recommended to consider segregation as a relevant phenomenon in political analysis in all its complexity. It is further revealed that these variables and their interactions exhibit high spatial autocorrelation, a methodological challenge in understanding the nature of spatial phenomena using traditional statistical techniques, and underscore the need to incorporate spatial analysis into interdisciplinary fields such as electoral geography.

Keywords: Migrant segregation, Electoral geography, Far-right parties, Spatial inequality, Place-based analysis

2. EXTENDED SUMMARY

Una caratteristica che potrebbe definire lo scenario europeo contemporaneo è la crescente politicizzazione del tema della migrazione e l'ascesa di partiti apertamente anti-immigrazione, due fenomeni che testimoniano una crescente polarizzazione sociale. Data la loro rilevanza, questi due processi hanno stimolato l'interesse per lo studio dei legami tra migrazione e atteggiamenti politici, dove i risultati elettorali rappresentano uno dei principali indicatori delle preferenze dei residenti locali. Tuttavia, mentre la maggior parte degli studiosi ha affrontato questo legame da prospettive spaziali, l'impatto della distribuzione spaziale, in particolare la segregazione residenziale dei migranti, sui risultati elettorali è stato largamente ignorato. A questo proposito, questa tesi cerca di colmare questa lacuna indagando il legame tra la segregazione residenziale dei migranti e il sostegno ai partiti di destra radicale in Italia durante le passate elezioni nazionali del 2022, adottando un approccio quantitativo spaziale, multiscalare e interdisciplinare. Concretamente, lo studio esplora questa relazione a livello comunale, combinando i dati del censimento del 2021 sugli stranieri residenti con i risultati delle elezioni nazionali del 2022. Utilizza indici di segregazione classici, dissimilarità e isolamento, nonché misure di autocorrelazione spaziale come l'indice I di Moran e l'analisi dei cluster utilizzando l'indice I di Moran locale (LISA). Confrontando queste dimensioni tra i comuni italiani, la tesi analizza se e come diverse manifestazioni di segregazione residenziale dei migranti siano correlate ai risultati elettorali di partiti di destra radicale (Fratelli d'Italia, Lega e Italexit per l'Italia). Inoltre, analizza le differenze esistenti tra le diverse macrozone del paese per valutare l'esistenza di una struttura spaziale rilevante.

I risultati dimostrano che la segregazione residenziale dei migranti ha una relazione statisticamente significativa con le percentuali di voto di destra radicale, ma che questa relazione è specifica del contesto e altamente variabile spazialmente. L'indice di isolamento, che cattura la probabilità di contatto tra migranti e nativi come misura di esposizione, è positivamente associato al sostegno per partiti di destra radicale misurato dalla percentuale di voti ricevuti. Al contrario, l'indice di dissimilarità presenta una correlazione negativa e talvolta più debole, rivelando che diverse dimensioni della segregazione mediano il comportamento politico in modi diversi. Un contributo metodologico rilevante della tesi risiede nell'utilizzo della Regressione Geograficamente Pesata (GWR) per catturare l'interdipendenza delle variabili spaziali, nonché per controllarne l'autocorrelazione spaziale. L'utilizzo di questa tecnica ci permette di identificare che l'impatto della segregazione non è uniforme in tutta Italia; esistono invece cluster in cui la relazione è più forte o più debole a seconda di fattori locali,

così come aree in cui la segregazione residenziale dei migranti è importante per spiegare la variabilità dei risultati elettorali di interesse.

L'analisi identifica anche ulteriori variabili di mediazione, come la dimensione della popolazione, la densità, il reddito medio e la capienza dei centri di accoglienza per migranti, che influenzano sia la direzione che l'intensità della relazione tra le variabili di interesse. Particolarmente rilevante è il ruolo del numero di abitanti delle municipalità, che sembra condizionare il modo in cui la segregazione interagisce con i risultati elettorali.

Tuttavia, la tesi contribuisce anche a un più ampio dibattito teorico sulla segregazione come espressione spaziale di disuguaglianze strutturali. Sebbene l'approccio adottato sia stata di tipo quantitativo, la ricerca critica la tendenza negli studi sulle migrazioni a trattare i migranti come categorie passive e omogenee e suggerisce lo sviluppo di studi che incorporino prospettive intersezionali e che tengano in considerazione la *agency* dei migranti. Alcune raccomandazioni per la ricerca futura includono la disaggregazione dei gruppi di migranti per origine, status giuridico o religione, adottando così un approccio intersezionale; l'integrazione di genere ed età come variabili analitiche; e la combinazione di analisi spaziali con metodi qualitativi o misti.

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4. PREFACE

The present thesis emerges from a convergence of personal experience, intellectual curiosity, and academic conviction. At its core lies a deceptively simple question: To what extent does the spatial distribution of migrant populations influence political results? Yet beneath this inquiry lies a complex and urgent concern: how space, migration, and politics intertwine in shaping contemporary European societies.

In this regard, the present research explores the relationship between migrant residential segregation and the electoral results of radical right parties in Italy. It departs from a growing body of literature that acknowledges the role of migration in shaping political attitudes, but it goes further by addressing a largely underexplored dimension: the spatial structure of this relationship, thus, the consideration of the geographical space. Through a multidimensional and multiscale approach to residential segregation, this thesis aims to demonstrate that the spatial arrangement of migrants is not a passive outcome of settlement patterns, but a key factor that mediates contact, visibility, and ultimately, political reactions expressed in the votes that political parties with a strong antimigration speech got in the Italian national elections of 2022. In doing so, it hopes to contribute to a deeper and more nuanced understanding of the electoral geography and to achieve a proper local turn in migration studies.

However, beyond its academic ambitions, this topic carries a deep personal component. As a geographer and a migrant myself, I have experienced first-hand the ways in which inequalities, such as segregation, are expressed in the space, for instance, perpetuating social hierarchies, access to rights, and the perception of belonging.

Living and studying in different European contexts has exposed me to both the subtle and the evident ways in which migrants are rendered visible or invisible, integrated or excluded, not just through policy or discourse, but through geography itself. These personal experiences provided not only the initial motivation for developing this project, but also a persistent motivation to investigate how these spatial dynamics operate at a systemic level.

This thesis is therefore the product of an interdisciplinary journey, combining political geography, migration studies, demography, and spatial analysis. It is motivated by the conviction that geographical space is not a neutral backdrop to human affairs, but an active agent in the production of social reality. Segregation, in this light, is not just about where people live; it is about how the spatial organization of society reflects, reinforces, or resists broader structures of inequality and power.

In a time when political polarization is rising and migration continues to be framed as a threat, this thesis attempts to understand the spatial underpinnings of this tension in the context of the constant politicization of migration that Europe is facing. Thus, this research is a step in that directional contribution not only to the academic field, but also to a broader conversation about how we coexist, how we vote, and how space shapes both.

5. INTRODUCTION

In recent years, Europe has witnessed a growing political polarization around the topic of migration, marked by the increasing electoral support of radical right parties across several countries (Lažetić, 2019; Pettrachin, 2024a; Rydgren & Tyrberg, 2020; Salomo et al., 2023; van Wijk et al., 2020). Migration, nowadays often positioned at the center of public debate due to its politicization, not only reshapes the demographic composition of societies but also influences political attitudes, particularly when it comes to perceptions of diversity, security, and social change (Gay, 2006; Halla et al., 2017; Schlueter & Scheepers, 2010; van Wijk et al., 2020). Among the different factors mediating the relationship between migration and electoral results, spatial segregation (the way migrants are distributed across territories) has emerged as a key but underexplored phenomenon, with most of the literature ignoring how this spatial process could influence the degree of exposure of one group to the other (Degner et al., 2016; Relinque-Medina et al., 2021; van der Waal et al., 2013). Therefore, there is a gap regarding both the analysis of the spatial expression of the phenomena and the comprehension of how they could be related.

Understanding these relationships is essential, especially as migration-related issues continue to challenge both national and local governance frameworks (Zapata-Barrero et al., 2017), but also because ignoring it is to avoid the spatial relationships between migrant presence and radical right electoral results, a way to does not take into consideration the very nature of geographical space. Migration-related issues may also constitute a challenge for social cohesion and urban resilience, as stated by some authors (Meerow et al., 2019; Moustakas, 2023; Ribeiro & Pena Jardim Gonçalves, 2019), thus, being intrinsically an issue for local development. In this sense, this thesis investigates the influence of migrant residential segregation on voting patterns in Italy, with a specific focus on support for radical right parties in the 2022 general elections. The focus is multiscale: starting from the analysis of the municipality-level migrant residential segregation patterns to capture local dynamics, the study also aims to compare Italian macrozones and to achieve a national understanding of the phenomena of interest.

A growing body of academic literature has explored the impact of migration on political behavior, often framing the interaction between migrant and non-migrant populations through threat and contact theories (Allport, 1954; Katz, 1991; Kaufmann & Goodwin, 2018; Kaufmann & Harris, 2015; Putnam, 2007). While threat theories argue that the presence of migrants may be perceived as a competition for resources or cultural identity, contact theories suggest that proximity and interaction can foster empathy and reduce prejudice, leading to a positive perception. Recent contributions have emphasized that these dynamics are not merely interpersonal, but deeply spatial: shaped by where people live, the degree of exposure they have to others, or the broader social geography of their communities among other dimensions (Kaufmann & Goodwin, 2018; Pettrachin et al., 2023; Roberto & Korver-Glenn, 2021; Salomo et al., 2023; van der Waal et al., 2013). Within this framework, residential segregation plays a fundamental role in structuring opportunities for interaction or avoidance between social groups. However, much of the empirical work in this area remains limited in three important ways: first, it often adopts unidimensional measures of segregation that deny its intrinsic complexity (Massey, 2012), second, it usually focuses on urban or metropolitan areas, and lastly, it overlooks the significance of local context, despite the theoretical rise of the “local turn” in migration studies (Ahouga, 2018; Muhammad, 2023; Zapata-Barrero et al., 2017).

Consequently, this thesis aims to fill these gaps by offering a multidimensional, place-based analysis of how migrant residential segregation relates to electoral support for far-right parties in Italy. First, it adopts a threefold measurement of segregation (dissimilarity, isolation, and spatial autocorrelation using the Moran’s I index) to capture the phenomenon in its complexity. Second, the study extends beyond urban areas to include all Italian municipalities, thus avoiding the typical urban bias and embracing the relational nature of space and politics. Third, by focusing on Italy’s 2022 national elections, it provides a timely reflection on how territorial dynamics influence political polarization in a country that has become both a symbolic and real border of European migration.

Italy presents an exemplary case in this regard. It is a country of increasing migrant inflows since the 2000s and a central stage of the so-called “refugee crisis” of 2015–2016 (Castelli Gattinara, 2017; World Bank, n.d.), an element that has been parallel to how the country has experienced significant shifts in its electoral landscape. Radical right parties such as *Fratelli d’Italia* and *Lega* have adopted strong anti-immigration discourses, appealing to anxieties and fears about migration, particularly in areas where migrants are more visible or perceived as more concentrated (Pettrachin, 2024b). Despite this political relevance, the literature on migrant residential segregation in Italy is still relatively limited and often fails to account for the spatial

patterns of migrant presence across the country's diverse territorial configurations. Moreover, most studies apply U.S.-centric segregation models without adapting them to the geographic and administrative specificities of the Italian context, such as the dynamic boundaries of municipalities and census units (Benassi et al., 2019, 2020; Strozza et al., 2016).

This research addresses the following central question:

To what extent does migrant residential segregation influence the electoral support for radical right parties in Italy's 2022 national elections?

To answer this question, the thesis sets out three core objectives:

- To describe the spatial patterns of migrant residential segregation at the municipal level using multidimensional indicators (isolation, dissimilarity, Moran's I).
- To describe the spatial patterns of votes received by radical right parties in 2022 at a municipal level.
- To understand the relationship between migrant residential segregation and electoral results, incorporating control variables such as population size, density, income, and the presence of asylum seekers.

The present research employs a quantitative and spatially explicit methodology, rooted in a postpositivist paradigm. While using data from both the 2021 Italian census and 2022 electoral results of national elections, it operationalizes segregation through indices that reflect exposure and evenness (Massey & Denton, 1988), as well as spatial clustering of those dimensions. The interaction of these variables is analyzed through the application of a Geographically Weighted Regression (GWR), a technique that accounts for spatial autocorrelation and allows for the detection of local variations in the relationship between segregation and political behavior. The analytical framework is guided by contact and threat theories, as well as more recent contributions that highlight the importance of scale, population size, or density in mediating these effects.

In this regard, a central aspect that runs through this research is residential segregation as a spatial expression of social inequalities. Far from being a neutral phenomenon, segregation represents a concrete manifestation of the dynamics of power, exclusion, and social reproduction within the territory (Kliot & Mansfeld, 1999; Harvey, 1996). Its study allows us not only to observe where migrants live, but also to understand the conditions of their visibility, their potential interaction with the local population, and how these territorial patterns affect social perceptions and the configuration of political attitudes. As Massey & Denton (1988) point

out, segregation should not be approached from only one dimension, but as a complex and multidimensional phenomenon that affects various spheres of social life. In this sense, this thesis not only proposes a rigorous measurement of segregation but also a reflection on its structuring role in the production of space and the formation of exclusionary political discourses.

The findings demonstrate that segregation matters, but not uniformly. The isolation index, which measures the likelihood of migrants interacting only with themselves, shows a positive correlation with support for radical right parties, aligning with contact theory expectations. On the other hand, the dissimilarity index, which captures how evenly migrants are distributed, reveals a negative correlation, suggesting that unevenness may, in some contexts, buffer political backlash, therefore confirming the need to include more than a unique dimension of segregation when studying this process. A relevant aspect regarding this analysis is that both indices, as well as the dependent variable, exhibit strong spatial autocorrelation, indicating that traditional regression models may misrepresent these relationships if spatial effects are omitted.

Additionally, the inclusion of population density and municipality size as moderating variables, among others, confirms that place matters: migrant residential segregation operates differently in large urban centers, small towns, and rural municipalities, reaffirming the value of a local, place-based perspective. Generally, this effect is also negatively different depending on the income level of the municipality, as well as showing a relevant mediator positive effect of the capacity of migrant reception centers, if present in the territory. However, the most relevant finding is the existence of structural geographical differences that must be addressed when analyzing both Italian electoral geography and migrant residential segregation.

The thesis is structured in six main chapters that progressively address the relationship between segregation, migration, and electoral results. The first chapter focuses on reviewing relevant literature on these topics and presents the theoretical framework that guides the study. Chapter two explains the methodology employed, including the definition of variables, the data sources used, and the statistical techniques applied, as well as their limitations. The third one focuses on the case study of Italy, describing its administrative structure, the main migration trends, and the recent electoral context. The fourth one then offers a descriptive analysis of the levels of segregation of the migrant population and the electoral results of the radical right parties. Chapter five deepens the analysis through regression models, examining the interaction between key variables. Finally, the last two chapters summarize the main findings, discuss the limitations of the study, and propose guidelines for future research.

6. THEORETICAL FRAME & LITERATURE REVIEW

This section provides a theoretical background to understand the main variables of this study: segregation and its relationship with the electoral results of the radical right-oriented parties. It starts by defining segregation and its effects, stating that mainstream scholarship focuses on this variable mainly from the United States of America (US). After that, the link between segregation and electoral results is theorized by explaining the relevance of the local turn in migration studies, how migration affects electoral results, and how segregation may mediate this interaction. Finally, some gaps found in the literature and possible contributions of the present research are outlined in the last part of this section.

6.1. Defining Segregation

To define segregation is a double task. First, it is necessary to define it as a process itself, an already complex issue. Second, to define segregation means also to define the elements that are being segregated. Therefore, it's possible to understand this concept both as a phenomenon and as a condition. Despite these complexities, the following section tries to give a brief definition of this concept to guide the discussion of the interaction between migrant residential segregation and electoral results.

Following the classical approach proposed by James & Taeuber (1985) is it possible to understand segregation as the differences in the distribution of social groups among units of social organization. Thus, segregation is a spatial phenomenon that refers to the uneven distribution of elements within the space in comparison with other elements. James & Taeuber (1985) also mention that segregation was initially operationalized in a similar way to economic inequality, intrinsically having the idea of baseline (uniform distribution as zero segregation) as a point of comparison, similar to the total uniform distribution underlying measures such as the Gini index.

Due to the relational nature of this phenomenon, Massey & Denton (1988) proposed five key dimensions of spatial variation to understand segregation: centralization, concentration, clustering, exposure, and unevenness. Centralization represents the degree to which members of a minority group tend to settle in the social or geographic center of a metropolitan area. Concentration refers to the relative amount of physical space a minority group occupies within the city. Clustering indicates the extent to which neighborhoods with a high minority presence are contiguous in space. Exposure measures the level of potential contact between members of

minority and majority groups within given neighborhoods. Finally, unevenness reflects the extent to which the percentage of minority group members in specific neighborhoods differs from their percentage in the entire urban area. Although this was an important step in understanding segregation, the main contribution of the authors was to propose that research should stop trying to find the best measure but rather measure the different dimensions and related factors at the same time to catch the intrinsic complexity of this process (Massey, 2012).

To these theorizations, Klot & Mansfeld (1999) adds the aspect of the social construction of separation. For them, segregation is not a social fact but the result of a process of production of separation led by hierarchies of power or wealth; thus, the perpetuation of the hierarchies will mean the consequent perpetuation of segregation. For those authors, segregation is always an expression of an extreme partition/division led by social, economic, and political processes, and interpretations that are coherent with the concept of the social production of space developed by Lefebvre (1974). Furthermore, authors such as Allegra et al. (2012) indicates that segregation is an inherent quality of urban life, mainly driven by political factors that lead to spatial polarization. Concretely, the configuration of political power and urban governance is the main factor that could lead to polarized cities, a proposal that could be extended to geographical space in general. Therefore, it is impossible to understand segregation as a neutral process; rather is necessary to accept its intrinsic political causes and nature.

This idea, of segregation as a product of power dynamics, has been a relevant topic within the literature dealing with this phenomenon. According Dadashpoor & Keshavarzi (2024), there are mainly two traditions of defining segregation: spatial definitions and structural dimension ones, in which we can find research that is more or less concerned about the power dimension. In the last category, it is possible to classify the contribution made by Marcuse (1997) who suggested the cause of migration at an individual scale, establishing how voluntary segregation is a relevant variable to be considered when analyzing segregation. For him, there are mainly four main categories of segregation: ghetto, slums, enclave, and citadel, from which the first one is where the degree of voluntariness is the lowest, while in the citadel, there is a voluntary choice to be segregated. This idea can be linked with the discussion brought by Sykes (2025) while analyzing the power dynamics behind urban green spaces, which are often seen as neutral or inherently inclusive. However, as indicated by the author, even in the exercise of planning the city and its spaces, there is a quota of power that defines the distance between attributes and the location of others.

However, segregation goes beyond an uneven distribution of people, and as indicated, it can also refer to a condition. The label of segregation, of being segregated, has real consequences

in the definition of the reality of individuals and the classical study of Hodgkins & Stakenas (1969). Those authors argue that segregation does not necessarily generate a negative self-image, in this case, black youth, since their self-concept is constructed based on their reference groups, such as family and community. However, when they must compare themselves to the standards of the white majority, they may internalize negative stereotypes. Thus, being segregated can mean both identity protection and a source of social disadvantage, having different meanings depending on the comparison group. This idea has been a constant in the literature regarding segregation, as a double-edged effect that may produce both resistance and assimilation, reinforcing group identities or promoting preference for the majority (Degner et al., 2016; Zannoni, 2015).

Regardless of the source of division, focusing on the element to be analyzed, there are different types of segregation: a type of work can be considered segregated if only one group is part of it, and a space can be considered segregated if it is used by a majority group, among other types of segregation. As indicated by Wong & Shaw (2011) the study of segregation has focused especially on racial-ethnic segregation following the US American tradition of sociology, although studies that deal with population, gender, occupation, or income have also been part of the traditional academia regarding the topic.

As pointed out by Linares (2001) It is important to understand segregation not as an issue *per se*, but rather as a function of the focus on which the process is analyzed. The consequences of segregation may be beneficial or negative in different contexts, depending on which social group we are analyzing. This topic will be covered in the following sections, but it is relevant to point out that, against the mainstream approach, several authors highlight the positive effects of this phenomenon (Boileau et al., 2022; Linares, 2013; Montero et al., 2021).

Despite the diversity of approaches to segregation, the scope of this research will be on the residential segregation of migrants, therefore, the focus will be on where the migrants usually live to detect if they are segregated or not.

6.2. The effects of segregation

As pointed out before, how the effects of segregation are understood depends on the focus with which the researchers analyze the implications of the phenomenon. As mentioned, while pointing out the condition of being segregated, the effects of segregation can be understood in

more than one way; thus, there are mainly two currents: those that highlight the negative consequences of segregation, and those that argue the benefits of segregation.

The research about the negative effects of segregation has a long tradition, especially within the American sociological tradition. Here, segregation is understood as a disadvantage that overall reduces the well-being of segregated individuals (Okulicz-Kozaryn, 2019). In this regard, authors such as Linares (2013) propose that, although the definition of segregation as a process should avoid an *a priori* categorization, in big cities, the negative effects are those that prevail. Specifically, the author mentions that the main negative externality of this process is the reduction of the probability of interaction between social groups: spatial isolation and distancing between groups can promote social disintegration, which is considered detrimental, especially for poor groups, who have less chance of social mobility.

The idea of differentiated negative effects conditioned by income is treated by Bergman et al. (2019), authors who highlight how residential segregation in poor neighborhoods may affect children's outcomes even in adulthood, shaping the course of life of individuals and affecting subsequent decisions. The negative effects of segregation are also a frequent topic in the study of this phenomenon and its relationship with education (Asendorpf & Motti-Stefanidi, 2017; Boileau et al., 2022; Degner et al., 2016). For instance, Reardon (2016), focusing on his analysis of racial segregation, defines the process as inherently unequal when it comes to education, affecting students' outcomes, especially when crossing this variable with the economic status of the educational institutions.

An important contribution in this regard is the one made by a process Quillian (2017) while reflecting on the nature of the process, this author indicates that the negative effects of segregation occur due to its capacity to increase the level of contextual advantage of certain segregated groups and the level of contextual disadvantage of others. Therefore, by its definition, segregation implies the existence of an advantaged and disadvantaged group, creating structural inequalities. These inequalities can go from affecting specific aspects of individuals' lives, as shown, to some serious consequences, such as increasing mortality rates in the segregated group (Collins et al., 1999).

Despite the vast literature highlighting the negative effects of segregation, some authors challenge this view. For example, Linares (2013) mentions that segregation can be positive for preserving the cultural practices of ethnic minorities and increasing the cultural diversity of cities, an idea coherent with the approach proposed by Boileau et al. (2022) to understand segregation as a "mixed bag" because, although they recognize the negative effects of

segregation, in the end, it could lead to an increase in the contact between segregated individuals (in the study, migrants), having a positive impact on migrant's acculturation.

In the economic domain, Fesselmeyer & Seah (2017) found a positive effect of segregation regarding entrepreneurship of racially segregated groups because it can lead to the creation of racially protected markets within the enclaves, supplying goods for customers marginalized from the mainstream market. Furthermore, the researchers argued that segregation reduces the racial gap in entrepreneurship; for example, black Americans living in segregated cities are most likely to be self-employed.

Another interesting finding is that segregation may have a positive impact on the psychological dimension of individuals (Montero et al., 2021; Okulicz-Kozaryn, 2019; Stafford et al., 2010). For instance, living in a neighborhood with people who are similar to the individual may reduce stress, frustration, psychosis, or mental disorders, and increase the perception of support, social cohesion, or self-esteem, finally leading to higher happiness. Specifically, Okulicz-Kozaryn (2019) argues that it is not segregation itself that causes the so-called negative impact, but rather the poverty concentration or the proportion of female-headed families.

Overall, the work made by Peach (1996) may be considered a key contribution to understanding the nature of segregation's impact. While criticizing the perspective of a continuum between lower and higher segregation, an approach fostered by that understanding of segregation only in terms of measures such as the dissimilarity index, the author expressed the need for understanding the effects of migration, considering the reason that leads to it: the interplay between the negative force, that prevents dispersion, and the positive one, that fosters solidarity.

Specifically, among the positive effects, Peach (1996) emphasizes that segregation can strengthen community cohesion, facilitate the maintenance of cultural values, social and religious networks, protect against external hostilities, and enable the sustainability of home-grown institutions in urban contexts. In contrast, negative effects arise when segregation is the result of institutional or social discrimination, reproducing structural disadvantages, linguistic and cultural isolation, urban decay, and stigmatization. The author criticizes the linear view that all ethnic groups follow a trajectory of progressive integration and warns that not every ethnic concentration should be understood as an exclusion indicator. He therefore calls for a careful distinction between defensive or culturally chosen segregation and segregation that imposes barriers to equality and social participation

As shown, the discussion of the nature of segregation and the goodness of its effect is far from being over. However, it is possible to argue that its consequences are context-specific and that

before any *a priori* categorization of the phenomenon, it is important to analyze it considering how other variables are manifested in the specific case of analysis. As a summary, the following table shows the different effects of segregation found (Table 1).

Negative Effects	Positive Effects
Reduction in the well-being of segregated individuals (Okulicz-Kozaryn, 2019)	Preservation of cultural practices of ethnic minorities (Linares, 2013)
Spatial isolation and distancing between social groups (Linares, 2013)	Increase in cultural diversity in cities (Linares, 2013; Peach, 1996)
Social disintegration, especially for poor groups (Linares, 2013; Bergman et al., 2019)	Increased contact among segregated individuals, improving acculturation (Boileau et al., 2022)
Negative impact on children's outcomes in poor neighborhoods (Bergman et al., 2019)	Creation of racially protected markets, fostering entrepreneurship (Fesselmeyer & Seah, 2017)
Inequality in education might affect student outcomes (Reardon, 2016)	Reduction of the racial gap in entrepreneurship (Fesselmeyer & Seah, 2017)
Increased mortality rates in segregated groups (Collins et al., 1999)	Reduction in stress and increase in social cohesion and self-esteem (Montero et al., 2021; Okulicz-Kozaryn, 2019; Stafford et al., 2010)
Imposed segregation reinforces exclusion, poverty, and discrimination (Peach, 1996)	Voluntary segregation can strengthen identity, cultural preservation, and community cohesion (Peach, 1996)

Table 1: Effects of segregation. Source: compiled by the author (2025)

6.3. Local turn in migration studies

A key concept to understanding the relationship between spatial phenomena, such as segregation and migration studies, comes from the local turn. This concept has been adopted in migration studies since the early 2000s (van Breugel, 2020) to focus on a new scale, the local one. Although relevant, it refers to an evident need to include the local level in social sciences analysis, considering that local political agency was being ignored (Richmond, 2024). In this regard, the local turn is a paradigmatic change that is coherent with the reconfiguration of the

spatial relationships and their scales that neoliberalism has produced, in which the rescaling of the governance of the territories is one of its main side effects (Glick Schiller & Çağlar, 2009).

Despite its apparent novelty, the concept can be traced back to the rise of radical geographies during the 1970s – 1980s, in which the idea of the production of space, distance, and the intrinsic political nature of the geographical space and its processes started to be discussed as a response to the dominant positivist approach during the so-called quantitative revolution (Claval, 2007; Unwin, 1993).

From a theoretical perspective, the local turn implies a reflection on the hegemony of the focus on the national level and the liberal approach. As mentioned by Richmond (2024) it questioned the authority of elites regarding processes that had a local impact while reflecting on theoretical frameworks such as postcolonialism, poststructuralism, or critical theory, allowing us to highlight the importance of critical agency and resistance in transforming the political order.

In migration studies, this approach recognizes that the local scale is not only an implementation sphere, but a level at which migration policy can be developed independently (van Breugel, 2020), thus accepting its complexity. Moreover, Zapata-Barrero et al. (2017) understand this concept linked to multilevel governance. They propose two dimensions in which the local turn should be considered while analyzing migration and its multilevel governance (MLG): horizontal and vertical. The first refers to interactions/arrangements between public and non-public actors in the governance of migration, whereas the second refers to interactions between different levels of government (e.g., local and national) in migration-related policymaking. In this sense, the local turn is a claim to involve local actors in the configuration of the political order (Richmond, 2024).

The reasons why it is crucial to consider the local level in analyses related to migration are mainly two, as explained by Muhammad (2023). In the first place, migration dynamics and migrants' experiences unfold in specific places such as cities and towns, not only at the national level. In the second one, analyzing migration solely from the perspective of the nation-state, without considering local differences, is a form of methodological nationalism that is ineffective in explaining variation in practices and policies, even hiding some dynamics that occur at a local level and which eventually could impact the national one. Thus, the main advantage of adopting these theoretical lenses is that considering scales outside the rigid boundaries designed by the concept of the nation-state allows us to understand phenomena that, by their nature, escape this conception.

Despite its utility in analyzing place-based effects of migration, most of the research in this field has been biased towards the urban space, often used as a synonym for the city scale (Glick Schiller & Çağlar, 2009; Muhammad, 2023; van Breugel, 2020; Zapata-Barrero et al., 2017). In this sense, the idea of “cities of migration” is a dominant one that usually implies only the metropolitan or the so-called gateway cities, while the rest of the space is usually ignored, an issue that goes against the original critical possibilities that the approach offers (Richmond, 2024) and that perpetuates a Cartesian vision of the geographical space, thus, a purely rational one (Ortega, 2000).

Some of the critiques go even further. For instance, Bernt (2019) mentions two major issues about the scope of the local turn. First, the gap between the political agenda, its implementation, and the outcomes is even greater when dealing with local diversity policies, which often treat migrant communities already living in the cities (integration policies), and, due to the pragmatism of those policies, increase the variety among cities when dealing with the same phenomenon (Schiller, 2015). According to the author, this scope is often accompanied by a lack of research regarding the second dimension of the local turn in migration studies. The second critique made by Bernt (2019) concerns the dependence of cities on other levels of political organization, acting within national or even international frameworks. Moreover, cities are not fully autonomous agents of decision-making, especially considering migration-related challenges, so any research adopting the local turn approach should be aware of this limitation.

However, the local turn in migration represents an opportunity to study electoral results from another perspective, which is the concern of the present research. If the local dynamics matter, as proposed by this framework, factors such as the presence of migrants at a local level could shape the electoral results not only at a local level but, assuming the interactions between levels, even the regional or national one (Rydgren & Tyrberg, 2020).

Therefore, despite some criticism, the local turn is fundamental in migration studies because it allows us to understand migration from a perspective that is closer to the daily experiences of migrants and specific territorial dynamics. As mentioned, traditionally migration studies have been dominated by national or global approaches, focusing on national policies, international agreements, macroeconomic trends, and the prevalence of the so-called methodological nationalism that could lead to misleading interpretations. However, the local turn highlights the role of cities, municipalities, and communities in the management and experience of migration, being a scale closer to the experiences of interaction between groups.

6.4. Migration and Electoral Results

Regarding the relationship between residential segregation and the willingness to vote for anti-immigrant political parties, it is necessary to go back to those theories that analyze the presence of migrants in the territory and how this permeates actions such as the political attitude of the non-immigrant population. In this sense, since segregation is a spatial phenomenon (Sabatini et al., 2001) that refers to aspects such as the distribution and distance of elements, in this case, immigrants, it is necessary to understand the main theories concerning the interactions between this element *per se* and the political/electoral results of the non-immigrant population before dealing with their spatial behavior itself.

Along these lines, the tradition of studies on the interaction of these phenomena is marked by two main currents: threat theories (Gay, 2006; Hopkins, 2010; Kaufmann & Goodwin, 2018; Putnam, 2007) and contact theories (Katz, 1991; Stein et al., 1997). Regarding the former, these emphasize the competitive nature between groups, a conception of latent conflict based on the difference between groups perceived as distinct; this threat would be more plausible in less advantaged contexts, as access to resources and services would be more restrictive, so that it is enshrined as a context-dependent approach. (Branton & Jones, 2005). In this sense, threat theories, often called conflict theories, are closely related to a Darwinist comprehension of society.

Contact theories, in general, are based on the same idea of interaction between groups, but their interpretation is different. In this line, they are based on the seminal work of Allport (1954), which emphasizes that greater exposure to other racial and ethnic groups reduces intergroup prejudice and fosters more positive attitudes towards them on the part of the majority or previously established group, an effect that has been confirmed by the meta-analysis conducted by Pettigrew & Tropp (2006). However, this premise is also context-specific, noting that this positive effect requires conditions such as equal status, a common goal, institutional support, and the existence of interactions *per se*. This contact, however, is posited as a spatial phenomenon, and authors such as Stein et al. (1997) propose that there is a difference between interpersonal relationships and those that exist within the context.

Moreover, Kaufmann & Goodwin (2018) propose that the prevalence of both theories is influenced by the population size of the geographical unit, a factor that does not allow us to talk about one or another theory. Following the argument presented in Kaufmann & Harris (2015) and Schlueter & Scheepers (2010) they propose that contact theory is more likely to occur in small-sized populations, because this increases the likelihood of interaction, while the resources

are enough. On the other hand, in large-sized populations, the effects of the threat theory are more visible because this likelihood is reduced, especially in highly segregated populations. This non-linearity of the prevalence of both theories leads to understanding them considering the geographical scale, thus, it is possible to talk about a micro-threat theory, a macro-threat theory, and the contact theory (Kaufmann & Goodwin, 2018). Although the limits on which one or another starts to influence more than the other are still a matter of research, we propose that any of them should be context-specific.

Empirical research has found that both theories may coexist, depending on contextual factors. The so-called halo effect theory proposes that residents (in this case, non-migrants) form their opinions about migrants not only considering the immediate context, but also from the average opinion present in larger geographical units, such as the whole city, municipalities, or regions (Rydgren & Tyrberg, 2020; van Wijk et al., 2020). In terms of electoral results, the effect of supporting radical right parties is supposed to be higher in areas that are ethnically homogeneous but surrounded by areas with a high share of foreign residents. This theory is considered a mix of the traditional approach between threat and contact theories.

Thus, despite their conceptual differences, the three approaches recognize that the spatial dimension is relevant to understanding the dynamics that occur concerning the interaction of these phenomena. This conception is not entirely innovative, since classical authors such as Heidegger (1927) already recognize that everything that exists, exists in space; therefore, ignoring this quality at the moment of understanding these phenomena becomes limiting their comprehension.

6.5. Segregation and Electoral Results: theoretical links

Having clarified the conceptual difference between the main frameworks and the need to consider space in this analysis, the concept of segregation emerges as the natural consequence of this assertion. To understand what this concept is, it is necessary to come back to classic authors already mentioned, such as Duncan & Duncan (1955) or James & Taeuber (1985). While the former provides an implicit definition of segregation as the differential distribution of racial groups in the spatial units of a city, focusing on the racial aspect present in the American academic tradition, James & Taeuber (1985) make explicit that segregation refers to the differences in the distribution of social groups among units of social organization, establishing the concept of inequality as a key to understanding it. In operational terms, the definition given by these authors is framed in the tradition of positive science and even today

permeates the calculation of segregation; specifically, the contribution of Duncan & Duncan (1955) is still considered today as a key indicator (Duncan's or dissimilarity index) to calculate the presence or absence of this phenomenon in a variety of studies and, although other measures have been invented, all are based on the basic premise of equality versus dispersion of the distribution of groups within in a spatial unit in geometric terms, therefore, a Cartesian definition of space (Benassi et al., 2020; Pratschke & Benassi, 2024; Relinque-Medina et al., 2021; Salomo et al., 2023; van der Waal et al., 2013).

Despite this theoretical approach, the fact is that segregation is a relevant element since it affects the probability of interaction between groups. Following the definitions given, if one accepts the premise that interaction between groups has an effect (either positive or negative) on the perception of the other group, how the members of one or the other comparison group are distributed is relevant because it affects the probability of contact, their visibility. In the case of migrants, since they represent a group that enters into a preceding social order, their degree of segregation may determine the prejudice that the pre-established group has towards them. These concepts: visibility, exposure, and interaction, are crucial because several studies (Aldén & Neuman, 2015; Pettrachin et al., 2023; Salomo et al., 2023) have shown that they have a real impact on the decisions that individuals make and that are expressed in, for example, the voting behavior, which is the focus of this study.

In this sense, the work Kunovich & Hodson (2002) for the case of the former Yugoslavia is an important contribution to the discussion on prejudice, in this case, the ethnic one. The authors emphasize that ethnic or racial segregation plays a fundamental role in how interactions between groups develop. Like van der Waal et al. (2013), they recognize that this is far from dichotomous, with a *continuum* of different types of segregation and how they affect the likelihood of both conflict and ethnic prejudice, potentially affecting the social contact between groups (Weaver & Bagchi-Sen, 2015). This kind of recognition of the multifactorial nature of this relationship is crucial in that it begins a line of study of the interactions between segregation and political behavior that gathers attention to the particular spatial dimension and configurations, in line with the so-called spatial turn. (Sheller, 2017).

This phenomenon is consistent with the understanding given by Roberto & Korver-Glenn (2021): it can be understood as a process that refers to the residence situation of a group, its built environment, and the geographic configuration in general. For them, the configuration of a city can lead to the perception of segregation of a group, which has practical implications such as those already mentioned, an idea closely linked to the widely recognized contribution made by Lynch (1960).

Specifically, the literature linked to this topic has mixed results regarding how residential segregation affects voting behavior. This divergence stems from the existence of different interpretations, such as threat and contact theories, that should be understood considering the size of the population. In *lato sensu*:

a) Group conflict/Threat theories: since lower residential segregation entails higher visibility and the probability of interaction between groups, greater segregation would reduce the probability of threat perception between groups (Kunovich & Hodson, 2002), which in terms of electoral results would translate into a null or negative effect in terms of majorities voting for political parties with a discourse against the opposing group, in this case, radical right parties with an anti-immigrant discourse. The threat explanation is more likely to occur in both scenarios: when the population size is extremely small or in settlements with a large population size (Kaufmann & Goodwin, 2018).

b) Contact theories: given the same premise as the conflict theories, high levels of segregation could limit the probability of interpersonal contact and mutual learning between groups, as well as their acceptance. Thus, in contexts with high segregation, one would expect greater support for radical right parties with an anti-immigrant discourse. As it happens regarding conflict theories, this explanation is also influenced by the effect of population size, in which small settlements are likely to experience a higher frequency of interaction between the groups. However, the existence of a minimal population size to observe this effect should also be noted (Kaufmann & Goodwin, 2018).

Graphically, the following figure simplifies the conceptual relationship described (Figure 1).

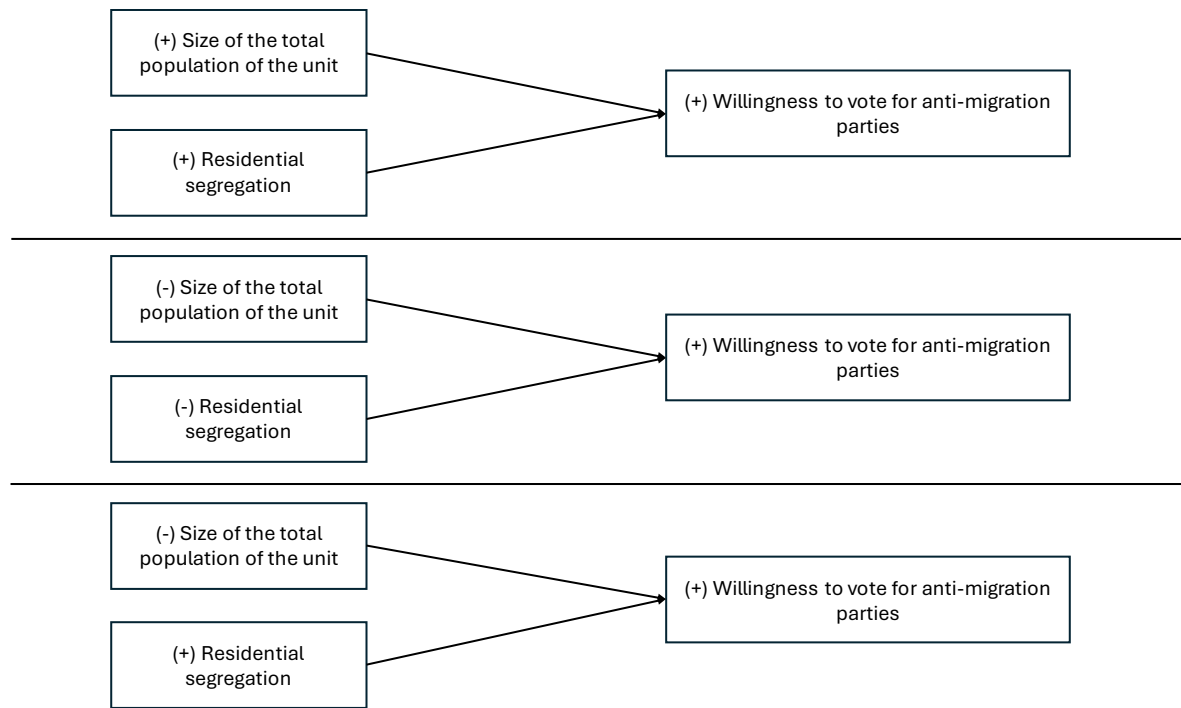


Figure 1. Effect of Residential Segregation and population size on the willingness to vote for Anti-migratory Parties. Source: compiled by the author (2025).

In practice, current research on the subject accepts that both hypotheses can concur depending on the context, although there has been a bias, especially in U.S. academia, to exacerbate the explanations provided by the threat/conflict theory. (Branton & Jones, 2005; Kaufmann & Goodwin, 2018). Some recurrent contextual factors in the literature have been the mentioned population size, preceding history, socioeconomic status, and the existence of physical barriers, among others. (Branton & Jones, 2005; Hopkins, 2010; Kaufmann & Goodwin, 2018; Roberto & Korver-Glenn, 2021).

However, the main theoretical contribution to this context-dependent theorization is made by Hopkins (2010). The author points out that segregation and its perception is not a static phenomenon and that it does not exist in the same way not only considering space but also time: he proclaims that spaces become politicized given certain situations such as changes in the presence of migrants or elections, where the existence of a discourse against migrants may be greater. He postulates that the native population responds more consistently to sudden changes in the presence of migrants than to the presence itself and that people do not normally politicize their daily interactions. In this sense, the identification of a threat depends on local dynamics, that is, on its spatial configuration, so these trends, which appear to be macro-scale processes, require a situated understanding centered on the place since it is at this scale that these phenomena materialize (Santos, 2000).

Aligning with the idea of Hopkins (2010), the mentioned contribution of Kaufmann & Goodwin (2018) as well as the one made by Petrovi et al. (2018) also states that the theories must always be context-sensitive when trying to find an explanation between the contact among groups and the political output, considering the scale: a micro-threat explanation could lead to a negative association between the degree of segregation and the perception towards immigrants because, in reduced spaces, the competition for resources is more intense, therefore, segregation may act as a redistributor of resources in small scales and finally avoiding conflict. In a macro scale theory approach, the results should be different, as the authors state, because the original population perceives diversity as a discourse instead of experiencing the supposed threat.

Despite the proven effect of the scale once it is analyzed in different urban contexts (Petrovi et al., 2018) some authors question the actual influence of the scale of analysis, finding evidence that supports the classical approach to understanding the relationship between migrants and the electoral results of radical right parties, instead of a relationship mediated by the effect of population size (Rydgren & Tyrberg, 2020; van Wijk et al., 2020). Specifically, van Wijk et al. (2020) mention that the evidence for this hypothesis comes from highly segregated countries, in which this factor could mediate the interactions of variables due to its role as a structural characteristic.

In the same way, due to its impact in the sense of territoriality, population density is another variable that is context-specific and should be taken into consideration (Mousavinia, 2022), a factor usually counted when dealing with urban and rural differences, as some authors mention how urbanization could be a factor that mediates how different groups interact in the space (Weaver & Bagchi-Sen, 2015).

On the other hand, the influence of the presence of migrants and their potential interaction with local communities has been highly proven when studying its effects on voting for the center-right, right (Dustmann et al., 2019), and especially radical right parties, which have been proven as those more likely to base their speech on antimigration measures. This relationship is particularly clear in the European countries after the so-called “migration crisis” of 2015, a turning point from which a big inflow of academic corpus has developed, supporting this assumption (Barone et al., 2016; Halla et al., 2017; Henri et al., 2017; Lažetić, 2019; Rydgren & Tyrberg, 2020).

Although the radical right parties in Europe are far from being homogeneous, they all share some common points as mentioned by Rydgren & Tyrberg (2020), for instance, ethnonationalist xenophobia, antiestablishment populism, and sociocultural conservatism that leads to a

negative position towards migration-related issues. Moreover, Ferreira (2019) indicates that those political parties have rapidly increased their relevance on the public sphere, going from a marginal space of authoritarianism and xenophobia that characterized them three decades ago, to have a relevant position that allows them to compete with traditional parties, thus, increasingly spreading their speech to public debate, and therefore potentially polarizing the society (Halla et al., 2017).

Lastly, all the explanations of the interaction of the two phenomena of interest for this research are mostly positivist. They take the immigrant as a passive agent without power, but rather as being present or absent in a certain place. Regardless of the current attempt to consider the contextual factors that configure a certain space, the literature concerning the interaction between immigrants and the original population and the political outcome in elections still fails to see the space itself as a product of power dynamics (Harvey, 1996), an element that is crucial once recognizing the spatial nature of phenomena such as segregation. Therefore, the present research will try to take the main theories and consequent methods as guidelines for understanding the processes of interest, avoiding falling into strict categorizations, unaware of the peculiarities of the analyzed space.

6.6. Segregation and Electoral Results: gaps in the existing literature

In the review presented, there are several links between the variables of interest that have been developed from different perspectives. The following table summarizes some of those key findings (Table 2).

Study	Key finding
Kunovich & Hodson (2002); van der Waal et al. (2013)	Ethnic segregation affects the likelihood of prejudice or conflict; it is understood as a continuum rather than a dichotomy.
Roberto & Korver-Glenn (2021)	The perception of segregation depends on the territorial configuration and the built environment.
Hopkins (2010)	Proposal to understand segregation as a dynamic phenomenon, influenced by critical moments such as elections or migratory changes.

Kaufmann & Goodwin (2018); Petrović et al. (2018)	They propose that the scale of analysis (micro vs. macro) is key to interpreting the relationship between segregation and political interaction.
van Wijk et al. (2020); Rydgren & Tyrberg (2020)	Criticism of the centrality of scale: they point out that in highly segregated contexts, the relationship between migration and radical voting is more likely to be mediated by population size.
Barone et al. (2016), Dustmann et al. (2019), etc.	They confirm that migrant presence is associated with a higher vote for right and far-right parties, especially after the migration crisis of 2015.
Mousavinia (2022), Weaver & Bagchi-Sen (2015)	Spatial density influences how interactions between migrants and locals are perceived and experienced.

Table 2 Key theoretical links between segregation and electoral results. Source: compiled by the author (2025).

Although all those contributions are relevant, there still exist some gaps regarding the interaction of these variables. For instance, despite the existence of two relevant theories that could explain the effect of migrant residential segregation on the electoral results of radical right parties, there is a lack of empirical research focusing on this effect where most of research considers exposure as equivalent to presence or absence, and those that exist usually consider segregation only from a unidimensional point of view, ignoring its multidimensionality (Salomo et al., 2023; van der Waal et al., 2013; Zapata-Barrero et al., 2017).

On the other hand, a persistent bias towards urban context, especially big cities, has been found. Even though cities are increasingly playing a more relevant role regarding integration and diversity accommodation (Zapata-Barrero et al., 2017), this bias can be dangerous when considering categories beyond the dichotomy of urban/rural, such as peri-urban areas, villages, or towns, also limiting the potential of a place-based analysis while ignoring completely the dynamics that occur in rural areas.

Another relevant source of uncertainty concerns the temporal dimension of segregation and its impacts on electoral results. Those studies that include the presence of migrants within local contexts usually consider them as a share of migrants, and those that assess the effect of the change on the share of migrants are quite rare (Hopkins, 2010). In this respect, no studies tackling the longitudinal change on the level of segregation and its interaction with electoral outcomes have been found.

In addition, another gap found concerns the agency of the individual analyzed. In this regard, the so-called *Pax Duncaniana* produced an academic corpus based on an indicator that does not recognize the individual's agency. This approach ignores the capacity of migrants, in the case of the present study, to organize themselves, to decide, and finally, it ignores complex phenomena such as the placemaking (Sykes, 2025).

About these gaps identified, the research presented here consists of a relevant contribution. First, it considers segregation as a variable by itself, accepting its intrinsic multidimensionality, and finally contributing as an empirical case to understand this complex phenomenon. Second, because the level of analysis of this research is the municipality one, but adopting a national scope approach that allows comparison at different administrative levels, and includes areas beyond the urban bias, for this purpose, all the Italian municipalities will be considered, as well as the density as a proxy indicator for rurality.

As for the rest of the identified gaps, this research acts as a contribution, but it still presents some limitations. For example, although the temporal dimension is relevant to understanding the interaction between the variables of interest, the variation in segregation indices will not be considered due to the scope of the research, as cross-sectional one. Regarding the issue of migrants' agency, the focus of this study is mainly based on indices, so it will not be fully part of the research design. In this regard, although one of the measures (isolation index) could be linked to interaction and concentration, two dimensions that may reflect migrants' residential preferences and their potential decisions, this will act only as an approximation to the real nature of this phenomenon.

6.7. Hypotheses

Based on the reviewed theoretical framework, the present research departs from the understanding that segregation, far from being a neutral or merely descriptive phenomenon, has direct implications for intergroup relations, political behavior, and, consequently, the electoral results. The spatial distribution of migrants, as conceptualized through indices like dissimilarity and isolation, mediates the visibility and probability of contact between groups, dimensions central to both threat and contact theories. Concretely, the following hypotheses are presented.

- Migrant residential segregation had a significant effect on the electoral results of the radical right parties in the context of the last national elections in Italy in 2022
- The effect of migrant residential segregation on the electoral results is mediated by population size

- The population density of each municipality has a significant effect on shaping the relationship between the variables of interest

In this regard, the first hypothesis, which states that migrant residential segregation had a significant effect on the electoral results of radical right parties in Italy's 2022 national elections, draws on the mentioned conceptualization. It assumes that segregation structures opportunities for contact or avoidance, thereby shaping perceptions and political reactions toward migrants. Furthermore, by adopting a cross-sectional, spatially sensitive approach, this hypothesis acknowledges the spatial turn in social sciences and seeks to empirically test a dynamic that, while widely theorized, has not been thoroughly explored in the Italian context, especially beyond major urban areas.

The second and third hypotheses directly engage with the most persistent theoretical and empirical gaps in existing literature. By postulating that the effect of migrant residential segregation is mediated by population size and density, this research recognizes the contextual and scalar nature of segregation's political effects, as discussed by Hopkins (2010), Kaufmann & Goodwin (2018), and Petrović et al. (2018). These hypotheses aim to address the urban-centric bias prevalent in prior studies and introduce a more nuanced place-based perspective that includes towns, villages, and peri-urban contexts. At the same time, the operationalization of segregation as a multidimensional phenomenon, as opposed to a unidimensional indicator, offers a methodological innovation aligned with recent critiques of the "*Pax Duncaniana*" (Sykes, 2025). Thus, while the study maintains a positivist orientation characterized by the work with indices, it contributes to bridging the empirical gap in understanding how segregation, contextual factors, and electoral behavior intersect across different scales and territorial specificities, acting as a pillar for following critical studies.

7. METHODOLOGY

This chapter provides an outline of the methodological framework used in this research. Considering the two main variables of interest in this study, migrant residential segregation and electoral results of radical right parties in Italy, the chapter describes their operational definitions, the techniques used to describe, analyze them, and their logical sequence, as well as related variables that could provide a context-specific interpretation.

The first section will discuss the paradigm and the justification of the methodological approach. The second one will treat the variables *per se* and their descriptive methods used to understand them. The third one will discuss the approach adopted when analyzing the relationship between the variables and related control variables. Lastly, there is a short section aiming to describe both the technical and ethical considerations of methodological decisions.

7.1. Research paradigm

The present research will adopt a quantitative approach, following a deductive sequence in which the previously presented hypotheses will guide the research design. In this regard, the paradigm the research adheres to is postpositivism: the design assumes that functional relationships between the variables of interest exist and that they can be derived by explanatory factors and their corresponding outcomes (Creswell & David Creswell, 2018; Park et al., 2020).

Therefore, the specific methods to be described have both the aim of measuring attributes of social reality (like segregation) and representing their relationships. Consequently, the focus will be more on the generalization of phenomena rather than on specific cases. On the other hand, an important remark must be made about the choice of adhering to postpositivism rather than positivism: here we assume that reality cannot be fully apprehended by quantitative methods and that it is impossible to be completely objective. However, these approaches give us a good approximation of reality, simplifying complex phenomena such as electoral results (Creswell & David Creswell, 2018).

As it is an investigation framed within the scientific method, this study is guided by two main theories that define its deductive sequences: threat and contact theory. Both provided explanations for the relationship that could exist between migrant residential segregation and electoral results toward radical right political parties. Recalling the theoretical framework, given a certain level of migrant residential segregation, a political response could be expected because the first variable affects the likelihood of contact between individuals. Although this

relationship is clear, the outcome effect is highly dependent on the context (Hopkins, 2010), which affects the direction of this interaction depending on variables such as population size and density, just to mention some of them, making a place-based analysis mandatory.

As for the epistemological approach, this study adopts an interdisciplinary approach, overcoming categories such as informed disciplinarity. Using an intersection of knowledge coming from demography, geography, and political sciences, the present study falls into the category of synthetic interdisciplinary, using the typology proposed by Musacchio et al. (2005). This approach makes it possible to address a problem that cannot be fully understood from a single discipline, but that requires a combination of perspectives that link the spatial distribution of social groups with their impact on political attitudes and decisions.

This interdisciplinary approach not only improves the explanatory capacity of the models to be conducted, but also makes it possible to identify possible limitations and methodological biases derived from an exclusively demographic, geographic, or political analysis. By integrating these elements, the study contributes to a broader debate on the impact of segregation in contemporary democracies and its implications for the design of social and territorial inclusion policies.

Concretely, regarding the scale, the study will cover a national one, but considering the Italian municipalities as units of analysis. A level that is useful because the votes are counted and registered at this scale. Therefore, the municipal, regional, and national differences will be addressed. On the other hand, the study is cross-sectional as it was already mentioned, considering the years 2021 and 2022, because in this period both the last Italian census and national elections were held.

7.2. Defining variables: migrant residential segregation

For this study, the two main variables are migrant residential segregation and the electoral results of radical right parties. To avoid any source of ambiguity, the following operational definitions are provided.

Regarding migrant residential segregation, the operational definition follows the mentioned intrinsic complexity of this phenomenon described in the theoretical framework. As indicated by Massey (2012) regardless of the best measure of segregation, what is important is to study it in more than one dimension. In this regard, this variable will be considered in three dimensions.

The first approach to migrants' segregation will consider the dimension of evenness discussed by Massey (2012). The idea under consideration for this measure is to measure how equally distributed the groups are in space, where high values in this dimension represent the need to move individuals from one group to another place to achieve evenness. The most frequent measure of this dimension is the dissimilarity index (so-called Duncan Index) and its formula is described below. (Duncan & Duncan, 1955)

$$D = \frac{1}{2} \sum \left| \frac{P_{xi}}{P_x} - \frac{P_{yi}}{P_y} \right|$$

Where:

P_{xi} represents the population of group X in unit i. In this case, migrants.

P_x represents the total population of group X. In this case, migrants.

P_{yi} represents the population of group Y in unit i

P_y represents the total population of group Y

i represents the unit of analysis. In this case, census sections within a certain municipality.

The Duncan Index measures how uneven a group is distributed in comparison to another one, thus comparing two groups within a certain geographical unit. Its value lies between 0 to 1, being zero a total evenness and one a complete segregation, which could be interpreted as two groups living in totally different places within the analyzed area.

Despite many critiques, the dissimilarity index is still considered the standard measure of segregation, highly used to compare different cities, an approach that has been called *Pax Duncaniana* (Massey & Denton, 1988; van der Waal et al., 2013). However, van der Waal et al. (2013) establish that this measure could be inadequate for some phenomena because it does not consider the potential interactions between groups. This idea is crucial because both explanatory theories on which this research is based are based on the idea of interactions. To overcome this issue, the authors proposed the isolation index as a suitable measure of segregation. This index, which tackles the segregation dimension of exposure, has the following formula (Massey & Denton, 1988).

$$I_x = \sum \left(\frac{P_{xi}}{P_x} \times \frac{P_{xi}}{P_i} \right)$$

Where:

P_{xi} represents the population of group X in unit i

P_x represents the total population of group X in the study area

P_i represents the total population in unit i

i represents the unit of analysis. In this case, census sections within a certain municipality.

As the dissimilarity index, the isolation one lies between 0 to 1, in which zero means that the probability of interactions with other groups is more likely, and one represents a complete isolation of the study group when compared to the other one. Its suitability when assessing phenomena such as political behavior comes from its nature: it measures to what degree a group is exposed to itself in a given area, a dimension that is considered by the contact theory, threat theory, and the halo effect.

However, as shown in the formula, this index may be influenced by the average demographic composition of the geographical area of interest: if a minority group represents a reduced share of the total population, the isolation index could be low just due to the reduced probability of interaction within the group of analysis regardless the degree of segregation caught by measures like the dissimilarity index. Therefore, a proper understanding of segregation is more likely to be achieved when those measures are analyzed together.

The Moran's I or autocorrelation index was considered as a third control measure of segregation. This one deals with the clustering/aggrupation dimension that Massey & Denton (1988) identified. In this case, the measure did not only consider distribution of migrants as the previous indexes, but rather it allowed the measurement of the autocorrelation of both the dissimilarity and the isolation indexes to find spatial patterns of distribution of a variable and thus to identify the concentration (or absence) of a certain variable

$$I = \frac{N}{W} \frac{\sum_i \sum_j w_{ij} (X_i - \bar{X})(X_j - \bar{X})}{\sum_i (X_i - \bar{X})^2}$$

Where:

X_i represents the value of the variable in unit i

$\bar{X}$ represents the mean of the variable in the entire area

w_{ij} represents the spatial weight (defines neighboring relationships)

N represents the number of spatial units

W represents the sum of spatial weights

i represents the unit of analysis. In this case, census sections within a certain municipality.

X refers to the variable analyzed. In this case, the isolation index and the dissimilarity one.

A positive characteristic of Moran's I is that the measurement allows the definition of spatial weights that could model the relationship of the variables. In this case, if closer municipalities have a higher chance of interacting due to the distance (Walker, 2022) the spatial weight given to contiguous units was higher than those further away.

The application of this indicator will allow not only the identification of spatial autocorrelation but also to mapping it, identifying hotspots (high value spatial concentrations) and coldspots (low value spatial concentrations) regarding the previous indexes to help the understanding of their spatial distribution, following the relevance of the surrounding area's variable behavior proposed by the halo effect.

This multiple approach provides a more accurate diagnosis of segregation while capturing different dimensions of this complex phenomenon at the same time, allowing for understanding how different components of segregation affect the second variable of interest: the electoral results of radical right parties.

For instance, while the isolation index could tell how likely it is for a migrant to interact with other migrants or the dissimilarity index describes the inequality of distribution of individuals among different municipalities, neither of them captures the spatial dimension as Moran's I . In this regard, although this last measure considers how grouped the migrants are among the Italian municipalities, it cannot provide information about the proportion or representativeness of migrants in a certain municipality, which is a reason of why it should be understood as linked to the previous two indicators. The following table summarizes the measures (Table 3).

Indicator	Measure	Dimension of segregation (Massey & Denton, 1988)	Type of measurement
Isolation index	The probability of a group interacting only with itself	Exposition	It doesn't consider spatial patterns
Dissimilarity index	The percentage of a group that should move to achieve an even distribution	Evenness	It doesn't consider spatial patterns
Moran's I	If areas with a high presence of a group are spatially grouped	Aggrupation/Clustering	It does consider spatial patterns

Table 3. Measures of segregation chosen. Source: compiled by the author (2025).

All three measures are based on demographic data, so in order to be reliable, the three indicators were calculated using the results of the latest national Italian census of 2021. The minimum level of disaggregation for this operation was the census unit, a level that was considered a division within municipalities. All the municipalities had at least two census units, so the indices were able to be computed.

For the analysis of these indicators, the first analysis performed was descriptive. Here, the main objective was to know the distribution of the indicators, and their differences regarding Italian macrozones (north, center, south), due to the persistent regional inequality of the country (Asso, 2023), and to evaluate normality as a criterion for the choice of the following correlational techniques.

Depending on the results obtained in the normality test, an appropriate comparison assessment will be selected for the variables of interest. If the data follows a normal distribution, parametric tests such as analysis of variance (ANOVA) will be computed to compare means between study regions and zones. If the data does not follow a normal distribution, tests such as the Mann-Whitney or Kruskal-Wallis test will be applied, as appropriate for these kinds of distribution.

Considering that the final dataset will have at least 7824, the number of municipalities in Italy according to the 2021 census, to assess normality, the Anderson-Darling test will be performed, which is suitable when the number of cases is high. It must be noted that this normality test will

also be applied to the rest of the variables to be described in the following sections, both control and dependent. Its formula is shown below (Marsaglia & Marsaglia, 2004).

$$A = -n - n1\sum i = 1n[2i - 1][\ln(p(i)) + \ln(1 - p(n - i + 1))]$$

Where:

$p(i)$ refers to the empirical cumulative distribution function values of the ordered sample data under the assumed theoretical distribution.

$1 - p(n - i + 1)$ refers to the complement of those cumulative probabilities.

$2i - 1$ refers to a weight that emphasizes deviations in the tails.

n refers to the total number of observations.

Finally, the representation of the data will be compressed using geographic information systems (GIS), as well as graphs and tables. This will allow us not only to visualize the purely statistical characteristics of the data but also their spatial distribution throughout the country and get an intuition of the spatial behavior of migrant residential segregation across Italy.

7.3. Defining variables: electoral results of Italian radical right parties

The second variable of interest is defined as the dependent variable of this research. It is a synthetic one that aggregates the share of votes that radical right parties received in the last Italian national elections of 2022.

This variable is synthetic because it is an aggregation of the votes received by the three main radical right parties in Italy presented in the last elections: Italexit per l'Italia, Fratelli d'Italia, and Lega. These parties were chosen because of their national scale as well as having a strong antimigrant speech, making migration a political issue, a response that was clear in their approach towards the so-called “European refugee crisis” of 2015 (Pettrachin, 2024b). The variable was calculated for each municipality in Italy, and it was defined as a proportion to make it comparable among the different administrative units of the country. The formula is shown below.

$$V_{fr} = \frac{V_{fdi} + V_l + V_{ie}}{V_{tm}}$$

Where:

V_{fdi} represents the total votes got by *Fratelli d'Italia*

V_l represents the total votes got by *Lega*

V_{ie} represents the total votes got by *Italexit per l'Italia*

V_{tm} represents the total votes registered in the municipality

The data used to calculate the dependent variable was available for open access by the Ministry of Internal Affairs of Italy, and the lower level of this data was at the municipality level.

A descriptive segregation analysis will also be conducted for this variable to understand its distribution and differences and to test the data's normality as a requirement for the following methodological steps, applying a comparative technique conditioned by the results of the normality assessment as mentioned for the segregation variable. In this regard, electoral results of radical right parties were also represented using GIS, graphs, and tables to cover both the spatial and statistical distribution. In this case, also the Moran's I will be calculated, to identify spatial patterns and to compare clusters if they exist, as well as a method to analyze the existence of spatial autocorrelation.

7.4. Analyzing interactions of variables

To understand how both variables interact, a regression model will be developed in which each dimension of segregation will be considered as an independent variable. In addition, the following control variables will be included in the model: the size of the population of each municipality, the population density for each municipality as well as the migrant density in each of them, the mean income in those administrative units, and the capacity of refugees and asylum seekers in each municipality.

As for the construction of the dataset required to conduct the regression, it must be noted that the Italian geographical administrative units are not completely fixed but rather may change depending on demographic and operational reasons, for example, while merging small municipalities (Pratschke & Benassi, 2024) an element that could affect the reliability of the comparison. To overcome this issue, after calculating the variables, the data of both years will be spatially joined using the 2022 municipal division as the official one for the analysis and cartography because it captures more recent demographic dynamics.

After assessing the normality of the data and describing the control variables, an exploratory bivariate correlation analysis will be performed using suitable correlational measures depending on the nature of the data (Pearson or Spearman). This will allow us both to understand if segregation dimensions are correlated and reduce variables if collinearity is detected.

As a previous step in the construction of the model, the outliers present in the dataset will be identified from the analysis to increase the accuracy and the explanatory potential of the model. To do so, Tukey's method will be applied to avoid subjectivity. This method consists of calculating the interquartile range (IQR) to define the upper and lower limits to which the values outside this range will be considered as outliers. The formula is shown below:

$$Upper\ limit = Q_1 - 1.5 \times IQR$$

$$Lower\ limit = Q_3 + 1.5 \times IQR$$

Where:

Q_1 corresponds to the first quartile

Q_3 corresponds to the third quartile

Despite its utility as a data reduction method, the outliers will not be omitted from the dataset due to their intrinsic value as a geographic variable. Empirically, variables such as population size or population density follow Zipf's law, a fact that is true especially for cities (Gabaix, 1999; Jiang et al., 2015), so they are expected to appear in any kind of geographic analysis, as the nature of places is their uniqueness (Harvey, 1996) and to omit them will be misleading.

On the other hand, an actual source of data reduction will come from the electoral system present in South Tirol and Valle d'Aosta, two autonomous administrative units that have a different electoral system from the rest of Italy, a characteristic that affects the reliability of both the model and the comparison.

Concerning the model, it is relevant to assume that the data analyzed here has a spatial nature and that the approach adopted in this research has the goal of being as far as place-blind approaches are possible. Therefore, assuming Tobler's first law of geography about the interaction of elements in the geographical space and how crucial distance is in framing these relationships (Tobler, 1970; Walker, 2022), it is expected that the data will present spatial non-stationarity, thus violating the principles of global regression models in which the resulting

parameters are assumed to be constant for all the territory due to the existence of spatial autocorrelation (Brunsdon et al., 1996).

In this regard, although the nature of the dependent variable is a proportion and statistical models such as the beta regression should be suitable for predicting its behavior (Ferrari & Cribari-Neto, 2004) there is a need to apply a technique that explicitly recognizes the spatial nature of the data. The proposed solution is to adopt the Geographical Weighted Regression (GWR), a model that considers the base form of a linear one, but it amplifies it by allowing local variations (Lu et al., 2014). The formula is very similar to a linear one, but with a different interpretation, as it is shown below (Brunsdon et al., 1996):

$$y_i = a_{io} + \sum_{k=1,m} a_{ik}x_{ik} + \varepsilon_i$$

Where:

a_{ik} corresponds to a specific value

K refers to the parameter of interest

i represents a specific location

The main benefit of adopting this model is that it allows the exploration of local variability. Also allowing the identification of zones where the phenomenon of interest, in this case, the vote toward radical right parties in Italy, is stronger or weaker.

In the first stage, the model will consider the variables independently to assess the general incidence of each dimension of segregation and the rest of the control variables on the proportion of votes received by the radical right parties. Then, the analysis will consider the interaction between each of the dimensions of segregation and demographic variables such as population size and population density using an interaction term, following the effects shown in the theoretical framework.

Due to the different scales of the control variables and the possibility of high-skewed values, a logarithmic transformation will be applied to them before conducting the model; this step will allow the comparability of the coefficients while keeping the internal coherence of the GWR, in which the weights are implemented based on the distances instead of the scale of values.

One of the issues to be considered when dealing with the GWR is the bandwidth, a methodological matter that could be a source of bias if not justified. In this research, to avoid arbitrariness, the golden search section search method was applied to choose the optimal bandwidth (da Silva & Mendes, 2018). On the other hand, as a methodological choice, to compare the models, the global R^2 and its adjusted version will be taken into account, while to spatially analyze the models, the local R^2 will be considered.

Considering the theories already presented, the interactions presented below are expected.

- If the isolation index is high, it could lead to a possible increased threat perception by the non-migrant population (limited contact + concentrated visibility) that may increase the proportion of votes for radical right parties.
- If dissimilarity is high, it could imply non-contact separation, but not necessarily isolation. It may lower local tensions in some contexts, reducing the proportion of votes for radical right parties.
- If both indices are high, it could represent a strongly segregated structure that favors exclusionary discourses, increasing the proportion of votes for radical right parties.

7.5. Technical considerations

The analyses presented in this research were conducted using ArcGIS Pro 3.4, MS Excel, and R. The first one is to produce high-quality maps to present the spatial distribution of variables in the defining phase, making it easier to explain the spatial analysis. It must be noted that the shapefiles to be utilized will use the spatial reference system WGS84 UTM 32N, as this is the official one considered by the National Statistics Institute of Italy (*Istituto Nazionale di Statistica*, ISTAT).

MS Excel was used to store the data and guarantee its transmission due to the widespread use of this software, as well as its related format files (CSV and XLSX). Lastly, most of the statistical analysis was conducted using R because of its suitability for this task and its freedom when performing spatial analysis. Specifically, the following libraries were implemented: *GWmodel*, *dplyr*, *tidyr*, *purrr*, *FSA*, *nortest*, *sf*, and *spdep*. The version of R used was 4.3.3, and RStudio was utilized to facilitate the data management.

Regarding technical decisions, the logarithmic transformations will be implemented using the function `log()` present in R, while adding one unit. This step was made to avoid invalid values in the transformation if the values of the control variables are equal to zero in certain

municipalities. On the other hand, GWR considers proximity to calculate the spatial weights, however, there are different algorithms to calculate it; in this case, the bisquared one was adopted because it is less gradual than other algorithms such as the gaussian one.

7.6. Ethical considerations

Concerning ethical implications, the following research deals with the main one, anonymity, by analyzing the census data at a municipality level, to avoid localizing where individuals precisely live, although using the census division as an input could allow a more detailed analysis but compromising this aspect.

Regarding the possibility of stigmatization of this research, it is necessary to clarify that a possible relationship between segregation and voting does not imply direct causality, nor does it mean that migrants are the only relevant variable in the vote for the radical right. It's only a factor that must be understood by considering the particular historical and qualitative characteristics of each territory. In this sense, the study does not seek to justify discourses of exclusion, but rather to understand spatial and political dynamics; it has no political purpose and is not affiliated with any political party, as its objective is purely analytical.

About the data access, the dataset will be shared by directly asking the researcher as a CSV file. To guarantee reproducibility, the R scripts produced for the calculation of the variables and the model itself will be shared on GitHub once the research is finished.

8. DELIMITATIONS, LIMITATIONS, AND ASSUMPTIONS

The present study aims to find a relationship between migrant residential segregation in three dimensions and the electoral results of radical right parties, represented as the share of votes that the main radical right parties got in the last Italian national elections. In this regard, the limitations of this research design are mainly related to the research paradigm and the operational definition of variables.

First, concerning the research paradigm, this conducted study follows a postpositivist approach in which the focus is to achieve a generalization, a study of the regularities instead of the particular cases. Therefore, specific anomalies are stated as outliers but not analyzed in depth, and some elements are ignored by the models. This issue is especially challenging when dealing with the agency of migrants: while in qualitative and mixed methods, it is possible to consider the individual as an active element, giving the space to the participant to express their thoughts (Lim, 2024), in the design adopted in the present research, the individual is understood as a passive entity. Thus, although some indicators adopted, like the isolation index, consider the probability of interaction between groups, a real assessment of the interaction and agency of migrants has not been conducted. This study is also a cross-sectional one, so its results should be considered valid for the specific period of time analyzed.

Second, the operationalization of variables is another source of limitations. As mentioned, this research considers three dimensions of segregation (aggregation, evenness, and exposition), but it does not address other dimensions relevant to the theorization made by Massey (2012), for instance, concentration and centralization. This issue is also present when analyzing the votes toward the radical right parties: for the scope of the study, only the three biggest ones were considered, however, local parties without a national scale were ignored to make the comparison feasible but losing some political actors that could catch some place-based speech against migration as a response to local conditions. Linked to this idea, it is worth noting that while the research paradigm adopted in the study is useful for identifying general patterns, it does not fully capture the individual perceptions, discourses, and experiences that may also shape voting behavior.

Some other pertinent limitations of this study are linked to the methodology. In the first place, the issue of the scale is relevant to be noticed because it shapes the function of the indices used to calculate segregation. The classical approach of segregation studies has always focused on the urban context in which sub-urban units, such as districts or neighborhoods are compared (Duncan & Duncan, 1955; James & Taeuber, 1985; Massey & Denton, 1988) and even during

the first stage of the creation of indicators such as the dissimilarity index or the isolation one, the problem of the scale as a source of bias has been always perceived. This issue, called the Modifiable Areal Unit Problem (MAUP), is relevant to be considered because the results of this study can be completely different if, instead of analyzing municipalities, the focus were on researching cities, regions, or another kind of geographical division (Fotheringham, 2009).

Although unavoidable when dealing with research considering the spatial dimension, the MAUP is particularly problematic for the Italian case, as noticed by Pratschke & Benassi (2024) because the Italian system of census divisions (*sezioni di censimento*) undergoes constant revisions and boundary changes, which makes longitudinal analyses difficult to conduct. Unlike other countries where census units remain stable over time, in Italy, these units reflect demographic changes, representing an issue when conducting longitudinal analysis. Consequently, for large geographical units, such as municipalities, indices such as isolation or dissimilarity may be overestimated, while underestimated if choosing a more detailed one. To address this issue, in this research, the indices were calculated using the data at a census district level, but the analysis was made at a municipal level to maintain the coherence with the electoral data that is aggregated at this scale. However, an ideal solution should include the creation of homogeneous areas based on their own dynamics, new intermediate geographical units to catch the patterns of variables, such as segregation, to reduce the probability of encountering the MAUP (Pratschke & Benassi, 2024; Zhao & Exeter, 2016).

Aligned with this methodological limitation, the second one concerns Moran's I. This index is also susceptible to the MAUP, but in a lower magnitude because it does not rely on the population composition as much as the other indices used in this research. However, following the halo effect theory, closer municipalities are expected to have a higher probability of interacting with each other than those further away, so to avoid a place-blind calculation, the contiguous units had a bigger weight when computing the Moran's I that was introduced by using the queen definition of contiguity: both borders and edges of polygons, a choice that is also logical with the GWR model adopted.

On the other hand, the source of data should be taken into account as another possible limitation. In Italy, the census data collects information on nationality instead of country of origin, therefore, this could be a source of bias for migrant groups such as Argentinians or Brazilians, who have differential access to citizenship than other migrant groups, thus being underrepresented in the official statistics, a definition that had changed during the last decades (Bonifazi & Strozza, 2001; Bonifazzi et al., 2009). This is also true for irregular migrants, who at a census level are not represented, while in another type of statistical register, such as a

continuous register, they could appear, representing a methodological gap (Galeano & Bayonai-Carrasco, 2018). Lastly, the indicators here deal with residential segregation of all migrants, so people who are not registered as residents may not be represented in the calculations done, and some migrant groups that could exhibit a special localization pattern are not analyzed in particular.

The last source of limitations concerns the theoretical framework. As already mentioned, the tradition of defining segregation and its calculation comes from the US, specifically during and after the so-called quantitative revolution in 1950 – 1960. Although several critiques of these approaches have been made, the indices designed during this period are still being used in contemporary analyses. This is relevant to be noticed because this study is focused on Italy and its own demographic, geographic, and political dynamics, so all the calculations made here should be considered indicative and analyzed considering the specific context of the country and its specific dynamics.

9. PRESENTATION OF THE CASE STUDY

Although phenomena such as migrant residential segregation or the electoral support for radical right, to which the electoral results are the indicator chosen in this study, are processes that occur in several contexts, the present research focuses on how those dynamics are expressed in the geographical context of Italy. Despite the unit of observation being municipalities, this section describes it from a multilevel approach to localize the phenomena of interest and to delve into the spatial implications of the research results.

The choice of Italy as a case study is very well connected with two main dimensions: its conceptual relevance and some particular gaps in the literature concerning the study of segregation in the country and its links with electoral results. Regarding the first dimension, the position of Italy in the Mediterranean Basin, its evolution from an origin country to a destination one, and its recent electoral history are strong conceptual reasons that make a situated analysis tackling the expression of the variables of interest of this study in the country.

On the other hand, some gaps in the specific comprehension of phenomena such as migrant residential segregation were identified when focusing only on the literature regarding Italy, for instance, the lack of interest in the dimension of exposure of segregation, the persistent urban bias when analyzing this process, or the lack of studies linking migrant residential segregation and electoral results in the country. Therefore, Italy is a suitable case study to understand those dynamics and to fill these gaps.

In this sense, the present section aims to link the theoretical framework and literature review already presented with some situated literature and data focusing on the Italian case. It briefly describes the geographical and administrative structure of the country, the tendency of the migration variable, and how academia has studied both segregation and electoral results.

9.1. Geographical and administrative structure

Italy is located in the south of the European continent and is part of the Mediterranean region. Its absolute location is approximately between 35° and 47° north latitude and 6° and 19° east longitude, which gives it a strategic position between Europe, North Africa, and the Middle East.

In terms of relative location, Italy extends in the form of a peninsula that projects into the Mediterranean Sea, bordered to the north by Switzerland and Austria, to the northwest by France, and to the northeast by Slovenia. To the east, it is bathed by the Adriatic Sea; to the

south, by the Ionian Sea; and to the west, by the Tyrrhenian Sea and the Ligurian Sea, all parts of the Mediterranean Sea. In addition, the country includes several islands, the largest being Sicily and Sardinia. These characteristics may be observed in the following map (Figure 2).



Figure 2 Localization of Italy. Source: prepared by the author (2025).

According to the ISTAT (2025) the country's territory is organized in a hierarchical system composed of regions, provinces, and municipalities (*comuni*), based on both historical and administrative factors that define them.

In this regard, the country is divided into 20 regions, which constitute the first level of subnational government. Five of these regions (Valle d'Aosta, Trentino-Alto Adige/Südtirol, Friuli Venezia Giulia, Sicily, and Sardinia) enjoy a special status of autonomy, which gives them broader legislative and administrative powers in comparison to the central State.

At an intermediate level between the regions and the municipalities are the provinces. In total, there are 107 such entities, which include both provinces and metropolitan cities (*città metropolitana*) and free consortia entities (*liberi consorzi comunali*). The latter are mainly found in Sicily and represent forms of territorial organization with competencies similar to those of the provinces, but with different institutional structures.

The local level of the Italian administrative system is the municipality (*comune*). According to ISTAT data (2024), Italy has 7,901 municipalities, which represent the minimum unit of local government. These municipalities present a great variability in terms of surface, population, and administrative capacity, from small rural villages to large urban centers.

On the other hand, for purposes of territorial analysis and comparisons at the European level, the following macro-areas are defined:

- *Nord-Ovest* (North-West): this macro-region includes Piemonte, Valle d'Aosta, Liguria and Lombardia.
- *Nord-Est* (North-East): this macrozone includes Trentino-Alto Adige/Südtirol, Veneto, Friuli Venezia Giulia, and Emilia-Romagna.
- *Centro* (Center): the macro-area includes Tuscany, Umbria, Marche, and Lazio.
- *Sud* (South): the macro-region includes Abruzzo, Molise, Campania, Puglia, Basilicata, and Calabria.
- *Isole* (Islands): lastly, this one includes Sicily and Sardinia.

These macro-areas are commonly used for demographic, economic, and social studies, and are also relevant for the implementation of territorial cohesion policies in the context of the European Union. It is also common to see them grouped by just North, Center, and South, with the last one also containing the islands.

9.2. Migration

Once the administrative-territorial division of Italy is clarified, to understand the phenomena of interest of this research, it is relevant to describe the migration history of Italy. Although the country is characterized by its long-term internal migration, both between administrative units and between urban/rural areas, which has shaped its demographic structure as well as its geography in general (Biagi et al., 2011; Bonifazi & Heins, 2000), the focus of the present study is on international migration.

Italy is considered both a destination and an origin country for migration, but since the late 20th century, it has increasingly become a destination country, something that can be noticed in the following graph about the net migration data provided by the World Bank (n.d.).

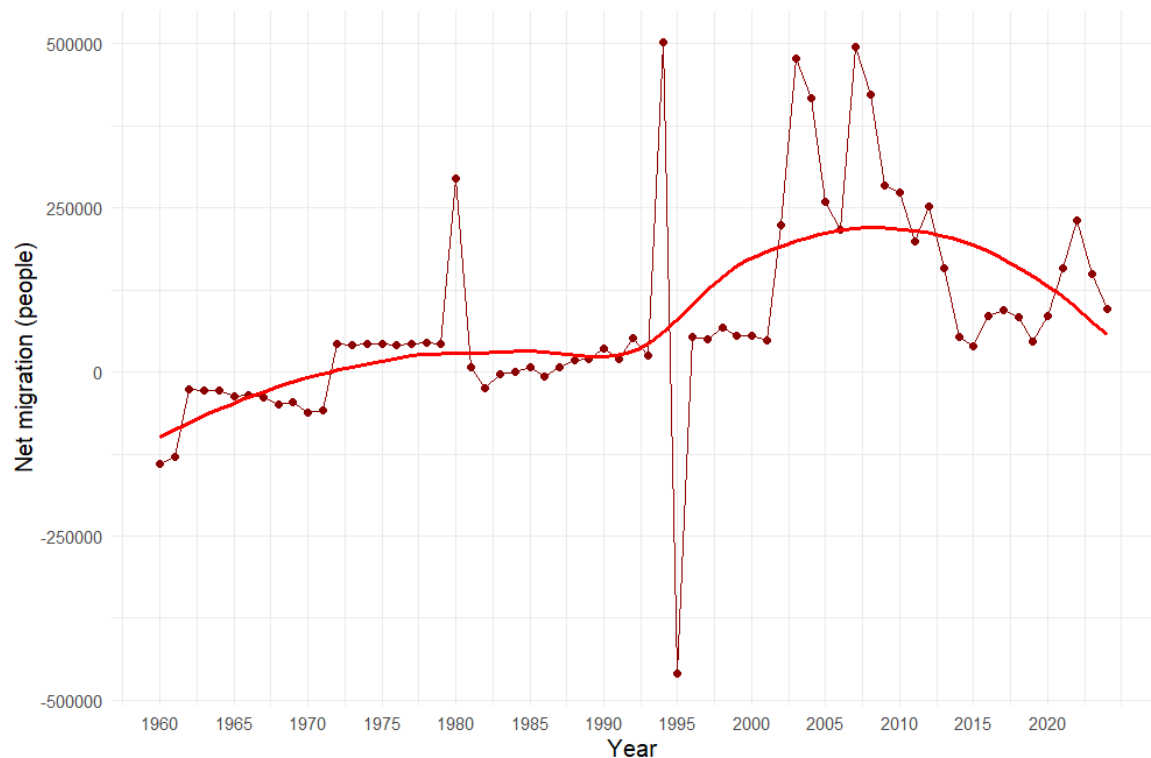


Figure 3 Net migration in Italy (1960 - 2023). Source: prepared by the author (2025).

As shown in the graph, Italy passed from being an origin country, even having an almost neutral net migration, to becoming a main destination country during the period 2000 – 2025. The tendency has not been continuous, with both peaks of emigration and immigration during the last 60 years. The sharp fluctuation observed in 1995 corresponds to both a regularization process conducted as a consequence of the Legislative Decree 489/1995 (known as the Dini Decree) and to a redefinition of the way of counting migrants, rather than an actual demographic shift (Bonifazi & Strozza, 2001; Bonifazzi et al., 2009).

For the year of study, 2021, the distribution of the proportion of migrants among Italian municipalities is the one shown on the following map (Figure 4). While the South presents an overall low proportion of migrants residing in their municipalities, both the Center and the North have a relevant share of migrants when analyzing their municipalities. It is also worth noticing that, even in the South, the relative distribution of migrants tends to be higher in urban municipalities and both regional and provincial capitals. In terms of geographic distribution,

59% of foreigners resided in northern Italy, especially in the regions of Lombardy, Emilia-Romagna, and Veneto (ISTAT, 2023).

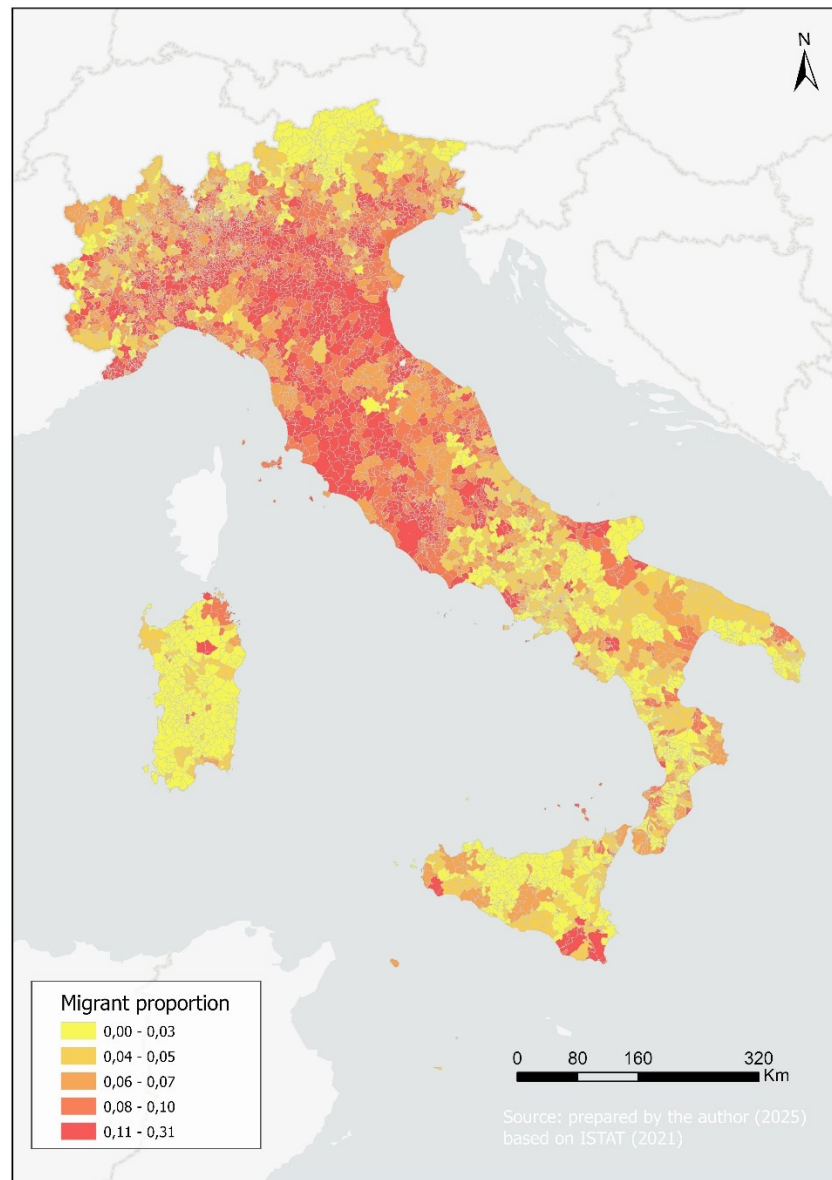


Figure 4 Migrant proportion for 2021, Italy. Source: prepared by the author (2025).

Following de Haas's (2021) theory about aspirations and capabilities, Italy, due to its location in the Mediterranean Basin, is more susceptible to being a destination country for individuals willing to move to Europe from African or Asian countries because the relative cost to move to Italy is lower than to other European countries that could be further. This is also a geographical matter, as most of the legal routes for asylum-seekers are closed, and to reach Europe by sea is the only option, with Italy being a logical point of arrival. Hence, it has received an increasing number of migrant populations, both definitive and temporary, from these continents,

something that was visible during the so-called European refugee crisis in 2015-2016 (Pettrachin, 2024b).

This last event mentioned was relevant for the contemporary history of migration, not only in Italy but in Europe. Specifically in this Mediterranean country, it represented a moment of high politicization of the topic of migration, from which political parties such as *Lega* or *Fratelli d'Italia* started to adopt an antimigration speech much clearer than before, treating it as an issue and making it a cornerstone of their political agenda in general and campaign in particular (Pettrachin, 2024b).

According to the Istituto Nazionale di Statistica (ISTAT, 2023) in 2021, the migrant composition in Italy was characterized by its heterogeneity regarding country of origin and the share that each group had. From a total of 5,171,894 migrants living in Italy, the following table presents their relative composition (Table 4)

Country of origin	Absolute	Share of the total foreign population (%)
Romania	1,251,598	24.2%
Albania	470,642	9.1%
Morocco	455,127	8.8%
Ukraine	253,423	4.9%
China	206,876	4.0%
India	191,360	3.7%
Philippines	191,360	3.7%
Moldova	170,673	3.3%
Bangladesh	144,813	2.8%
Peru	118,954	2.3%
Other	1,517,068	33.2%

Table 4 Migrant composition of Italy, 2021. Source: compiled by the author (2025).

It must be noticed that a relevant share of the foreign population comes from European countries, such as Romania, Albania, or Moldova, and that the only African country with a relevant proportion is Morocco, while the Asian ones are far more frequent. Special attention should be given to Ukraine due to the context of the war: in 2021, 241,595 new residence

permits were granted, with a notable increase in permits for work-related reasons, benefiting especially Ukrainian citizens (ISTAT, 2023).

Hence, the trends on migration flows show that the phenomenon is far from being static in Italy: it has had different stages, and relatively recently, the country has become a major destination country. These variations are not only present when considering the temporal dimension but also the spatial one, with unbalances between different geographical units, showing a complex pattern of localization and composition, discarding the idea of a uniform expression of this process within the Italian territory.

9.3. The study of segregation in Italy

The review conducted suggests that the discussion about migrant residential segregation in Italy started at the beginning of the 2000s. This reflects developments on the ground as Italy, like other southern European states, had until the 1970s been mostly a country of emigration and became a country of destination, especially for flows from North Africa (Morocco, Tunisia) and Eastern Europe (Albania, Romania), starting from the 1990s.

Using some descriptive statistical analysis and public policy analysis, Carella & Pace (2001) were able to distinguish some segregation patterns in Italy, for example, the absence of hypersegregation: unlike in several northern European cities, in Italy migrants do not form closed ethnic ghettos, but (in the early 2000s) were distributed in peripheral areas or rural areas with high labor demand, often living in neighborhoods with substandard housing or informal settlements.

This idea of a “fragmented” segregation, without clear ethnic enclaves, but linked to degraded historical centers or peripheries, was also noticed by Malheiros (2002) in his comparative analysis. The author, this time using segregation indices, characterizes southern European cities in general, and Italian cities in particular, as settlements with lower levels of residential segregation compared to the northern ones, but with poorer housing conditions. Specifically in Italy, Malheiros (2002) highlights that segregation in Italy is more linked to economic characteristics than ethnic ones, showing a high degree of complexity.

During the last two decades, the study of segregation in Italy has become a major topic of research in general, but specifically linked to migrant residential segregation due to the novel relevance that migration in general has gained. In this regard, most of the scholarship addressing this topic uses quantitative methods consisting of both applications and re-interpretation of

classical measures of segregation developed in the US during the past century (Benassi et al., 2019, 2020; Pratschke & Benassi, 2024; Strozza et al., 2016).

The study conducted by Strozza et al. (2016) was an important step for the quantification of migrant residential segregation, both as an empirical and methodological approach for understanding the phenomenon in Italy, despite not studying segregation itself. Adopting an urban scale approach, the authors analyzed how migrants can influence the population characteristics among urban settlements, in an analysis in which the researchers considered migrant residential segregation explicitly as a factor, specifically the dissimilarity of them. Regardless of the detailed findings of the study, the authors proposed the need to interpret the indicators together with contextual variables, adopting a place-based approach, therefore indirectly reflecting on the issue of the Modifiable Areal Unit Problem (MAUP).

Another relevant input for the study of segregation was the one conducted by Pratschke & Benassi (2024) which constitutes a key methodological advance in the analysis of residential segregation in Italy, by proposing new, more homogeneous spatial units and allowing a longitudinal approach to the phenomenon between 2011 and 2021, considering not only cities but also urban and rural areas. However, its approach remains at the descriptive level and does not directly address the political implications of segregation.

In this regard, both articles agree that segregation in Italy has historically been underestimated or misunderstood due to the lack of homogeneous data and the choice of inadequate spatial scales. Thus, both Strozza et al. (2016) and Pratschke & Benassi (2024) proposed to analyze segregation not only in large cities, but also in smaller municipalities and rural areas, where there are also concentration/exclusion phenomena, and to emphasize that migrant residential segregation patterns in the country are conditioned by broader demographic processes such as population aging, rural depopulation, and immigration.

A detailed analysis focusing on the different countries of origin of migrants was the one held by Benassi et al. (2019) in which, again focusing on the urban scale and adopting quantitative approach using spatial analysis, this time with two cases studies in Rome and Naples, the authors discovered that the localization of migrant is dependent on the country of origin; for instance, Central and Eastern European communities (e.g. Romanians, Ukrainians) have greater spatial dispersion and centers of gravity close to Italians while Asian communities (e.g. Chinese, Bangladeshis) show high spatial concentration and centers of gravity away from the Italians.

As a summary, it should be noticed that academic research on migrant residential segregation in Italy has evolved from an initial descriptive and comparative phase (Carella & Pace, 2001; Malheiros, 2002) to a quantitative one, developing analyses that incorporate diverse spatial scales and contextual variables (Strozza et al., 2016; Pratschke & Benassi, 2024; Benassi et al., 2019). This evolution, while natural, reflects an effort to overcome methodological limitations, such as the lack of homogeneous data or the choice of inadequate spatial units, and to understand segregation not only as an urban phenomenon, but also as a rural one, and linked to broader demographic dynamics. In addition, progress has been made in distinguishing specific patterns by migrant origin, highlighting how cultural, economic, and labor factors condition their spatial distribution.

Lastly, it must be said that migrant residential segregation in Italy is a dynamic and multi-causal process, influenced by historical (transition from sending to receiving country), economic (segmented labor market), and urban (degradation of peripheries) factors. Although it does not reach the *ghettoization* levels of other regions, its fragmentation and precariousness make it a particular case study among European contexts.

9.4. Italian party politics and electoral results

Italian politics during the 21st century has been characterized by its complexity linked to a notorious fragmentation. Traditionally, four subcultures have been identified in the country, each with a certain geographical pattern: north-west, north-east, center, and south having each with their characteristics (Bloise et al., 2021). For instance, while the center has been traditionally a pole of prevalence for socialist and communist subcultures, as well as center left, the north-east has always been closer to a catholic culture, while the north in general has been characterized by a closer electoral behavior towards right parties, such as Lega. The South is a more dynamic area of growing interest for each coalition (Baccetti & Messina, 2023; Bloise et al., 2021).

Those regional differences have been explained from the point of view of structural factors that could influence the territorial configuration of each region (Vassallo & Shin, 2022). In this regard, the explanations to understand why each region has a different electoral behavior should include not only individual-level factors, but also contextual ones such as income inequality, polarization of income structures, or unemployment (Bloise et al., 2021; Piketty, 2018).

Concretely, for the Italian case, Bloise et al. (2021) mentions that the so-called economics of privilege, a way of politics that aims to keep the state's wealth, is a key factor to explain not

only the polarization of the votes during the 21st century in Italy, but especially to understand the rise of abstentions and the consequent increase in blank votes.

For the period of interest, Table 5 lists the main political parties in Italy in 2022 and describes their political ideologies and the share of votes they obtained in the 2022 elections (for the National Chamber of Deputies).

Political Party	Political Ideology	Share of votes (%)
<i>Fratelli d'Italia</i>	Far-right (European Conservatives)	25,98
<i>Lega per Salvini Premier</i>	Far-right (Patriots)	8,79
<i>Forza Italia</i>	Centre-right (EPP)	8,11
<i>Noi Moderati</i>	Centre-right (EPP)	0,9
<i>Partito Democratico - Italia Democratica e Progressista</i>	Centre-Left (S&D)	19,04
<i>Alleanza Verdi e Sinistra</i>	Left-Greens	3,64
<i>+Europa</i>	Centrist (RE)	2,83
<i>Impegno Civico – Centro Democratico</i>	Centrist (RE)	0,62
<i>Movimento 5 Stelle</i>	Populist (Left)	15,43
<i>Azione - Italia Viva</i>	Centrist (RE)	7,78
<i>Italexit</i>	Far-right (NI)	1,9
<i>Unione Popolare</i>	Left (NI)	1,43
<i>Italia Sovrana e Popolare</i>	Left/conservative	1,24
<i>Sud chiama Nord</i>	Regionalist	0,76
<i>Vita</i>	Issue party	0,72
<i>SVP – PATT</i>	Regionalist	0,42

Table 5 Political parties in Italian national elections of 2022. Source: prepared by the author (2025).

Especially after the so-called 2015 ‘refugee crisis’, a growing number of scholars in Italy have started to study links between migration and electoral results, and particularly electoral support for radical right anti-migration parties and their positions on the migration issue (Castelli Gattinara, 2017; Pettrachin, 2024b; Triandafyllidou, 2018).

The study conducted by Castelli Gattinara (2017) is a good example that shows that, even before the crisis, surveys have shown an increase in the perception of migrants as a security threat (from 25% in 2014 to 40% in 2016). In this regard, according to the study, the crisis was seen as an opportunity for far-right parties such as *Fratelli d'Italia* or *Lega Nord*, who instrumentalized the panic for their political benefit, for example, by creating a narrative that linked migration with terrorism and loss of cultural identity.

During the crisis itself, migration was perceived as an issue of high relevance, with an increase in public concern. Although attitudes towards migration did not polarize significantly, the perceived importance of it increased dramatically, especially in Northern Italy. In the south,

attitudes were more negative due to socioeconomic factors, but the salience of the issue was lower compared to the north. Overall, data showed that Italians identified migration as one of the country's main problems from 2016 to 2017 (Pettrachin, 2024).

Consequently, the crisis strengthened far-right parties such as the *Lega Nord* (nowadays renamed *Lega*) and *Fratelli d'Italia*, which capitalized on anti-immigration discourse with slogans such as “Italians first” and “Stop the invasion”. The case of *Lega* is a particular case because during the refugee crisis, the party, which previously combined conservative stances with a strong regionalist approach centered on Northern Italy, transformed into a more traditional populist radical right party, characterized by a radical anti-migrant discourse (Pettrachin, 2024).

Such a polarization in the Italian political system was mainly driven by the perception of individuals rather than concrete facts, as exposed by Triandafyllidou (2018). This author showed how, during the crisis, two narratives on migration were confronted in Italian media, one focused on solidarity one and the one framing migration as a threat, which became dominant. The author indicates that the far right exploited the threat frame to promote anti-migration policies, while the traditional parties adopted a “rationalized” approach (balancing solidarity and control). Specifically, both the *Lega* and *Fratelli d'Italia* adopted “us vs. them” oppositional discourses, linking migration with insecurity and economic burden as mentioned by Castelli Gattinara (2017).

The 2022 elections were won by the right coalition, including the *Lega*, *Forza Italia* and *Fratelli d'Italia*, a political party rooted in the post-fascist party *Movimento Sociale Italiano* (Sondel-Cedarmas, 2022). This latter party was the most voted for and its leader, Giorgia Meloni, became president of the Council of Ministers after the elections.

Both the *Lega* and *Fratelli d'Italia* largely centered their electoral campaign in 2022 around the issue of immigration. In this regard, *Fratelli d'Italia* proposed hard measures against migration, such as proposing a blockade of the Mediterranean Sea with the use of the nation's navy. The party also opposes any reform of the currently restrictive Italian citizenship law, highlighting that Italian citizenship should be a privilege rather than a right (Sondel-Cedarmas, 2022). These elements constitute a key point of their political speech, aiming to get the votes of a part of the population that identifies with this explicitly anti-migration discourse.

Regardless of her initial attempt to tackle migration by adopting hard measures, Meloni's government has not been as consistent with the hard speech that she developed during her period as opposition (Echeverría & Finotelli, 2024). In this sense, Meloni moderated her radical

rhetoric once in power, adopting a pragmatic and continuous approach to policies like those of previous governments, for example, by approving migration flow decrees or by signing agreements with third countries regarding migration measures, such as Albania or Tunisia. Thus, Meloni's government represents how Italy remains trapped in a vicious circle of extreme politicization of the issue, where neither the left nor the right has resolved the structural contradictions of a system that needs migrants but refuses to integrate them.

In short, the Italian case shows how the migration issue has gone from occupying a marginal place to becoming a central axis of political debate, shaped more by perceptions and discursive frameworks than by objective data. This transformation has had a significant impact on the configuration of the national political scene and on the legitimization of restrictive discourses and measures.

10. RESULTS & FINDINGS

The following section presents the main findings of the present research. It adopts a logical sequence that is coherent with the order presented in the methodology. First, each dimension of segregation is analyzed using its descriptive statistics measures, the same procedure is replicated for the dependent variable. Later, the model itself and its iterations are described. This last section also presents a summary of the descriptive statistics for the control variable and the outlier's treatment for both the dependent variable and the independent variables.

10.1. *Regarding migrant residential segregation*

10.1.1. *Exposure*

Regarding the exposure dimension of segregation, the results of the isolation index show a high heterogeneity among all the Italian municipalities. The minimum value of the distribution was zero, while the highest one was one, the two maximum values possible that represent a range of 1. The total number of observations was 7904.

As for the measures of central tendency, the mean was 0.104, the median was 0.09, and the modal interval corresponded to [0 - 0.1], as shown in the histogram below (Figure 5).

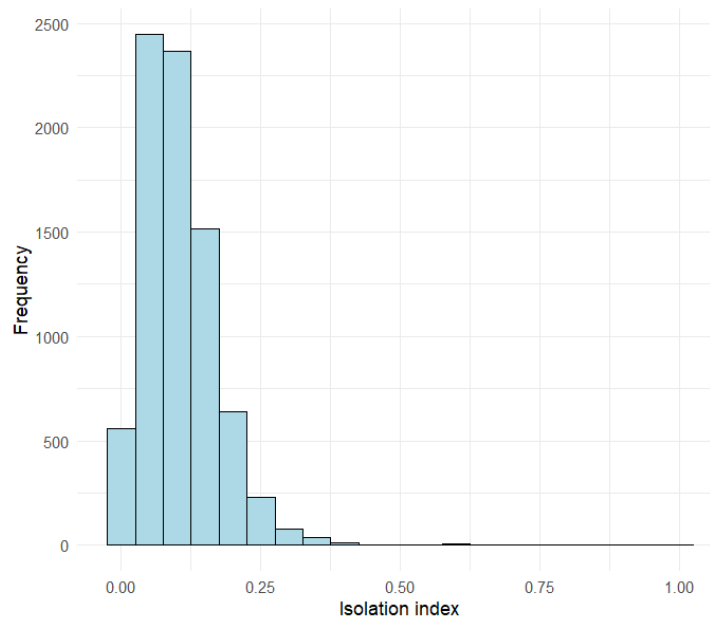


Figure 5 Isolation index histogram. Source: prepared by the author (2025).

Concerning the dispersion measures, the standard deviation was 0.068 and the variance was 0.0046. Considering the distribution of the index, the IQR was also calculated, and its value was 0.084. In general, the distribution presents a high asymmetry represented by its right-skewed shape and its kurtosis of 11.33, measures that may be interpreted as while most

municipalities have low isolation indices, a few have very high values, pulling the tail far to the right.

Although its shape and the descriptive statistics suggest that the distribution of the isolation index is far from normality, the Anderson-Darling test of normality was performed to guarantee the consistency of the analysis regarding the rest of the variables. As expected, the p-value was below $2.2e-16$, allowing us to reject the null hypothesis of normality.

A detailed analysis of each of the Italian macrozones was conducted to complement the study of the isolation index among the Italian municipalities. The following table summarizes its descriptive statistics (Table 6).

Macrozone	Count	Mean	Median	Standard deviation	Interquartile Range
Center	968	0.1281	0.1206	0.0562	0.0679
North	4385	0.1192	0.1089	0.0669	0.0791
South	2551	0.0693	0.0531	0.0603	0.0581

Table 6 Descriptive statistics by macrozone - isolation index. Source: Prepared by the author (2025).

As can be noticed, in general, migrant isolation is low for each Italian macrozones. However, both Central and Northern Italy present a higher degree of migrant isolation, even when considering the median as a measure of central tendency, which is less sensitive to extreme values. The next boxplot represents the distribution of each of them (Figure 6).

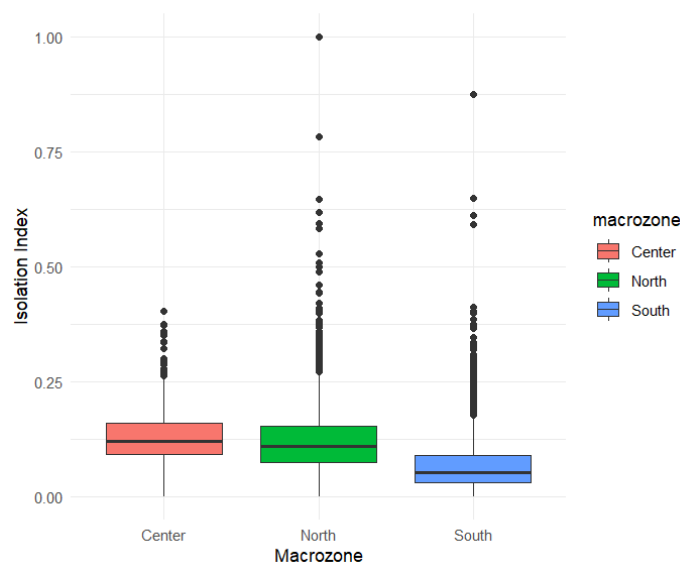


Figure 6 Boxplot of isolation index by macrozone. Prepared by the author (2025).

The results suggest slight differences regarding the behavior of the index in each macrozone. To assess significant differences between Italian macrozones (north, center, south), the Kruskal-Wallis Rank Sum Test and the Dunn's Kruskal-Wallis Multiple Comparisons were conducted, two non-parametric tests that are coherent with the nature of the distribution. The formula of the test is described as follows (Hollander et al., 2015):

$$H = \frac{12}{N(N+1)} \sum_{i=1}^k \frac{R_i^2}{n_i} - 3(N+1)$$

Where:

N represents the total number of observations

k represents the number of groups

R_i represents the sum of the ranks of group i

n_i represents the sample size of group i

While for Dunn's test, a *post-hoc* comparative measure coherent with the Kruskal-Wallis one, the formula is defined as follows (Dunn, 1964). Although described for two groups, the equation is the same to compare each possible combination of them, three in this case:

$$Z = \frac{R_i - R_j}{\sqrt{\frac{N(N+1)}{12} \left(\frac{1}{n_i} + \frac{1}{n_j} \right)}}$$

Where:

R_i, R_j refers to groups i and j rank mean

n_i, n_j refers to groups i and j sample size

N refers to the total number of observations

Concerning the macrozones, the results show a significant difference among them with a p -value below $< 2.2e-16$ between north, center, and south, where the last one is the macrozone in which the migrants are the least isolated. Using the indicator Z from the Dunn test, it can be noticed that the differences are high when comparing North-South and Center-South, while for the Center-North, the difference is significant but moderated. These results can be seen in the appendices.

Those results are coherent with the variable's distribution exposed in the map shown below (Figure 7). Although the level of migrant isolation is relatively low, something that is coherent with the scale of analysis, the results are far from being homogeneous, with a notorious concentration of higher values in the center of the country and across the Po valley. These spatial patterns suggest autocorrelation of the variable, a hypothesis proven by a Moran's I statistic of 0.384, higher than zero ($p\text{-value} < 2.2e-16$), which suggests an intermediate clustering of the isolation by municipalities.

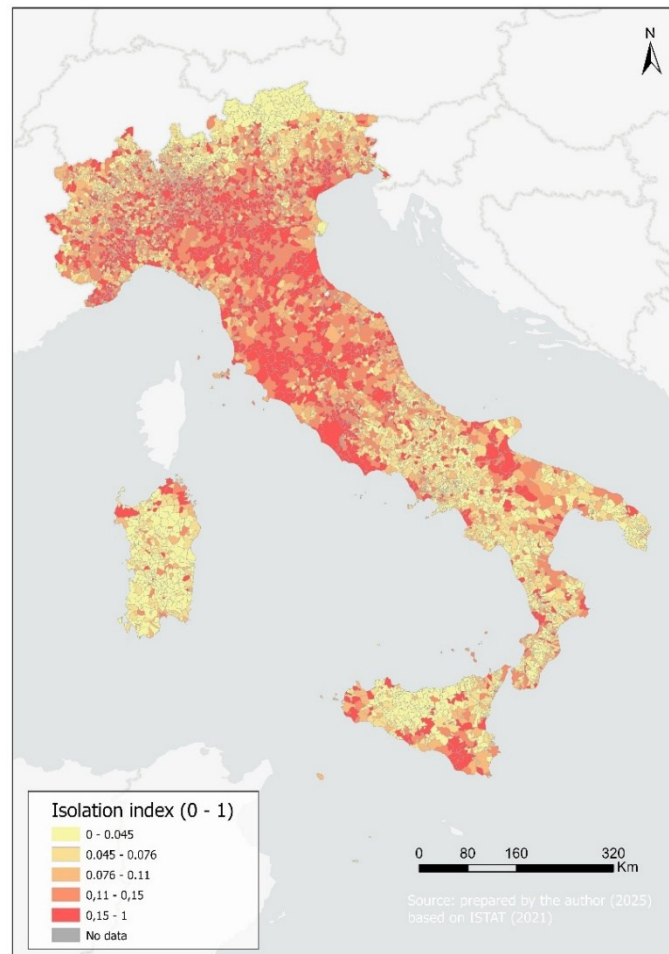


Figure 7: Spatial distribution of isolation index. Prepared by the author (2025).

10.1.2. Evenness

As for the evenness dimension of segregation, the results of the calculation of the dissimilarity index are exposed here. As the isolation index, the dissimilarity index also presents a high variability: with 7904 observations, the minimum value of the distribution was zero and the maximum was one, thus the range was also 1.

As for the central tendency measures, the mean was 0.2739, the median was 0.2663, and the modal interval was [0.2 – 0.3] as shown in the following graph (Figure 8).

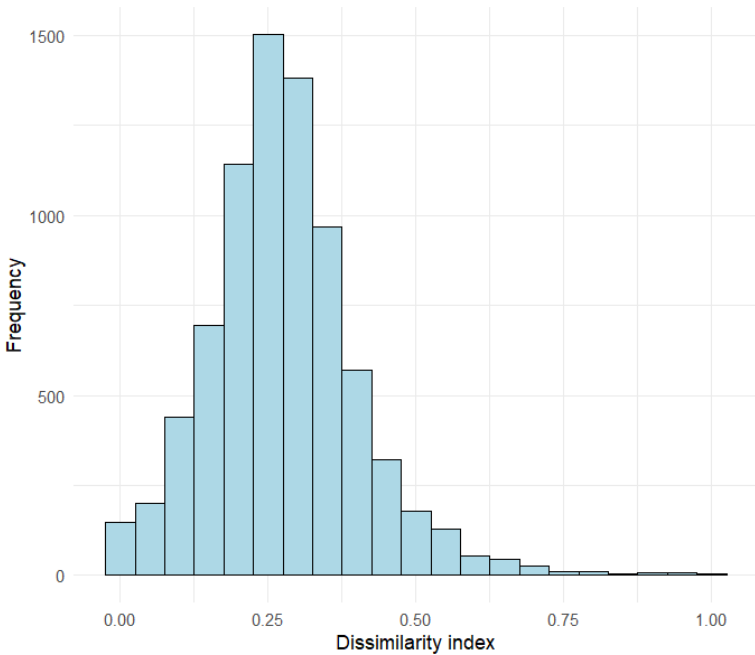


Figure 8 Dissimilarity index histogram. Source: prepared by the author (2025).

Regarding the dispersion measures, the variance was 0.0164, the standard deviation was 0.128, and the IQR was 0.1452, a measure calculated based on the distribution's shape. The index results indicate a right-skewed shape with a kurtosis of 2.33074. Although it is not as pronounced as that of the isolation index, this could also suggest that most Italian municipalities have a low dissimilarity index, pulling the tail to the right.

Despite its shape and the descriptive statistics suggesting that the distribution of this index is far from normality, the Anderson-Darling test of normality was performed to guarantee the consistency of the analysis regarding the rest of the variables. As expected, the p-value was below $2.2e-16$, allowing us to reject the null hypothesis of normality.

The comparative analysis focusing on Italian macrozones shows certain heterogeneity between them, as was the case for the isolation index. The following table summarizes their descriptive statistics (Table 7).

Macrozone	Count	Mean	Median	Standard deviation	Interquartile Range
Center	968	0.274	0.270	0.0895	0.106
North	4385	0.264	0.255	0.130	0.142
South	2551	0.290	0.288	0.136	0.165

Table 7 Descriptive statistics by macrozone - dissimilarity index. Source: Prepared by the author (2025).

Although higher than migrant isolation, the results of the index show a relatively low level of dissimilarity regarding migrants among Italian municipalities. Despite this result, it is worth noting that when dissimilarity is used to calculate segregation, the South is the macrozone with the highest segregation, followed by the center, and finally the North. The distribution of each macrozone is observable in the boxplot shown below (Figure 9).

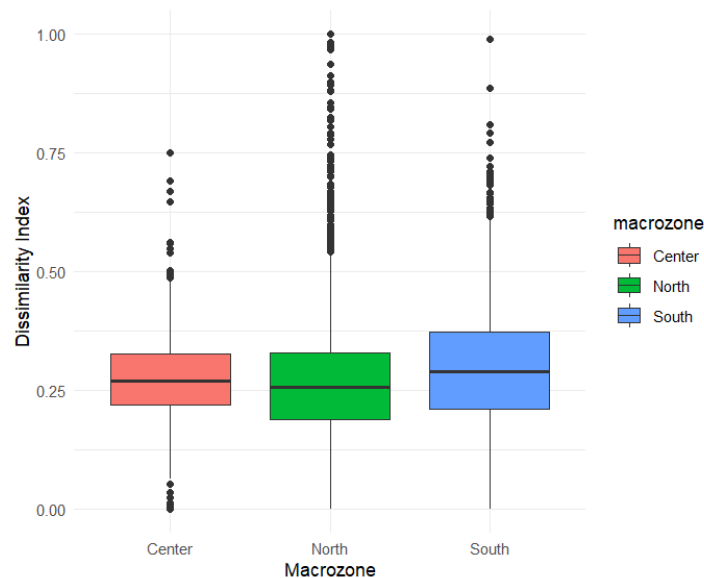


Figure 9 Boxplot of dissimilarity index by macrozone. Prepared by the author (2025).

As was done for the isolation index, to assess the differences between macrozones, both the Kruskal-Wallis Rank Sum and Dunn's Kruskal-Wallis Multiple Comparisons tests were conducted following the nature of the data and guaranteeing the reliability of the comparisons.

In this regard, the results show a significant difference among them with a p-value below $< 2.2e-16$ between north, center, and south. Although all differences are significant, the one between North and South is the most relevant one, while the Center and South have the smallest differences. A detailed description of these results is available in the appendices.

Those results are aligned with the spatial distribution of this dimension of segregation (Figure 7). Despite the relatively small difference identified by the descriptive statistics, mostly due to

the MAUP, the geographical distribution is far from being homogeneous, as it may be concluded from the following map (Figure 10).

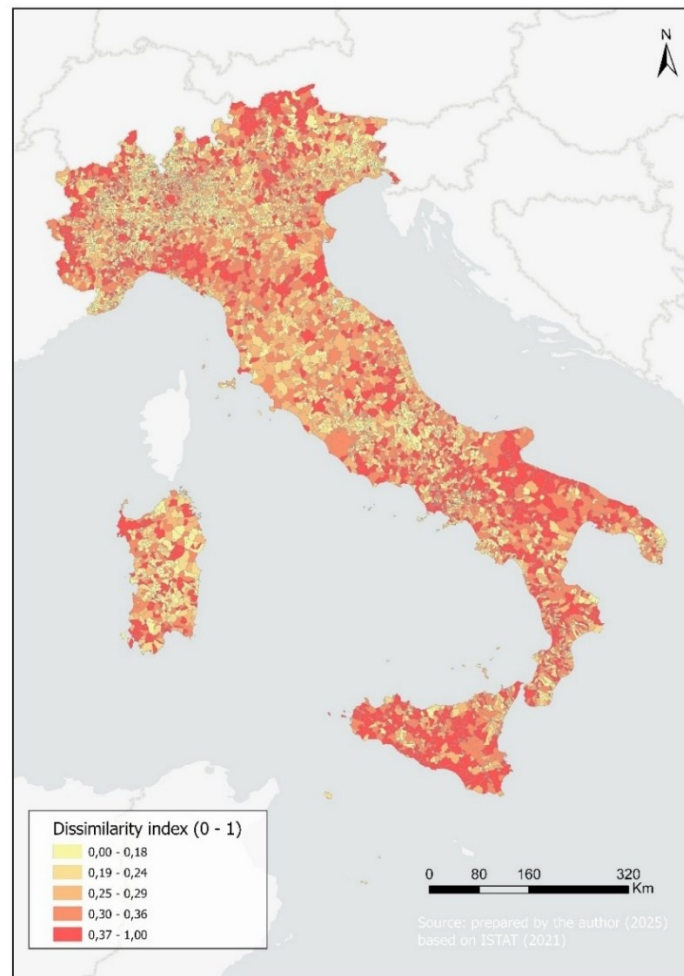


Figure 10 Spatial distribution of dissimilarity index. Prepared by the author (2025).

As mentioned, the highest values can be observed in the South of Italy, for instance, Sicily and Apulia, while central regions such as Tuscany or Lazio expose lower values. The spatial distribution of the indicator suggests that the distribution of the values could follow a particular pattern, a hypothesis that is validated by a Moran's I statistic of 0.210, demonstrating a slight degree of spatial autocorrelation of the dissimilarity index by municipalities.

10.1.3. Aggregation

The dimension of aggregation/clustering of segregation, regardless of its relevance, is somewhat different from the previous one: it is the only one so far that recognizes the spatial dimension, including contiguity and distance as relevant factors to take into account when

dealing with its calculation. On the other hand, the measure here chosen (Moran's I) is a general technique that could be used to analyze any numeric variable, since in this research we already analyzed the overall spatial autocorrelation of the isolation and dissimilarity indices, this section aims to provide an in-depth understanding of their spatial behavior using the Moran's I and its local value for each municipality (local index of spatial autocorrelation, LISA).

This analysis identifies significant spatial clusters of municipalities with similar levels of migrant residential segregation. In red, municipalities with high migrant population segregation are shown, surrounded by similar municipalities ("High-High" clusters). In dark blue, those with low segregation are shown, surrounded by similar ones ("Low-Low"). The softer colors (pink and light blue) represent municipalities with similar but not statistically significant patterns. Finally, municipalities in light grey do not show a clear spatial autocorrelation, i.e., their values are not related to those of their neighbors. In this regard, the following map represents the degree of clustering based on the spatial autocorrelation of the isolation index (Figure 11).

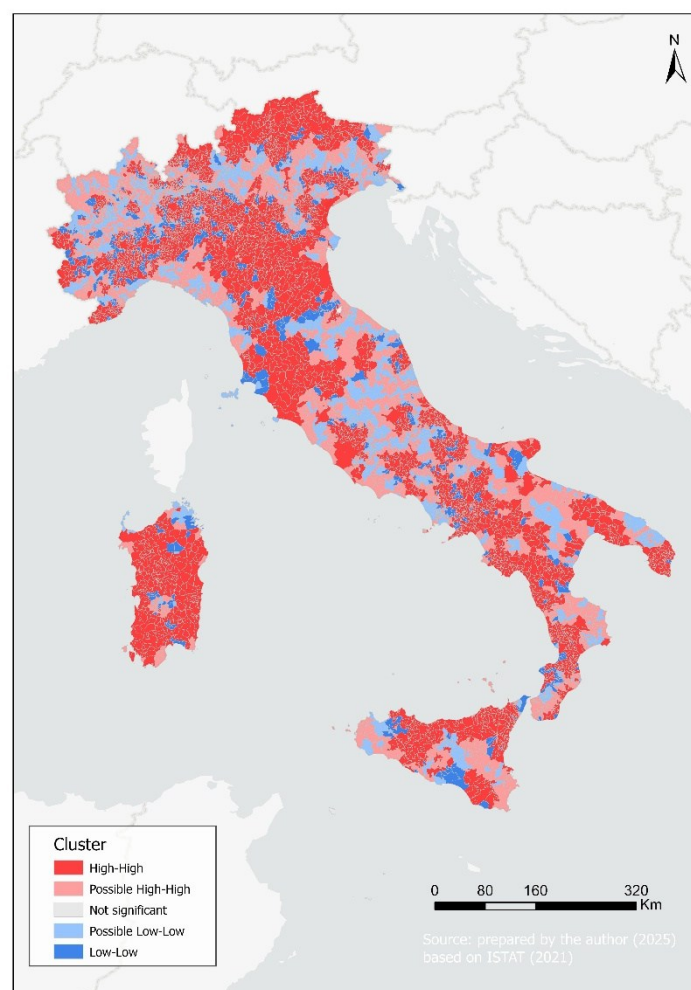


Figure 11 Clusters of isolation. Source: prepared by the author (2025).

It can be noticed that many municipalities in the center-south of Italy, Sicily and Sardinia show significant High-High clusters, areas where there is a high probability that the migrant population is concentrated in itself. Although the results of the isolation index are concentrated around zero, there is a pattern of self-referential segregation in some areas, verifying the idea of spatial autocorrelation suggested by the global Moran's I.

These results are coherent with the dimension of exposure that the measure catches: the isolation index measures how likely a migrant is to live with other migrants, so it tends to be higher where there are large minorities. These results are slightly different from the cluster analysis shown by the dissimilarity index (Figure 12).

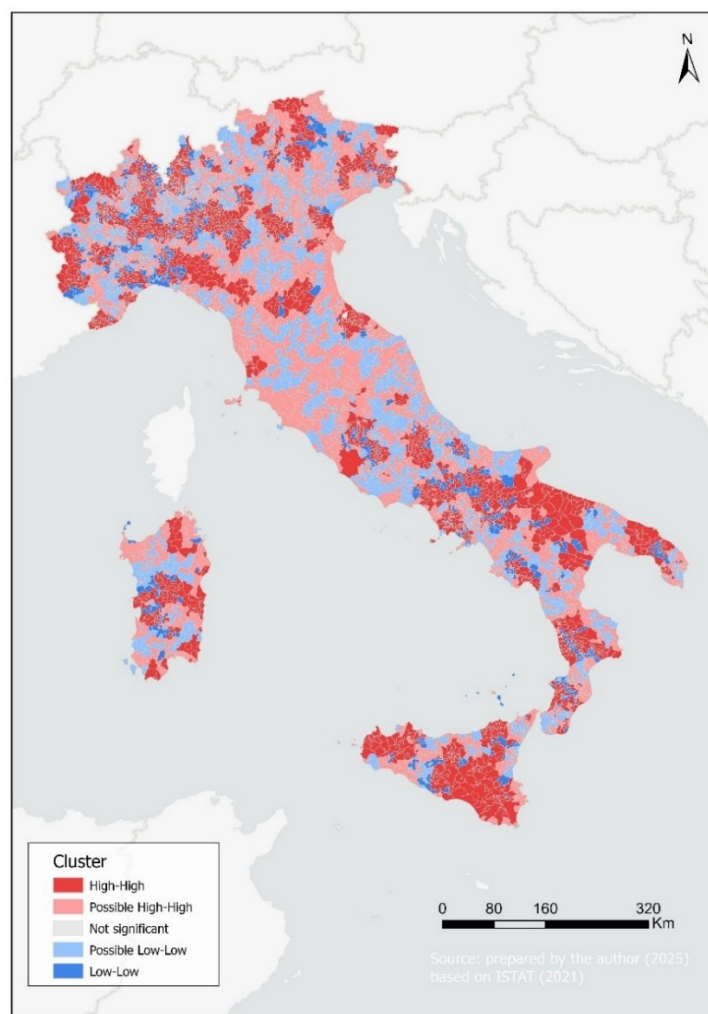


Figure 12 Clusters of dissimilarity. Source: prepared by the author (2025).

The map shows that the southern pattern continues to show many municipalities where High-High values are predominant, but now the north also has more significant red zones, especially in the northeast and northern industrial areas, suggesting a greater territorial balance of High-High and Low-Low between northern, central and southern regions, suggesting a more

structural segregation, not only linked to migrant contact, but to the separation between migrants and non-migrants.

Low-Low areas intensify in regions where isolation was not low (e.g., north and northwest), which may indicate the presence of migrants in more integrated contexts but equally segregated from the majority group. To interpret these results, it might be remembered that the dissimilarity index measures how far apart the migrant and non-migrant populations are, so it can be high even if there are few migrants, if they are completely separated.

The results obtained from the aggregation analysis using Moran's I and LISA allow us to integrate the explicit spatial dimension that the latter indices do not capture directly. While the isolation index evidences the probability that a migrant person resides together with other migrants, the identification of significant clusters (High-High) in central-southern regions, Sicily, or Sardinia reinforces the idea that, in these territories, the concentration of migrants is not random or dispersed, but territorially structured. This suggests that, beyond its low average value at the national level, segregation by exposure can take on an intensely localized form in certain regions.

In contrast, the dissimilarity index, capturing the unequal distribution between migrant and native populations, presents somewhat different spatial patterns. The presence of High-High clusters in both the industrial south and north indicates that structural segregation may be more widespread territorially. Thus, regions with low exposure (isolation) may, at the same time, register high dissimilarity, revealing contexts where migrants and natives share the territory unequally, without necessarily coexisting. This difference shows that spatial separation does not always imply reciprocal visibility between groups: dissimilarity can be high even in contexts with a low probability of direct contact, an idea that reinforces the need to comprehend segregation as a multidimensional phenomenon.

10.2. *Regarding electoral results*

The dependent variable of this study is electoral results for radical right parties in Italy (with a focus on votes for *Fratelli d'Italia*, *Lega*, and *Italexit* at the 2022 national elections). For this variable, the administrative data at the municipal level includes 7830 observations, based on the division of 2022 for electoral purposes. The following histogram shows its distribution (Figure 13).

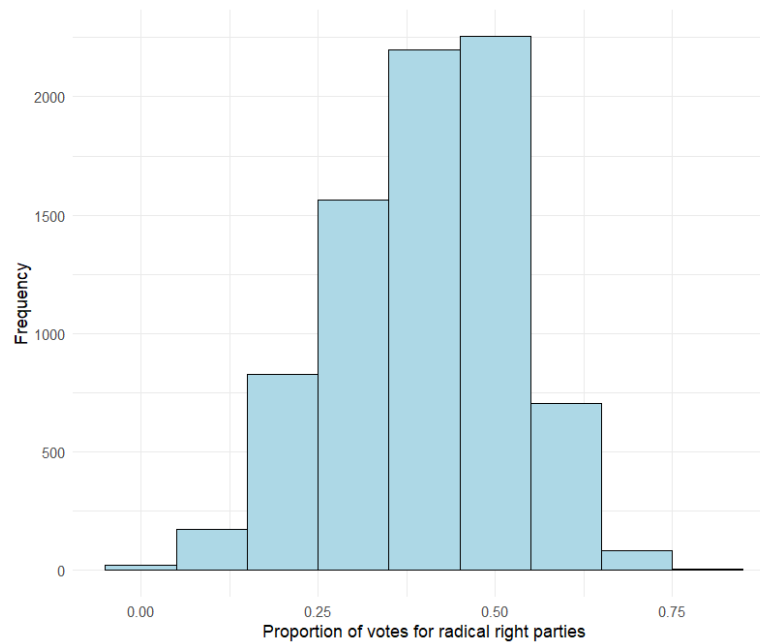


Figure 13 Radical right votes histogram. Source: prepared by the author (2025).

The minimum value of the distribution was 0.0198, while the maximum value was 0.85 with a range of 0.8202. About the central tendency measure, the mean was 0.4, the median was 0.414, and the modal interval was [0.5 – 0.6].

The distribution shown in the histogram suggests that the values are concentrated around the mean. The variance was 0.0153, the standard deviation was 0.124, and the IQR, 0.1776. Its shape suggests a low skewness, which is coherent with its kurtosis of -0.270, slightly distant from zero (value for a normal distribution in Fisher's kurtosis).

However, when performing the Anderson-Darling test for normality, the p-value does not allow us to accept the null hypothesis of normality ($< 2.2e-16$), due to the deviation present in the tails of the distribution. This is noticeable in the normal q-q plot, available in the appendices.

Regarding the macrozone analysis of the electoral results focusing on the share of votes received by the radical right, the results are highly heterogeneous, as can be observed in the following table (Table 8).

Macrozone	Count	Mean	Median	Standard deviation	Interquartile Range
Center	968	0.430	0.433	0.0764	0.101
North	4311	0.487	0.498	0.106	0.115
South	2551	0.308	0.301	0.0936	0.125

Table 8 Descriptive statistics by macrozone - Share of votes received by radical right parties in the last national elections. Source: prepared by the author (2025).

It is noticeable that the dispersion measures are similar among each macrozone, while the main differences are those regarding the central tendency. In this aspect, it is the south where, both using the mean and the median, the share of votes for radical right parties is the lowest.

To assess these differences, the comparison tests already conducted for each dimension of segregation were performed. As a result, the differences among the macrozones are significant ($p\text{-value} < 2.2e-16$), a behavior expected due to the tendency of previous indicators. However, when assessing the source of the variation, they strongly diverge, with the north and the south being strongly different from each other, and with a center that, regardless of its position as an intermediate unit, is still significantly different than the rest of the macrozones, something to be considered in electoral geography analyses. The details of these variations can be observed in the appendices, and the distribution of each macrozone is exposed in the following boxplot (Figure 14)

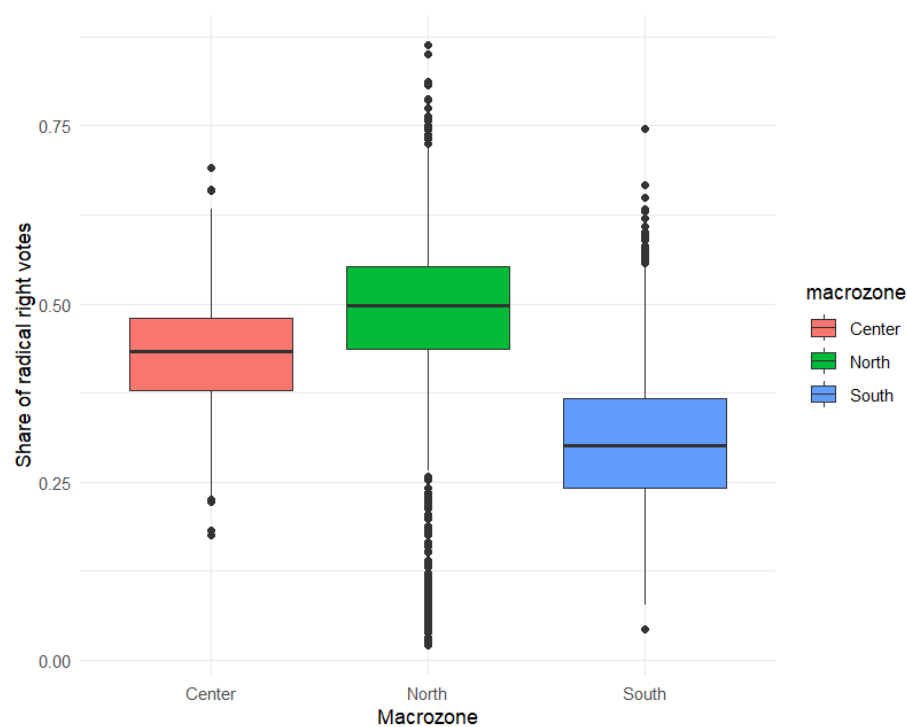


Figure 14 Boxplot of share of votes received by the radical right parties in the last national elections by macrozone. Source: prepared by the author (2025).

The spatial distribution of the votes toward radical right parties provides support for these results as can be noticed in the following map (Figure 15).

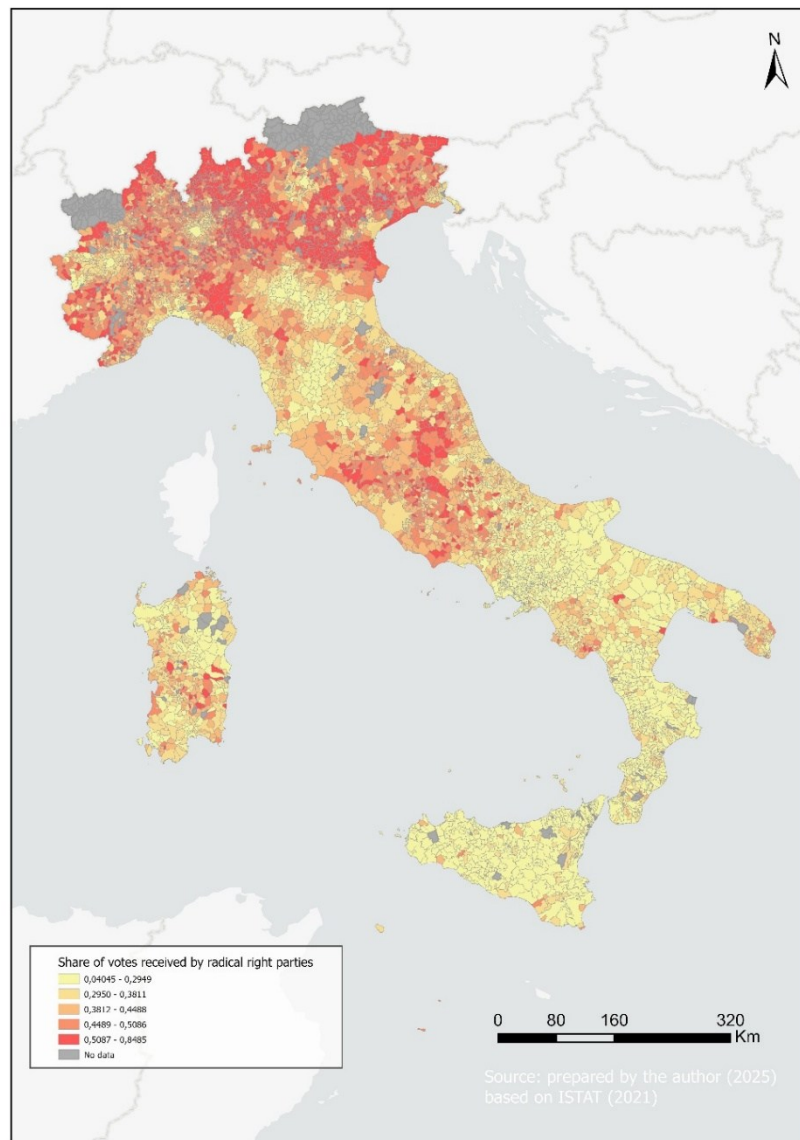


Figure 15 Spatial distribution of votes toward radical right parties. Source: prepared by the author (2025).

The highest share of votes towards *Italexit*, *Lega*, and *Fratelli d'Italia* was in northern Italy, with a secondary hotspot in certain areas of the central macrozone. On the other hand, the south has the lowest share of votes towards the radical right. This clear spatial pattern suggests spatial autocorrelation, something that is coherent with its global Moran's I (0.7625, p-value < 2.2e-16).

10.3. *Regarding the interaction of variables*

10.3.1. Outliers

10.3.1.1. Exposure

The isolation index presents several outliers, as was suggested in the description of the variable. These were identified using Tukey's method due to the distribution of the exposure dimension of segregation here analyzed. From the 7904 observations, 272 of them correspond to outliers (3.441%). From them, the regions with the least number of outliers are Aosta Valley, Emilia-Romagna, and Umbria, with three cases each. On the other hand, it is in regions such as Piedmont (40 cases), Lombardy (31 cases), Sardinia (30 cases), and Campania (30 cases) where the frequency of outliers is higher. Finally, from all the outliers concerning isolation, only 76 cases correspond to extreme ones (27.94%).

10.3.1.2. Evenness

As noticed in the description of the variable, the evenness dimension of segregation has some outliers that shape the behavior of the variable, which were identified using Tukey's method. Concretely, from the 7904 observations, 202 of them correspond to outliers (2.556%). Of them, the region with the least number of outliers is Umbria, with only one case, while regions such as Piedmont (41 cases) and Lombardy (31 cases) concentrate on the highest number of them. Finally, from all the outliers, only 22 cases correspond to extreme ones (10.89%).

10.3.1.3. Electoral results

Lastly, for the dependent variables also some outliers are expected to appear but at a lower frequency due to the shape of their distribution. In this regard, from the 7830 observations, just 133 of them are identified as outliers (1.689%). As for the previous dimensions, Piedmont, with 30 cases, and Lombardy, with 22, are those regions with the highest frequency of outliers, while Tuscany, with only one of them, is the region with the lowest frequency. Lastly, only two cases correspond to extreme outliers (1.5%).

10.3.2. Control variables

10.3.2.1. Population size

As mentioned in the theoretical framework and literature review, studies such as those conducted by Kaufmann & Goodwin, (2018); Kaufmann & Harris, (2015) or Schlueter & Scheepers (2010) highlight the relevance of considering the population size (also called the size of the territorial unit) due to its potential to influence the interaction between the individuals, considering the resources available and the population that uses them, leading to competitive explanations. Thus, for instance, in larger cities it could be expected high prevalence of the threat explanation due to the limited resources available for a high number of individuals. The following histogram shows its distribution (Figure 16).

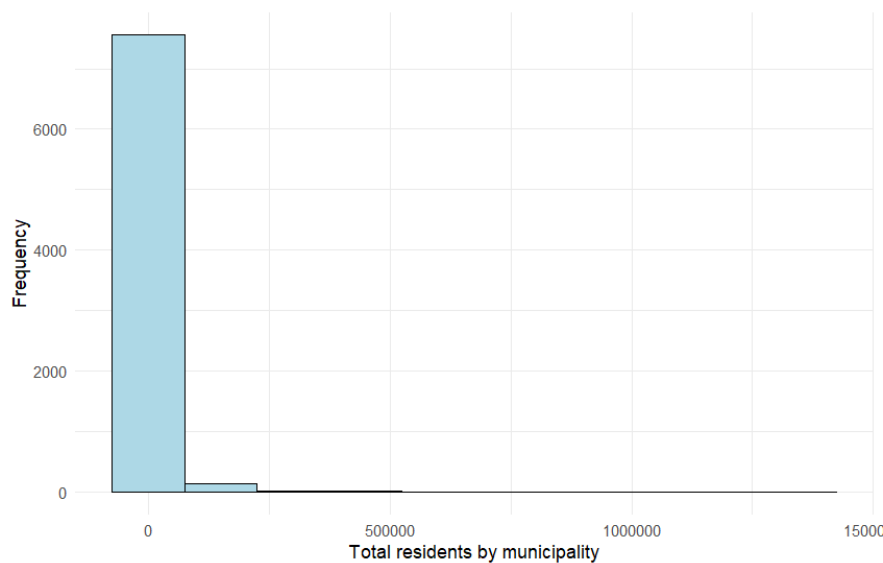


Figure 16 Histogram of control variable 1: Population size. Source: prepared by the author (2025).

As can be noticed, the distribution presents a high skewness (kurtosis of 504.8), a shape that is expected due to the behavior of variables such as population among the geographical space. The median was 2625.5 and the mean, 10091.2. Concerning the dispersion measures, the standard deviation was 38524.65 and the IQR was 6415.25, clearly far from the criteria of normality.

10.3.2.2. Population density

Connected with the results provided by Mousavinia (2022) and the classical approach to understanding how contact and threat theories work, population density as a measure of how many individuals live in a certain area, is a control variable considered relevant for this study

as it can influence the likelihood of interaction between groups and, in comparison to population size, it is not completely place-blinded. The histogram below shows its behavior (Figure 17).

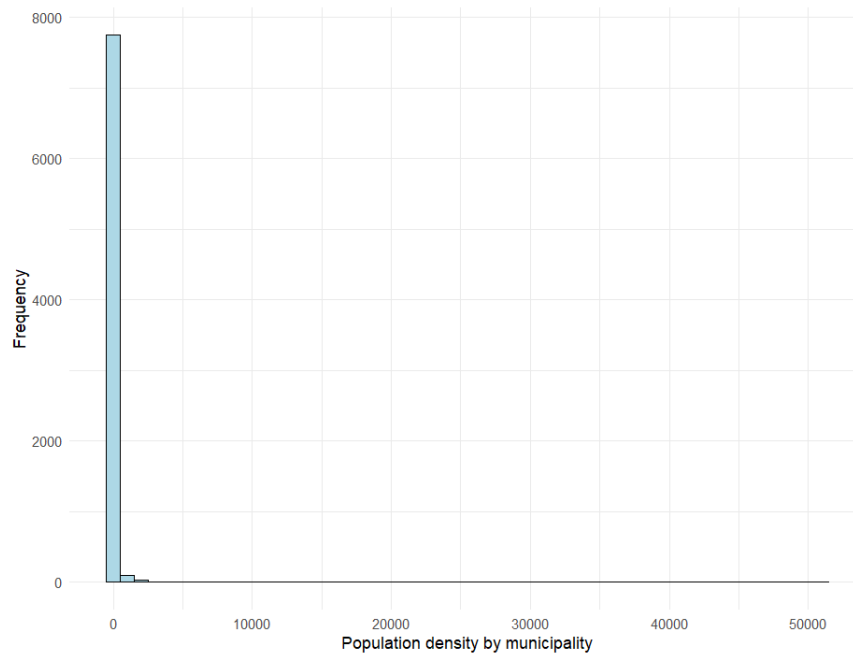


Figure 17 Histogram of control variable 2: Population density. Source: prepared by the author (2025).

The behavior of the variable is similar to the population size. Its kurtosis is high (1281.85), confirming that its shape is far from normal. Regarding the central tendency measures, the mean was 775.9 and the median, 113.1. The standard deviation was 5574.723, and the IQR was 341.01.

10.3.2.3. Migrant density

As stated for population density, migrant density is considered in the construction of models due to its potential as a variable that can influence the interaction between migrants and non-migrants. Due to its specificity, it is expected that it will be less correlated to other variables in the present study, especially when compared to population density and population size (Figure 18).

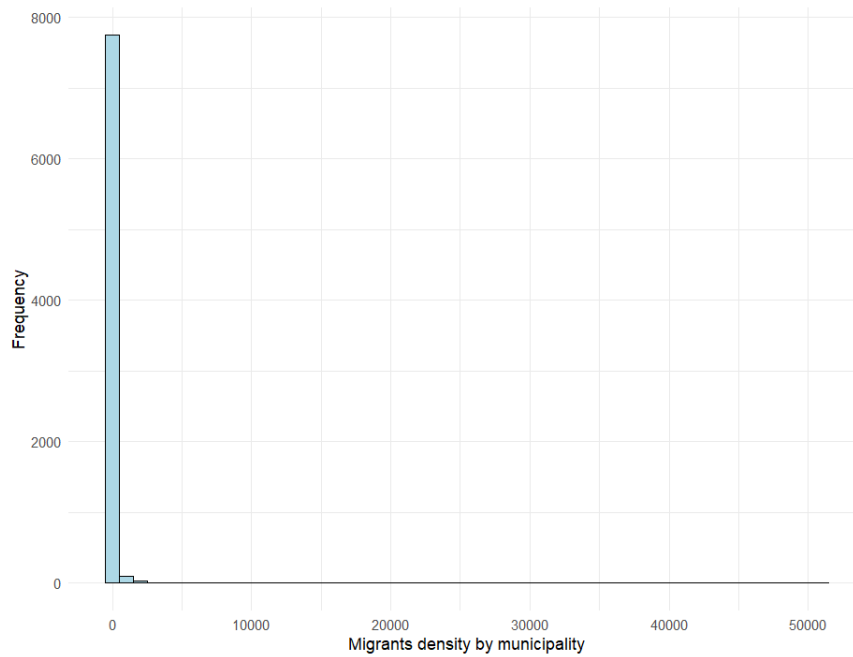


Figure 18 Histogram of control variable 3: Migrant density. Source: prepared by the author (2025).

The distribution of the variable is like the previous one, highly skewed (kurtosis of 3171.3) with a median of 6.73, and a mean of 71.42. The dispersion measures correspond to a standard deviation of 719.26 and an IQR of 24.57.

10.3.2.4. Income

The economic factors are always associated with segregation, as shown in the literature review. In this regard, the average income by municipality was incorporated into the model because of its reliability at the local level in comparison with other economic variables such as unemployment or poverty. Measured in euros, the following histogram shows its distribution for the year 2021 (Figure 19).

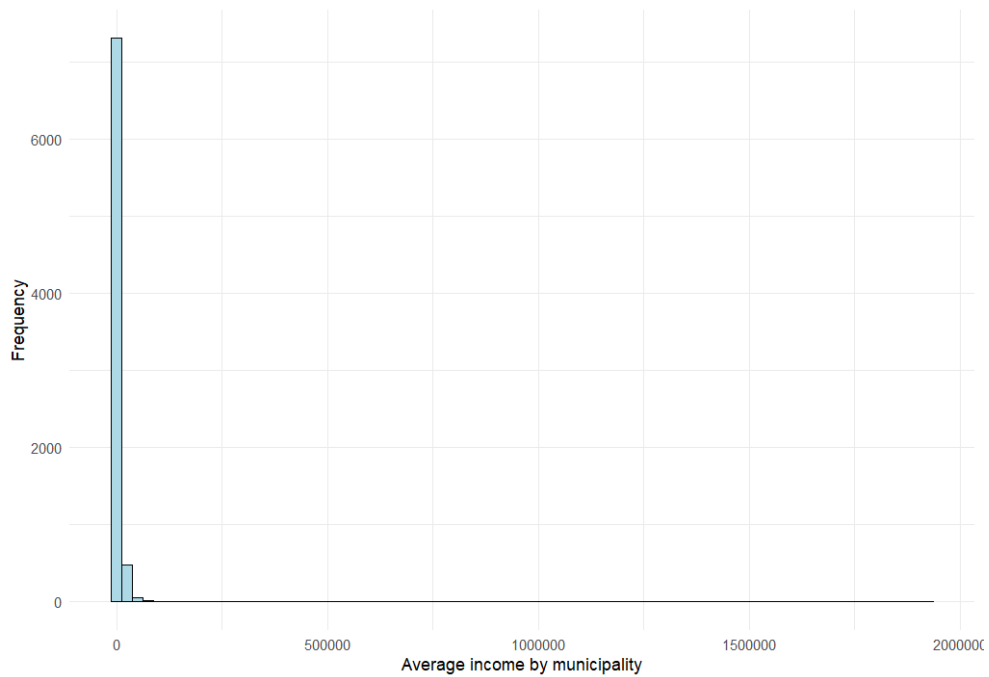


Figure 19 Histogram of control variable 4: Average income. Source: prepared by the author (2025).

The kurtosis of this variable is high, 2663, representing a high skewness. The central tendency measures are mean, 5196, and the median, 1678. While for the dispersion ones, the standard deviation was 29082.51 and the IQR was 3699.75.

10.3.2.5. Capacity of reception centers (CAS)

The reception centers for migrants are a relevant control variable to be included because they represent a structural element that shapes the likelihood of interaction between migrants and non-migrants within a municipality. Although there are several types of reception centers, for the model, those called *Centri per l'immigrazione* (CAS) will be the selected ones because they are mandatory to be implemented by the municipalities if some criteria are met. We do have information about both the maximum capacity of reception centers and the average number of migrants hosted in 2022. Concretely, the potential capacity of those centers will be considered because it is more reliable than the average presence of migrants, and it allows us to understand the maximum number of migrants that a municipality is able to host. Its distribution is shown in the following histogram (Figure 20).

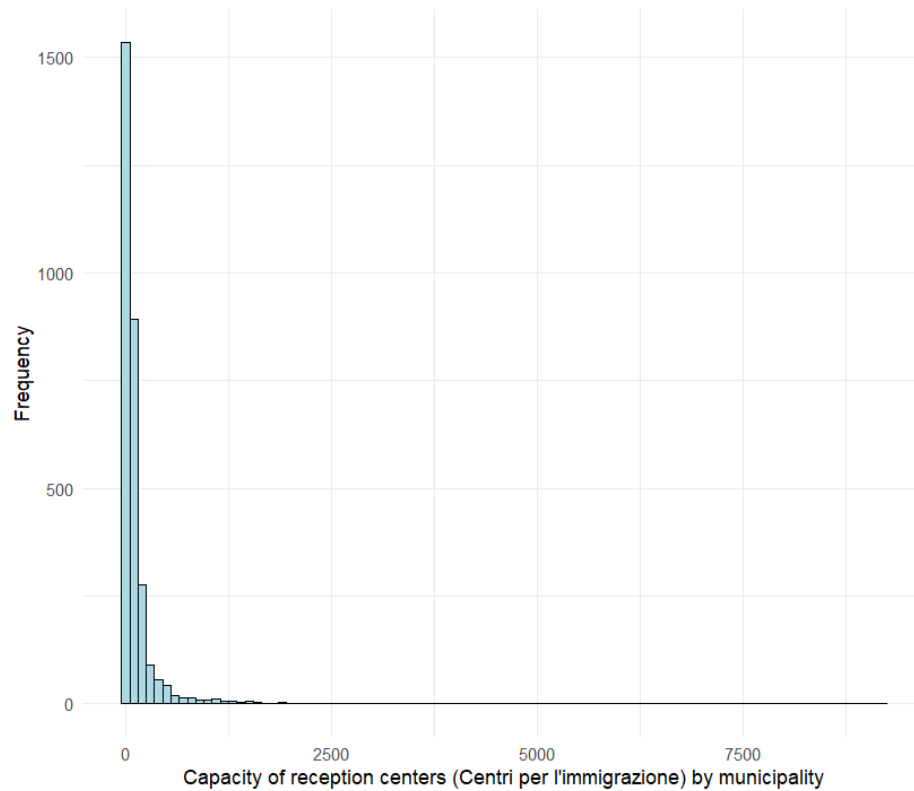


Figure 20 Histogram of control variable 5: Capacity of reception centers. Source: prepared by the author (2025)

Only 3019 municipalities had reception centers of this type in Italy in 2021. The maximum value was found in Milan, where the municipality had a total capacity of hosting migrants of 9241 individuals. It follows the same behavior as previous control variables: highly skewed (kurtosis of 380.34). The mean was 54.23 and the standard deviation, 254.835. Due to the high number of municipalities without a CAS, measures like the median and the IQR were omitted.

10.3.3. Regression analysis

10.3.3.1. Exploratory bivariate correlation analysis

For the construction of the model, an exploratory bivariate correlation analysis was performed. Its main objective is to assess the existence of linear associations between the variables, identify possible spurious or redundant relationships, and diagnose potential multicollinearity problems before estimating the regression model.

This procedure allowed us to detect significant linear relationships between explanatory variables and to assess the possible presence of multicollinearity. A threshold of $r^2 > 0.5$ was considered as a preliminary indicator of strong correlation, which could justify the exclusion of

variables in the analysis, following common practice in social sciences (Dancey & Reidy, 2004).

Considering that the variables described for the model do not follow a normal distribution and that some of them represent proportions, Spearman's rank correlation coefficient (ρ) was conducted for the creation of the matrix as a measure that its suitable for those kinds of variables. Its formula is the following one

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Where

d_i represents the difference between the ranks of each observation

n is the number of observations

Once applied to all the variables described, the following matrix was created (Figure 21).

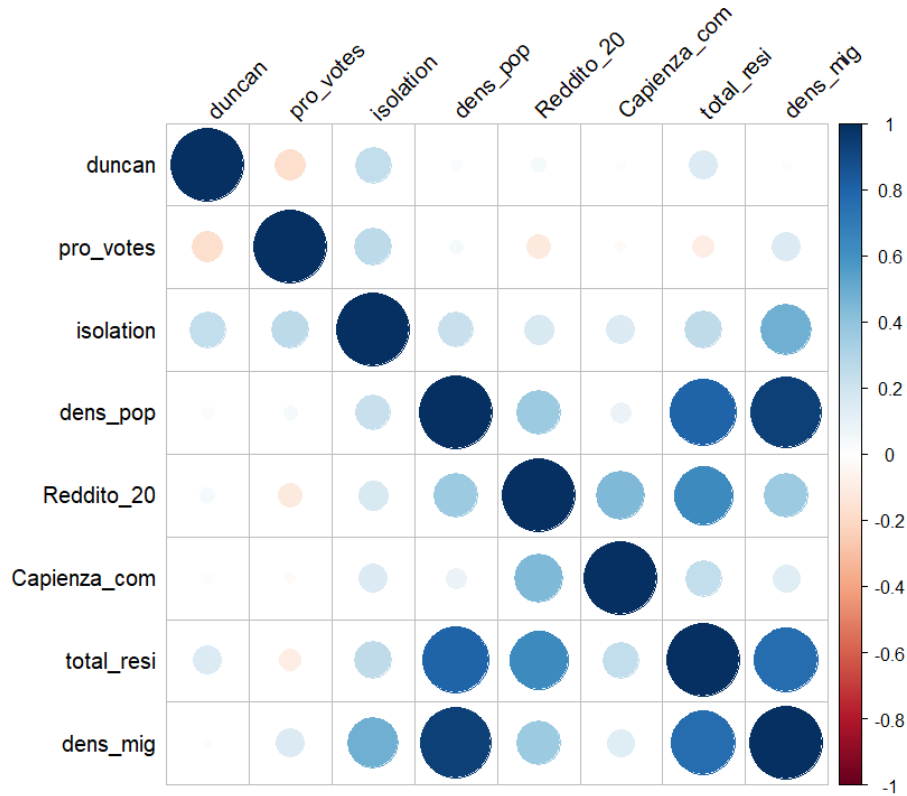


Figure 21 Correlation matrix - total. Source: prepared by the author (2025).

As can be noticed, variables such as the total population (*total_resi*) and both densities (*dens_pop*, *dens_mig*) present collinearity between them and significant interaction with the rest of the variables. Thus, for methodological reasons, both total population and migrant density were omitted. The first one, because when compared with population density, does not

catch the spatial dimension of the phenomenon, and due to its significant interaction with income (*Reddito_20*). Regarding the migrant density, it was omitted due to its high association with population density and because of its significant interaction with the isolation index (*isolation*). The resulting matrix shows the results of this data reduction exercise (Figure 22).

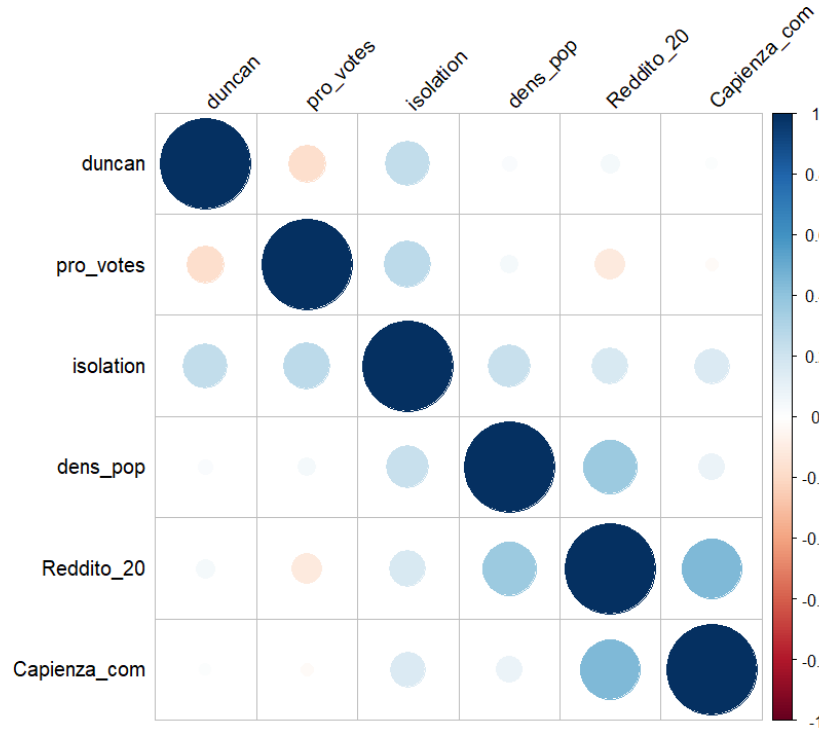


Figure 22 Correlation matrix - reduced. Source: prepared by the author (2025).

Thus, the correlation matrix not only identified redundancy between variables but also guided decisions in the model specification process, such as the exclusion of variables that might introduce conceptual overlaps (e.g. total population vs. density) or technical collinearity (e.g. migrant density vs. isolation index).

As is visible, there are no significant interactions between the variables considered. Most of the associations are positive, with the dissimilarity index (*duncan*) and the dependent variable (*pro_votes*) being the only of them to show some negative associations. It must be remarked that the negative correlation observed between the dissimilarity index and the dependent variable suggests a possible inverse dynamic, which is further examined in the regression analysis. However, due to the relevance given in the literature to the population size variable, this will be considered instead of population density in alternative models to be presented in the integrated models section.

10.3.3.2. Model I: Isolation

To assess the relationship between migrant residential segregation and the electoral results of the radical right parties, the first two models developed isolated the effect of both the isolation index and the dissimilarity index on the dependent variable.

Considering that the model used in this research is a geographical weighted regression, first, the general results of the models will be presented as a prior step to the geographical analysis of the local R^2 and its related measure of error (T-stat).

After the data reduction steps, the final dataset contains 7714 municipalities, a reduction that came mostly from the omission of Valle d'Aosta and Bolzano. The formula and the corresponding general model are shown as follows.

$$Pro_{votes} \sim isolation$$

$$Y = 0.3653 + 0.3106(X)$$

As can be noticed, the effect of isolation follows a positive direction; thus, with an increase of one unit on this index, an increase of 0.3 units in the electoral results that radical right parties receive. In other words, if the migrant groups experience more isolation, having less chance to interact with the non-migrant group, it is more likely that the electoral results of radical right parties will increase.

This interaction is significant: with an R^2 of 0.673 and an adjusted R^2 of 0.624, the model effect of isolation on the dependent variable is clear. However, the global results must also be contrasted with the local ones, as is shown in the following map (Figure 23).

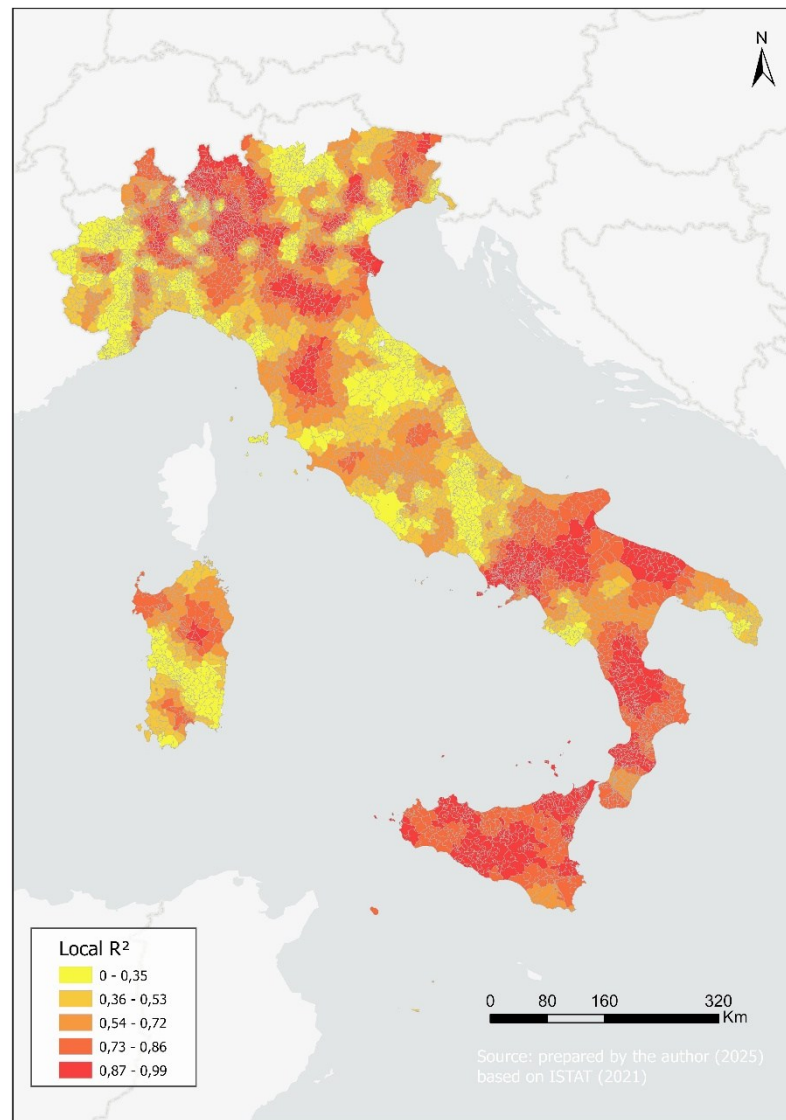


Figure 23 Local R^2 - Isolation. Source: prepared by the author (2025).

In this regard, in 2844 municipalities, the R^2 was below 0.5 (36,87%) and below 0.3, the critical value, in 1198 municipalities (15.53%). Those administrative units mostly correspond to rural units in Northern Italy, the interior of Sardinia, the south of Tuscany, Rome and its contiguous municipalities, and the interior of Lazio. In these regions, the effect of the segregation measured by the exposure dimension is not as important as other variables in explaining how the radical right result variable behaves. As a measure of reliability, the T-stat map to understand the fitness of the model is shown in the appendices.

10.3.3.3. Model II: Dissimilarity

About the evenness dimension of segregation, the model containing the dissimilarity index (Duncan index) as an explanatory variable follows the presented formula.

$$Pro_{votes} \sim duncan$$

$$Y = 0.439 - 0.144(X)$$

Although the Duncan index still measures segregation, the fact that it focuses on another dimension means that the results are different. Proof of it is the opposing direction of the coefficient, representing a negative association between dissimilarity and the radical right share of votes by municipality. In other words, municipalities that experience more dissimilarity are those in which the radical right parties got the most votes during the last national elections.

As for the general indicators of fitness, the model exposes good results: an R^2 of 0.67 and an adjusted R^2 of 0.62, meaning that dissimilarity has a significant effect on the dependent variable. However, the results should be analyzed considering the local behavior of the model due to its geographical nature, as shown in the following map (Figure 24).

Of all the municipalities, 36.59% present a local R^2 lower than 0.5 (2823 units) and 16.19% a local R^2 lower than the critical value, 0.3 (1249 units). Those municipalities correspond to units located in rural areas of Northern and Central-Northern Italy, as well as in mountainous zones. They are also present in Southern Tuscany and Northern Lazio. Lastly, in some specific interior areas of Sicily, Sardinia, and some other specific points in the South. In those areas, segregation, measured as dissimilarity, is not as important as other variables to explain the votes for radical right parties. As a measure of reliability, the T-stat map to understand the fitness of the model is shown in the appendices.

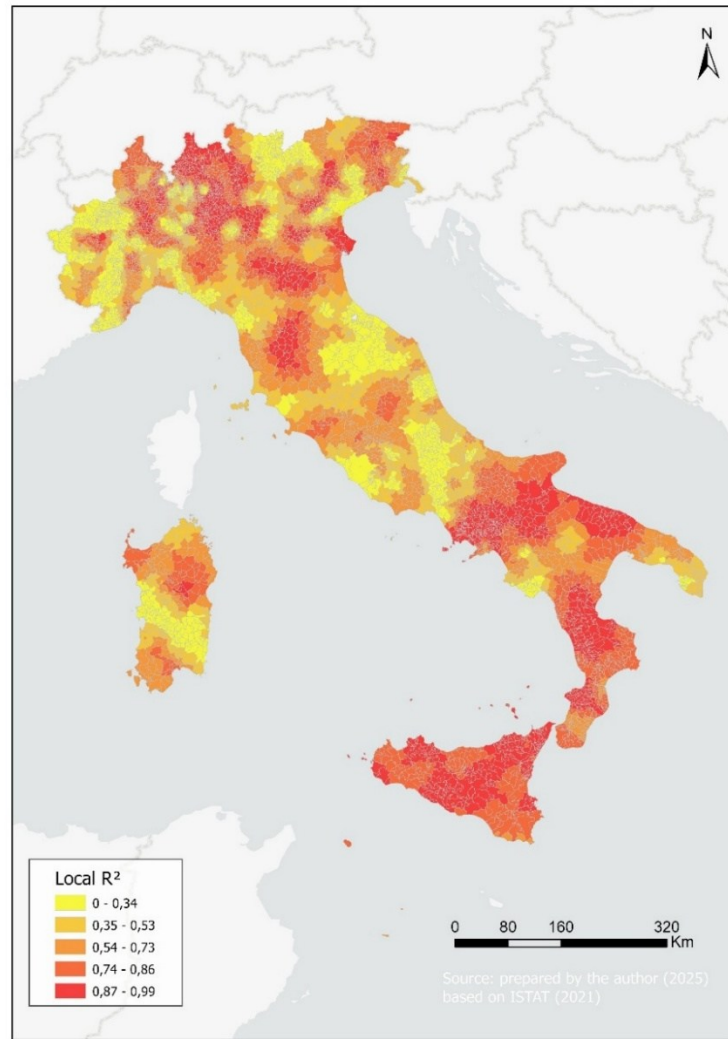


Figure 24 Local R^2 - Dissimilarity. Source: prepared by the author (2025).

As for a comparison of the models, the following table summarizes their statistics (Table 9). It also includes some technical concepts to be explained in depth in the glossary section.

Measurement	Isolation	Dissimilarity (Duncan)
R^2	0.6726	0.6710
Adjusted R^2	0.6236	0.6206
AICc	-16498.02	-16422.68
RSS	42.89	43.11
Enp	1003.87	1025.42
Coefficient in the model	+0.3106	-0.1439

Table 9 Model comparison - Isolation and Dissimilarity. Source: prepared by the author (2025).

As can be noticed, both the R^2 and the adjusted R^2 are slightly higher in the model that considers isolation as an explanatory variable, although the differences are minimal and not statistically significant. This can be related to the fact that each of them measures a different dimension of segregation that does not exclude the other one.

Other measures that are relevant to be compared are the Corrected Akaike Information Criterion (AICc), the effective number of parameters (enp), and the residual sum of squares (RSS). In general, when comparing GWR models, it is the one who has the lowest value in each of them is the best option to consider. This, because each of them measures the quality of the model using criteria such as complexity, error, and balance. Overall, the model that considers isolation as a dependent variable is the one with the lowest value in each of those criteria, despite its relatively small differences when compared to the one with the dissimilarity index as an explanatory variable.

10.3.3.4. Integrated models

The following section describes the integration of control variables in the models while considering the segregation indices already described. The first two models refer to the presented models, including only the isolation and dissimilarity indices as a benchmark of comparison; Model III includes isolation, and the control variables selected after the data reduction, prioritizing density; Model IV includes isolation and the same control variables but replacing density with population size. On the other hand, Models V and VI do the same operation as III and IV but replacing isolation with dissimilarity. The summary of the statistics is presented in the following table (Table 10).

	Model I	Model II	Model III	Model IV	Model V	Model VI
Intercept	0.3653	0.439	0.5030109	0.52257	0.56515	0.57512
Isolation index	0.3106	-	0.3283762	0.35361	-	-
Dissimilarity index	-	-0.1439	-	-	-0.13743	-0.13275
Population size	-	-	-	-0.00757	-	-0.00256
Population density	-	-	-0.0001883	-	0.00214	-
Income	-	-	-0.0188336	-0.01386	-0.01913	-0.01649
Capacity of reception centers (CAS)	-	-	0.0016606	0.00131	0.00316	0.00288
R^2	0.6726	0.6710	0.665	0.661	0.662	0.662
Adjusted R^2	0.6236	0.6206	0.618	0.614	0.615	0.613
AICc	-16498	-16422.7	-16419.77	-16338.19	-16348.82	-16274.37
RSS	42.89	43.11	43.96	44.41	44.31	44.3
Enp	1003.87	1025.42	938.4007	938.1877	945.4311	985.2705

Table 10 Summary of regression models generated. Source: prepared by the author (2025).

As can be noticed, although the results with the control variables are very similar in terms of the statistics to assess the quality of each model, Models I and II are still those that have the best performance while keeping a low complexity (more parsimonious). This is relevant because, despite the lack of correlation between the explanatory variables, both isolation indices are complex and can explain the variation in the dependent variable.

Concretely, the isolation index is the one that still has the best performance, leaving Model I as the one with the best results. Even in the models that get penalized by the overadjustment induced by the addition of the controls, those that consider isolation instead of dissimilarity are slightly better in each of the measurements.

On the other hand, all the control variables that were added reduce the quality of the models, especially regarding the AICc, a measure that penalizes overadjusted models. This is especially true for the income variable (Reddito_20), which has the lowest coefficient among all the control variables, a behavior that is consistent in each of the models presented.

Regarding the population density or size, for the Italian context, none of them is as relevant for the explanation of the variations as much as segregation. Although the models that consider population density have a better performance than those that introduce the population size.

Lastly, it is relevant that the direction of the segregation variables (isolation and dissimilarity) is consistently opposite in each of the models, which reinforces the idea of considering the dimensions of segregation by themselves while analyzing electoral results.

As indicated in the theoretical framework, some scholars discuss that the effect of segregation could be mediated by the population size, since it is another factor that could influence the likelihood of effective contact between groups. In this regard, using interaction terms between the segregation indices and both the population size and density, the following table exposes the result of each model (Table 11).

	Model Ib	Model IIb	Model IIIb	Model IVb
Intercept	0.47975	0.400106	0.33931	0.33564
Isolation index	0.23906	0.204500	-	-
Dissimilarity index	-	-	0.39871	0.21213
Population size	-0.01540	-	0.01485	-
Population density	-	-0.008017	-	0.02572
Isolation * Size	0.01742	-	-	-
Isolation * Density	-	0.028803	-	-
Dissimilarity * Size		-	-0.07572	-
Dissimilarity * Density		-	-	-0.08892
R^2	0.675	0.66	0.659	0.657
Adjusted R^2	0.62	0.61	0.609	0.606
AICc	-16309.95	-16211.49	-16146.74	-16117.79
RSS	42.6	44.53	44.55	44.98
Enp	1098.676	984.4562	1008.968	995.7953

Table 11 Summary of regression models generated - interaction terms. Source: prepared by the author (2025).

From the results obtained, it is evident that Model Ib, in which the interaction between isolation and population is added, is the one that outperforms each of the models that include interaction terms. The explanatory potential of Model Ib is also higher than the best model without interaction (Model I), but at the expense of increasing complexity (higher AICc). Thus, Interaction models push R^2 higher but at a complexity cost, while Model I still offers a near-optimal fit with lower Enp.

It is also clear that both models that include the interaction between segregation and population size, instead of population density, perform better, despite that density by itself has a more significant impact in explaining the dependent variable, as was exposed in Table 10. In this

sense, interactions reveal context-dependent effects (urban vs. rural), but non-interaction models offer simpler, more stable estimates.

Despite their differences, overall, all the models have a substantial explanatory capacity regarding the dependent variable. The effect of the control variables, although small, is significant as well as the interaction between the segregation and the population size. Therefore, the chosen integrated model will be:

$$pro_{votes} \sim isolation + pop_{size} + isolation * pop_{size} + income + CAS$$

This one allows for considering both the interaction and control variables that are coherent with the literature (income and CAS). Its statistics are the following (Table 12).

Variable	Coefficient
Intercept	0.5445
Isolation index	0.1679
Log(Population size + 1)	-0.0104
Log(Capacity of reception centers + 1)	0.0013
Log(Income + 1)	-0.0142
Interaction Isolation * Log(Population size + 1)	0.0257

Table 12 Theoretical model - coefficients. Source: prepared by the author (2025).

The results of the global diagnostic of the GWR model allow us to evaluate its goodness of fitness and complexity. The RSS was 43.24, the AICc, -16320.95, and the Enp was 1046.81. Both the R^2 and the adjusted R^2 indicates a good fitness of the model with values of 0.670 and 0.618 respectively. The distribution of the local R^2 can be seen in the following map.

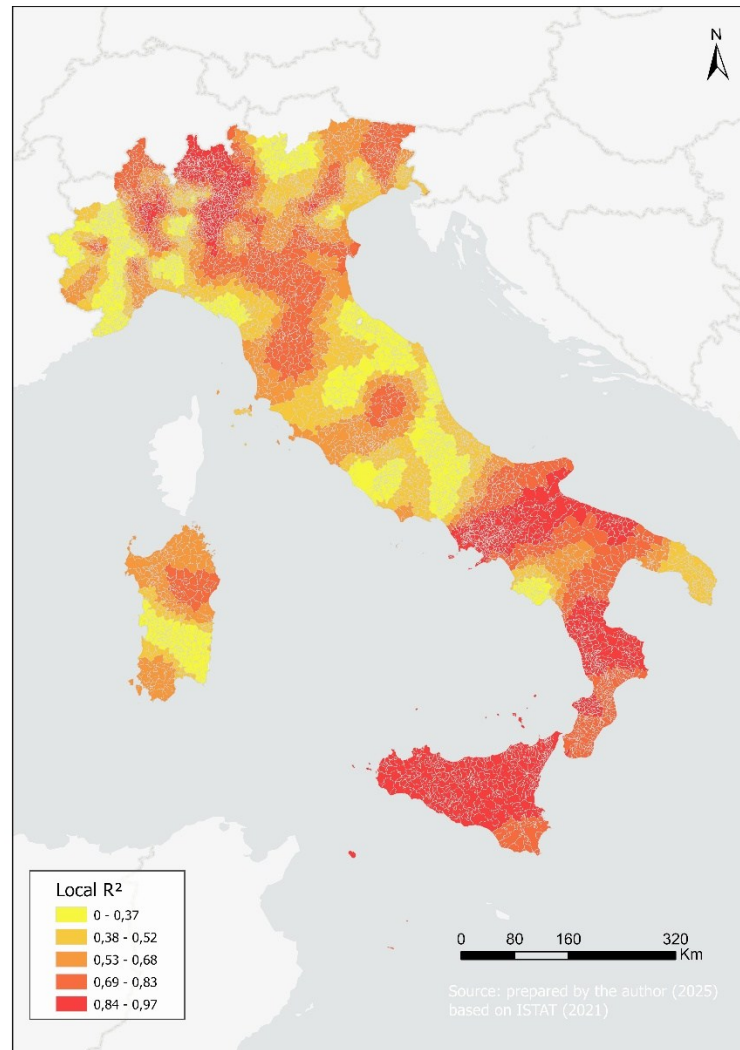


Figure 25 Local R^2 - Theoretical model. Source: prepared by the author (2025).

The results have been consistent with a structural difference between the Italian macrozones, both when analyzing the variables and when testing the fitness of the models considering only the indicator indices (isolation and dissimilarity). Therefore, the following figure presents the distribution of the Local R^2 for each Italian macrozone.

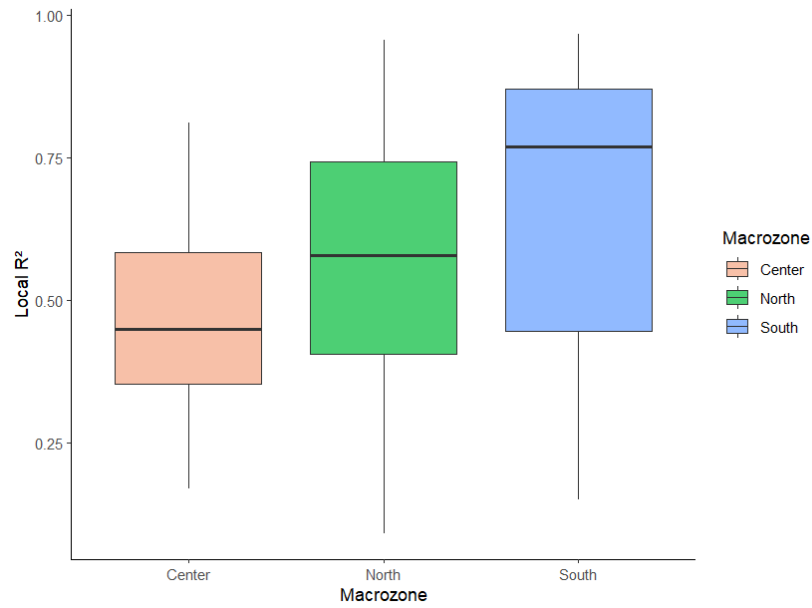


Figure 26 Local R^2 by macrozone - Theoretical model. Source: prepared by the author (2025).

It is clear that, even if the model shows an overall good adjustment of 0.618, there are regional differences relevant to be addressed. For instance, the model exhibits a spatially heterogeneous performance: while in the South it explains ~67.5% of the variance (median = 0.77), in the Center it only reaches ~47.1%. The high dispersion in the North (sd = 0.21) suggests that its accuracy varies sub-regionally, possibly due to unobserved local factors. Those results are detailed in the appendices.

Although in GWR models the significance of the variables is local and it is not easy to compare them in a standard way due to the computation of local coefficients for each case and variable, it is possible to calculate the proportion of cases in which each variable is significant based on its t-value. The following table shows these results for different levels of confidence

Variable	$Z = 2.575$	$Z = 1.96$	$Z = 1.645$
Isolation	518	1214	1723
log(Population size +1)	606	1192	1722
log(Capacity of reception centers + 1)	302	794	1236
log(Income)	1588	2682	3286
Isolation * log(Population size + 1)	486	1118	1570

Table 13 Significant single cases for each variable - Theoretical model. Source: prepared by the author (2025).

According to the comparison, although the isolation effect is stronger (higher absolute value of the average coefficient), its local variability could be higher. The spatial variability of this variable raises the standard error and therefore lowers the proportion of municipalities with significant t-values.

On the other hand, despite having a lower global coefficient, the effect of income is more consistent across the territory. This is reflected in a higher proportion of municipalities where the coefficient is statistically significant, as shown in the previous table.

11. DISCUSSION

The following section aims to provide a reflection of the results presented in the previous chapter while connecting them with the literature analyzed. It is structured in four sections: the first section addresses migrant residential segregation in Italy, while sections 2 and 3 connect it with the electoral results to deal with the hypotheses introduced in the first part of the thesis. Finally, the fourth section addresses the implications of this research and reflects on the nature of the geographic approach adopted.

11.1. About migrant residential segregation in Italy

The initial premise with which this research began was to understand segregation as a complex, multidimensional, and dynamic phenomenon, whose comprehension requires a relational approach. It was proposed that segregation, as a process that occurs in and through the geographical space, represents structural characteristics of the societies in which it occurs and that its effects and dynamics depend largely on the geographic configuration being analyzed.

In this sense, the results of the present research are aligned with this idea. Migrant residential segregation, as a particular case of residential segregation, emerges as a heterogeneous but constant phenomenon that shapes the Italian electoral scenario.

At a general level, the results show a low migrant residential segregation at the municipal level, an element that is in line with the Southern European model, specifically for Mediterranean countries residential patterns developed by Malheiros (2002) and that relevant authors in the field have pointed out (Achebak et al., 2017; Galeano & Bayona-i-Carrasco, 2018). In this regard, evidence in countries such as Italy, Portugal, or Spain shows that there is low residential segregation, so it is not possible to directly relate migrant residential segregation with the

quality of life of these individuals (Galeano & Bayona-i-Carrasco, 2018). Some authors even mention that segregation could be a misleading indicator of social integration in Southern Europe, where migrant population is much more susceptible to experience phenomena such as suburbanization, residential overcrowding, discrimination, or residential restructure that not always presents a visible spatial expression, and where the isolation index is continuously decreasing, without representing any progress in social integration (Martínez del Olmo & Leal Maldonado, 2008).

In this line, it is relevant to remember that the effects of segregation depend largely on the causes that provoke it and the phenomena they represent. In the case of migrants, evidence from southern European countries shows that, rather than being the result of a spontaneous and consensual agreement between groups, it is rather a mechanism in which inequalities are perpetuated and even amplified over time (Gastón-Guiu & Bayona-i-Carrasco, 2023; Peach, 1996). These elements are key to understanding the existing differences both in the dimensions of segregation measured and in its spatial distribution.

The distributional nature of the isolation index, the one used to measure the exposure dimension in the case studied, shows that, in general, resident migrants have the possibility of interacting with local residents in a cross-sectional manner, which explains the large number of values around zero. Although there is a difference in the spatial distribution of these data, with southern Italy being the macrozone with the lowest isolation index in terms of distribution, it is valid to mention that migrant isolation is a structural phenomenon in Italy: although existing, it is at low values.

On the other hand, the dissimilarity index presents higher values than the isolation index, which is demonstrated by its distribution. However, the results show a persistent low residential segregation for migrants, even when measured from the evenness dimension. The biggest difference concerning isolation comes from the spatial distribution: while southern Italy is the area with the lowest isolation for migrants, it is also the area with the highest dissimilarity on average. This apparent inconsistency between the dimensions is because both measure different components of residential segregation, and each indicator is sensitive to certain specificities that the other is not, an issue that will be analyzed in depth in the following sections of this discussion.

Although aggregation was not measured directly because the selected index (Moran's I) requires a variable to be calculated, the analysis of its application to the spatial distribution of the isolation and dissimilarity indices is crucial and enriches the interpretation of the results.

In this line, the analysis of the aggregation dimension revealed an important methodological topic that the present study sought to discuss: the existence of non-stationarity of data and its spatial autocorrelation (Comber et al., 2023). Although this issue will be discussed in depth in the following sections, it is important to highlight that, due to this characteristic of the data, it is possible to observe clusters of values throughout the country, with areas where each of the dimensions is more present than the other.

In general, the zones that exhibit hotspots (High-High) of one variable do not correspond to those municipalities that have high values in the other. Specifically, from the contrast of the cartography it can be observed that these coincidences are found in some areas in western Piedmont surrounding the city of Turin, in areas bordering the limit of Piedmont and Lombardy, as well as in municipalities surrounding the municipality of Milan, northern Emilia-Romagna, in municipalities surrounding the municipality of Venice, Rome and surrounding municipalities, scattered in Sicily and southern Sardinia. In general, they tend to be municipalities of peri-urban character, close to regionally relevant urban centers and with a functionally focused structure in the center of metropolitan areas.

Regarding the areas exposing coldspots (Low-Low), these are much less frequent than the hotspots. From the comparative cartographic analysis, it is revealed that there are only two: a small one located around Florence, specifically in Barberino del Mugello, and a significant one in Campania, surrounding Naples, Castellammare di Stabia, and Sorrento. Except for Sorrento, they mostly belong to areas of peri-urban character, but without a functionality centered on metropolitan areas. The comparative mapping can be viewed in the appendices.

Therefore, due to the differences in the distribution of the segregation indices computed, a dissimilarity that goes beyond the purely statistical one but is represented in the spatial dimension, it can be proposed that the phenomenon follows particular geographical patterns. Moreover, despite the existence of areas where both the exposure and the evenness are coherent, the aggragation analysis shows that those are a reduced proportion of all the Italian municipalities, and that municipalities where migrants are isolated but evenly distributed among the territory and those where migrants are exposed to locals, but unevenly distributed among the municipality can exist and actually represents the majority of cases in Italy. Just analyzing segregation from one dimension would have hidden those spatial patterns.

11.2. *About the effect of migrant residential segregation on electoral results*

In line with what has been said about migrant residential segregation, it is to be expected that the relationship of this phenomenon with electoral results is equally complex, since the existence of an intrinsic internal spatial variability is evident for both variables.

In this regard, despite an apparent normal distribution of electoral results, it is in this variable where the greatest differences between macro-zones were found, while also presenting spatial autocorrelation, which leads to the inference that, like migrant residential segregation, electoral results represent indicators of a particular complex spatial dynamics in each municipality and its proximities. In this sense, the idea that, for example, the distribution of lower electoral results for Italian radical right parties in the southern macro-zone of the country is the result of chance is ruled out.

Specifically, the exposure dimension, represented by the isolation index, is the one that presents the highest correlation with the dependent variable. A value that is relevant not only when compared with the dissimilarity one, but also regarding other control variables. This result, which was initially part of the exploratory focus of this research, has proven to possess an explanatory potential, since all the models that consider the isolation index as an indicator of segregation present a better R^2 and adjusted R^2 than those based on the dissimilarity index.

The main reason lies in the interpretation of the indicator: while the dissimilarity index is based on the distribution of individuals, in this case migrants, the isolation index focuses on their concentration (James & Taeuber, 1985). This is crucial because, while the dissimilarity index may be low only because of an equal distribution of migrants in a municipality, it does not indicate how concentrated these individuals are or how likely they are to interact with other groups.

Thus, the criticisms made of the use of unidimensional measures by several authors (Galeano & Bayona-i-Carrasco, 2018; Gastón-Guiu & Bayona-i-Carrasco, 2023; Massey, 2012; Massey & Denton, 1988) are appropriate for addressing topics such as the relationship between segregation and electoral outcomes. Although it is an indicator that summarizes a complex process, by definition, the isolation index is more consistent with the dependent variable of this study, despite its low dispersion and highly asymmetric distribution. Thus, if there are high levels of isolation, migrants are more concentrated among themselves and less exposed to the native population, which, for voters, can be perceived as "ghettos" or closed enclaves, feeding the anti-immigration discourse and increasing the vote for options such as the radical right (Peach, 1996).

Along the same idea, the fact that both dimensions of segregation measured in this study have an opposite direction to the dependent variable is consistent both at the metric and conceptual levels. Regarding the former, the isolation index increases when migrants live among themselves, that is, when there are neighborhoods or sectors with a high concentration of foreign population. Although these spaces may be only a part of the municipality, their visible presence can fuel negative feelings about migrants on the part of the local population, very much in line with the postulates of contact theories (Katz, 1991; Stein et al., 1997).

On the other hand, the dissimilarity index measures how much the spatial distribution of migrants differs from that of natives, which means that, for example, a high dissimilarity represents a high proportion of migrants in certain sectors but does not provide information about the number of migrants. Thus, if many municipalities have migrants concentrated in small and peripheral sectors, the probability of interaction with locals is lower, reducing the sense of threat despite their segregated status. In fact, it can even be seen as a positive strategy that reduces competition for public services or welfare; a sort of avoidance of local social conflicts, also very much in line with the so-called threat theories (Katz, 1991; Stein et al., 1997) since this can translate into a lower propensity to vote for the radical right in municipalities with high dissimilarity but low visibility or daily coexistence.

Therefore, rather than supporting one theoretical framework over the other, the findings suggest that both the contact and threat theories capture partial truths depending on the dimension of segregation observed. Although contradictory, the results allow us to conclude an important insight: different ways of segregation have different effects on the electoral results.

In this regard, the grouping analysis of the results obtained for both indices, rather than being a way of measuring segregation from another point of view, responds to an intrinsic characteristic of the epistemology behind segregation; a point that will be discussed in detail in the following sections.

For now, a relevant finding is how the significantly high values of Moran's I obtained for both indicators (isolation and dissimilarity), as well as for the dependent variable, reveal a clear spatial autocorrelation: that is, municipalities with high levels of segregation tend to be spatially clustered, instead of being randomly distributed in the territory or having a certain uniform pattern. This result validates the need to explicitly consider the territorial dimension in the analysis, as it shows that segregation is not only a dimensionless social phenomenon, but also a spatially structured one.

This non-random spatial structure translates into clearly defined geographic patterns that are reinforced by the LISA analysis, which allowed for identifying significant clusters of municipalities with high and low levels of segregation in each of the studied dimensions.

The distribution of these clusters allows for observing relevant differences between the two indicators. In the case of the dissimilarity index, the High-High clusters are mostly concentrated in areas of the industrialized north, such as Lombardy, Veneto, and Emilia-Romagna, as well as some areas in Sardinia and the southern peninsula. However, this pattern is more fragmented than that observed in the isolation index, where High-High clusters are spread much more widely and consistently across the territory, especially in the south and in vast areas of the center-north. This difference suggests that while the dissimilarity index measures inequality in distribution between spatial units, isolation more directly reflects the probability of intra-group interaction, thus capturing the effective concentration of the immigrant population.

These spatial differences are also related to the results of the GWR models, which show a strong local variability of the coefficient of determination (Local R^2), indicating that the relationship between segregation and votes for radical right parties is not homogeneous in the Italian territory. In particular, the areas with higher Local R^2 tend to coincide with the High-High clusters of the isolation index, reinforcing the hypothesis that this indicator has a greater explanatory power of electoral behavior than dissimilarity, as discussed by van der Waal et al. (2013). This could happen because isolation captures not only the presence of immigrants but also the subjective experience of “enclosure” or lack of interaction between groups, which may have a greater impact on social perceptions that feed populist or anti-immigration narratives.

In summary, the spatial analyses reinforce the idea that segregation does not act uniformly on territories or the political behavior of their inhabitants. The identified clusters allow us to locate territories where the effect of segregation on the radical right vote is stronger and where public policies could be focused to reduce the social tensions derived from residential segmentation. However, a longitudinal assessment should be done to distinguish from part of these results corresponds to the actual effect of segregation and which one is linked to the electoral history of each territory that has been characterized by its regional differences (Bloise et al., 2021; Vassallo & Shin, 2022).

11.3. *About the role of contextual factors*

11.3.1. The role of demographic variables: the effect of population density and size on the electoral results of radical right parties

One of the most discussed elements, both in the theoretical framework and in the limitations of this study and the description of the methodology, was the existence of a threshold that could affect the effect of exposure to migrants by locals (Kaufmann & Goodwin, 2018; Kaufmann & Harris, 2015). To this end, the idea that population size or density, whether from a competition or rural perspective, can act as a catalyst for existing perceptions of migrants is theoretically valid.

Along these lines, the results obtained offer mixed evidence. On the one hand, the models show that the effects of migrant residential segregation on the vote for radical right parties are not uniform but depend on the size and density of the municipalities. While it is true that the explanatory potential of both demographic variables is not very consistent when considered on their own, changing their direction in different models and exhibiting an overall coefficient that is not very significant, even though it presents several significant cases similar to the rest of the variables according to the theoretically valid model.

The results are different when considering the interaction between these variables and the segregation dimensions. In particular, the isolation index shows a positive and significant relationship with the radical right vote, an effect that tends to be more intense in contexts of higher population and density. This suggests that, in larger and more densely populated municipalities, where opportunities for intergroup contact may be greater, the presence of relatively homogeneous migrant enclaves may feed perceptions of threat or competition, reinforcing anti-immigration attitudes.

In contrast, the dissimilarity index, which measures inequality in spatial distribution but not necessarily contact, is also associated with the far-right vote, although its effects are weaker and decrease in denser or more populated contexts: its positive association with the far-right vote weakens in large and dense municipalities. That is, in these more complex urban contexts, segregation without isolation may not translate into a direct threat perception, or it may be counteracted by more diverse social dynamics.

This could reflect that segregation without isolation, that is, when there is little mixing but not necessarily social distance, is less politically mobilizing. Thus, taken together, the findings suggest that the political effects reflected in the electoral results of segregation depend not only on its level but also on the urban context, reinforcing the idea that demographic context is

relevant for understanding the geography of voting in multicultural societies. In this regard, the recent contribution made by Abbas & McNeil-Willson (2025) is relevant: urban spaces, although facilitating the exchange between groups, can also lead to reinforcing structural segregation patterns; whether one effect or another will prevail is highly dependent on the historical and cultural characteristics of the spaces, as well as for the rural ones which cannot be reduced just as an antithesis of the urban spaces considering that they are as susceptible to radicalization as the any other territory.

However, despite the fact that both variables exhibit differentiated behavior when related to the dimensions of segregation, for example, while population size has a greater magnitude when interacting with isolation, population density has a greater magnitude when interacting with dissimilarity, the theoretically valid model decided to consider population size. This decision was based both on its relationship with the most relevant dimension of segregation for the analysis of electoral results in Italy: isolation, and on its intrinsic coherence: besides being the one with the best performance concerning isolation, considering the size of administrative units is already a problem according to the MAUP (Fotheringham, 2009), especially considering its inter-annual modification derived from demographic criteria for the Italian context (Pratschke & Benassi, 2024).

11.3.2. The role of other contextual factors: the effect of income and reception centers on the electoral results of radical right parties

Although the primary focus of this research was to analyze segregation, its dimensions, and its interactions with population size and density, the theoretically grounded model also incorporated two additional variables of relevance: the average municipal income and the presence of asylum-seekers hosted in local reception centers in each Italian municipality.

Several studies on segregation have argued that, beyond the spatial distribution of individuals, it is the economic condition and its distribution that most strongly determine the quality of life of migrants (Aldén & Neuman, 2015; Boileau et al., 2022; Dadashpoor & Keshavarzi, 2024; Peach, 1996). This notion aligns with one of the core premises of the Southern European segregation model, where relative levels of segregation are lower than in Northern Europe, but where migrants often reside in lower-quality housing and face inferior living conditions compared to the local population.

In this regard, controlling for the effect of segregation by including income as a variable was a valid strategy. While the overall coefficients for income remained consistently low, they

displayed a stable negative direction across all the models developed. This suggests that, generally, the lower average municipal income is associated with a higher percentage of votes for radical right parties.

However, although municipal income was initially considered a control variable, the GWR model revealed substantial local variation. In several municipalities, income showed a significant effect on electoral behavior ($|Z| > 1.96$), becoming the most consistently significant variable in this sub-analysis. This indicates that its influence is not spatially uniform across the Italian territory. The results suggest that income, far from being passive structural control, actively shapes the geography of voting, possibly reflecting local contexts of economic vulnerability or differentiated public attitudes toward immigration. Its inclusion in the model thus serves not only to control confounding effects, but also to highlight the role of local economic inequalities in shaping political responses to migration.

In contrast, the effect of migrant reception centers was less consistent across the models, as well as less studied (Pettrachin et al., 2023). This is partly because only 3,019 out of approximately 7,000 municipalities host such facilities, less than half of the total. The decision to include the maximum capacity of these centers, rather than their mere presence, is theoretically coherent with the idea of a "plausible maximum exposure" to asylum seekers as well as driven by data availability, reflecting a structural capacity to host migrants at a given time. However, as a limitation, it must be said that this analysis is blind to the internal organization of each reception center, as well as their structural image, which could greatly modify the public attitudes towards them (Lynch, 1960).

Although it is reasonable to assume that the presence of a reception center would increase local exposure to migrant populations, potentially mediating the effect of segregation, the observed influence of this variable was far from uniform. In most models, the variable exhibited a low coefficient. However, in some specific municipalities, its local effect was relatively high, especially considering that not all administrative units analyzed actually host reception centers. It is worth mentioning that its consistently positive direction could be interpreted as weak support for threat-based theories, contrary to the behavior of isolation variables, suggesting that municipalities with greater capacity to host migrants may tend to exhibit higher support for radical right parties.

At the same time, it is important to highlight that, although the number of municipalities in which the variable reaches standard thresholds of statistical significance is relatively limited, nearly half of the municipalities with reception centers exhibit Z-values above 1.645,

corresponding to a confidence level of 90%. This suggests that while the relationship is not broadly generalized, it may be particularly relevant in localized contexts. The geographic variation in the significance and strength of this variable underscores the need for spatially sensitive models when analyzing the political consequences of migration infrastructure.

11.4. *About methodological concerns*

11.4.1. A geographical approach to understanding segregation and electoral results

However, much of the development of this research was devoted to methodological reflection on how to approach complex phenomena such as segregation and electoral outcomes. Although the intrinsic difficulty of understanding these processes makes their analysis particularly challenging, this complexity is the natural consequence of adopting a geographic perspective.

A geographic approach entails a relational understanding of reality, that is, recognizing the continuous and systematic construction of social processes, and accepting that everything that exists does so in and through space. While this perspective adds considerable depth to the research process, it also complicates the possibility of simplistic generalizations and theoretical abstractions.

Thus, applying this type of framework in interdisciplinary research is both ontologically appropriate and epistemologically coherent, as both perspectives acknowledge the existence of an interrelated and elusive reality. Moreover, even if only implicitly, both align with a rhizomatic conception of reality as a totality constantly undergoing processes of totalization (Deleuze & Guattari, 2019; Santos, 2000).

In practice, adopting this approach enabled a more comprehensive understanding of migrant residential segregation in the field of electoral geography. By recognizing that the indices calculated here are not definitive representations but rather metrics that help us approach reality, the analysis emphasized an interpretive reading of the quantitative results, opening up space for discussions rooted in the specificities of place.

Although this may appear abstract, this approach facilitated a comparative analysis across Italian macro-regions by accepting that there is no single, uniform pattern in the manifestation of this phenomenon at the national level. Instead, each territorial configuration has its own specificities, which can never be fully apprehended but which a relational, and therefore multiscalar, analysis at least allows us to consider.

Beyond the multiscale comparative analysis, which could be done without necessarily engaging space as a relational dimension, the main contribution of this approach lies in the understanding of segregation as a multidimensional phenomenon. Analyzing isolation, dissimilarity, and mixing, alongside spatial clustering, is a powerful methodological strategy not only because of the volume and richness of the data it produces, but because it is epistemologically aligned with the premises of a geographic approach to social reality. In this sense, mapping isolation and dissimilarity is not simply a matter of spatial analysis, it is a necessary research endeavor that this thesis has sought to engage with.

In this regard, adopting this perspective for analyzing radical right electoral results enabled the identification of spatial and locational patterns and supported the application of the same kind of multiscale comparative logic. One problem highlighted by several authors about the “local turn” is the limited conceptualization of space in migration studies, where space is treated as a passive container, altered merely by changing the level of analysis (Muhammad, 2023; Zapata-Barrero et al., 2017). While a genuine recognition of the agency of space would require theoretical frameworks such as actor-network theory (Latour, 2005), which explicitly acknowledges the agency of non-human or hybrid entities, the adoption of quantitative techniques such as Geographically Weighted Regression (GWR) makes it possible to capture some of the local variations in the expression of electoral results. This particular topic will be explored in more detail in the next section.

Thus, the value of this approach lies not only in procedural matters. The conclusions and discussions offered throughout this thesis also aim to reflect these nuances, providing a partial explanation of the phenomena while accepting the intrinsic heterogeneity of each territory. Yes, migrant residential segregation affects the electoral outcomes of the radical right in Italy, but this relationship is not uniform, being significantly more relevant in certain municipalities than in others. If this degree of interpretive flexibility is not accepted in the analysis of spatial phenomena of this kind, then knowledge risks falling into the place-blinded bias so often criticized by scholars yet rarely addressed in terms of the epistemological and ontological foundations of the research itself.

11.4.2. On procedural validity: GWR and the hypotheses' consistency

11.4.2.1. About Geographical Weighted Regression

Finally, the validity of the techniques and methodological steps used in this thesis is discussed, since one of the main contributions of the study is to combine classical statistical techniques with spatial analysis and the geographic approach already explained in previous sections.

One of the initial premises for using spatial analysis methods is the existence of spatial autocorrelation, a dimension ignored in classical inferential statistical methods based on sampling, for example. The truth is that in space, phenomena rarely have a normal or normal-like distribution, given the existence of empirical laws such as Tobler's or Zipf's law (Gabaix, 1999; Jiang et al., 2015; Walker, 2022); Thus, classical statistical analysis techniques based on simple data without considering their relationship with the context produce biased results and can even lead to dangerous interpretations in social data analysis contexts such as in this research, where it should not be forgotten that the research subject is the individuals and that migrant residential segregation can entail relevant negative externalities if it is not considered in its magnitude, and that all geographical research carries an ethical dimension (Olea, 2018).

Thus, after the classical statistical analysis, revisions were made for the implementation of a model that captures this geographic variability; the GWR. Although this technique is widely used in geography, it has not been explored in other disciplinary fields (Comber et al., 2023), which has led to the perpetuation of results that do not consider the spatial nature of reality. However, more than GWR as a method, what was most relevant was the performance of the Moran's I calculation, a powerful technique that allows us to understand the location patterns of the data by suggesting dispersion, clustering, or random distribution. The truth is that in geographic space, randomly distributed results are scarce, since there are always elements that guide the location pattern of data and elements in reality (Dubé & Legros, 2014); this premise, although theoretically extended, has had a limited scope in empirical geography and is even more limited in other disciplines such as sociology, political science, among others.

This is why the results of the GWR were so consistent: of all the models, all presented an overall adjusted R^2 above 0.6, which represents a considerably significant result in the social sciences. However, the richness comes when analyzing the spatial patterns delivered by this method, being consistent with the epistemological approach already pointed out. Therefore, the application of the methods developed here allowed us to respond consistently to the hypotheses raised at the beginning.

11.4.2.2. About the hypotheses

Regarding the first hypothesis, it is possible to assert that migrant residential segregation played a significant role in shaping the electoral results obtained by the radical right in the last national elections in Italy for the year 2022. This effect is, in addition to being significant, thematically and presenting spatially variability, with the dimension of isolation to migrants being the most significant in this interaction, whose effect is much more noticeable in the south of Italy than in the north of the country, with a significant effect also in the central regions of the country.

Regarding the second hypothesis, population size does affect the relationship between migrant residential segregation and outcomes, but this effect is more consistent across the tested models for the exposure dimension than for the dissimilarity dimension. The effect, although low, shows that in municipalities where there is a larger total population, the isolation of migrants tends to be more associated with an increase in the vote for the radical right, while in small municipalities, this effect would be reduced or even annulled.

Finally, regarding the third hypothesis, population density does affect the interaction between the two variables of interest, although not very consistently, and is related more than anything else to the dissimilarity dimension. In this sense, the association, although weak, shows that in municipalities with higher population density, the effect of the dissimilarity index on votes for the radical right decreases.

12. CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The research process carried out has considered different aspects for understanding social phenomena that pose a considerable challenge to study, given their nature. While trying to answer a single research question about how migrant residential segregation influenced Italian 2022 national elections results of radical right parties, this study tested hypothesis such as the existence of this effect and the links of this interaction with both population density and size. The analysis conducted, that mixed a preliminary descriptive statistic with advanced spatial analysis techniques allowed for understanding both phenomena of interest and its relationship from a relational and multiscale perspective. Thus, based on the results presented and the discussion developed, this section seeks to provide the main conclusions of this thesis.

First, it is concluded that the heterogeneity exhibited by the main variables of interest, migrant residential segregation and electoral results, has a clear spatial imprint that goes beyond the traditional dispersion measures. The results are statistically different for both the independent and dependent variables, showing significant regional differences. This spatially differentiated behavior is also present in terms of autocorrelation, demonstrating a clear spatial structure of interdependence between the results of one municipality and those of neighboring units. In this sense, it is possible to speak of hotspots and coldspots, which denote a distribution that is far from random. Thus, both aspects reaffirm the need to consider the spatial dimension in this type of study, concretely residential segregation as it is the case in the present research.

Consequently, the analysis developed here demonstrates the existence of a relationship between two variables that have not usually been studied together: migrant residential segregation and the electoral results of radical right parties in Italy. This interaction, although complex and context-dependent, is continuously present and varies according to how migrant residential segregation is understood. Thus, a multidimensional approach to understanding this phenomenon is necessary, as different forms of segregation have different effects on the electoral results of the Italian radical right; in this sense, the fact that migrants are unevenly distributed is not the same as them being isolated from the locals, even though both are valid ways of studying residential segregation.

In addition to the inherent complexity in defining which dimensions of segregation are being analyzed, a major contribution of this research is that it allows us to state that the relationship between migrant residential segregation and the dependent variable is not constant in space. Beyond the inherent heterogeneities of any statistical model, the use of geographically weighted regression techniques allowed us to understand that there are areas where the effect of a variable

is more relevant than in others. Although, on average, migrant residential segregation influences voting for the radical right, this effect is more relevant in certain areas, which reiterates the need to apply techniques that capture the true nature of these processes.

On the other hand, in addition to the relationship observed between the variables of interest, the research allowed us to observe that there are other elements that mediate this interaction and demonstrate the persistence of a spatial structure. Although they are markedly heterogeneous, variables such as population density, population size, and income are relevant mediators of this interaction, with population size being particularly important, as it demonstrated a conditioning effect on the relationship between migrant residential segregation and the electoral results of interest. On another note, it is important to mention the effect of the capacity of migrant reception centers, which, despite not being present in all study units, have a relatively significant effect.

In short, the relevance of space is not only proven in the statistical significance of the variables analyzed, but also in the way in which they are intertwined with the specific contexts that shape the electoral results. Both the findings and discussion reinforce the need for an understanding that captures the intrinsic nature of the phenomena studied here in order to avoid a partial study. If everything that exists, exists in space and through it, risking not only an incomplete understanding of reality but also the reproduction of overly simplistic and potentially misleading assumptions.

Thus, beyond technical contributions, this research also advances the theoretical dialogue by framing segregation not only as a descriptive condition but as a spatialized expression of structural inequality that could influence political processes. Although the study relied only on quantitative methods, it recognizes the need to question the reduction of migrants to passive statistical categories. Future research should integrate the agency of migrant groups and their strategies of placemaking and visibility within the urban and territorial fabric.

Finally, the research developed here opens up a large number of potential lines of research for future investigation, primarily given its interdisciplinary and methodologically innovative approach.

First, future research should study both migrant residential segregation and electoral results from a longitudinal perspective. This was raised as one of the main limitations of this study, linked to the methodological scope of this research, but a study that considers more than a single time period can greatly enrich the analysis by identifying trends and nuances that are beyond the scope of a cross-sectional study such as the one conducted here.

Furthermore, future research should delve deeper into the contextual factors of the models developed. Although they act as mediators, an interesting approach would be to evaluate the interaction between them, as well as paying special attention to the two most consistent, albeit weak, factors: income and the capacity of migrant reception centers. The study of migrant residential segregation linked to these factors is still an area to be explored, as the effects of residential segregation itself are not fully understood.

Another relevant element is the definition of migrant residential segregation in this study. Due to scope limitations, migrants were studied as a homogeneous group, but it is theoretically possible that different migrant subgroups follow distinct settlement patterns, for example, EU migrants compared to non-EU migrants, or migrants coming from Christian countries or not, or countries with a tradition of migration to Italy or not. These are nuances that are beyond the scope of the analysis presented here, but they could greatly enrich the study, as migrants from different groups have differentiated access to the housing market, arrive with a different socioeconomic profile, or even experience self-segregation processes. A study of this type would allow the identification of exclusive residential enclaves or ghettos, something that cannot be determined based on the analyses carried out.

Additionally, the intersectionality of migrants is something not considered here, but it constitutes a line of future research that may provide various answers to the nuances observed. Since the research is framed within interdisciplinary studies, the inclusion of categories such as the sex or age of migrants or voters is proposed as an element to be studied in future research focused on the subject. This opens the door to cohort studies that could trace how both the relationships observed, and the variables themselves evolve over time.

Regarding procedural elements, we propose conducting studies at the settlement scale. Whether urban or rural, focusing on these units allows for avoiding problems related to the MAUP and

better calibrating the segregation indices used here, which are sensitive to demographic composition. This would allow for a nuanced analysis of migrant residential segregation.

Likewise, this research studied two dimensions of segregation: exposure (isolation) and dissimilarity. The aggregation dimension was partially addressed by analyzing spatial autocorrelation and using techniques such as Moran's I or cluster analysis. However, a complete understanding of the segregation phenomenon alone should also consider the dimensions of concentration and centrality. While some of these are complex to perform at the municipal scale, they are possible and recommended for the study of settlements. On the other hand, some of the indicators used in this study, although widely used, have undergone improvements and adjustments, specifically those of isolation and dissimilarity. Therefore, a detailed study of spatial reality is recommended before adopting these measures and exploring others, if necessary.

On the other hand, the use of the GWR in this study was proposed as coherent with the nature of the data analyzed; however, it was used in its most standard form. Today, spatially weighted models exist that allow for even more accurate handling of spatial variability, as well as the type of data studied. In this sense, the research is methodologically innovative and opens the possibility of considering this type of model in political science studies, as well as in demography and sociology in general. Since geographic space is an element where all these fields of knowledge converge, this recommendation is also epistemologically coherent with the very nature of the geographical approach already discussed.

To further explore this perspective, the present study developed a multiscale study, comparing Italian macro-regions. However, this study could be further explored by comparing regions, clusters of municipalities, separating islands as another unit of analysis, among others. It is also necessary to further study where each particular variable is more explanatory than another, as this is one of the advantages of the GWR, which has not been fully explored in the thesis developed here, given its scope.

Furthermore, and as the most relevant recommendation for future research that comes from the place-based approach of this study, it is advisable to interpret the results and the discussion presented here as valid only for the Italian context, since making inferences about other similar contexts can be detrimental if they do not share an identical spatial structure. As noted, most of the literature addressing issues of segregation, public attitudes, exposure to migrants, among others, comes from countries with a strong tradition of segregation and from an Anglo-Saxon context.

The findings presented here could inform local policies that seek to address the negative effects of territorial segregation, for instance, by prioritizing interventions in municipalities where hotspots of dissimilarity or isolation are identified. However, as a final recommendation, it is suggested to theorize these complex phenomena and their related interventions from the specific national contexts and scales, prioritizing the local dynamics of each administrative unit. Only in this way can we achieve the desired place-based approach, a local shift in migration studies, and truly understand the context as recommended by Abbas & McNeil-Willson (2025), thus achieving local development that is aware of the specificities of each territorial configuration to prevent the negative consequences of radicalization.

13. GLOSSARY

Geographically Weighted Regression (GWR): A spatial regression technique that allows for the analysis of how relationships between variables vary according to geographic location. Unlike traditional global models, which assume a single effect valid for the entire territory, GWR estimates a different regression at each point in space, weighting neighboring data. This makes it possible to capture local variations in phenomena that may behave differently depending on the territorial context.

Corrected Akaike Information Criterion (AICc): An indicator used to compare statistical models, taking into account both the quality of the fit and the complexity penalty. The corrected version (AICc) is especially useful when the number of observations is not much larger than the number of model parameters, as is often the case in local models such as GWR. A lower AICc indicates a better balance between fitness and simplicity.

Effective Number of Parameters (ENP): In models such as GWR, where multiple local relationships are estimated, the effective number of parameters reflects the actual complexity of the model, beyond the nominal number of variables. The measure estimates how many “degrees of freedom” the model consumes when fitting locally, allowing a more realistic assessment of its flexibility and generalizability.

Residual Sum of Squares (RSS): Refers to the sum of the squared errors between the observed values and those predicted by a model. It represents the part of the variability of the data that the model fails to explain. A lower RSS indicates a better fit of the model to the observed data.

Bandwidth (spatial bandwidth): In spatial models such as GWR, the bandwidth defines the size of the geographical environment considered to estimate each local regression. It can be fixed (same distance for all points) or adaptive (the number of neighbors is constant, but distances can vary). A small bandwidth emphasizes local variation, while a large one is closer to a global model.

Spatial autocorrelation: This is the measure of the extent to which values of a variable are related to values of that same variable at geographically close locations. If nearby locations tend to have similar (positive) or different (negative) values, we say that spatial autocorrelation exists. Ignoring it can lead to errors in the interpretation of statistical results, since it contradicts the assumption of independence between observations.

MAUP (Modifiable Areal Unit Problem): MAUP is a methodological problem that occurs when the results of a spatial analysis vary according to how territorial units are aggregated or delimited (e.g., communes, provinces, or regions). This effect can change the coefficients of a regression, correlations, or visual patterns in the maps, generating different conclusions depending on the scale or zoning used. It is especially important when working with census or administrative data.

14. REFERENCES

- Abbas, T., & McNeil-Willson, R. (2025). Beyond the urban-rural binary: spatial dynamics of integration, segregation, and radicalisation in Northwest Europe. *Ethnic and Racial Studies*. <https://doi.org/10.1080/01419870.2025.2482722>
- Achebak, H., Bayona-I-Carrasco, J., & Valls, A. D. (2017). Evolución y pautas geográficas de la segregación residencial de los marroquíes en España. In *Estudios Geográficos* (Vol. 78, Issue 283, pp. 417–443). CSIC Consejo Superior de Investigaciones Científicas. <https://doi.org/10.3989/estgeogr.201714>
- Ahouga, Y. (2018). The local turn in migration management: the IOM and the engagement of local authorities. *Journal of Ethnic and Migration Studies*, 44(9), 1523–1540. <https://doi.org/10.1080/1369183X.2017.1368371>
- Aldén, L., & Neuman, E. (2015). Ethnic Segregation, Tipping Behavior, and Native Residential Mobility. *Source: The International Migration Review*, 49(1), 36–69. <https://doi.org/10.1111/imre>
- Allegra, M., Casaglia, A., & Rokem, J. (2012). The Political Geographies of Urban Polarization: A Critical Review of Research on Divided Cities. *Geography Compass*, 6(9), 560–574. <https://doi.org/10.1111/j.1749-8198.2012.00506.x>
- Allport, G. W. (1954). *The Nature of Prejudice*. Addison-Wesley.
- Asendorpf, J. B., & Motti-Stefanidi, F. (2017). A longitudinal study of immigrants' peer acceptance and rejection: Immigrant status, immigrant composition of the classroom, and acculturation. *Cultural Diversity and Ethnic Minority Psychology*, 23(4), 486–498. <https://doi.org/10.1037/cdp0000155>
- Aso, P. F. (2023). New perspectives on old inequalities: Italy's north–south divide. In *Inequalities, Territorial Politics, Nationalism* (pp. 22–40). Routledge. <https://doi.org/10.4324/9781003399773-3>
- Baccetti, C., & Messina, P. (2023). L'eredità . Le subculture politiche della Toscana e del Veneto. *L'eredità. Le Subculture Politiche Della Toscana e Del Veneto*, 1–250. <https://www.research.unipd.it/handle/11577/2372118>
- Barone, G., D'Ignazio, A., de Blasio, G., & Naticchioni, P. (2016). Mr. Rossi, Mr. Hu and politics. The role of immigration in shaping natives' voting behavior. *Journal of Public Economics*, 136, 1–13. <https://doi.org/10.1016/j.jpubeco.2016.03.002>

- Benassi, F., Bonifazi, C., Heins, F., Lipizzi, F., & Strozza, S. (2020). Comparing Residential Segregation of Migrant Populations in Selected European Urban and Metropolitan Areas. *Spatial Demography*, 8(3), 269–290. <https://doi.org/10.1007/s40980-020-00064-5>
- Benassi, F., Lipizzi, F., & Strozza, S. (2019). Detecting Foreigners' Spatial Residential Patterns in Urban Contexts: Two Tales from Italy. *Applied Spatial Analysis and Policy*, 12(2), 301–319. <https://doi.org/10.1007/s12061-017-9243-5>
- Bergman, P., Chetty, R., DeLuca, S., Hendren, N., Katz, L. F., & Palmer, C. (2019). Creating moves to opportunity: Experimental evidence on barriers to neighborhood choice. *NBER Working Paper Series*, 1–54. <https://www.nber.org/papers/w26164>
- Bernt, M. (2019). Migration and Strategic Urban Planning: The Case of Leipzig. *DISP*, 55(3), 56–66. <https://doi.org/10.1080/02513625.2019.1671002>
- Biagi, B., Faggian, A., & McCann, P. (2011). Long and Short Distance Migration in Italy: The Role of Economic, Social and Environmental Characteristics. *Spatial Economic Analysis*, 6(1), 111–131. <https://doi.org/10.1080/17421772.2010.540035>
- Bloise, F., Chironi, D., & Pianta, M. (2021). Inequality and voting in Italy's regions. *Territory, Politics, Governance*, 9(3), 365–390. https://doi.org/10.1080/21622671.2020.1837219/ASSET/42F49822-BD0B-476B-92D9-C7E42133CD32/ASSETS/IMAGES/RTEP_A_1837219_F0008_OB.JPG
- Boileau, L. L. A., Bless, H., & Gebauer, J. E. (2022). The 'mixed bag' of segregation—On positive and negative associations with migrants' acculturation. *European Journal of Social Psychology*, 52(3), 457–471. <https://doi.org/10.1002/ejsp.2830>
- Bonifazi, C., & Heins, F. (2000). *Long-term Trends of Internal Migration in Italy*. [https://doi.org/10.1002/\(SICI\)1099-1220\(200003/04\)6:2](https://doi.org/10.1002/(SICI)1099-1220(200003/04)6:2)
- Bonifazi, C., & Strozza, S. (2001). *International Migration in Europe in the last fifty years*. <https://www.researchgate.net/publication/255908119>
- Bonifazzi, C., Heins, F., Strozza, S., & Vitiello, M. (2009). *Italy: The Italian transition from an emigration to immigration country*. <https://www.researchgate.net/publication/267773953>
- Branton, R. P., & Jones, B. S. (2005). Reexamining racial attitudes: The conditional relationship between diversity and socioeconomic environment. In *American Journal of Political Science* (Vol. 49, Issue 2, pp. 359–372). <https://doi.org/10.1111/j.0092-5853.2005.00128.x>

- Brunsdon, C., Fotheringham, A. S., & Charlton, M. E. (1996). Geographically weighted regression: a method for exploring spatial nonstationarity. *Geographical Analysis*, 28(4), 281–298. <https://doi.org/10.1111/j.1538-4632.1996.tb00936.x>
- Castelli Gattinara, P. (2017). The ‘refugee crisis’ in Italy as a crisis of legitimacy. *Contemporary Italian Politics*, 9(3), 318–331. <https://doi.org/10.1080/23248823.2017.1388639>
- Claval, P. (2007). *Regional geography: Past and present (A review of ideas, approaches and goals)*. <https://www.researchgate.net/publication/242209136>
- Collins, C. A., Williams, D. R., Collins², C. A., & Williams⁴, D. R. (1999). Segregation and Mortality: The Deadly Effects of Racism? Segregation and Mortality: The Deadly Effects of Racism?1. In *Sociological Forum* (Vol. 14, Issue 3).
- Comber, A., Brunsdon, C., Charlton, M., Dong, G., Harris, R., Lu, B., Lü, Y., Murakami, D., Nakaya, T., Wang, Y., & Harris, P. (2023). A Route Map for Successful Applications of Geographically Weighted Regression. In *Geographical Analysis* (Vol. 55, Issue 1, pp. 155–178). John Wiley and Sons Inc. <https://doi.org/10.1111/gean.12316>
- Creswell, J. W., & David Creswell, J. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE.
- da Silva, A. R., & Mendes, F. F. (2018). On comparing some algorithms for finding the optimal bandwidth in Geographically Weighted Regression. *Applied Soft Computing*, 73, 943–957. <https://doi.org/10.1016/J.ASOC.2018.09.033>
- Dadashpoor, H., & Keshavarzi, S. (2024). Defining urban segregation: A qualitative meta-synthesis. *Cities*, 149. <https://doi.org/10.1016/j.cities.2024.104947>
- Dancey, C., & Reidy, John. (2004). Statistics without maths for psychology. In *Statistics without maths for psychology* (3rd ed.). Pearson Prentice Hall. https://www.researchgate.net/publication/263761626_Statistics_Without_Maths_for_Psychology
- de Haas, H. (2021). A theory of migration: the aspirations-capabilities framework. *Comparative Migration Studies*, 9(1). <https://doi.org/10.1186/s40878-020-00210-4>
- Degner, J., Essien, I., & Reichardt, R. (2016). Effects of diversity versus segregation on automatic approach and avoidance behavior towards own and other ethnic groups. *European Journal of Social Psychology*, 46(6), 783–791. <https://doi.org/10.1002/ejsp.2234>

- Deleuze, G., & Guattari, F. (2019). *Rizoma* (E. Fontamara, Ed.; Tercera ed). Editorial Fontamara.
- Dubé, J., & Legros, D. (2014). Spatial Autocorrelation. In 1 (Ed.), *Spatial Econometrics Using Microdata* (pp. 59–91). Wiley. <https://doi.org/10.1002/9781119008651.ch3>
- Duncan, O. D., & Duncan, B. (1955). A Methodological Analysis of Segregation Indexes. In *Source* (Vol. 20, Issue 2). American Sociological Review.
- Dunn, O. J. (1964). Multiple Comparisons Using Rank Sums. *Technometrics*, 6(3), 241–252. <https://doi.org/10.1080/00401706.1964.10490181>
- Dustmann, C., Vasiljeva, K., & Piil Damm, A. (2019). Refugee Migration and Electoral Outcomes. *Review of Economic Studies*, 86(5), 2035–2091. <https://doi.org/10.1093/restud/rdy047>
- Echeverría, G., & Finotelli, C. (2024). Much ado about nothing? Giorgia Meloni's government and immigration. *Contemporary Italian Politics*, 16(2), 233–247. <https://doi.org/10.1080/23248823.2024.2330805>
- Ferrari, S. L. P., & Cribari-Neto, F. (2004). Beta Regression for Modelling Rates and Proportions. *Journal of Applied Statistics*, 31(7), 799–815. <https://doi.org/10.1080/0266476042000214501>
- Ferreira, C. (2019). Vox as representative of the radical right in Spain: A study of its ideology. *Revista Española de Ciencia Política*, 51, 73–98. <https://doi.org/10.21308/recp.51.03>
- Fesselmeyer, E., & Seah, K. Y. (2017). Neighborhood segregation and black entrepreneurship. *Economics Letters*, 154, 88–91. <https://doi.org/10.1016/j.econlet.2017.02.025>
- Fotheringham, A. (2009). The Modifiable Areal Unit Problem (MAUP). In *The SAGE Handbook of Spatial Analysis* (pp. 105–123). SAGE Publications, Ltd. <https://doi.org/10.4135/9780857020130>
- Gabaix, X. (1999). Zipf's Law for Cities: An Explanation. In *Source: The Quarterly Journal of Economics* (Vol. 114, Issue 3).
- Galeano, J., & Bayona-i-Carrasco, J. (2018). Residential segregation and clustering dynamics of migrants in the metropolitan area of Barcelona. *Quetelet Journal*, 6(1), 99–127. <https://doi.org/10.14428/rqj2018.06.01.05>

- Gastón-Guiu, S., & Bayona-i-Carrasco, J. (2023). Age, gender, and cohort in residential segregation: The case of African immigrants in Spain, 2000–2020. *Population, Space and Place*, 29(6). <https://doi.org/10.1002/psp.2675>
- Gay, C. (2006). Seeing difference: The effect of economic disparity on black attitudes toward latinos. *American Journal of Political Science*, 50(4), 982–997. <https://doi.org/10.1111/j.1540-5907.2006.00228.x>
- Glick Schiller, N., & Çağlar, A. (2009). Towards a comparative theory of locality in migration studies: Migrant incorporation and city scale. *Journal of Ethnic and Migration Studies*, 35(2), 177–202. <https://doi.org/10.1080/13691830802586179>
- Halla, M., Wagner, A. F., & Zweimüller, J. (2017). IMMIGRATION AND VOTING FOR THE FAR RIGHT. *Source: Journal of the European Economic Association*, 15(6), 1341–1385. <https://doi.org/10.2307/90023600>
- Harvey, D. (1996). *Justicia, naturaleza y geografía de la diferencia* (I.-I. de A. E. N. del Ecuador, Ed.; Primera ed). Traficante de sueños. https://www.traficantes.net/sites/default/files/pdfs/PC18_Harvey_web.pdf
- Heidegger, M. (1927). *Being and Time*. Universitaria.
- Henri, A., Friedrich Article, M., Henri Otto, A., & Friedrich Steinhardt, M. (2017). The Relationship between Immigration and the Success of Far-right Political Parties in Germany. *Ifo DICE Report*, 15(4), 20–23. <https://hdl.handle.net/10419/181256>
- Hodgkins, B. J., & Stakenas, R. G. (1969). A Study of Self-Concepts of Negro and White Youth in Segregated Environments. *The Journal of Negro Education*, 38(4), 370–377. <https://doi.org/https://doi.org/10.2307/2966682>
- Hollander, M., Wolfe, D. A., & Chicken, E. (2015). Nonparametric statistical methods. In *Nonparametric Statistical Methods*. wiley. <https://doi.org/10.1002/9781119196037>
- Hopkins, D. J. (2010). Politicized places: Explaining where and when immigrants provoke local opposition. *American Political Science Review*, 104(1), 40–60. <https://doi.org/10.1017/S0003055409990360>
- Istat. (2025). <https://www.istat.it/>

- Istituto Nazionale di Statistica (ISTAT). (2023). *Censimento permanente della popolazione e delle abitazioni 2021 – Popolazione residente per cittadinanza*. <https://www.istat.it/it/censimenti/popolazione-e-abitazioni>
- James, D. R., & Taeuber, K. E. (1985). Measures of Segregation. In *Source: Sociological Methodology* (Vol. 15). <https://about.jstor.org/terms>
- Jiang, B., Yin, J., & Liu, Q. (2015). Zipf's law for all the natural cities around the world. *International Journal of Geographical Information Science*, 29(3), 498–522. <https://doi.org/10.1080/13658816.2014.988715>
- Katz, I. (1991). Gordon Allport's "The Nature of Prejudice." In *Psychology* (Vol. 12, Issue 1).
- Kaufmann, E., & Goodwin, M. J. (2018). The diversity Wave: A meta-analysis of the native-born white response to ethnic diversity. *Social Science Research*, 76, 120–131. <https://doi.org/10.1016/j.ssresearch.2018.07.008>
- Kaufmann, E., & Harris, G. (2015). "White flight" or positive contact? local diversity and attitudes to immigration in Britain. *Comparative Political Studies*, 48(12), 1563–1590. <https://doi.org/10.1177/0010414015581684>
- Kliot, N., & Mansfeld, Y. (1999). Case studies of conflict and territorial organization in divided cities. *Progress in Planning*, 52(3). [https://doi.org/https://doi.org/10.1016/S0305-9006\(99\)00010-0](https://doi.org/https://doi.org/10.1016/S0305-9006(99)00010-0)
- Kunovich, R. M., & Hodson, R. (2002). Ethnic Diversity, Segregation, and Inequality: A Structural Model of Ethnic Prejudice in Bosnia and Croatia. In *Source: The Sociological Quarterly* (Vol. 43, Issue 2).
- Latour, B. (2005). Reassembling the Social: An Introduction to Actor-Network-Theory. In *Reassembling the Social*. Oxford University Press. <https://doi.org/10.1093/OSO/9780199256044.001.0001>
- Lažetić, M. (2019). "Migration Crisis" and the Far Right Networks in Europe: A case study of Serbia. *Journal of Regional Security*, 13(2), 131–178. <https://doi.org/10.11643/issn.2217-995X182SPL100>
- Lefebvre, H. (1974). *La production de l'espace* (1st ed.). Capitán Swing Libros, S. L. www.fildestudio.com

- Lim, W. M. (2024). What Is Qualitative Research? An Overview and Guidelines. *Australasian Marketing Journal*. <https://doi.org/10.1177/14413582241264619>
- Linares, S. (2013). ESTUDIO COMPARATIVO DE LOS PROCESOS DE FORMACIÓN Y GESTIÓN DE LA POLÍTICA DE VI-LAS CONSECUENCIAS DE LA SEGREGACIÓN SOCIOESPACIAL: UN ANÁLISIS EMPÍRICO SOBRE TRES CIUDADES MEDIAS BONAERENSES (OLAVARRÍA, PERGAMINO Y TANDIL). *CUADERNO URBANO. Espacio, Cultura, Sociedad*, 14(14), 5–30. <https://doi.org/https://doi.org/10.30972/crn.1414527>
- Lu, B., Charlton, M., Harris, P., & Fotheringham, A. S. (2014). Geographically weighted regression with a non-Euclidean distance metric: A case study using hedonic house price data. *International Journal of Geographical Information Science*, 28(4), 660–681. <https://doi.org/10.1080/13658816.2013.865739>
- Lynch, K. (1960). *The image of the city*. MIT Press.
- Malheiros, J. (2002). Ethni-cities: Residential patterns in the Northern European and Mediterranean metropolises - Implications for policy design. *International Journal of Population Geography*, 8(2), 107–134. <https://doi.org/10.1002/ijpg.247>
- Marcuse, P. (1997). The Enclave, the Citadel, and the Ghetto. *Urban Affairs Review*, 33(2), 228–264. <https://doi.org/10.1177/107808749703300206>
- Marsaglia, G., & Marsaglia, J. C. W. (2004). Evaluating the Anderson-Darling Distribution. *Journal of Statistical Software*, 9(2), 1–5. <https://doi.org/10.18637/jss.v009.i02>
- Martínez del Olmo, A., & Leal Maldonado, J. (2008). La segregación residencial, un indicador espacial confuso en la representación de la problemática residencial de los inmigrantes económicos: el caso de la Comunidad de Madrid. *ACE: Arquitectura, Ciudad y Entorno*, III(8), 53–64. <https://doi.org/10.5821/ace.v3i8.2457>
- Massey, D. S. (2012). Reflections on the dimensions of segregation. *Social Forces*, 91(1), 39–43. <https://doi.org/10.1093/sf/sos118>
- Massey, D. S., & Denton, N. A. (1988). The Dimensions of Residential Segregation. *Social Forces*, 67(2), 281–315. <https://doi.org/https://doi.org/10.2307/2579183>
- Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *Local Environment*, 24(9), 793–808. <https://doi.org/10.1080/13549839.2019.1645103>;WGROU:STRING:PUBLICATION

- Montero, R., Vargas, M., & Vásquez, D. (2021). Segregation and Life Satisfaction. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.604194>
- Mousavinia, S. F. (2022). How residential density relates to social interactions? Similarities and differences of moderated mediation models in gated and non-gated communities. *Land Use Policy*, 120. <https://doi.org/10.1016/j.landusepol.2022.106303>
- Moustakas, L. (2023). Social Cohesion: Definitions, Causes and Consequences. *Encyclopedia* 2023, Vol. 3, Pages 1028-1037, 3(3), 1028–1037. <https://doi.org/10.3390/ENCYCLOPEDIA3030075>
- Muhammad, D. (2023). *The Local Turns in the Field of Migration*.
- Musacchio, L., Ozdenerol, E., Bryant, M., & Evans, T. (2005). Changing landscapes, changing disciplines: Seeking to understand interdisciplinarity in landscape ecological change research. *Landscape and Urban Planning*, 73(4), 326–338. <https://doi.org/10.1016/j.landurbplan.2004.08.003>
- Okulicz-Kozaryn, A. (2019). ARE WE HAPPIER AMONG OUR OWN RACE? *ISSUES IN ECONOMIC DEVELOPMENT Economics & Sociology*, 12(2). <https://doi.org/10.14254/2071>
- Olea, J. (2018). Hacia una ética de la relación entre sociedad y naturaleza: reflexiones en torno a la técnica y la geografía. *Ética En Geografía. Reflexiones Sobre Espacios y Territorios Para El Mundo En Que Estamos y El Que Se Nos Viene*, November, 140–154.
- Ortega, J. (2000). *Los horizontes de la geografía: Teoría de la Geografía* (J. Ortega Valcárcel, Ed.). Ariel Geografía.
- Park, Y. S., Konge, L., & Artino, A. R. (2020). The Positivism Paradigm of Research. In *Academic Medicine* (Vol. 95, Issue 5, pp. 690–694). Wolters Kluwer Health. <https://doi.org/10.1097/ACM.00000000000003093>
- Peach, C. (1996). Good segregation, bad segregation. *Planning Perspectives*, 11(4), 379–398. <https://doi.org/10.1080/026654396364817;REQUESTEDJOURNAL:JOURNAL:RPPE20;PAGE:STRING:ARTICLE/CHAPTER>
- Petrovi, A., Ham, M. Van, & Manley, D. (2018). Multiscale measures of population: Within- and between-city variation in exposure to the sociospatial context. *Annals of the American Association of Geographers*, 108(4), 1057–1074. <https://doi.org/10.1080/24694452.2017.1411245>

- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90(5), 751–783. <https://doi.org/10.1037/0022-3514.90.5.751>
- Petrachin, A. (2024a). The European ‘Refugee Crisis’ in Italy. In *The Multi-Layered Governance of Migration in Italy* (pp. 31–62). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-57832-8_2
- Petrachin, A. (2024b). *The Multi-Layered Governance of Migration in Italy Policy Actors, Networks, and the Shaping of the Refugee “Crisis.”* Springer.
- Petrachin, A., Gabrielli, L., Kim, J., Ludwig-Dehm, S., & Pötzschke, S. (2023). Did exposure to asylum seeking migration affect the electoral outcome of the ‘Alternative für Deutschland’ in Berlin? Evidence from the 2019 European elections. *Journal of Ethnic and Migration Studies*, 49(2), 576–600. <https://doi.org/10.1080/1369183X.2022.2100543>
- Piketty, T. (2018). *Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict*. <http://www.piketty.pse.ens.fr/files/Piketty2018.pdf>
- Pratschke, J., & Benassi, F. (2024). Population Change and Residential Segregation in Italian Small Areas, 2011–2021: An Analysis With New Spatial Units. *Spatial Demography*, 12(2). <https://doi.org/10.1007/s40980-024-00124-0>
- Putnam, R. D. (2007). E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte prize lecture. *Scandinavian Political Studies*, 30(2), 137–174. <https://doi.org/10.1111/j.1467-9477.2007.00176.x>
- Quillian, L. (2017). Contextual advantage: A formal theory with application to American cities. *RSF*, 3(2), 152–169. <https://doi.org/10.7758/rsf.2017.3.2.07>
- Reardon, S. F. (2016). School segregation and racial academic achievement gaps. In *RSF* (Vol. 2, Issue 5, pp. 34–57). Russell Sage Foundation. <https://doi.org/10.7758/rsf.2016.2.5.03>
- Relinque-Medina, F., Fernández-Borrero, M. Á., & Vázquez-Aguado, O. (2021). Elections and Segregation of the Foreign Population in Andalusia. *Migraciones. Publicación Del Instituto Universitario de Estudios Sobre Migraciones*, 51, 269–296. <https://doi.org/10.14422/mig.i51y2021.010>
- Ribeiro, P. J. G., & Pena Jardim Gonçalves, L. A. (2019). Urban resilience: A conceptual framework. *Sustainable Cities and Society*, 50, 101625. <https://doi.org/10.1016/J.SCS.2019.101625>

- Richmond, O. P. (2024). The Use and Misuse of the 'Local Turn.' *Millennium: Journal of International Studies*, 52(3), 540–565. <https://doi.org/10.1177/03058298241265026>
- Roberto, E., & Korver-Glenn, E. (2021). The Spatial Structure and Local Experience of Residential Segregation. *Spatial Demography*, 9(3), 277–307. <https://doi.org/10.1007/s40980-021-00086-7>
- Rydgren, J., & Tyrberg, M. (2020). Contextual explanations of radical right-wing party support in Sweden: a multilevel analysis. *European Societies*, 555–580. <https://doi.org/10.1080/14616696.2020.1793213>
- Sabatini, F., Cáceres, G., & Cerda, J. (2001). Segregación residencial en las principales ciudades chilenas: Tendencias de las tres últimas décadas y posibles cursos de acción. *EURE*, XXVIII(82), 21–42. <http://dx.doi.org/10.4067/S0250-71612001008200002>.
- Salomo, K., Helbig, M., & Marquardt, S. (2023). Radical right-wing support among urban voters in Germany: Disentangling the roles of immigration, immigration history, segregation, and poverty in the neighborhood. *Journal of Urban Affairs*. <https://doi.org/10.1080/07352166.2023.2224020>
- Santos, M. (2000). *La Naturaleza Del Espacio : Técnica Y Tiempo. Razón Y Emoción* (Ariel, Ed.). Ariel Geografía.
- Schiller, M. (2015). Paradigmatic pragmatism and the politics of diversity. *Ethnic and Racial Studies*, 38(7), 1120–1136. <https://doi.org/10.1080/01419870.2014.992925>
- Schlueter, E., & Scheepers, P. (2010). The relationship between outgroup size and anti-outgroup attitudes: A theoretical synthesis and empirical test of group threat- and intergroup contact theory. *Social Science Research*, 39(2), 285–295. <https://doi.org/10.1016/j.ssresearch.2009.07.006>
- Sheller, M. (2017). From spatial turn to mobilities turn. *Current Sociology*, 65(4), 623–639. <https://doi.org/10.1177/0011392117697463>
- Sondel-Cedarmas, J. (2022). Giorgia Meloni's new Europe: Europe of sovereign nations in the Brothers of Italy party manifestos. In *The Right-Wing Critique of Europe: Nationalist, Sovereignist and Right-Wing Populist Attitudes to the EU* (pp. 60–75). Taylor and Francis. <https://doi.org/10.4324/9781003226123-8>

- Stafford, M., Bécares, L., & Nazroo, J. (2010). Racial Discrimination and Health: Exploring the Possible Protective Effects of Ethnic Density. In *Ethnicity and Integration* (pp. 225–250). Springer Netherlands. https://doi.org/10.1007/978-90-481-9103-1_11
- Stein, R. M., Post, S. S., Rinden, A. L., Alford, J., Stevenson, R., Wlezien, C., & Ulbig, S. (1997). Reconciling Context and Contact Effects on Racial Attitudes. In *Political Research Quarterly* (Vol. 53, Issue 2).
- Strozza, S., Benassi, F., Ferrara, R., & Gallo, G. (2016). Recent Demographic Trends in the Major Italian Urban Agglomerations: The Role of Foreigners. *Spatial Demography*, 4(1), 39–70. <https://doi.org/10.1007/s40980-015-0012-2>
- Sykes, E. (2025). Power, Control, and Exclusion: The Political Dynamics Behind Urban Spaces. In *Sociology Compass* (Vol. 19, Issue 3). John Wiley and Sons Inc. <https://doi.org/10.1111/soc4.70043>
- Tobler, W. R. (1970). A Computer Movie Simulating Urban Growth in the Detroit Region. In *Geography* (Vol. 46).
- Triandafyllidou, A. (2018). A “Refugee Crisis” Unfolding: “Real” Events and Their Interpretation in Media and Political Debates. *Journal of Immigrant & Refugee Studies*, 16(1–2), 198–216. <https://doi.org/10.1080/15562948.2017.1309089>
- Unwin, T. (1993). *The Place of Geography* (1st ed.). Routledge.
- van Breugel, I. (2020). Towards a typology of local migration diversity policies. *Comparative Migration Studies*, 8(1). <https://doi.org/10.1186/s40878-020-00179-0>
- van der Waal, J., de Koster, W., & Achterberg, P. (2013). Ethnic Segregation and Radical Right-Wing Voting in Dutch Cities. [Http://Dx.Doi.Org/10.1177/1078087412473067](http://Dx.Doi.Org/10.1177/1078087412473067), 49(5), 748–777. <https://doi.org/10.1177/1078087412473067>
- van Wijk, D., Bolt, G., & Tolsma, J. (2020). Where does ethnic concentration matter for populist radical right support? An analysis of geographical scale and the halo effect. *Political Geography*, 77. <https://doi.org/10.1016/j.polgeo.2019.102097>
- Vassallo, S., & Shin, M. (2022). *La nuova mappa del consenso politico. Cosa c'è di nuovo nell'ondata populista?* 49–71. <https://cris.unibo.it/handle/11585/885790>

- Walker, R. T. (2022). GEOGRAPHY, VON THÜNEN, AND TOBLER'S FIRST LAW: TRACING THE EVOLUTION OF A CONCEPT. *Geographical Review*, 112(4), 591–607. <https://doi.org/10.1080/00167428.2021.1906670>
- Weaver, R., & Bagchi-Sen, S. (2015). Racially Polarized Voting in a Southern U.S. Election: How Urbanization and Residential Segregation Shape Voting Patterns. *The Review of Regional Studies: The Official Journal of the Southern Regional Science Association*, 45, 15–34. www.srsa.org/rrs
- Wong, D. W. S., & Shaw, S. L. (2011). Measuring segregation: An activity space approach. *Journal of Geographical Systems*, 13(2), 127–145. <https://doi.org/10.1007/s10109-010-0112-x>
- World Bank. (n.d.). *Net migration - Italy | Data*. Retrieved April 15, 2025, from <https://data.worldbank.org/indicator/SM.POP.NETM?locations=IT>
- Zannoni, F. (2015). Young immigrants and religion in Italy. New identities, old stereotypes, an educational challenge. *Journal of Theories and Research in Education*, 10(1), 131–149. <https://doi.org/https://doi.org/10.6092/issn.1970-2221/4692>
- Zapata-Barrero, R., Caponio, T., & Scholten, P. (2017). Theorizing the ‘local turn’ in a multi-level governance framework of analysis: a case study in immigrant policies. *International Review of Administrative Sciences*, 83(2), 241–246. <https://doi.org/10.1177/0020852316688426>
- Zhao, J., & Exeter, D. J. (2016). Developing intermediate zones for analysing the social geography of Auckland, New Zealand. *New Zealand Geographer*, 72(1), 14–27. <https://doi.org/10.1111/nzg.12110>

15. APPENDICES

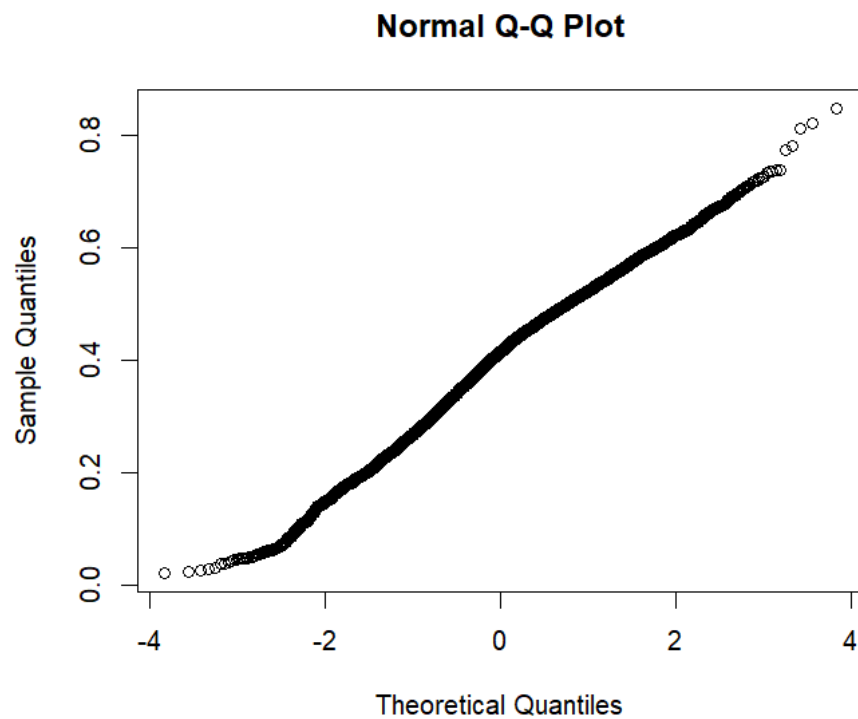
Appendix 1: Dunn's Kruskal-Wallis Multiple Comparisons test – Isolation index

Comparison	Z	P value	Adjusted P value
Center – North	5.6188	1.923058e-08	5.769175e-08
Center – South	29.2245	9.342652e-188	2.802796e-187
North - South	36.2922	2.148007e-288	6.444021e-288

Appendix 2: Dunn's Kruskal-Wallis Multiple Comparisons test – Dissimilarity index

Comparison	Z	P value	Adjusted P value
Center – North	3.852932	1.167117e-04	3.501351e-04
Center – South	-2.928519	3.405806e-03	1.021742e-02
North - South	-9.934480	2.947090e-23	8.841270e-23

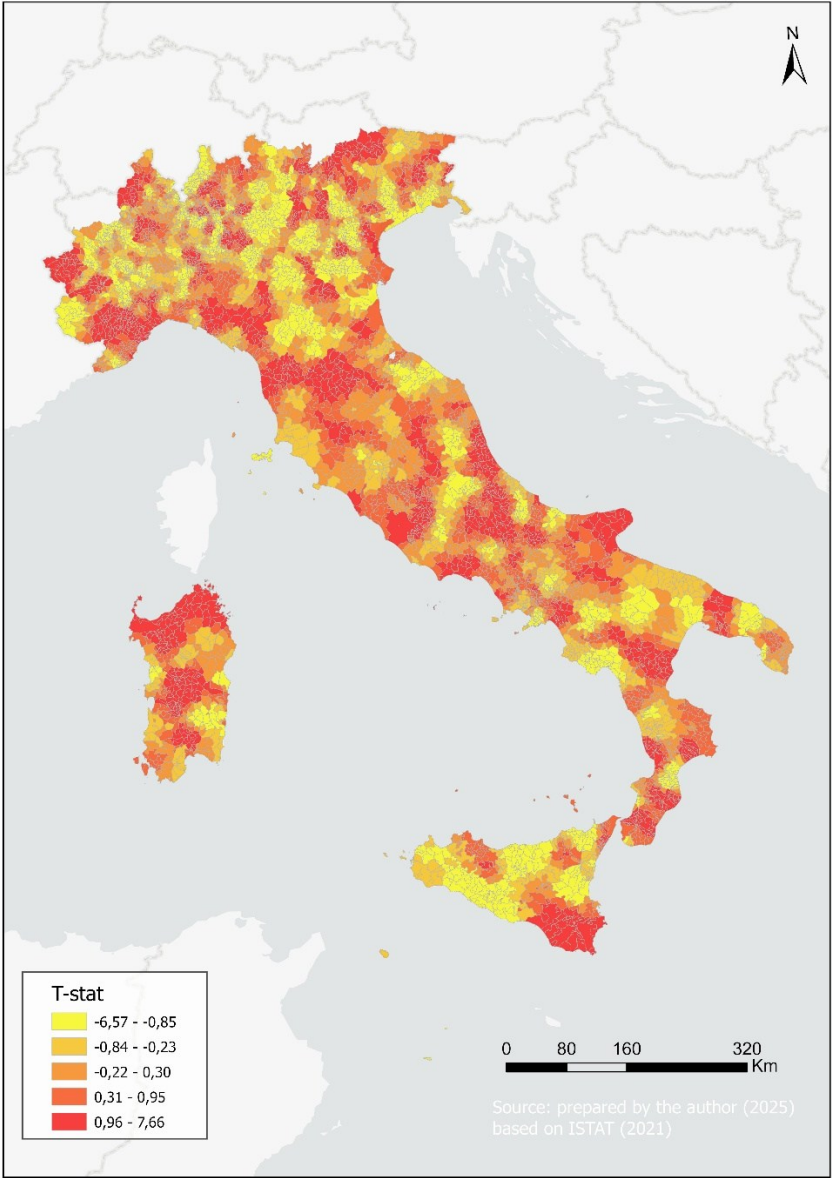
Appendix 3: Normal Q-Q Plot – Radical right votes share by municipality



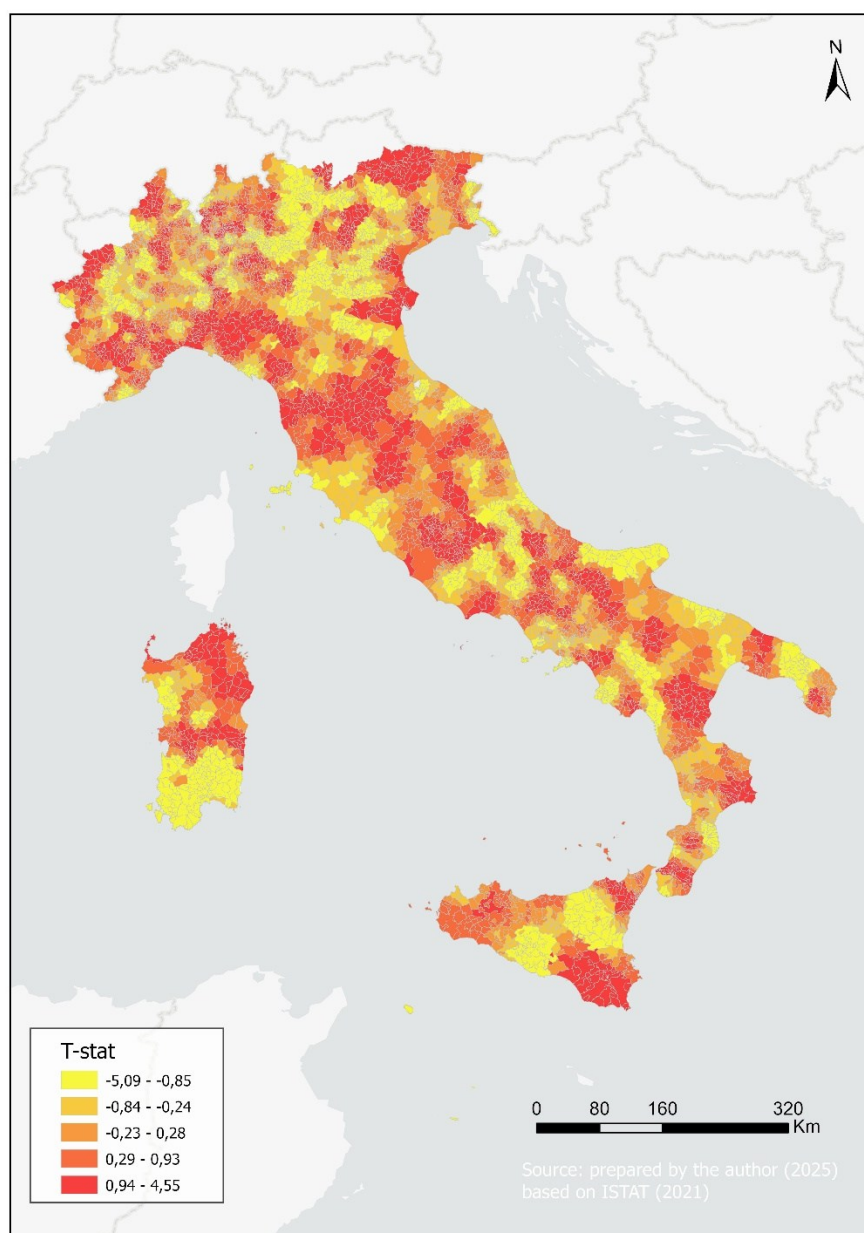
Appendix 4: Dunn's Kruskal-Wallis Multiple Comparisons test – Share of votes received by the radical right parties

Comparison	Z	P value	Adjusted P value
Center – North	-15.39987	1.639942e-53	4.919827e-53
Center – South	24.10190	2.387412e-128	7.162235e-128
North - South	58.35124	0.000000e+00	0.000000e+00

Appendix 5: T-stat for the Isolation Index.



Appendix 6: T-stat for the Dissimilarity Index.



Appendix 7: Descriptive statistics at a regional level – Theoretical model.

Macrozone	R ² Local - mean	R ² Local - median	Standard deviation
Center	0.471	0.448	0.147
North	0.571	0.579	0.213
South	0.675	0.770	0.229

Appendix 8: Clusters of segregation – coincidences

