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The Urban Roots of Populism: mapping and explaining populist strongholds within major Italian cities (2013-2022)

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Abstract. The impact of local contexts on populist voting patterns is receiving more attention, after being initially underestimated in the research literature. Populist support tends to be concentrated in areas "left behind" or "that don't matter", but we still lack an accurate understanding of (1) the locations of these places *within* major cities and (2) what characteristics of urban contexts prompt the populist vote. We aim to bridge this gap by analysing precinct-level electoral results of populist parties within six major Italian cities over the 2013-2022 decade. Through novel maps of the within-city populist vote, we identify four types of urban environments: populist strongholds, emerging populist, sporadically populist, and never-populist areas. We then investigate how two types of intra-urban factors – compositional and contextual – relate to the formation of populist strongholds and support for populist parties with distinct ideological profiles. The findings improve our comprehension of the urban "places of populism" and highlight the need for the "left behind" thesis to focus more fully on within-city patterns and divides.

Keywords: Populist vote; Italian populism; Urban politics; Contextual effects; Political geography.

Introduction

Following the European "polycrisis" (Zeitlin et al., 2019), the past decade has seen a surge of populism in the old continent (Hutter and Kriesi, 2019). Although it has been clear from the outset that this "populist wave" tends to be geographically clustered, the pertinent research on the geography of populism (Lizotte, 2019) has mainly focused on national and sub-national determinants. Except for some insightful single case studies (e.g. Essletzbichler and Forcher, 2022; Pratschke et al., 2021; van Gent et al., 2014), little attention has been paid to the role of *within*-municipality urban contexts in shaping populist support. Even the well-known thesis that populist parties exploit grievances of places "left behind" (Gordon, 2018; McKay, 2019) and "that don't matter" (Huijsmans, 2022; Rodríguez-Pose, 2018) is based on regional, urban-rural, and city-towns comparisons, whereas it disregards *within*-city divides and the existence of populist hotbeds within prosperous cities (Essletzbichler and Forcher, 2022).

Yet, the urban/metropolitan context is not of secondary importance. The metropolitan area has become the main form of human settlement in many countries. Urbanization levels have been constantly rising in recent decades and urban population represents the vast majority of the total population of more developed regions, including Europe[1]. The socio-political implications of such developments - although still understudied - have not been lost in the pertinent academic literature. Sellers et al. (2013) argued that a "metropolitanisation of politics" is shaping advanced societies, highlighting the growing political significance of within-city fractures compared to traditional regional or urban-rural cleavages[2]. More recent

[1] According to the 2018 Revision of World Urbanization Prospects by the United Nations Population Division, the urban population accounts for 74.5% of the total population in Europe and 71% in Italy.

[2] These authors go as far as to claim that, in countries where most of the voters reside in metropolitan areas, party competition coincides more and more with competition between metropolitan places (Sellers et al., 2013).

studies have shed further light on substantial electoral and attitudinal divides within contemporary European cities (e.g. Crulli, 2022b, 2023; Maxwell, 2019; Valbruzzi, 2021). Therefore, fine-grained intra-urban distinctions associated with populism need to be explored more in-depth not only because they have often been overlooked, but above all, because they are increasingly relevant.

Furthermore, based on the rapidly developing body of work on the "places of populism", we are now aware of the usual socio-economic or *compositional* features of these places: high levels of economic inequality, low levels of education, and an older population (Dijkstra et al., 2020). However, we have a much more limited understanding of the local, and specifically urban, *contextual* factors associated with support for ideologically different populist parties. We seek to fill these gaps by examining both the intra-urban distribution of the populist vote and the relationship between urban contextual factors and populist support. Three questions guide the research:

RQ1: Where are the "places of populism" typically located within cities?

RQ2: What are the compositional and contextual factors favouring the formation of populist strongholds within cities?

RQ3: What urban compositional and contextual factors explain support for ideologically different populist parties?

We answer these questions by analysing precinct-level electoral results of populist parties within six major Italian cities over the 2013-2022 decade. Italy is a unique breeding ground for populism. Three very different populist parties – *Lega*, *Fratelli d'Italia* (FdI), and *Movimento 5 Stelle* (M5S) – have been major actors in the country's party system for the last ten years. Moreover, Italy appears an apt case for this study as these ideologically different populisms have achieved success in a variety of territorial contexts (Albertazzi and Zulianello,

2021; Bazzoli and Lello, 2020; Chiaramonte and Emanuele, 2018; Crulli, 2022b; Levi and Patriarca, 2020; Valbruzzi, 2021).

To conduct our analysis, we resort to a new geocoded dataset of Italian electoral results at the precinct ("*sezioni elettorali*") level (Pinto, 2023). This dataset allows us to examine variations in the intra-urban populist support over time and to account for differences between cities in the North and in the South, or in zones formerly characterized by diverse "territorial political subcultures" (Trigilia, 1981). In addition, the dataset enables us to overcome a common challenge in research on the territorial distribution of the (populist) vote: the lack of geocoded data at proper fine-grained areal units. In fact, the absence of granular-level electoral results has often "forced" researchers interested in local and intra-urban political behaviour to adopt qualitative approaches, such as individual interviews and focus groups (e.g. Bertuzzi et al., 2019; Boswell et al., 2022). Such research can be enlightening, but still, it does not completely fulfil the "need to take fine-grained geographical distinctions much more seriously" (Boswell et al., 2022: 169).

The rest of the paper is organised as follows. First, we provide a literature review on the concept of populism and the trajectories of Italian populist parties, expounding on what we already know about their territorial rootedness. Secondly, we illustrate our research design, dwelling on the data and methods employed[3] and outlining the research hypotheses. The following empirical analysis is subdivided into three main sections, one for each research question. In the first and more descriptive part, we present our novel maps of the populist vote within selected cities. Here we identify four types of urban precincts - populist

[3] Data, replication material, and interactive maps associated with this paper can be accessed at the following link: https://populiststrongholds.github.io/populist-strongholds/ Please cite this paper if you make use of our data or maps.

strongholds, emerging populist, sporadically populist, and never-populist areas - and discuss where each type is located. Secondly, we employ a spatial regression model to gauge what compositional and contextual factors - including housing market, ethnic structure, access to public services and the internet - are likely to turn an urban environment into a populist stronghold. Finally, we use spatial regression analysis again to investigate the influence of the same intra-urban compositional and contextual factors on voting for populist parties with distinct ideological profiles. In the conclusion, we summarise how our findings contribute to a deeper understanding of the urban "places of populism" and what factors are most likely to favour the success of different populist parties within cities.

Populism and the Geography of populism(s) in Italy

The many populisms of Italian politics

Since the beginning of the populist wave that has been affecting Europe for twenty years now, several publications have focused on the concept and definition of (different types of) populism (Mudde, 2004, 2007; Rodrik, 2018). A series of approaches to the study of populism – the "political-strategic", the "socio-cultural", and the "ideational" ones (Rovira Kaltwasser et al., 2017) – has thus congealed. Nonetheless, the long-running debate about the true meaning of populism seems to have come to a close. A broad consensus among experts has been reached on the strengths of the "ideational" approach, according to which populism is a "thin-centred" ideology based on two pillars: centrality of (the will of) the "people" and anti-elitism (Mudde, 2004: 543).

The "thin-centredness" of the populist ideology implies that it can be adopted by very different political parties. No other European country exemplifies this more clearly than Italy. The country is home to two populist radical right (PRR) parties - Lega and FdI - and the "neither

left nor right" M5S. The fundamental ideological tenets of PRR parties are nativism[4] and authoritarianism[5], in conjunction with populism (Mudde, 2007). Hence, Lega and FdI - partners in the current government - share an ideology characterized by an aversion towards migrants and a traditional view of society. Soft Euroscepticism and sovereignism are other pillars of their political platforms[6].

M5S's populism is different from both the right-wing (more cultural) populism that is prevalent in Europe, and the left-wing (more economic) populism that is predominant in Latin America (Rodrik, 2018). Due to its chameleonic ideology, M5S has been defined as an "eclectic" (Mosca and Tronconi, 2019), "polyvalent" (Pirro, 2018), or "valence" (Zulianello, 2020) populist party. This means that beyond endorsing the two core elements of populist ideology - "people-centrism" and "anti-elitism" - M5S has primarily focused on non-positional issues. Examples include the fight against corruption, aimed at increasing transparency of institutions, and proposals for democratic renewal, especially through online platforms for political participation. Moreover, the party has changed its position on several issues throughout its history and has governed with very different partners, spanning the entire left-right spectrum.

[4] Defined as "the idea that states should be inhabited exclusively by members of the native group ('the nation') and that nonnative elements (persons and ideas) are fundamentally threatening to the homogenous nation-state" (Mudde, 2007: 19).

[5] Defined as "the belief in a strictly ordered society, in which infringements of authority are to be punished severely" (Mudde, 2007: 23).

[6] Lega and FdI have gained prominence after adopting a PRR ideology but have very different legacies. Lega was born as a regionalist populist party and was then transformed into a more canonical PRR party by Matteo Salvini (Albertazzi et al., 2018). FdI is instead a successor of *Alleanza Nazionale*, which itself was the heir of *Movimento Sociale Italiano*, a neo-fascist party of post-war Italy. Despite this continuity with the Italian fascist past, FdI has increasingly attempted to distance itself from fascism (Vampa, 2023). These different legacies imply that, while FdI has always been unabashedly nationalist, only after the PRR turn has Lega become equally nationalist.

Electoral performances of Italian populist parties

The Italian party system of the 2000s featured two political poles: the centre-left, since 2007 led by *Partito Democratico* (PD), and the centre-right, led by Berlusconi's *Forza Italia* (FI). The party system underwent deep transformations in the long period of crises that followed the 2008 Great Recession. Changes were brought by new or transformed populist parties, which have enjoyed high support for the whole 2013-2022 decade, although their electoral fortunes have been swaying (Fig. 1).

Insert Figure 1

Born in 2009, M5S became the first party (26%) at its first parliamentary election (2013), causing a political shock by ending the bipolarism of the Second Republic. At that time, FdI had just formed, while Lega was an electorally marginal party that reaped one of its worst-ever results. Lega's growth began after the change in leadership and transformation into a nationalist PRR party by Matteo Salvini, Lega's leader since 2013 (Albertazzi et al., 2018). Therefore, the 2018 general election witnessed a new turmoil (Chiaramonte and Emanuele, 2018): M5S was confirmed as the first party with over 30% of the votes, but Lega grew the most, exceeding 18% (up from the previous 4%). The cumulative result of Italian populist parties in 2018 remains the best aggregate performance of populist parties in Western Europe from 2010 to the present (Emanuele et al., 2022). An unprecedented fully populist government was thus formed by M5S and Lega, which however lasted only one year. Finally, the two PRR parties have met opposite fates in the last three years. Lega has sunk while FdI has surged in the polls, culminating in the September 2022 election, which resulted in FdI's resounding victory (26%) and the formation of the Meloni cabinet. Hence, FdI's path from the fringe of the political system to nominating the prime minister passed through catching votes from both M5S and, above all, Lega (Chiaramonte et al., 2023: 20). As a result, although M5S

remained an important player in Italian politics, the 2022 electoral outcome brought Italy in line with most Western European countries, where the strongest populist party is on the radical right (Crulli and Viviani, 2022).

The geography of Italian populisms

Coming to the geography of populist support in Italy (Fig. 2), we know from previous contributions that there are remarkable North-South or inter-regional variations (Albertazzi and Zulianello, 2021; Chiaramonte and Emanuele, 2018), as well as divides between (types of) municipalities (Levi and Patriarca, 2020), between cities and countryside (Bazzoli and Lello, 2020), and between diverse peripheries (Fruncillo and Pratschke, 2020).

Insert Figure 2

For instance, despite its attempt at "nationalization", Lega remains primarily a party of the North and less densely populated towns. In contrast, M5S reaps most electoral rewards in the South and performs well in large municipalities (Levi and Patriarca, 2020), although with some exceptions (Pratschke et al., 2021). Thanks to its 2022 exploit, FdI has managed to become highly competitive in many previously unfavourable contexts, but even in this case, there are significant differences between cities in the Centre-North and the South (Improta et al., 2022). As for the urban-rural cleavage, on the one hand, support for populist parties appears to be only partially related to rural contexts and place peripherality *per se* (Bazzoli and Lello, 2020; Fruncillo and Pratschke, 2020). On the other hand, Lega, in particular, has usually been similarly strong across small towns and suburbs, whereas there is an evident gap between these kinds of places and larger cities (Bazzoli and Lello, 2020: 12–13). By stealing a significant portion of Lega's electorate, FdI has also assumed a "village-oriented" profile in 2022 (Chiaramonte et al., 2023), whereas it had previously been stronger in cities (Vampa, 2023).

All these types of territorial rifts associated with the Italian populist vote have been much more investigated than intra-urban divides. This reflects a more general trend. Although some scholars started to uncover patterns of vote "metropolitanisation" a decade ago (Sellers et al., 2013), stressing the relevance of intra-metropolitan electoral heterogeneity and polarization (Crulli, 2022b), we still know much less about *within*-city divisions than about those between regions or between urban and rural areas. So, whereas there has already been attention to *inter*-cities rifts in Italian populist support in the past (Agnew et al., 2002; Shin and Agnew, 2011), only very recently have scholars addressed *intra*-cities divides connected with new political cleavages and the populist vote (Crulli, 2022b; Pratschke et al., 2021; Valbruzzi, 2021). Beyond being still scant and sporadic, most of these studies, as we emphasize in the next section, use territorial areas of analysis that are too large and internally heterogeneous. Hence, the need for more in-depth analyses of populist support across fine-grained urban units.

Research design

Identifying populist parties

Many studies have classified populist parties in Europe relying on the ideational approach (Meijers and Zaslove, 2021; Rooduijn et al., 2023; Zulianello, 2020). In this article, we use the POPPA Expert Survey developed by Meijers and Zaslove (2021) to justify our selection of Lega, FdI, and M5S as populist parties. The POPPA Expert Survey views populism as a continuous property. It assigns a score ranging from 0 to 10 to each party, with a higher score indicating a greater degree of populism. This is particularly helpful when evaluating contentious cases. M5S and Lega are widely considered populist, but there is less consensus on whether FI and

FdI are populist. We define populist parties as those with a POPPA score above 7 and consider M5S, Lega, and FdI as populist because they exceed this threshold[7].

The dataset: novelty and advantages

To examine the populist vote and its determinants within major Italian cities we take advantage of a recently constructed dataset of Italian electoral results geocoded at the precinct level: the SEI ("*Sezioni Elettorali Italiane*") dataset (Pinto, 2023). The SEI dataset also contains precinct-level sociodemographic and contextual variables, calculated with spatial interpolation from ISTAT census data. To gain a more complete understanding of the factors driving within-city populist voting behaviour, we combine these data with other compositional and contextual factors, collected from various sources (see Tab. 1 and Appendix I).

To the best of our knowledge, the SEI dataset is the first and only source of geocoded electoral results at such a granular level of aggregation for Italy's largest cities. Thus far, works providing and analysing sub-municipal electoral results – such as those by the *MappaRoma* project (Lelo et al., 2019) and the *Istituto Cattaneo* (Valbruzzi, 2021) – employed territorial units much broader than the precincts[8]. Precincts are the most granular level for which electoral results can be available, with a size ranging between 500 and 1,200 voters in Italy.

[7] M5S = 9.46, Lega = 8.6, FdI=7.44. We exclude FI due to its POPPA score being below the threshold and close to the middle of the scale (5.56). Of course, the threshold of 7 is in a way arbitrary. However, to put this threshold into context, the average POPPA score of all parties included in the expert survey is 4.39, whereas the average of Italian parties is 5.55. Hence, the three selected parties have much higher scores compared to both the European and the Italian averages. Furthermore, dichotomous classifications of populist parties, such as the PopuList (Rooduijn et al., 2023), also consider the three selected parties as populist – and Lega and FdI as PRR.

[8] The *MappaRoma* project focuses almost exclusively on Rome, whereas the recent volume edited by Valbruzzi (2021) explores socioeconomic hardship and voting choices in 14 metropolises during the 2008-2018 decade. A few other works, however, relied on unique datasets comprising precinct-level electoral results to analyse electoral turnout and voting behaviour in *single case studies* (Bellettini et al., 2016; Fruncillo and Pratschke, 2020; Pratschke et al., 2021).

The availability of precinct-level electoral results, with related compositional and contextual variables, helps to overcome shortcomings of previous studies (e.g., by reducing the risk of incurring ecological fallacy) and enables much more detailed spatial analysis (Pinto, 2023)[9].

A final advantage of the SEI dataset is that it comprises data for metropolises scattered throughout the country. This allows us to delve into similarities and differences of cities in diverse geo-political areas, which were (Trigilia, 1981) and still are (e.g. Chiaramonte et al., 2023; Improta et al., 2022) characterized by distinct voting patterns. Hence, our sample includes two cities in the North (Milan and Turin), two in the South (Rome and Palermo), and two in the Centre-North (Bologna and Florence)[10], which also corresponds to the former "Red Zone", the area where the communist subculture was once dominant.

Approach and methods

In the first part of the empirical analysis, we exploit the fact that the SEI dataset is *geocoded* to construct and discuss new maps of the populist vote within the cities. We classify precincts into four categories.

- *Populist strongholds*: precincts where a populist party has always been the leading party since 2013.
- *Emerging populist:* precincts that became populist in 2018 and remained so in 2022.

[9] To give just one example, in the case of Rome, both the *MappaRoma* project (Lelo et al., 2019), the *Istituto Cattaneo* (Valbruzzi, 2021) and other research (Crulli, 2022b) relied on data at the 155 *zone urbanistiche* level. By resorting to the SEI dataset, we can increase the level of granularity by almost 17 times, since the precincts of Rome are 2,600.

[10] These six are also the largest cities - in terms of population size - for which precinct-level electoral data are available in the SEI dataset.

- *Sporadically populist:* precincts where a populist party has won the elections at least once during the 2013-2022 decade, but not in both 2018 and 2022[11].
- *Never-populist:* precincts where the leading party has never been a populist one.

In the second part, we move on to consider what compositional and contextual factors predict whether a precinct is a populist stronghold, through a descriptive analysis. We estimate a *probabilistic regression model* with city fixed effects, where the dichotomous outcome variable takes a value of 1 if the precinct is a populist stronghold and 0 otherwise.

In the third part, we turn our attention to electoral support for different populist parties in the 2013, 2018, and 2022 general elections. We estimate separate *linear regression models* - with city and year fixed effects - for each populist party, to examine whether compositional and contextual factors are associated with support for populism in different ways, depending on the specific populist party. Therefore, the dependent variables in this section are continuous, measuring precinct-level vote shares for populist parties.

As a final step, we also briefly investigate *heterogeneity* in terms of city and election. To do this, we run additional separate regression models for each party, city, and election[12].

In all empirical sections, we take into account the spatial dimension of our data by employing *spatial regression techniques*. We incorporate lags of the independent variables and model autocorrelation in the error term using a row-standardized spatial weight matrix of the 8 nearest neighbors[13].

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[11] This is the most variegated category, including precincts where the leading party was a populist one only in 2013 (2%), only in 2018 (47%), only in 2022 (36%), in 2013 and 2018 (13%), in 2013 and 2022 (2%).

[12] In our main analysis, we use city*year fixed effects. This means that models have a different intercept for each city and election, but slopes do not vary. Conversely, by running separate cross-sectional models – one for each city and election - we estimate a different slope for each city and election.

[13] Specifically, we estimate Spatial Durbin Error models: $y = X\beta + WX\theta + u, u = \lambda Wu + \varepsilon$. y is the dependent variable, i.e. either a dummy variable indicating whether the precinct is a populist stronghold (Fig. 5) or the

Before presenting our sets of explanatory factors, we need to acknowledge a limitation of the data at our disposal and, consequently, our approach. Our independent variables were measured at different points in time (Tab. 1), and we do not have suitable panel data. This means that we are unable to account for changes in the explanatory factors over the decade. Therefore, while conducting our regression analyses, we assume that the relative spatial distribution of the independent variables has not changed significantly[14].

Variables and hypotheses

Building on the theoretical framework advanced by Thrift (1983), geographers and social scientists studying territory-based voting trends and attitudes often distinguish between two types of effects: *compositional* and *contextual* (Harteveld et al., 2021; Johnston et al., 2018; Maxwell, 2019). Compositional effects pertain to the characteristics of the people living in a particular place and suggest that their choices and attitudes are primarily (or entirely) determined by their socioeconomic conditions. Contextual effects, on the other hand, suggest that the experience of living in a certain place can influence people's orientations and political choices. While many current studies have focused on the role of compositional factors (Johnston et al., 2018: 3), such as age, education level, and income (Dijkstra et al., 2020: 7), in shaping contemporary political behaviour and the rise of populist and radical right

precinct-level vote share for the populist party (Figures 6-9); X is the matrix of compositional and contextual factors; β is the coefficient; θ is the lagged coefficient; W is the spatial weight matrix; λ is the autoregressive component of the error. This specific model was selected following the approach suggested by Anselin (2017). Diagnostics for spatial dependence justifying the adoption of this model are reported in Appendix III (Tables 4a-7a). As a robustness check, we compared the outputs obtained using different specifications: a simple OLS, a spatial model with lags only, and the Spatial Durbin Error model with lags of the independent variables *and* in the error term (Tab. 8a, Appendix IV). We implemented our estimations via the Python PYSAL–SPREG module (Rey and Anselin, 2007) and the R spatial probit module (Wilhelm and de Matos, 2013).

[14] For example, we measured schools' density using 2022 data. Although some schools may have closed and others may have opened in the last decade, we assume that the change in their relative distribution is negligible. In other words, we assume that potential changes in our independent variables pertain to a small fraction of precincts and do not significantly impact the relationship between these variables and our dependent variables.

movements, there is also evidence that local contextual factors matter (Harteveld et al., 2021; McKay, 2019; Patana, 2020), meaning that the populist vote cannot be explained by voter composition alone (van Gent et al., 2014). Therefore, we analyse how both compositional and contextual determinants relate to within-city populist support.

Table 1 List of compositional and contextual variables

	Compositional variables		**Sources**
	Under 35	Percentage of population under 35 years	SEI dataset, 2011 census
	Over 75	Percentage of population over 75 years	
	Males	Percentage of male population	
	Graduates	Percentage of population with a degree	
	Unemployed	Percentage of unemployed population over the total workforce	
	Income	Average declared income (€)	*MEF, 2011*
	Contextual variables		***Sources***
Housing	House prices	Average selling price (€/sq. meter) of residential buildings	*OMI, 2014*
	Homeowners	Rate of households owning homes on total resident households	SEI dataset, 2011 census
	New buildings	Rate of residential buildings built after 1990 on total residential buildings	
Ethnic structure	Foreigners	Percentage of foreign residents	SEI dataset, 2011 census
	African foreigners	Percentage of African foreign residents	
	Foreigners' change	Percentage difference between foreign residents in 2011 and 1991	
Public services	Schools' density	Density of primary and secondary public schools within a 500-mt radius from the precinct's centroid.	*MIUR, 2022*
	Bus stops' density	Density of bus stops (weighted for the number of lines) within a 500-mt radius from the precinct's centroid	*Local GTFS data by public transit agencies of Italian municipalities, 2022*
	Internet access	Maximum Average Download speed (Mbit/s)	*AGCOM BroadbandMap, 2019*

***Notes**:* The table reports all the independent variables we used in the regression analysis. All variables are numeric and continuous. We standardized all variables (mean=0; standard deviation=1). MEF=Italian Ministry of Economy and Finance; MIUR=Italian Ministry of Education; OMI=Housing Market Observatory of the Italian Revenue Agency. AGCOM=Communications Regulatory Authority.

As for *compositional* effects, our regression models comprise variables measuring age cohorts, gender compositions, education levels, employment statuses and income levels in the precincts (Tab. 1). From several cross-national studies analysing populism at either the

national or the individual level (e.g. Inglehart and Norris, 2016) we know that populist support is usually stronger among older generations, men, the less educated, and the more economically insecure strata of the population. Therefore, we posit that the same empirical relation exists at the level of precincts within cities.

H1: Urban precincts composed of a higher proportion of elderly individuals, men, non-graduates, unemployed and less wealthy people are more likely to be populist strongholds, or support populist parties.

The first group of *contextual* predictors of the populist vote that we include in our regression models concerns *housing* (Adler and Ansell, 2020; Ansell et al., 2022; Bertuzzi et al., 2019; Patana, 2022; Waldron, 2021). Adler and Ansell (2020) have been the first to investigate the relationship between housing market trends and populist voting patterns. They discovered that contexts that have seen an increase in property values, such as the centres of major and booming cities, are less likely to support populism, compared to areas affected by house price deflation. This suggests that "housing discontent", or "the political expression of latent anxiety regarding housing and place-based precarity" (Waldron, 2021: 1221), may fuel the populist vote. More recent research has also suggested that, although the effect of housing market dynamics is more evident among homeowners compared to renters, there appears to be a "geotropic" effect that causes both categories to be influenced by (changes in) house prices in a similar way (Ansell et al., 2022; Crulli, 2023)[15]. However, these attempts are still relatively rare, and further analyses of the connections between housing systems, place inequalities, and populism are needed. Our models comprise three variables related to the

[15] As Ansell and colleagues explain, low and declining house prices may signal, to both homeowners and non-homeowners, that the market does not value the place where they live, and by extension, "people like them".

housing market: one measures the average house prices, one the rate of homeowners, and another one the rate of new buildings. We also look at the interaction between the "house prices" and "homeowners" variables[16]. We conceive of electoral precincts with higher house prices, and higher proportions of homeowners and old (i.e. more historical) buildings as advantaged. Building on previous contributions, we hypothesize the following:

H2: Urban precincts enjoying advantageous housing conditions are less likely to be populist strongholds, or support populist parties.

The second group of contextual predictors regards the *ethnic structure* of precincts. Studies on the relationship between immigration and political behaviour have produced mixed results. Some research has found that a higher number of foreign residents in an area can lead to anti-immigrant attitudes (Schneider, 2008) and support for far or (populist) radical right parties that campaign against non-natives (Halla et al., 2017). Other studies, however, have suggested the opposite relationship (Alba and Foner, 2017; Pagliacci and Bonacini, 2022; Patana, 2020) or found that the size of the immigrant population has no clear or significant effect (Lucassen and Lubbers, 2012; Rydgren, 2008). Additionally, the relationship between foreigners and support for nativist parties can be significantly heterogeneous across space, even in areas that are geographically close to each other (Shin and Agnew, 2011: 69). Therefore, formulating expectations about the ethnic structure of precincts is not straightforward. If the so-called "contact hypothesis" (Alba and Foner, 2017; Allport, 1954; Pagliacci and Bonacini, 2022; Schneider, 2008) holds, living in diverse, multi-ethnic environments with more opportunities for interaction between natives and non-natives can

[16] Unfortunately, we do not have suitable panel data on house prices and homeowners at our disposal. Hence, we cannot examine the effect of changes in these variables.

lead to mutual understanding and tolerance - therefore to less support for PRR parties. However, the opposite scenario is also plausible. According to "ethnic competition" (Pagliacci and Bonacini, 2022: 366–367) or "ethnic threat" theories (Harteveld et al., 2021: 5), PRR parties may be stronger in urban places where the greater number of immigrants is seen as a threat by local people. Furthermore, it may be relevant to distinguish between ethnic groups. In fact, Africans are the primary target of Italian PRR parties' rhetoric, which singles them out as scapegoats for cultural, economic, and social issues. Against this backdrop, we formulate two competing hypotheses:

H3a: Urban precincts with a higher proportion of foreign residents – especially Africans - are less likely to be populist strongholds and support PRR parties ("contact hypothesis").

H3b: Urban precincts with a higher proportion of foreign residents – especially Africans - are more likely to be populist strongholds and support PRR parties ("ethnic threat hypothesis").

As illustrated in the second section of the paper, M5S is ideologically distinct from the two PRR parties, insofar as it is *not* a nativist party and has not strongly politicized the immigration issue as Lega and FdI have. Consequently, we also hypothesize the following:

H4: The ethnic structure of urban precincts has different relationships with the populist vote, depending on the type of populist party.

The third set of contextual factors captures *access to public services*, measured by two proxies: schools' and bus stops' density. It has already been stated that social isolation and lack of public services in local contexts can underlie strong political malaise and a populist orientation (Bertuzzi et al., 2019; Boswell et al., 2022). However, only very recently have scholars started disentangling the links between access to local public services and transport and the populist (radical right) vote, finding that PRR parties perform better in contexts where the lack of these services causes "residential constraints" (Patana, 2022). After all, transposing

to the intra-urban level the thesis that the populist flare-up represents "the revenge of the places that don't matter" (Rodríguez-Pose, 2018), or lagging places that feel abandoned by policymakers, we may expect the following:

H5: Urban precincts that are more isolated in terms of access to schools and public transportation are more likely to be populist strongholds, or support populist parties.

A final contextual predictor included in our regressions[17] is *internet access*, measured in terms of available internet speed. Previous research has demonstrated that the expansion of broadband internet helps explain the success of populist parties in Europe, arguably because the new tools provided by broadband internet suit populists' communication needs, styles, and strategies (Schaub and Morisi, 2020). Hence, we posit that

H6: Urban precincts with better internet access are more likely to be populist strongholds, or support populist parties.

Online tools have been - and still are - much more relevant for M5S compared to the other Italian populist parties. The Internet has represented the main organisational resource of M5S right from its inception, and Internet users have always been the "natural constituency" of the party (Crulli, 2022a: 7). So much so that M5S has been depicted as an example of a "digital party" (Gerbaudo, 2019). Therefore, we also expect the following:

H7: Internet access in urban precincts is more strongly and positively correlated with voting for M5S, compared to other populist parties.

We test these hypotheses in the second and third parts of the next section. First, however, we inspect where within-city populist strongholds lie.

[17] All models also include a control variable measuring distance from the city centre, so as to make sure that our predictors do not simply capture how peripheral a precinct is.

Results

Mapping the populist vote within major Italian cities

A first look at our maps of the urban populist vote points to both similarities and remarkable differences across major Italian cities (Fig. 3).

Insert Figure 3

As for similar patterns, *never-populist* precincts are primarily located in inner areas of the cities, which correspond to historical centres. The only exception in this regard is the most southern city of our sample, Palermo, where the never-populist type hardly occurs.

In some metropolises, such as Rome and Turin, the division between never-populist precincts within the conventional city centre and adjacent populist precincts is crystal clear. In the other Northern metropolis, Milan, the never-populist area extends far beyond the historical centre. The two cities in the Centre-North of Italy appear as a world apart, due to their non-populist electoral behaviour. There are *no populist strongholds* in both Bologna and Florence. Interestingly, these two cities used to belong to the same "territorial political subculture" (Trigilia, 1981) known as the "Red Zone". This was the historically left-wing part of the country, where the Italian Communist Party had been dominant throughout the whole First Republic, and its heir, the centre-left PD[18], has been the leading actor until recent years. Even though PD suffered severe losses in the (former) Red Zone during the last elections (Chiaramonte et al., 2023; Improta et al., 2022), previously-Red cities still stand out from the others for their different voting behaviour. We could thus dare to claim that a territorial

[18] With a score of 2.11, PD is the "least populist" of Italian parties, according to the POPPA Expert Survey.

political subculture is still in place in such cities: in the past, it was a left-wing subculture; in the present, it is a non-populist one.

On the other hand, an overall populist voting behaviour characterizes more-southern cities: Rome, and especially Palermo. Populist strongholds represent more than 65% of the total precincts of Sicily's main city (Fig. 4). As for Italy's capital, populist precincts are mostly located outside of Rome's centre - and outside of the *Grande Raccordo Anulare*, the highway surrounding the inner urban area of the city. Nonetheless, more than 80% of Rome's precincts are classified as more-or-less populist. The proportion of precincts that are to a varying degree populist drops to less than 55% in Turin (which is thus halfway between being populist and non-populist) and to just above 30% in Milan (which is therefore mostly non-populist).

Insert Figure 4

The picture resulting from this overview is one of fragmentation. If we had looked at the proportions of different precinct types in all cities under examination (upper-left side of Fig. 4) instead of conducting a city-by-city exploration, we would have concluded that major Italian cities are quite equally divided between more-or-less populist (60.1%) and never-populist (39.9%) precincts. However, by dwelling on a visual inspection of each case, we discovered a far more nuanced reality. The conventional wisdom that populists are weaker in the central - and usually better off - urban areas holds overall. However, there are both almost entirely populist cities and entirely non-populist ones. Furthermore, some populist strongholds can be found within the central area of otherwise non-populist metropolises (e.g. Milan), and strewn non-populist districts exist within otherwise very populist cities (e.g. Palermo).

Compositional and contextual determinants of populist strongholds

Having illustrated where the populist and non-populist precincts of major Italian cities are, we can move on to the more explanatory parts of our investigation. We start by looking at the results of our spatial probit model predicting the likelihood that a precinct is a populist stronghold (Fig. 5)[19].

Insert Figure 5

Our first hypothesis (H1) on compositional effects is met partially. Occupational status and education level show the expected relationship: urban precincts hosting higher proportions of unemployed individuals and non-graduates are more likely to be populist strongholds. Income and gender do not have statistically significant correlations, while the direction of the relationship between age and populist strongholds is opposite of what was hypothesized: urban precincts composed of more elderly people are less likely to be populist strongholds. The next empirical section will help us disentangle whether such a relationship holds true for all populist parties under consideration.

Our second hypothesis (H2) regarding housing conditions finds strong confirmation. Our model predicts that urban precincts with higher house prices and proportions of historical buildings – which can be seen as advantaged in terms of housing market – have less probability of being populist strongholds. The coefficient of homeownership, which is almost

[19] Appendix II provides descriptive statistics for all independent variables by precinct type and the correlation matrix. As can be seen from the correlation matrix (Tab. 2a), some of our independent variables are quite correlated with each other. This raised concerns about multicollinearity, which we assessed using Variance Inflation Factors and Condition Indices (Tab. 3a). Based on this assessment, we dropped the lagged variables related to graduates, income, house prices, and foreigners, which were found to cause multicollinearity issues (though not perfect multicollinearity). Appendix III reports the complete outputs of our regression analysis. We ran 5 separate nested models. Model 1 comprises demographic variables only; we added socio-economic variables in Model 2, and contextual predictors relating to the housing market and to the ethnic structure in Models 3 and 4, respectively. Model 5 is the full model, corresponding to Figure 5.

negligible, becomes negative when interacting with house prices. This suggests that precincts where there are more owners of higher-priced houses are clearly less likely to be populist strongholds. Remarkably, the predictor measuring house prices has the strongest coefficient among all the contextual variables considered.

Comments on the ethnic structure of precincts (H3) are more nuanced. Based on our model, urban precincts with a higher proportion of foreign residents are less likely to be populist strongholds, but the relationship is not significant.

Hypotheses 5 and 6 concerning public services and internet access are not supported at this stage, as neither of them relates to populist strongholds in a statistically significant manner.

Intra-urban compositional and contextual factors on vote for ideologically distinct populist parties

We now proceed to address our final research question: What urban compositional and contextual factors explain support for ideologically different populist parties? (Fig. 6)

Insert Figure 6

First, noteworthy differences emerged in terms of compositional variables. A typical "M5S's urban precinct" has a higher proportion of males, younger, unemployed, poorer, and less educated people. The "graduates" variable has the strongest coefficient: a one standard deviation increase in the proportion of graduates in the precinct predicts a 2.7 percentage points decrease in M5S's vote share - against the average share of the party of 21.7%. These outcomes largely align with the previously outlined H1, except for the result of age cohorts[20]. A similar remark applies to Lega: support for this party is higher in precincts with less educated

[20] Which suggests that the observed negative relationship between elderly people and populist strongholds may be primarily driven by M5S.

and economically disadvantaged people. The profile of "FdI's urban precincts", instead, does not match the ideal type of populist place. In fact, our model predicts higher endorsement for Meloni's party in urban precincts with more educated and affluent individuals. This unexpected outcome merits further investigation. Hence, we will verify in the next subsection whether these positive correlations of graduates and higher incomes with vote for FdI hold across cities and elections.

Several contextual factors play a critical role. Urban precincts characterized by higher house prices are clearly less populist, although this relationship is almost negligible for Lega. Vote for the two PRR parties is also weaker in precincts with a higher percentage of homeowners. A higher percentage of new buildings predicts higher electoral strength of all Italian populist parties, although the relationship is non-significant in Lega's model. In short, the idea that populists perform better in urban settings that are more disadvantaged in terms of housing (H2) or where there are more sources of "housing discontent" (Waldron, 2021) is confirmed. The ethnic structure of precincts differentiates urban places supporting PRR parties from those voting for M5S in an evident manner (thereby confirming H4). Neither a higher rate nor an increase of foreign residents in the precinct produce significant indications. However, the situation changes as soon as attention shifts to the rate of African foreign residents, whose coefficient is significant and positive for Lega, while negative for M5S. Although the result is non-significant for FdI, this finding supports "ethnic threat" theories (H3b), revealing that voting for the Italian party historically opposed to migrants is stronger in urban contexts with higher proportions of Africans.

As regards the remaining contextual factors, interesting findings can be gleaned from the "internet access" predictor. Internet access is clearly positively correlated with support for

M5S, confirming H7 (whereas H5 and H6 are overall rejected). The same variable has a significantly negative coefficient in FdI's model and a non-significant one in Lega's model.

Heterogeneity across cities and elections

Figure 6 provided a summary picture, pooling data from all cities and elections. However, the size and even direction of relationships may change across cities and over time. For instance, variables that seem to have no influence on a populist party's vote share across the three elections considered may still be significant in one specific election. Therefore, before outlining our conclusions, we briefly introduce additional separate regression models for each party, city, and election, to uncover cross-city and temporal variations in how selected predictors correlate with support for distinct populist parties.

Insert Figures 7-8-9

Commenting on every single coefficient reported in Figures 7-9 extends beyond the scope of this paper. Hence, we limit ourselves to providing follow-ups to two previously emerged issues.

First, one unexpected outcome just commented upon is that higher proportions of graduates and wealthier people correlate with support for FdI. However, these positive correlations might be valid only for some cities or elections, for example, those elections in which the party was still marginal (2013 and 2018). By looking at Figure 8 we can appreciate the following: whereas in 2013 and 2018 correlations between graduates and vote for FdI were positive across all cities, in 2022 they were positive in only half of the cities. Similar observations apply to the relationship between income and vote for Meloni's party, which, however, has always

been diversified across cities[21]. Interestingly, the relationship between the proportion of graduates and voting for Lega has also changed in a similar vein: it was positive in most cities back in 2013, whereas it turned out to be negative in five out of six cities in 2022. All in all, these findings suggest that, as FdI and Lega have embraced a populist radical right platform, their urban social bases have changed too.

Secondly, we found a positive relationship between the size of African foreigners and support for Lega. Still, we are aware that previous studies, such as the research by Pagliacci and Bonacini (2022) on support for Lega in the 2019 European election, yielded different results. Therefore, we do not convey the message that the relationship between foreigners and support for this PRR party has been positive always and everywhere. On the contrary, Figures 8-9 suggest that there is substantial heterogeneity in the relationship between the rate of (African) foreigners and voting for PRR parties across cities and elections.

Conclusion

In the limited but growing strand of research on the geography of populism, the most popular thesis is that of the places "left behind" or "that don't matter" (Rodríguez-Pose, 2018). According to such interpretation, the success of populist parties represents the electoral revenge of declining towns and regions, which feel neglected by policymakers amid socioeconomic transformations induced by globalization and post-industrialization. The opposite of such lagging-behind "places of populism" would be large, dynamic, and booming cities, allegedly representing bulwarks against populist hordes. Hence, the territorial "populist

[21] For instance, income has always been positively correlated with support for FdI within Rome. In fact, the party has historically maintained a strong constituency in the affluent neighbourhoods of northern Rome (see, e.g., Tomassi, 2018).

vs non-populist" divide would resemble that between thriving city regions and struggling towns, peripheral regions, and rural areas.

While these arguments are valid, the puzzle of the geography of populism is more complex. In fact, the now-classic thesis of the "places that don't matter" glosses over relevant *within*-city variations in populist support. By paying deeper attention to the urban distribution and roots of the populist vote, we discovered that even the centres of dynamic and cosmopolitan cities host populist hotbeds. Roughly 30% and 55% of the precincts of two clearly "not left behind" Italian metropolises - Milan and Turin, respectively - can be considered populist to some extent. Not to mention the case of the country's capital and largest city, Rome, where never-populist precincts are just a fifth of the total.

Therefore, our analysis of the within-city populist vote stresses the urgency to focus on fine-grained territorial divisions, which are not captured by most geographical accounts of the populist vote. To explore in depth such within-city, fine-grained geographical distinctions associated with the Italian populist vote, we took three main empirical steps. First, we created novel maps of the urban populist vote by introducing a new classification of voting precincts founded on the electoral outcomes of the last ten years. We thus differentiated between populist strongholds, emerging populist, sporadically populist and never-populist urban contexts. The same criteria can be adopted to investigate within-city populist vote in other European countries (provided that data are available). Our examination of Italian cities showed that while the common belief that populists are stronger in peripheral areas is generally true, there are both fully populist and non-populist cities. There are more variations than similarities among cities, and there are populist enclaves within areas of otherwise non-populist cities, as well as non-populist pockets in otherwise highly populist cities. In addition, the interplay between inter-regional (i.e. North-South) and intra-cities electoral patterns

seems decisive for variations in populist support, as showcased by cities of the former "Red Zone" (Bologna and Florence).

Secondly, we explored the compositional and contextual determinants of populist strongholds, through a spatial probit model. The most solid and interesting finding of this section is that urban precincts that are worse off in terms of housing conditions are, *ceteris paribus*, much more likely to become populist strongholds.

Finally, we ran a battery of Spatial Durbin Error models to analyse the correlations of urban compositional and contextual effects with votes for the three ideologically different Italian populist parties. It came out that the strength or even direction of some predictors differ considerably depending on the populist party under examination. Most often, the distinction is between populist parties on the radical right – Lega and FdI – and the more chameleonic M5S. For instance, Lega appears to perform better in urban precincts with a higher rate of African foreign residents - which supports "ethnic threat" theories - whereas the opposite applies to M5S. Nonetheless, when looking at other predictors the distinction between PRR parties and M5S is not explanatory.

By unravelling the substantial within-city-level variation in Italian populist support, our research suggests that the "places of populism" are not limited to areas that are usually considered to be "left behind". This has broader implications for both the literature on populism geography and urban studies. First, the consolidated thesis of the places "that don't matter" needs revisiting: not because it is not valid, but rather because it must take the complexity of within-city patterns into account. Populist parties can take root even in some neighbourhoods of the most flourishing metropolises. Second, our results also reinforce the belief that looking at the mere division between cities and towns or non-urban regions is simplistic and inadequate. Thus, metropolitan areas should not be considered as single

territorial units in analysing geographical divides associated with the populist wave. Hence the scope for scholars dealing with urban processes and spaces to contribute to our understanding of the territorial nuances of populism. Finally, beyond paving the way for further research on populism in urban environments, our findings may help policymakers to better grasp the dynamics of populism in different urban contexts. They suggest that policymakers should pay attention to local variations within cities when (and if) they endeavour to design targeted policies that address the underlying causes of political malaise, such as underprivileged housing conditions.

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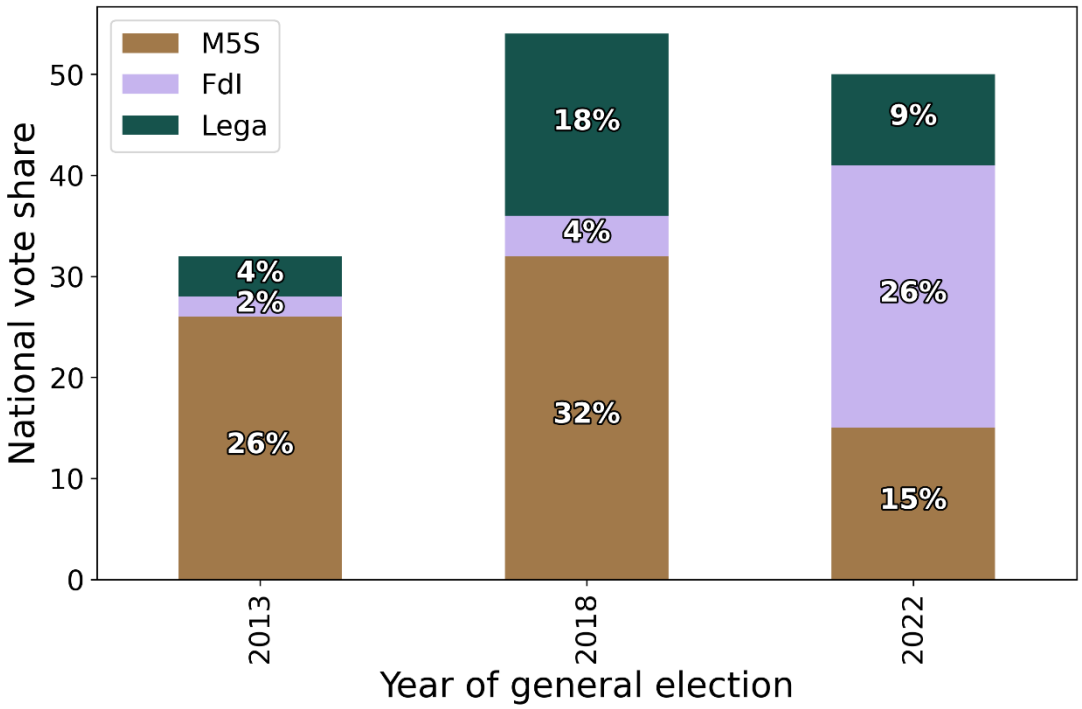
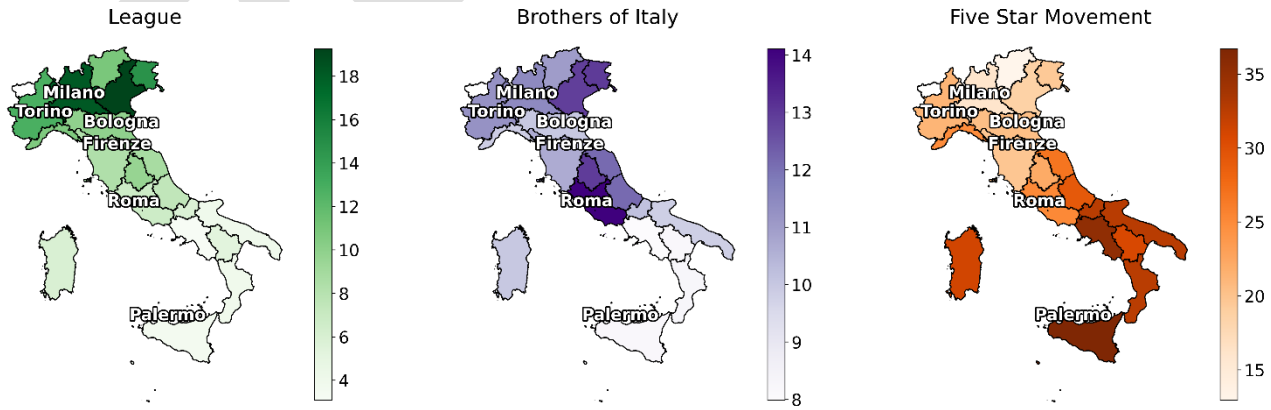
Figures

Figure 1 National vote shares of Italian populist parties over the "populist decade" (2013-2022), general elections.



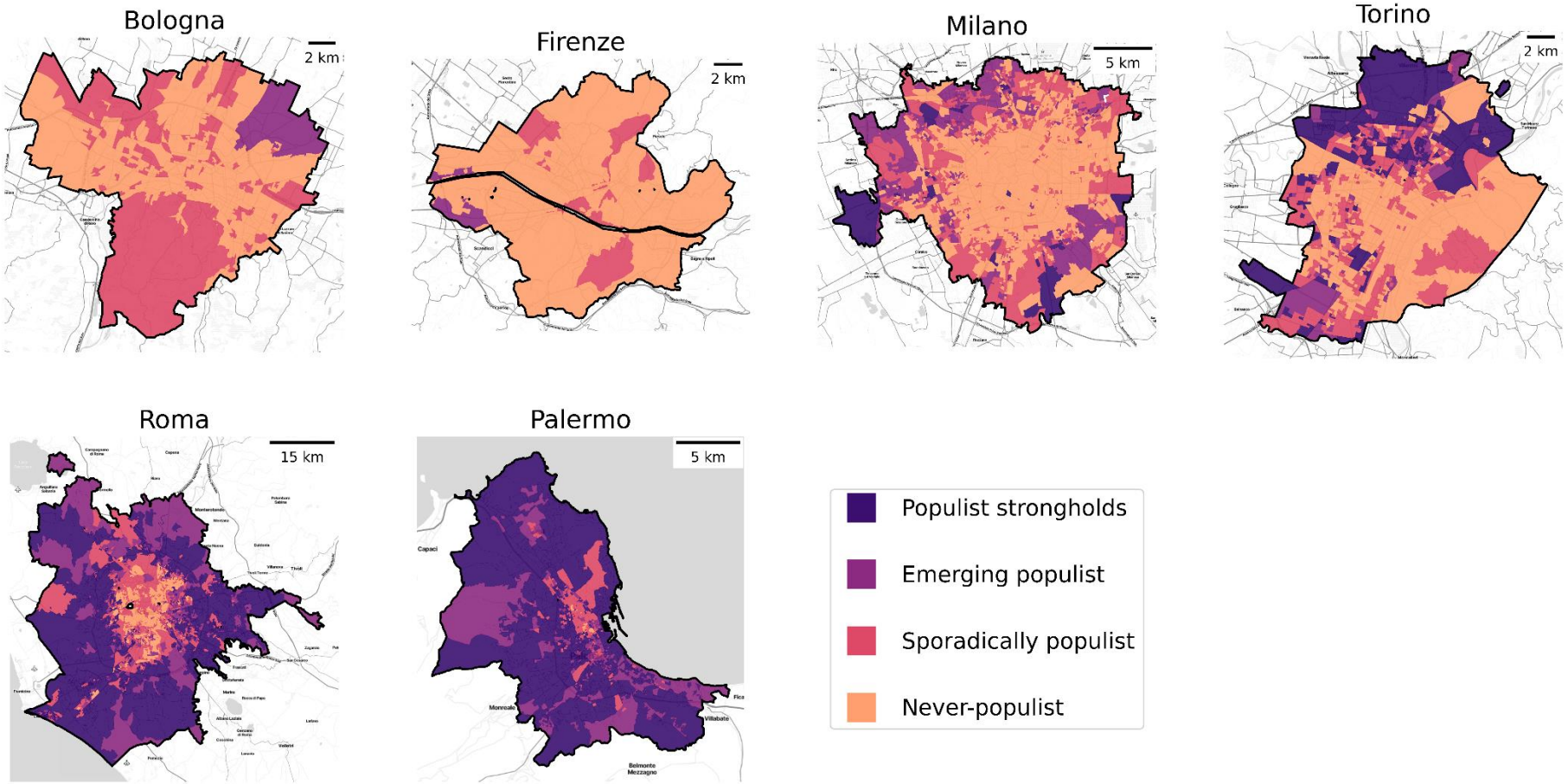
Notes: Authors' elaboration on Ministry of the Interior data.

Figure 2 Regional vote shares of Italian populist parties: averages of the general elections held over the "populist decade" (2013, 2018, 2022).



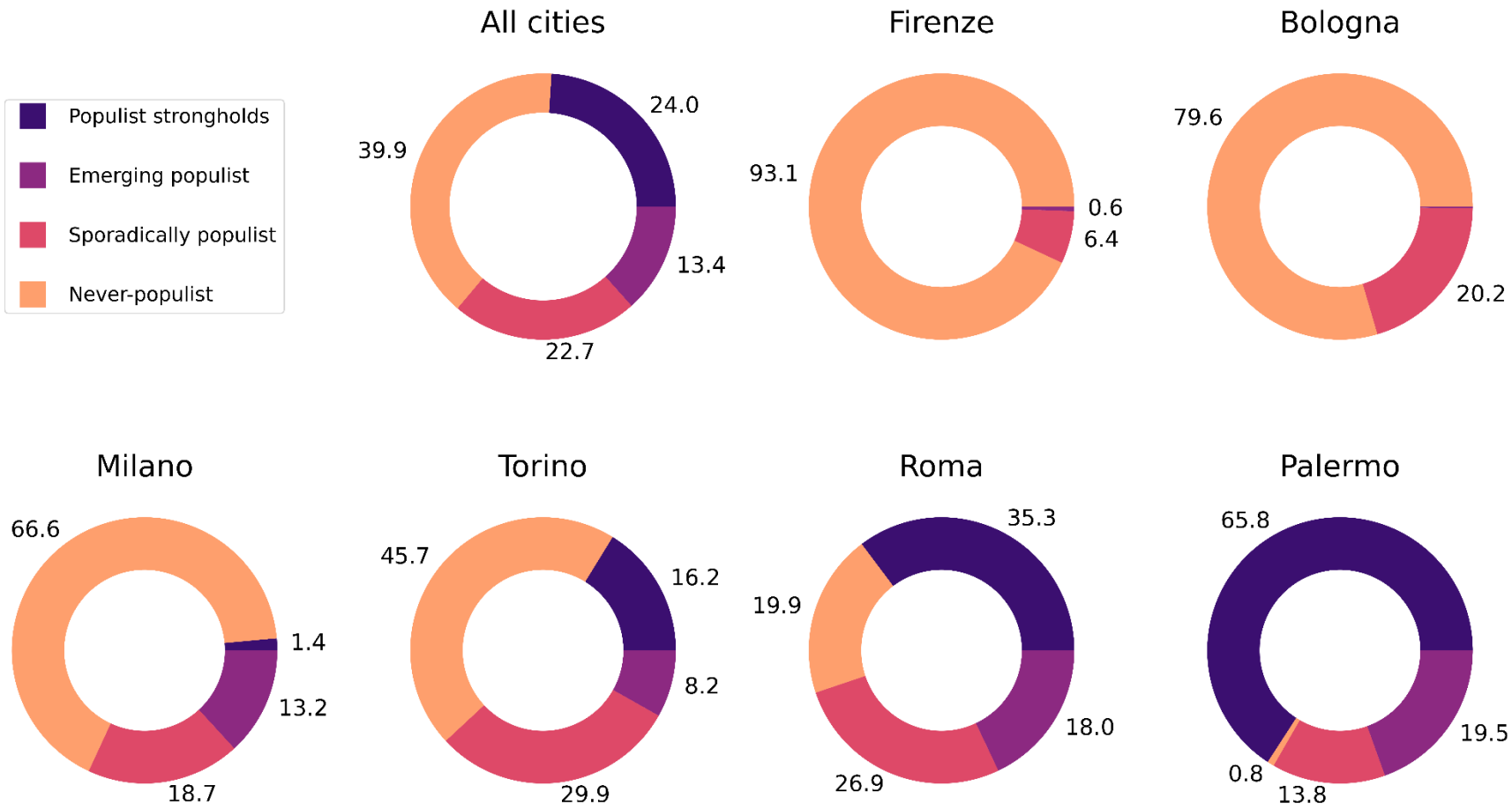
Notes: Authors' elaboration on Ministry of the Interior data.

Figure 3 Mapping the populist vote within six of the major Italian cities: Milan, Turin, Bologna, Florence, Rome, and Palermo.



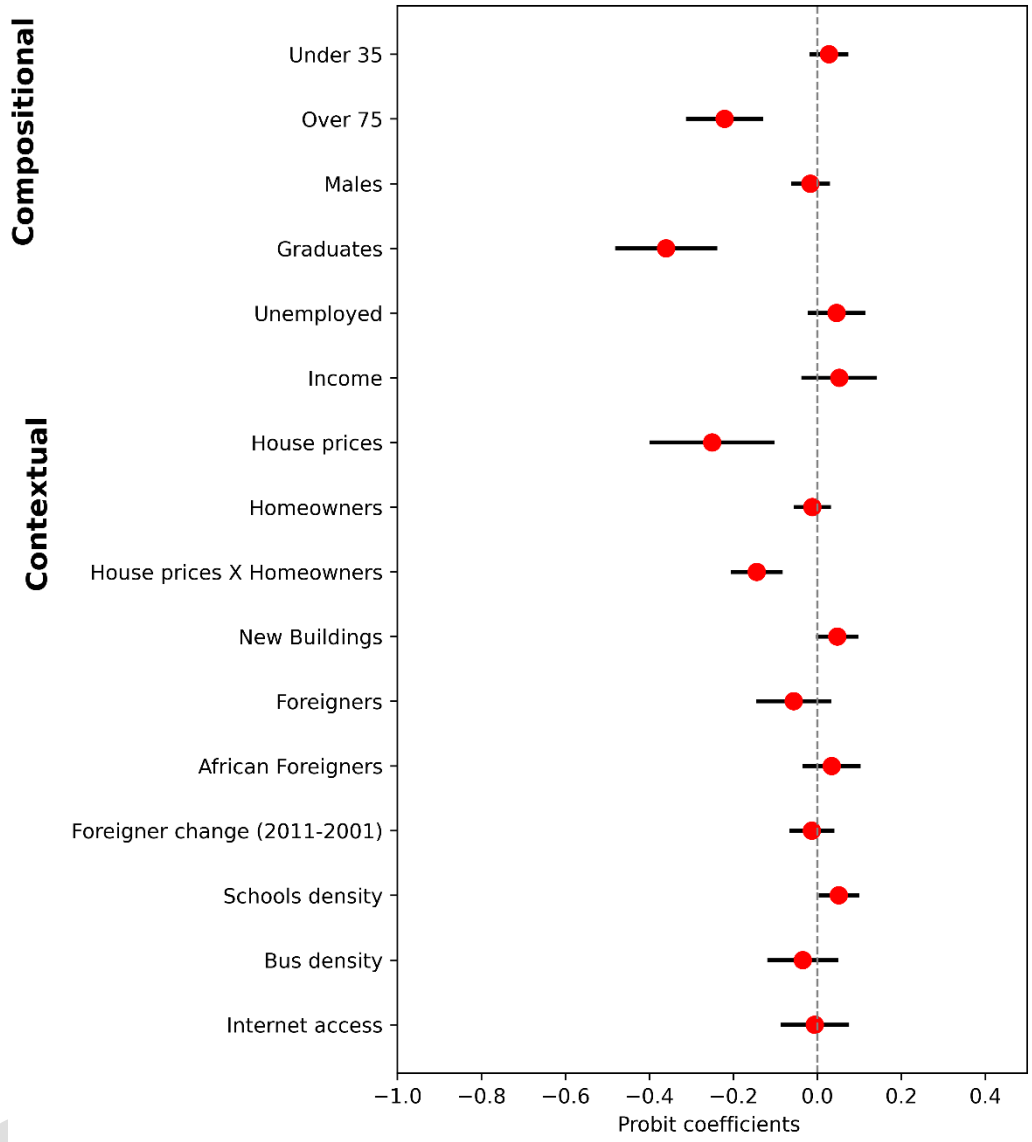
Notes: *The figure shows the location of the different types of precincts in each city. Populist strongholds: precincts where the leading party has always been a populist one since 2013. Emerging populist: precincts that became populist in 2018 and remained so in 2022. Sporadically populist: precincts where a populist party has won the elections at least once during the 2013-2022 decade, but not in both 2018 and 2022. Never-populist: precincts where the leading party has never been a populist one. Map tiles by Stamen Design, CC BY 3.0 -- Map data (C) OpenStreetMap contributors.*

Figure 4 Proportions of different types of precincts within six of the major Italian cities: Milan, Turin, Bologna, Florence, Rome, and Palermo.



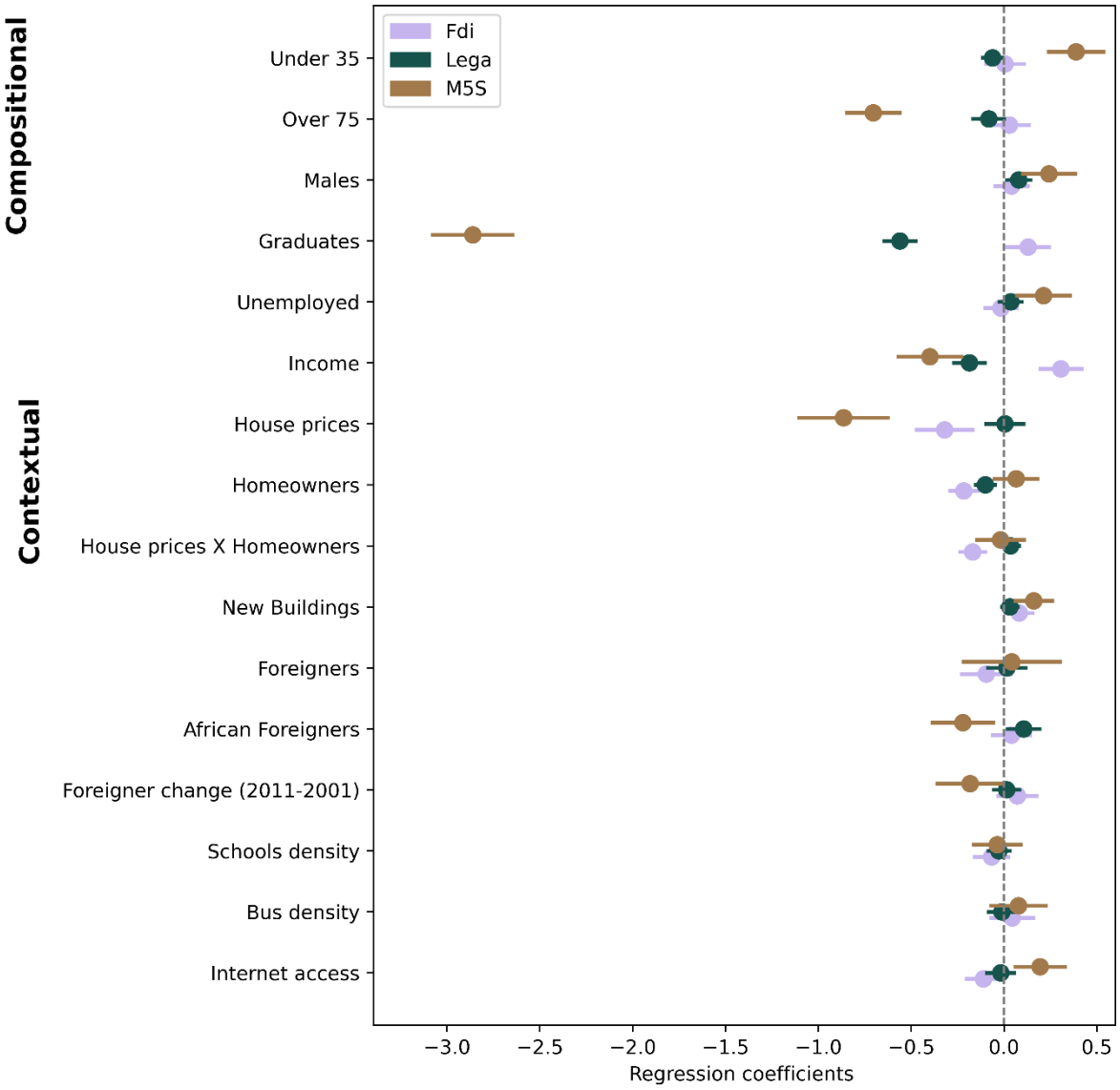
Notes: *The figure shows the proportions of different types of precincts in each city. Populist strongholds: precincts where the leading party has always been a populist one since 2013. Emerging populist: precincts that became populist in 2018 and remained so in 2022. Sporadically populist: precincts where a populist party has won the elections at least once during the 2013-2022 decade, but not in both 2018 and 2022. Never-populist: precincts where the leading party has never been a populist one.*

Figure 5 Coefficient plot of the spatial probit model predicting the likelihood that a precinct is a populist stronghold.



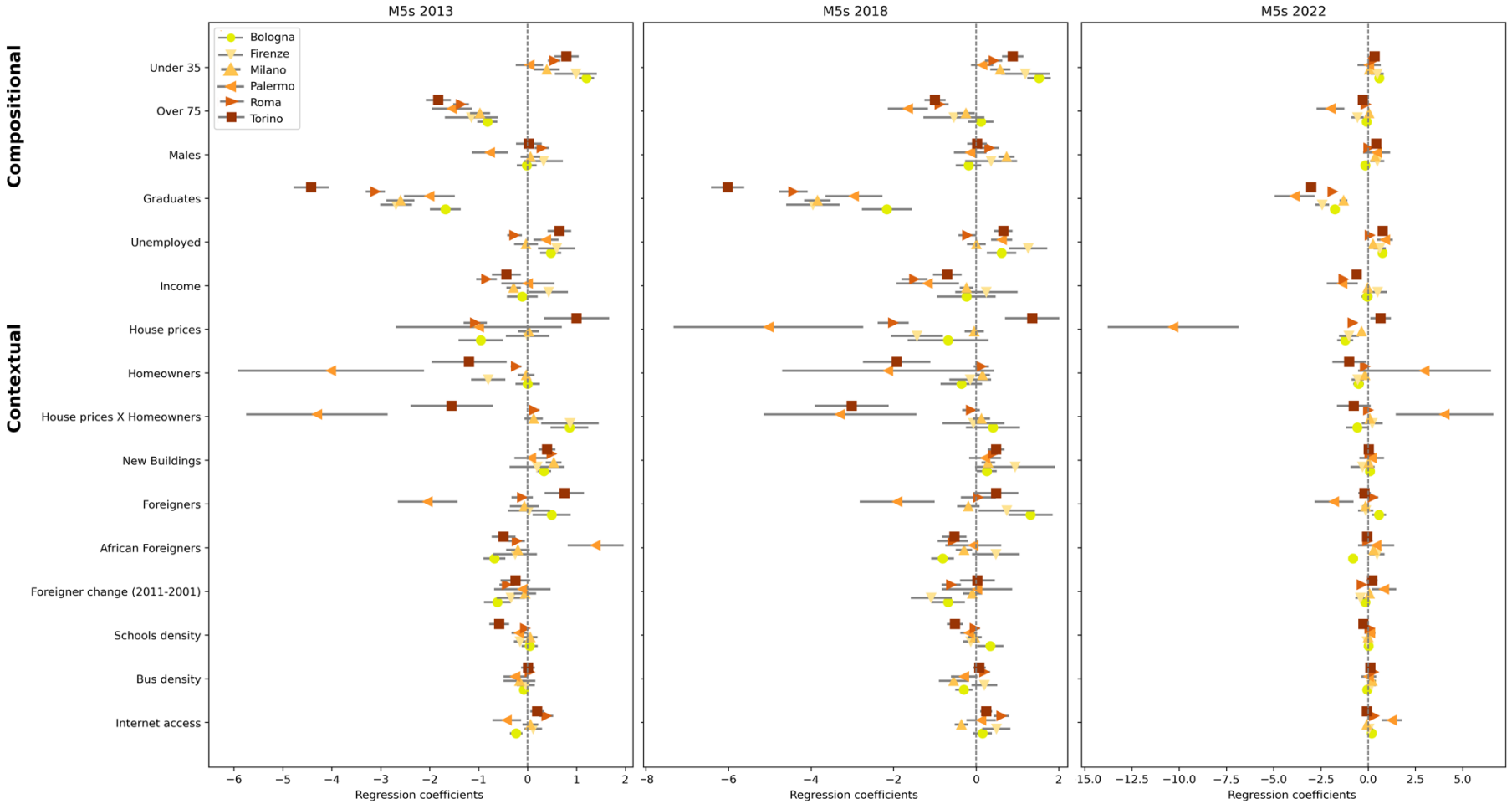
Notes: Spatial lag probit error model coefficients of compositional and contextual variables predicting the likelihood that a precinct is a populist stronghold. 5-95 confidence intervals are displayed. The regression includes a constant, spatial lags of each independent variable, a fixed effect for each city, and a control for distance from the city centre. Standard errors were computed using a row-standardized spatial weight matrix of 8-nearest neighbors. The full regression output – including lagged effects - is reported in Appendix III.

Figure 6 Coefficient plots of separate spatial regression models explaining the success of Italian populist parties at the precinct level.



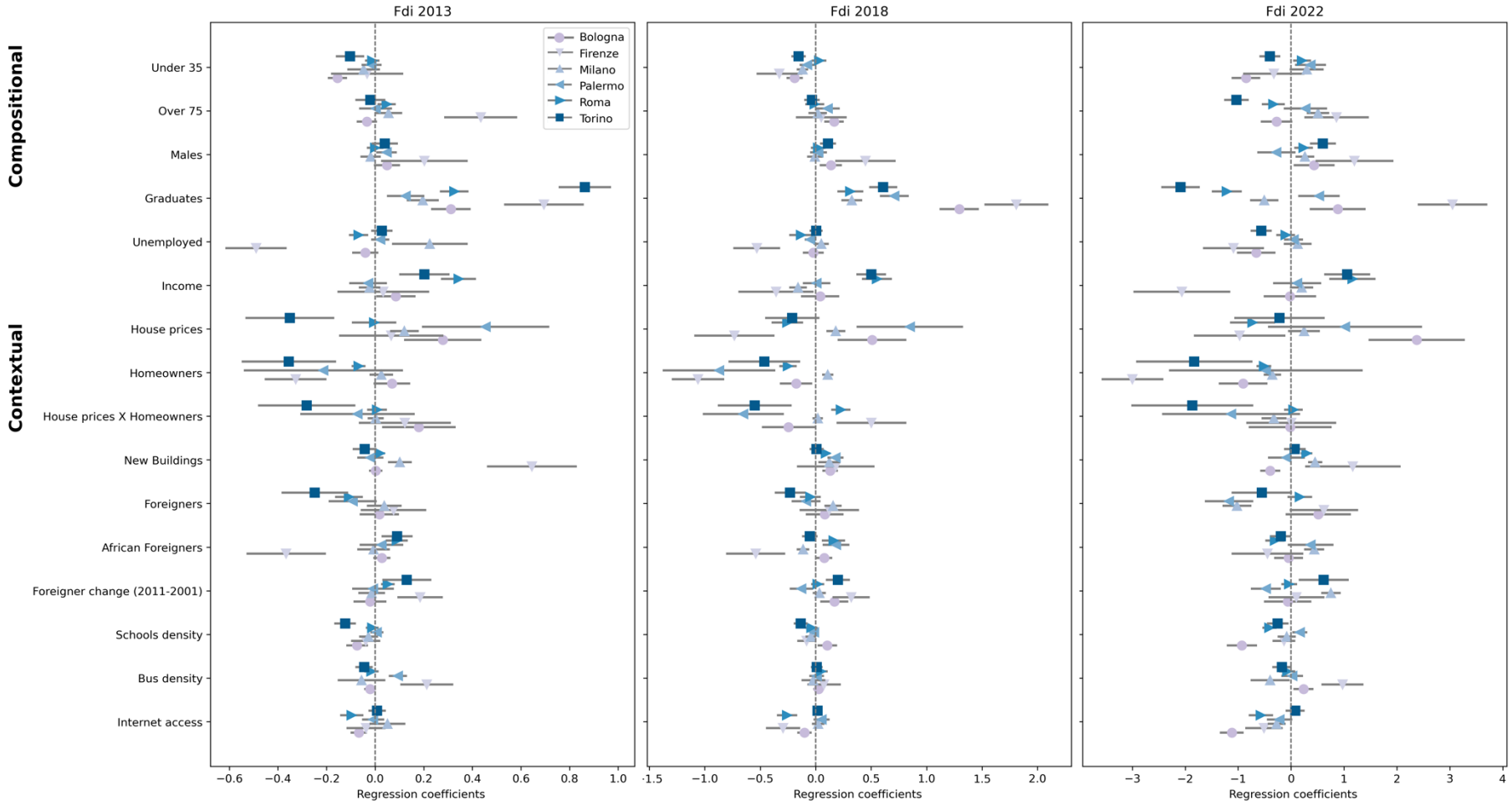
Notes: Regression coefficients of compositional and contextual variables predicting the precinct vote shares of populist parties. 5-95 confidence intervals are displayed. These Spatial Durbin Error models include a constant, spatial lags of each independent variable (except for graduates, income, house prices, and foreigners), a fixed effect for each city*election and a control for distance from the city centre. All independent variables are centred with mean=0 and standard deviation=1. The average values of the dependent variables are 6.4 (Lega), 21.7 (M5S), and 10.5 (FdI). The full regression output – including lagged effects - is reported in Appendix III.

Figure 7 Coefficient plots of separate spatial regression models explaining vote for M5S at the precinct level, across cities and general elections.



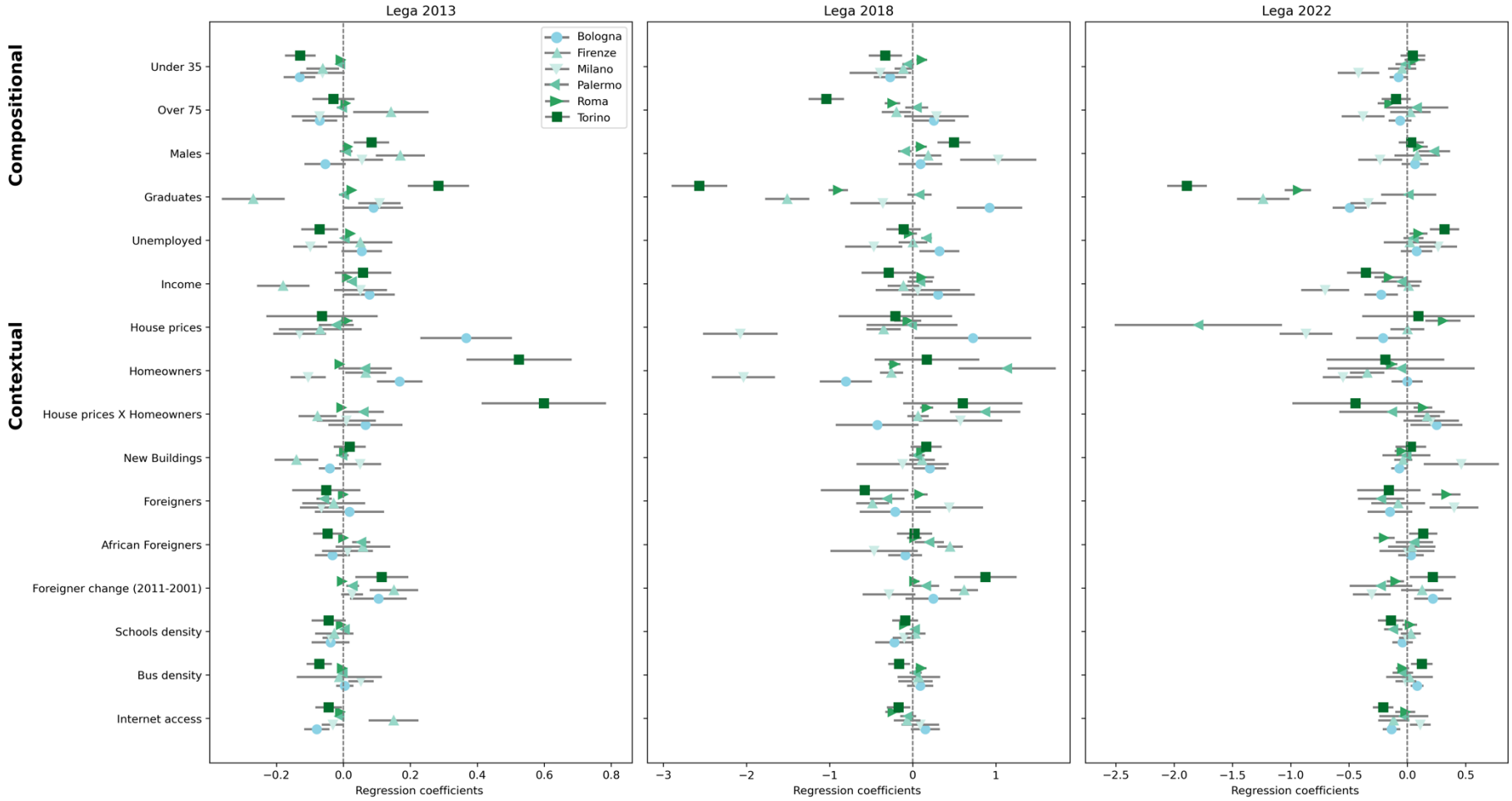
Notes: Regression coefficients of compositional and contextual variables predicting the precinct vote share of M5S. 5-95 confidence intervals are displayed. These Spatial Durbin Error models include a constant, spatial lags of each independent variable (except for graduates, income, house prices, and foreigners), and a control for distance from the city centre.

Figure 8 Coefficient plots of separate spatial regression models explaining vote for FdI at the precinct level, across cities and general elections.



Notes: Regression coefficients of compositional and contextual variables predicting the precinct vote share of FdI. 5-95 confidence intervals are displayed. These Spatial Durbin Error models include a constant, spatial lags of each independent variable (except for graduates, income, house prices, and foreigners), and a control for distance from the city centre.

Figure 9 Coefficient plots of separate spatial regression models explaining vote for Lega at the precinct level, across cities and general elections.



Notes: Regression coefficients of compositional and contextual variables predicting the precinct vote share of Lega. 5-95 confidence intervals are displayed. These Spatial Durbin Error models include a constant, spatial lags of each independent variable (except for graduates, income, house prices, and foreigners), and a control for distance from the city centre.

The Urban Roots of Populism: mapping and explaining populist strongholds within major Italian cities (2013-2022)

Online Appendices

Appendix I. Methodological notes

The main data source for our analysis is the novel "*Sezioni Elettorali Italiane*" (SEI) dataset (Pinto, 2023), which contains *geocoded precinct-level* electoral results, originally collected from the archives of Italian municipalities. Through this dataset, we provide a unique and detailed perspective on the distribution of populist votes *within* major Italian cities. The SEI dataset also comprises precinct-level sociodemographic and contextual variables, computed with spatial interpolation from ISTAT census data. However, to gain a more complete understanding of the factors driving populist success within Italian cities, we merged these data with other compositional and contextual factors, which we collected from various sources. Table 1 in the main text lists all the independent variables that we employed in the regression analysis, specifying which variables were calculated directly from the SEI dataset and which ones where extrapolated from other sources. The latter include the Italian Ministry of Economy and Finance (MEF); the Italian Ministry of Education (MIUR); the Housing Market Observatory of the Italian Revenue Agency (OMI); public transit agencies of each municipality; the Communications Regulatory Authority (AGCOM).

- From the MEF, we retrieved recently published data on taxpayers' profiles to get a variable measuring the average declared income (*reddito imponibile*) in euros. This measure is provided by the MEF at the ZIP code area level. To compute the proxy values of this variable at the precinct level we employed spatial interpolation techniques. Original data source: https://www1.finanze.gov.it/finanze/analisi_stat/public/index.php?search_class%5B0%5D=cCOMUNE&opendata=yes
- From MIUR data, we calculated the density of primary and secondary public schools within a 500-meter radius from the precincts' centroids. The Ministry of Education provides the address of each school in string format. We automatically geocoded the schools' addresses to get the exact location of each school. Original data source: https://dati.istruzione.it/opendata/opendata/catalogo/elements1/?area=Scuole
- From the OMI, we retrieved the average selling price (€/sq. meter) of residential buildings. House prices are given at the level of OMI units ("*Zone OMI*"), which are larger than precincts. We used spatial interpolation techniques to compute the proxy value for each precinct. Original data source: https://www.agenziaentrate.gov.it/portale/web/guest/schede/fabbricatiterreni/omi/banche-dati/quotazioni-immobiliari
- From the data provided by the public transit agencies of each municipality, we calculated a measure of public transport availability, which is based on the density of bus stops within a 500-meter radius from the precincts' centroids, weighted for the number of lines. We retrieved the GTFS file of each municipality to get the exact location of each bus stop and the number of lines stopping at each station. Original data sources:
  Rome: https://dati.comune.roma.it/catalog/dataset/c_h501-d-9000
  Milan: https://www.agenziatpl.it/open-data/gtfs
  Bologna: https://solweb.tper.it/web/tools/open-data/open-data.aspx
  Palermo: https://opendata.comune.palermo.it/opendata-dataset.php?dataset=1303
  Torino: http://aperto.comune.torino.it/dataset/feed-gtfs-real-time-trasporti-gtt
  Firenze: https://dati.toscana.it/dataset/rt-oraritb/resource/d6dc70c1-24ca-4d18-8f9c-b266d64fe4c9

Last time accessed: February 2023.

- From the AGCOM, we downloaded the maps of broadband coverage at the census level ("*Dati sezioni di censimento*"). The "internet access" variable measures the average maximum download speed in each census block. The original name of the variable in the dataset is "SPEED_DOWN_GREATEST_AVG or speed_down_3". We used spatial interpolation techniques to compute the proxy value for each precinct.
  Original data source https://maps.agcom.it/

Appendix II. Descriptive statistics and multicollinearity tests

Table 1a: Descriptive statistics by precinct type

Variable name	Never-populist	Sporadically populist	Emerging populist	Populist strongholds
Under 35	0.06	0.06	0.06	0.07
Over 75	0.14	0.13	0.12	0.09
Males	0.46	0.47	0.47	0.48
Graduates	0.25	0.20	0.13	0.11
Unemployed	0.05	0.06	0.08	0.09
Income	30238	26933	22358	21090
New Buildings	0.03	0.04	0.07	0.13
House prices	3066	2933	2474	2258
Homeowners	0.68	0.66	0.62	0.64
Foreigners	0.10	0.11	0.10	0.08
African Foreigners	0.01	0.02	0.02	0.01
Foreigner change (2011-2001)	0.05	0.06	0.06	0.04
Schools density	4.28	4.07	4.30	3.88
Bus density	26	30	28	23
Internet access	569	467	392	336
Distance from city center	4968	7134	9735	11916

***Note**:* The table shows the average value of all the analyzed variables in each of the four classification. Note that in the regression models we use centered value (with mean 0 and standard deviation 1). Description of the variables are given in Table 1 of the main paper and sources are described in Appendix I.

Table 2a: Correlation matrix

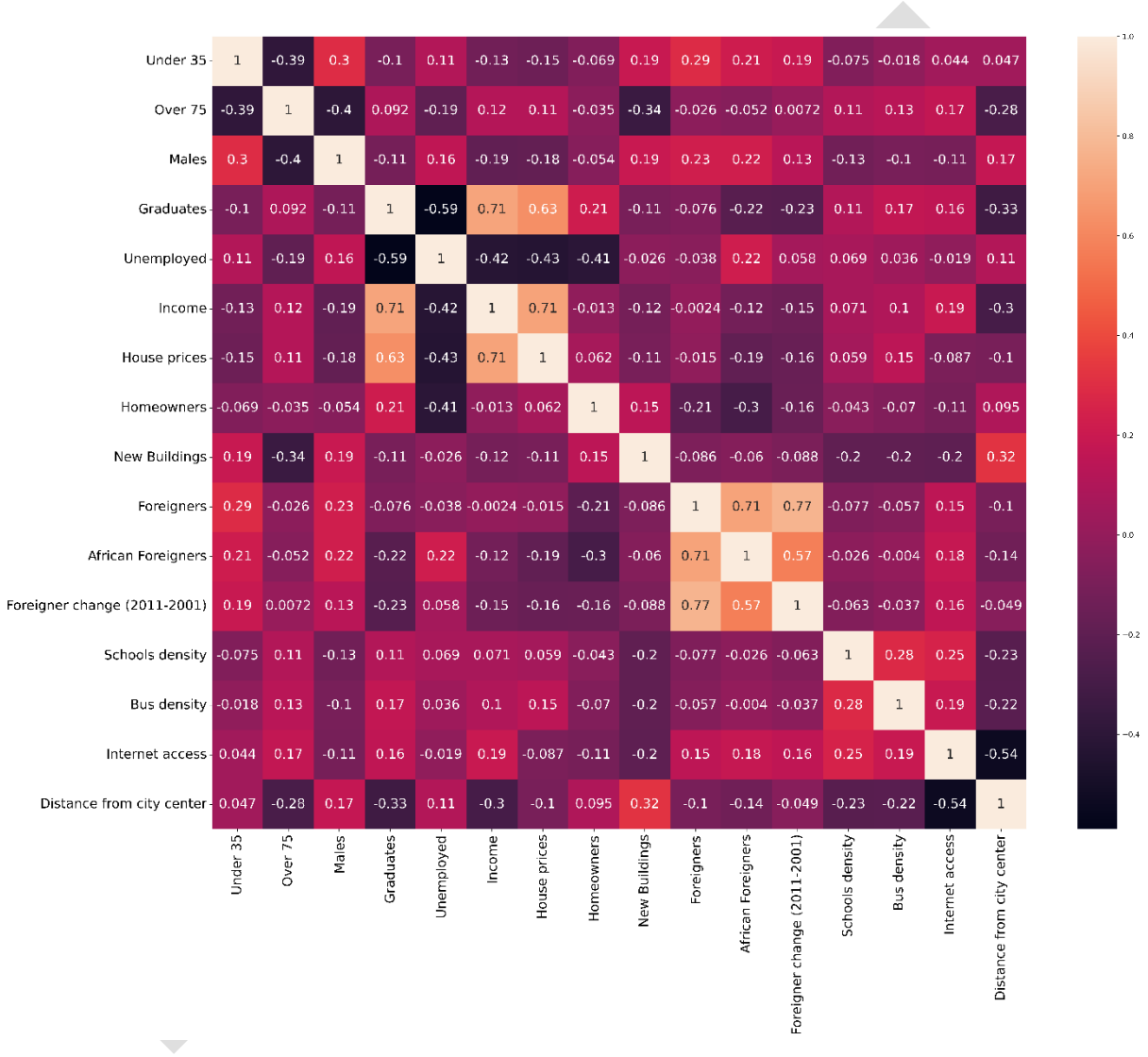


Table 3a: Multicollinearity analysis

	Variance Inflation Factor	
Variable name	**all variables**	**after removing multicollinear variables**
Under 35	2.36	2.34
Over 75	3.53	3.48
Males	2.20	2.11
Graduates	10.77	4.00
Unemployed	3.56	3.41
Income	40.30	3.78
House prices	60.10	5.83
Homeowners	2.68	2.54
House prices X Homeowners	2.42	1.27
New Buildings	2.70	2.69
Foreigners	8.21	4.77
African Foreigners	4.32	3.95
Foreigner change (2011-2001)	4.60	3.78
Schools density	4.98	4.97
Bus density	6.49	6.47
Internet access	5.54	5.49
Distance from city center	542.24	2.88
Over 75 (Lag)	4.68	4.59
Males (Lag)	2.74	2.64
Graduates (Lag)	14.21	-
Unemployed (Lag)	6.03	5.12
Income (Lag)	44.53	-
House prices (Lag)	67.53	-
Homeowners (Lag)	3.04	2.86
House prices X Homeowners (Lag)	2.67	-
New Buildings (Lag)	3.17	3.13
Foreigners (Lag)	13.10	-
African Foreigners (Lag)	5.69	4.44
Foreigner change (2011-2001) (Lag)	8.40	4.47
Schools density (Lag)	5.32	5.31
Bus density (Lag)	7.11	7.09
Internet access (Lag)	6.85	6.83
Distance from city center (Lag)	542.43	-
Condition Index	**90.33**	**17.38**

***Note*:** The tables shows the VIF value and the condition Index for the X matrix we use in the regression models. We dropped the lagged variables related to graduates, income, house prices, foreigners, and distance from city centre, which were found to cause multicollinearity issues (the respective VIFs are highlighted in orange).

Appendix III. Regression analysis

Table 4a: Spatial probit model predicting the likelihood that a precinct is a populist stronghold

Dependent Variable: Populist Strongholds	(1) Demographics	(2) Socio-economic	(3) Housing	(4) Ethnic structure	(5) Full model
Compositional					
Under 35	0.182 (0.105)	0.031 (0.036)	0.004 (0.02)	0.005 (0.02)	0.028 (0.024)
Over 75	-0.744 (0.231)	-0.329 (0.078)	-0.213 (0.027)	-0.162 (0.032)	-0.221 (0.047)
Males	0.025 (0.114)	-0.011 (0.042)	-0.029 (0.02)	-0.007 (0.016)	-0.017 (0.024)
Graduates		-0.599 (0.136)	-0.281 (0.04)	-0.256 (0.038)	-0.36 (0.062)
Unemployed		0.001 (0.033)	0.046 (0.02)	0.033 (0.02)	0.046 (0.035)
Income		-0.099 (0.061)	0.02 (0.051)	-0.016 (0.038)	0.052 (0.046)
Contextual					
House prices			-0.297 (0.053)	-0.263 (0.034)	-0.251 (0.076)
Homeowners			-0.013 (0.016)	-0.015 (0.022)	-0.012 (0.023)
House prices X Homeowners			-0.134 (0.019)	-0.12 (0.018)	-0.144 (0.031)
New buildings			0.039 (0.018)	0.042 (0.022)	0.047 (0.026)
Foreigners				-0.006 (0.039)	-0.057 (0.046)
African Foreigners				0.021 (0.026)	0.034 (0.035)
Foreigner change (2011-2001)				-0.024 (0.039)	-0.013 (0.027)
Schools density					0.051 (0.024)
Bus density					-0.035 (0.043)
Internet access					-0.006 (0.042)
Distance from city center	1.49 (0.475)	0.277 (0.065)	0.06 (0.022)	0.056 (0.022)	0.068 (0.039)
Compositional (lag)					
Under 35 (lag)	0.054 (0.214)	-0.142 (0.114)	-0.04 (0.034)	-0.034 (0.044)	-0.052 (0.052)
Over 75 (lag)	-0.784 (0.4)	-0.4 (0.137)	-0.051 (0.053)	-0.072 (0.041)	-0.094 (0.058)
Males (lag)	1.435 (0.514)	0.168 (0.106)	0.106 (0.043)	0.079 (0.045)	0.041 (0.061)
Unemployed (lag)		0.196 (0.09)	0.165 (0.056)	0.152 (0.055)	0.229 (0.071)

Table 4a (continued): Spatial probit model predicting the likelihood that a precinct is a populist stronghold

Contextual (lag)					
Homeowners (lag)			0.019 (0.041)	0.026 (0.035)	0.019 (0.046)
New buildings (lag)			0.153 (0.038)	0.135 (0.04)	0.172 (0.051)
African Foreigners (lag)				0.025 (0.033)	-0.045 (0.057)
Foreigner change (2011-2001) (lag)					0.125 (0.082)
Schools density (lag)					0.054 (0.053)
Bus density (lag)					-0.04 (0.064)
Internet access (lag)					-0.137 (0.064)
Observations	6085	6085	6085	6085	6085
Log-Likelihood	-2005.156	-1816.26	-1738.84	-1733.43	-1721.866
Diagnostics for spatial dependence:					
Kelejian-Prucha (error), p-value	32.3 (0)	21.8 (0)	16.2 (0)	15.8 (0)	15 (0)
Pinkse (error), p-value	1685.3 (0)	883.2 (0)	475.9 (0)	455.5 (0)	420.4 (0)
Pinkse-Slade (error), p-value	892.1 (0)	470.2 (0)	141.3 (0)	139.2 (0)	137.6 (0)

***Note*:** Spatial Lag Probit Error Model coefficients of compositional and contextual variables predicting the likelihood that the precinct is a populist stronghold. The regression includes a constant, spatial lags of each independent variable (except for graduates, income, house prices, and foreigners), a fixed effect for each city and a control for distance from the city center. Standard errors are reported in brackets, computed using a row-standardized spatial weight matrix of 8-nearest neighbors. All independent variables are centered with a mean of 0 and a standard deviation of 1. Estimates are computed via the spatial probit R package (Wilhelm & de Matos, 2013). Diagnostics for spatial dependence are computed via the Python PYSAL–SPREG module (Rey & Anselin, 2007).

Table 5a: Spatial linear regression models explaining vote for Lega at the precinct level

Dependent Variable: Lega Vote share	(1) Demographics	(2) Socio-economic	(3) Housing	(4) Ethnic structure	(5) Full model
Compositional					
Under 35	0.0018 (0.0303)	-0.0313 (0.0302)	-0.0376 (0.0301)	-0.0633 (0.0316)	-0.0614 (0.0316)
Over 75	0.014 (0.0458)	-0.0902 (0.0455)	-0.093 (0.0471)	-0.0861 (0.0475)	-0.0825 (0.0481)
Males	0.1169 (0.0393)	0.1175 (0.0378)	0.1177 (0.0375)	0.0855 (0.0372)	0.0798 (0.0373)
Graduates		-0.6702 (0.0454)	-0.6388 (0.0473)	-0.5703 (0.0481)	-0.5606 (0.0482)
Unemployed		0.0879 (0.0342)	0.0409 (0.037)	0.0344 (0.0355)	0.0363 (0.0356)
Income		-0.2213 (0.0417)	-0.2331 (0.05)	-0.2013 (0.0478)	-0.186 (0.0475)
Contextual					
House prices			-0.0219 (0.059)	-0.0194 (0.0568)	0.0046 (0.0566)
Homeowners			-0.1143 (0.0314)	-0.1 (0.032)	-0.1002 (0.0318)
House prices X Homeowners			0.0399 (0.0276)	0.0262 (0.0278)	0.0357 (0.0278)
New buildings			0.0218 (0.0263)	0.0331 (0.0266)	0.0316 (0.0266)
Foreigners				0.0231 (0.0564)	0.0153 (0.0564)
African Foreigners				0.1017 (0.049)	0.1056 (0.0491)
Foreigner change (2011-2001)				0.0081 (0.0396)	0.0141 (0.0401)
Schools density					-0.0274 (0.0342)
Bus density					-0.0119 (0.0406)
Internet access					-0.0178 (0.0427)
Distance from city center	0.7536 (0.0522)	0.2305 (0.0468)	0.229 (0.0491)	0.2808 (0.0474)	0.2212 (0.0475)
Compositional (lag)					
Under 35 (lag)	0.1401 (0.0536)	-0.0145 (0.0489)	-0.011 (0.0492)	-0.1281 (0.05)	-0.1028 (0.0496)
Over 75 (lag)	0.2608 (0.0676)	0.1063 (0.0623)	0.1383 (0.0642)	0.1124 (0.0632)	0.1219 (0.0637)
Males (lag)	0.311 (0.0634)	0.0756 (0.0584)	0.0859 (0.0583)	0.0012 (0.0595)	-0.0346 (0.0593)
Unemployed (lag)		0.2601 (0.0489)	0.2502 (0.0554)	0.2108 (0.0548)	0.2238 (0.0547)

Table 5a (continued): Spatial linear regression models explaining vote for Lega at the precinct level

Contextual (lag)					
Homeowners (lag)			0.0082 (0.0483)	0.0508 (0.0483)	0.0517 (0.0478)
New buildings (lag)			0.0352 (0.0473)	0.0959 (0.0474)	0.0899 (0.0474)
African Foreigners (lag)				0.1192 (0.0574)	0.102 (0.0573)
Foreigner change (2011-2001) (lag)					0.3765 (0.0602)
Schools density (lag)					-0.0153 (0.0443)
Bus density (lag)					0.0541 (0.0526)
Internet access (lag)					-0.249 (0.0599)
lambda	0.4955 (0.0102)	0.3866 (0.0119)	0.3857 (0.0119)	0.3555 (0.0124)	0.347 (0.0125)
Diagnostics for spatial dependence:					
Moran's I (error): MI/DF, Value, Probability	0.244, 70.42, 0.0	0.153, 44.33, 0.0	0.152, 44.15, 0.0	0.137, 39.81, 0.0	0.133, 38.54, 0.0
Robust LM (lag): Value, Probability	77.6, 0.0	59.7, 0.0	60.7, 0.0	140.1, 0.0	153.9, 0.0
Lagrange Multiplier (lag): Value, Probability	5007.9, 0.0	1986.1, 0.0	1964.3, 0.0	1699.4, 0.0	1611.4, 0.0
Lagrange Multiplier (error): Value, Probability	4930.8, 0.0	1945.3, 0.0	1923.7, 0.0	1559.7, 0.0	1457.5, 0.0
Robust LM (error):Value, Probability	0.5, 0.473	18.9, 0.0	20.1, 0.0	0.4, 0.504	0.0, 0.903
Observations	18226	18226	18226	18226	18226
Mean dependent variable	6.4	6.4	6.4	6.4	6.4
Adj R-squared	0.810864628	0.832034828	0.832340049	0.836060103	0.837008837

Note: Regression coefficients of compositional and contextual variables explaining Lega's vote shares at the precinct level. These Spatial Durbin Error Models include a constant, spatial lags of each independent variables (except for graduates, income, house prices, and foreigners), a fixed effect for each city*year of election, and a control for distance from the city center. Standard errors are reported in brackets, computed using a row-standardized spatial weight matrix of 8-nearest neighbors. All independent variables are centered with a mean of 0 and a standard deviation of 1. Models were estimated using a GMM (general method of moments) that controls for heteroskedasticity (Arraiz et al., 2010) via the PYSAL–SPREG module (Rey & Anselin, 2007).

Table 6a: Spatial linear regression models explaining vote for FDI at the precinct level

Dependent Variable: FDI Vote share	(1) Demographics	(2) Socio-economic	(3) Housing	(4) Ethnic structure	(5) Full model
Compositional					
Under 35	0.0055 (0.0546)	0.0136 (0.0545)	-0.0071 (0.0541)	-0.0035 (0.0576)	0.0048 (0.0574)
Over 75	0.004 (0.0588)	0.0004 (0.0589)	0.0176 (0.0596)	0.014 (0.0594)	0.0283 (0.0591)
Males	0.07 (0.051)	0.0835 (0.0509)	0.0541 (0.0514)	0.054 (0.0505)	0.0402 (0.0503)
Graduates		-0.1041 (0.0583)	0.0673 (0.0609)	0.0918 (0.0629)	0.1294 (0.0627)
Unemployed		0.0045 (0.0459)	-0.0198 (0.0498)	-0.0228 (0.0488)	-0.0168 (0.0489)
Income		0.231 (0.0534)	0.2929 (0.0633)	0.2919 (0.0629)	0.3065 (0.062)
Contextual					
House prices			-0.3691 (0.083)	-0.366 (0.0832)	-0.3198 (0.0823)
Homeowners			-0.2113 (0.0416)	-0.2157 (0.0431)	-0.2167 (0.0432)
House prices X Homeowners			-0.1739 (0.0398)	-0.1773 (0.0398)	-0.1683 (0.0398)
New buildings			0.0875 (0.0416)	0.0857 (0.0422)	0.0812 (0.0421)
Foreigners				-0.077 (0.0743)	-0.0952 (0.073)
African Foreigners				0.0296 (0.0571)	0.0401 (0.0569)
Foreigner change (2011-2001)				0.0542 (0.058)	0.0722 (0.058)
Schools density					-0.0673 (0.0511)
Bus density					0.0445 (0.0625)
Internet access					-0.1103 (0.052)
Distance from city center	0.5853 (0.0624)	0.6809 (0.0681)	0.5471 (0.0699)	0.5411 (0.0706)	0.4268 (0.07)
Compositional (lag)					
Under 35 (lag)	-0.1712 (0.0682)	-0.1229 (0.0682)	-0.1356 (0.0677)	-0.1522 (0.0702)	-0.1044 (0.0701)
Over 75 (lag)	-0.4488 (0.0763)	-0.3792 (0.0774)	-0.2566 (0.0788)	-0.2608 (0.0788)	-0.2146 (0.0786)
Males (lag)	-0.0423 (0.0792)	0.0187 (0.0812)	0.0324 (0.0801)	0.0368 (0.0821)	-0.015 (0.0819)
Unemployed (lag)		-0.2169 (0.0626)	-0.1857 (0.0728)	-0.1795 (0.075)	-0.1688 (0.0746)

Table 6a (continued): Spatial linear regression models explaining vote for FDI at the precinct level

Contextual (lag)					
Homeowners (lag)			0.007 (0.0627)	0.0017 (0.064)	-0.0097 (0.0636)
New buildings (lag)			0.2047 (0.0667)	0.2179 (0.0678)	0.1877 (0.0677)
African Foreigners (lag)				-0.0632 (0.0729)	-0.0777 (0.0726)
Foreigner change (2011-2001) (lag)					0.1567 (0.0881)
Schools density (lag)					-0.0969 (0.067)
Bus density (lag)					-0.0871 (0.0784)
Internet access (lag)					-0.2639 (0.0743)
lambda	0.3323 (0.0124)	0.3278 (0.0124)	0.3149 (0.0126)	0.3134 (0.0127)	0.3009 (0.0129)
Diagnostics for spatial dependence:					
Moran's I (error): MI/DF, Value, Probability	0.115, 33.12, 0.0	0.112, 32.35, 0.0	0.105, 30.42, 0.0	0.104, 30.35, 0.0	0.099, 28.69, 0.0
Robust LM (lag): Value, Probability	0.8, 0.375	0.4, 0.509	6.3, 0.012	8.1, 0.005	18.5, 0.0
Lagrange Multiplier (lag): Value, Probability	1076.8, 0.0	1021.9, 0.0	910.7, 0.0	907.6, 0.0	822.3, 0.0
Lagrange Multiplier (error): Value, Probability	1086.8, 0.0	1033.7, 0.0	909.9, 0.0	903.7, 0.0	804.4, 0.0
Robust LM (error):Value, Probability	10.8, 0.001	12.3, 0.0	5.5, 0.019	4.1, 0.043	0.5, 0.468
Observations	18226	18226	18226	18226	18226
Mean dependent variable	10.6	10.6	10.6	10.6	10.6
Adj R-squared	0.892781792	0.893154031	0.894148933	0.894219899	0.895016137

Note: Regression coefficients of compositional and contextual variables explaining FdI's vote shares at the precinct level. These Spatial Durbin Error Models include a constant, spatial lags of each independent variables (except for graduates, income, house prices, and foreigners), a fixed effect for each city*year of election, and a control for distance from the city center. Standard errors are reported in brackets, computed using a row-standardized spatial weight matrix of 8-nearest neighbors. All independent variables are centered with a mean of 0 and a standard deviation of 1. Models were estimated using a GMM (general method of moments) that controls for heteroskedasticity (Arraiz et al., 2010) via the PYSAL–SPREG module (Rey & Anselin, 2007).

Table 7a: Spatial linear regression models explaining vote for M5S at the precinct level

Dependent Variable: M5S Vote share	(1) Demographics	(2) Socio-economic	(3) Housing	(4) Ethnic structure	(5) Full model
Compositional					
Under 35	0.4602 (0.072)	0.3604 (0.0747)	0.3488 (0.0735)	0.3981 (0.0806)	0.3882 (0.0806)
Over 75	-0.3567 (0.0719)	-0.7433 (0.0749)	-0.6721 (0.076)	-0.6916 (0.0775)	-0.7038 (0.0776)
Males	0.0725 (0.0748)	0.167 (0.0808)	0.1679 (0.0806)	0.2312 (0.0777)	0.2423 (0.0777)
Graduates		-2.7984 (0.1056)	-2.7011 (0.117)	-2.8343 (0.1142)	-2.861 (0.1148)
Unemployed		0.0982 (0.0692)	0.1977 (0.0786)	0.2205 (0.0783)	0.2124 (0.0782)
Income		-0.8557 (0.0877)	-0.3802 (0.0952)	-0.3975 (0.0924)	-0.3991 (0.0921)
Contextual					
House prices			-0.8485 (0.1277)	-0.8399 (0.1259)	-0.8638 (0.1267)
Homeowners			0.1054 (0.064)	0.0671 (0.064)	0.0652 (0.0641)
House prices X Homeowners			-0.0326 (0.0723)	-0.0244 (0.0693)	-0.0191 (0.0696)
New buildings			0.1798 (0.0555)	0.1545 (0.0558)	0.1594 (0.0559)
Foreigners				0.0293 (0.1381)	0.0414 (0.1374)
African Foreigners				-0.2142 (0.0884)	-0.2222 (0.0887)
Foreigner change (2011-2001)				-0.1628 (0.0952)	-0.1822 (0.0955)
Schools density					-0.0363 (0.0694)
Bus density					0.0778 (0.0805)
Internet access					0.1943 (0.0734)
Distance from city center	3.0644 (0.1468)	0.9949 (0.0914)	0.633 (0.0942)	0.5503 (0.0926)	0.6169 (0.0942)
Compositional (lag)					
Under 35 (lag)	0.619 (0.1306)	0.2752 (0.098)	0.2594 (0.0955)	0.3542 (0.0987)	0.3315 (0.0999)
Over 75 (lag)	-0.0047 (0.1436)	-0.3576 (0.1084)	-0.205 (0.1098)	-0.1709 (0.1087)	-0.2095 (0.1092)
Males (lag)	0.5399 (0.1477)	-0.0629 (0.1163)	-0.0626 (0.114)	-0.0023 (0.1141)	0.0045 (0.1146)
Unemployed (lag)		1.031 (0.1043)	1.2363 (0.1254)	1.2796 (0.1273)	1.29 (0.1271)

Table 7a (continued): Spatial linear regression models explaining vote for M5S at the precinct level

Contextual (lag)					
Homeowners (lag)			0.1758 (0.0952)	0.1449 (0.0953)	0.1654 (0.0951)
New buildings (lag)			0.29 (0.0903)	0.2486 (0.0896)	0.2738 (0.0901)
African Foreigners (lag)				-0.155 (0.1001)	-0.166 (0.1003)
Foreigner change (2011-2001) (lag)				-0.1882 (0.1176)	-0.1859 (0.1185)
Schools density (lag)					0.0835 (0.0956)
Bus density (lag)					0.0871 (0.1068)
Internet access (lag)					-0.0761 (0.1063)
lambda	0.6934 (0.0079)	0.4565 (0.0129)	0.4392 (0.0132)	0.4258 (0.0135)	0.4239 (0.0136)
Diagnostics for spatial dependence:					
Moran's I (error): MI/DF, Value, Probability	0.463, 133.57, 0.0	0.193, 55.84, 0.0	0.182, 52.76, 0.0	0.172, 49.91, 0.0	0.17, 49.34, 0.0
Robust LM (lag): Value, Probability	346.8, 0.0	400.0, 0.0	392.8, 0.0	417.7, 0.0	437.8, 0.0
Lagrange Multiplier (lag): Value, Probability	17803.2, 0.0	3355.4, 0.0	3049.8, 0.0	2808.9, 0.0	2775.8, 0.0
Lagrange Multiplier (error): Value, Probability	17763.8, 0.0	3091.3, 0.0	2751.1, 0.0	2457.2, 0.0	2395.7, 0.0
Robust LM (error):Value, Probability	307.5, 0.0	135.9, 0.0	94.2, 0.0	66.0, 0.0	57.7, 0.0
Observations	18226	18226	18226	18226	18226
Mean dependent variable	21.7	21.7	21.7	21.7	21.7
Adj R-squared	0.74014748	0.834731524	0.837575674	0.839523363	0.839887006

Note: Regression coefficients of compositional and contextual variables explaining M5S's vote shares at the precinct level. These Spatial Durbin Error Models include a constant, spatial lags of each independent variables (except for graduates, income, house prices, and foreigners), a fixed effect for each city*year of election, and a control for distance from the city center. Standard errors are reported in brackets, computed using a row-standardized spatial weight matrix of 8-nearest neighbors. All independent variables are centered with a mean of 0 and a standard deviation of 1. Models were estimated using a GMM (general method of moments) that controls for heteroskedasticity (Arraiz et al., 2010) via the PYSAL–SPREG module (Rey & Anselin, 2007).

Appendix IV. Robustness checks

Table 8a: OLS, OLS Spatial and Spatial Durbin Error Models explaining vote for Lega, FdI and M5S at the precinct level.

Dependent Variable	FdI			Lega			M5S		
Model	OLS	OLS Spatial	Spatial Durbin Error Model	OLS	OLS Spatial	Spatial Durbin Error Model	OLS	OLS Spatial	Spatial Durbin Error Model
Compositional									
Under 35	-0.0454 (0.0319)	0.0197 (0.0405)	0.0048 (0.0574)	-0.1184 (0.0225)	-0.0561 (0.0285)	-0.0614 (0.0316)	0.6197 (0.0426)	0.3749 (0.0537)	0.3882 (0.0806)
Over 75	-0.0804 (0.0393)	0.0407 (0.0513)	0.0283 (0.0591)	-0.0255 (0.0278)	-0.0907 (0.0361)	-0.0825 (0.0481)	-0.9379 (0.0525)	-0.7788 (0.0681)	-0.7038 (0.0776)
Males	0.0356 (0.0349)	0.048 (0.0403)	0.0402 (0.0503)	0.0673 (0.0246)	0.0807 (0.0283)	0.0798 (0.0373)	0.2738 (0.0466)	0.2628 (0.0534)	0.2423 (0.0777)
Graduates	0.1234 (0.0482)	0.1325 (0.05)	0.1294 (0.0627)	-0.6999 (0.0341)	-0.6131 (0.0352)	-0.5606 (0.0482)	-3.4577 (0.0645)	-3.238 (0.0664)	-2.861 (0.1148)
Unemployed	-0.0842 (0.0402)	-0.0329 (0.0459)	-0.0168 (0.0489)	0.0739 (0.0284)	0.0178 (0.0323)	0.0363 (0.0356)	0.63 (0.0537)	0.1307 (0.0608)	0.2124 (0.0782)
Income	0.3709 (0.0475)	0.3314 (0.0482)	0.3065 (0.062)	-0.2198 (0.0336)	-0.178 (0.0339)	-0.186 (0.0475)	-0.296 (0.0635)	-0.1919 (0.064)	-0.3991 (0.0921)
Contextual									
House prices	-0.4068 (0.0596)	-0.3754 (0.0597)	-0.3198 (0.0823)	0.0145 (0.0421)	0.0335 (0.042)	0.0046 (0.0566)	-0.8275 (0.0796)	-0.8396 (0.0792)	-0.8638 (0.1267)
Homeowners	-0.2064 (0.0308)	-0.2313 (0.0399)	-0.2167 (0.0432)	-0.0629 (0.0218)	-0.0995 (0.0281)	-0.1002 (0.0318)	0.093 (0.0411)	0.0782 (0.053)	0.0652 (0.0641)
House prices X Homeowners	-0.1924 (0.0309)	-0.1793 (0.0311)	-0.1683 (0.0398)	0.0378 (0.0219)	0.0248 (0.0219)	0.0357 (0.0278)	-0.1524 (0.0413)	-0.16 (0.0412)	-0.0191 (0.0696)
New buildings	0.2029 (0.0287)	0.0619 (0.0404)	0.0812 (0.0421)	0.0756 (0.0203)	0.0344 (0.0285)	0.0316 (0.0266)	0.3009 (0.0384)	0.1627 (0.0536)	0.1594 (0.0559)
Foreigners	-0.0881 (0.0536)	-0.1153 (0.0546)	-0.0952 (0.073)	0.0778 (0.0379)	0.0028 (0.0384)	0.0153 (0.0564)	-0.1488 (0.0716)	-0.0915 (0.0724)	0.0414 (0.1374)
African Foreigners	0.0088 (0.0397)	0.0385 (0.0491)	0.0401 (0.0569)	0.178 (0.0281)	0.109 (0.0345)	0.1056 (0.0491)	-0.3137 (0.0531)	-0.1735 (0.0651)	-0.2222 (0.0887)
Foreigner change (2011-2001)	0.1393 (0.043)	0.0533 (0.0486)	0.0722 (0.058)	0.1567 (0.0304)	-0.0079 (0.0342)	0.0141 (0.0401)	-0.2323 (0.0574)	-0.1673 (0.0644)	-0.1822 (0.0955)
Schools density	-0.1592 (0.0282)	-0.0774 (0.055)	-0.0673 (0.0511)	-0.0513 (0.0199)	-0.0369 (0.0387)	-0.0274 (0.0342)	0.0297 (0.0377)	-0.0098 (0.073)	-0.0363 (0.0694)
Bus density	-0.0403 (0.0298)	0.0552 (0.0628)	0.0445 (0.0625)	0.0442 (0.021)	-0.0042 (0.0442)	-0.0119 (0.0406)	0.1487 (0.0398)	0.0314 (0.0833)	0.0778 (0.0805)
Internet access	-0.2805 (0.0349)	-0.0997 (0.058)	-0.1103 (0.052)	-0.1825 (0.0247)	-0.0234 (0.0408)	-0.0178 (0.0427)	0.1989 (0.0466)	0.1666 (0.0769)	0.1943 (0.0734)

Distance from city center	0.4659 (0.0407)	0.39 (0.0421)	0.4268 (0.07)	0.2131 (0.0287)	0.2003 (0.0296)	0.2212 (0.0475)	0.6469 (0.0544)	0.5597 (0.0558)	0.6169 (0.0942)
Compositional (lag)									
Under 35 (lag)		-0.1616 (0.0595)	-0.1044 (0.0701)		-0.1513 (0.0419)	-0.1028 (0.0496)		0.4662 (0.0789)	0.3315 (0.0999)
Over 75 (lag)		-0.2662 (0.0715)	-0.2146 (0.0786)		0.1256 (0.0504)	0.1219 (0.0637)		-0.0916 (0.0949)	-0.2095 (0.1092)
Males (lag)		-0.0482 (0.0651)	-0.015 (0.0819)		-0.0458 (0.0458)	-0.0346 (0.0593)		0.0192 (0.0863)	0.0045 (0.1146)
Unemployed (lag)		-0.1378 (0.0673)	-0.1688 (0.0746)		0.2184 (0.0474)	0.2238 (0.0547)		1.4382 (0.0892)	1.29 (0.1271)
Contextual (lag)									
Homeowners (lag)		0.0179 (0.0549)	-0.0097 (0.0636)		0.0416 (0.0386)	0.0517 (0.0478)		0.2451 (0.0728)	0.1654 (0.0951)
New buildings (lag)		0.2299 (0.0535)	0.1877 (0.0677)		0.1162 (0.0377)	0.0899 (0.0474)		0.2667 (0.071)	0.2738 (0.0901)
African Foreigners (lag)		-0.0866 (0.0628)	-0.0777 (0.0726)		0.0818 (0.0442)	0.102 (0.0573)		-0.2552 (0.0833)	-0.166 (0.1003)
Foreigner change (2011-2001) (lag)		0.2532 (0.0677)	0.1567 (0.0881)		0.4796 (0.0476)	0.3765 (0.0602)		-0.179 (0.0898)	-0.1859 (0.1185)
Schools density (lag)		-0.087 (0.0643)	-0.0969 (0.067)		-0.0166 (0.0452)	-0.0153 (0.0443)		0.0916 (0.0853)	0.0835 (0.0956)
Bus density (lag)		-0.0947 (0.073)	-0.0871 (0.0784)		0.0562 (0.0514)	0.0541 (0.0526)		0.1601 (0.0969)	0.0871 (0.1068)
Internet access (lag)		-0.275 (0.0708)	-0.2639 (0.0743)		-0.2549 (0.0498)	-0.249 (0.0599)		0.0139 (0.0939)	-0.0761 (0.1063)
lambda			0.3009 (0.0129)			0.347 (0.0125)			0.4239 (0.0136)

Note: The table shows the outputs of the full model (including all compositional and contextual variables), estimated alternatively by running a simple OLS model without lags, a spatial lag model, and a Spatial Durbin Error Model. Running an OLS Spatial model instead of a Spatial Durbin Error Model does not significantly alter the overall interpretation of the results (i.e., the magnitudes, directions, and significances of the coefficients are very similar).