A LOOK AT THE LOCAL GROWTH OF THE MAIN FOREIGN COMMUNITIES IN ITALY OVER THE LAST TWENTY YEARS[1]

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Abstract. In the field of population studies, the process of spatial concentration tends to raise multiple and diverse issues. For this reason, the spatial settlement of foreign nationals in Italy has gained increasing interest because of its effects on social cohesion, integration programs and urban dynamics. In this context, the main purpose of this study is to assess the spatial distribution of foreign nationals in Italy in the years 2003 to 2023. Following new insights and using a population growth model, the study aims to discover patterns of concentration or dispersion of the foreign population within the different municipalities and metropolitan cities of Italy, making a temporal comparison. The analysis strategy used to achieve the aim is based on a local spatial analysis applied to the exponential development patterns, in addition to the global spatial analysis. The analysis conducted in this study finds spatial inequalities in the pattern of foreign population growth, highlighting areas with different levels of urbanization in relation to the different foreign citizenships considered.

1. Introduction

The extraordinary peculiarity of the more general migration phenomenon in Italy has been found in the country's gradual transition from an ancient place of emigration to a country of immigration since the late 1970s (Casacchia *et al.* 2022). This transition can also be explained with reference to the increasing globalization of migratory phenomena (Strozza 2019). In recent years, Italy has witnessed a significant increase in the presence of foreign communities throughout the country. Each of these profoundly nomadic and globalized-looking communities has different characteristics on multiple levels. For example, the groups are differentiated by the gender factor: some groups are formed mostly of women while in others the male component is stronger (Casacchia *et al.* 2022). That is, these are social as well as demographic differences. These foreign communities play a fundamental role both in absolute terms and in terms of impact on the total resident population. Although the complex distribution related to country of origin remains constant, significant

[1] This article is the result of a joint effort by the authors. In particular: Marina Amante has written sub-paragraph 1.1; Massimo Mucciardi has written paragraphs 2 and 3. Paragraph 1 was written jointly.

updates have occurred with reference to the size and weight of the various foreign communities, and which have been influenced by the emergence of new migration routes, the weakening of some migration flows and the steady strengthening of others. For this reason, the spatial distribution of foreign population in host societies has always attracted the interest of scholars, arousing particular attention when it takes the form of residential segregation. As pointed out in multiple research (Casacchia *et al*. 1999), attention must be paid to the so-called "push factors" with regard to the dynamics of immigration within developing countries; and regarding Italy considerable importance is attributed to "pull factors", which influence the characteristics and size of foreign communities in Italy. In fact, to discuss push and pull factors is to analyse the main motivations that drive these multiethnic groups of individuals to leave their places of origin for new destination routes. A study by Bonifazi *et al*. (2018) provides a good example. In this report, the authors highlighted what appeared to be the main motivations for several foreign communities to leave their home countries. The picture outlines a situation that seems to involve about 85 percent of migrants, for whom movement to host countries stems from: affective, familiar purposes, such as family reunification (22.7 percent); individual or family social ascent (22.1 percent); work difficulties in the country of origin (20.8 percent); and the desire for higher earnings (20.3 percent). With reference to the phenomenon of territorial settlement, a dynamic has been highlighted whereby not all foreign groups tend to settle or concentrate in the same way: in fact, as pointed out by Mucciardi *et al*. (2024), the territorial settlement of foreign nationals is related to both the length of stay and the different migration patterns followed by the groups. The diverse territorial distribution of foreign communities surely constitutes one of the characteristics that marks the various processes in which immigrant groups adapt to the host country. It can be supposed that in the initial phase the choice of where to stay depends strongly on the presence of a support network and/or an employment opportunity that allows for the realization of the initial migration project (Ferrara *et al*. 2010). At a later stage, other multiple factors eventually modify the initial choice. With reference to spatial distribution, a trend toward increasingly stable settlement was also noted (ISTAT 2022). Even so, the concept of spatial distribution with reference to foreign communities residing in countries of adoption has been repeatedly analysed in connection with the concept of spatial segregation of foreign groups. In this sense, the mechanism of spatial clustering within a host country is manifested among multiethnic groups of individuals and is an inverse process to what is assumed by a causal spatial distribution mechanism (Freeman *et al*. 1971). An interesting contribution is made, for example, by the study conducted by Massey and Denton (1988), who discuss residential segregation as a true degree in which two or more groups live separately from each other in different parts of the urban environment. What causes can this concept be traced to? Well, as urged by multiple

studies, members of foreign collectives are sometimes distributed in such a way that they are overrepresented in some areas and underrepresented in others: sometimes foreigners are spatially concentrated within a very small area, occupying a much smaller space than members of the host nation. For this reason, the two variables "space" and "population" are closely related (Voss 2007) and compose a question of interest for statistics, geography and demography. Considering the context just outlined, the main purpose of this research is to assess and map the geographical pattern (concentration or diffusion) of the ten principal foreign populations residing in Italy over a 20-year period from 2003 to 2023. The main foreign communities analysed include: Romania, Albania, Morocco, China, Ukraine, India, Philippines, Bangladesh, Egypt, Pakistan. Assuming possible peaks of concentration or spatial dispersion along the Italian territory and over the time frame examined, the study uses two exponential growth models of the national data, calculated over 10 years and 20 years, respectively. For this reason, a further aim of the research is to identify specific clusters and spatial patterns of foreign communities considering the Exponential Growth Model (EGM). To accomplish the specific objective of the research, the study proposes peculiar spatial statistical techniques for identify clusters and spatial patterns in the growth models of foreign population settlements at the municipal level. The analysis conducted in this study detects spatial inequalities in the growth model of foreign populations, highlighting areas with different levels of urbanization in relation to the different foreign citizenships considered.

1.1 The issue of settlement patterns: the Italian case

Further back in time, the Chicago school theorized a process of urban growth (Amico *et al.* 2016) characterized by pockets and waves of foreign communities taking on structures of spatial segregation. The emergence of a metropolitan-type model occurred through a phenomenon of gradual assimilation, which caused immigrant communities to lose their cultural connotations. Subsequently, several studies have shown that even in the European territorial space, the relationship between settlement patterns and indicators of social integration reveals contexts in which clustered pockets of settlement and low levels of cultural integration do not affect the entire migration movement but only certain foreign nationalities (Musterd 2003). In this landscape, studies on residential segregation have extended from the extensive literature of the Chicago School (Bailey 2012) to classical studies (Duncan and Duncan 1955 and Massey and Denton 1988). With reference to the Italian case, a growing foreign presence has developed in recent years both in absolute terms and in terms of its impact on the total population distributed from North to South

throughout the country (Benassi *et al*. 2020), as a consequence of new economic and globalizing dynamics (Borja and Castells 2002). In Italy, the main determinants of the spatial displacements of different foreign communities represents a hotly debated topic in the scientific community, where the presence among multiple settlement patterns of foreigners along the territory is discussed. In particular, the presence of three types of settlement patterns was highlighted, namely: the "metropolitan" pattern, typical of foreign communities with imbalances in their gender structure; the "diffuse" pattern typical of communities with a greater degree of dispersion among Italian provinces; the "frontier" pattern typical of communities bordering with Italy (Ferrara *et al.* 2010; Forcellati and Strozza 2006). Other research pointed out in the late 1990s that the border-type model was typical of communities of Slavic and Tunisian origin; while the diffuse model characterized Moroccans and Albanians, and finally the metropolitan model was typical of Filipino and Peruvian communities (Casacchia *et al.* 1999). Italy, then, represents one of the multiple OECD International Organization countries characterized over the past decade by the presence of an interesting share of highly skilled and tertiary educated migrants. This process, which is typical of states of recent immigration such as also Spain, Ireland and Norway, clashes with the stable quantitative consistency of low-skilled migrants (Brezzi *et al.* 2010) who then stabilize in the typical labour sectors of agriculture, construction, domestic and care services. Over 5 million foreigners live in Italy nowadays (ISTAT 2023), however they are not distributed equally across the country (Benassi *et al.* 2023). Thus, there has been a shift from an initial phase in which the greatest concentrations of foreigners were visible in areas of the North-Centre (Strozza *et al.* 2016) to a phase defined as "redistribution" (Benassi *et al.* 2023) and spatial dispersion. However, the main reason correlated with a continued and increased presence of foreign groups in Northern Italy is due to the greater availability of jobs (Mucciardi *et al.* 2021), even though the economic crisis of 2008 (Colombo and Dalla Zuanna 2019) and, more recently, the Covid-19 pandemic (Bonifazi *et al.* 2021) have led to a slow reduction of the migration phenomenon in the national territory; it is also true that despite these complex dynamics, there has been a growth in push factors for some foreign communities (Conti *et al.* 2023). Considering the present overview, the next section will be devoted to the exposition and observation of the collected data and the methodologies used for an accurate reading of the grouped data at both the national and municipal levels.

2. Data source and methodology

2.1 Data Source

As previously mentioned, when we are concerned with observing and studying the causative and derivative processes of migration phenomena, for example in Italy, the scientific community identifies as a significant trait of the foreign population its ability to move and settle outside its borders according to different spatially unequal settlement patterns in a multifactorial function. For this reason, and before analysing the obtained results, it seems necessary to examine the source and extrapolated data in order to achieve the objectives mentioned earlier. Data were provided by the institutional website of the National Institute of Statistics (ISTAT 2023), and they refer to the foreign population habitually residing in the municipalities of Italy by the years 2003, 2013 and 2023. Indeed, the use of microdata-level units of analysis, such as that relating to municipalities, allows the extrapolation of key information about the local heterogeneity of the foreign settlement phenomenon. It should be noted that the total foreign and resident population in the Italian territory, analysed with reference to Italian municipalities, was divided according to the country of citizenship. What is more, it is important to emphasize here a clear methodological note, valid, however, with respect to the application related to spatial analysis only: in fact, the territorial boundaries of the 7903 municipalities present throughout Italy as of the year 2023 were reconstructed, so that they remain stable over time and ensure proper comparison within the specified time periods. Ultimately, the present research uses the variable "foreign population" by making use of the criterion of citizenship held by subjects at the individual level: "foreigner" is, in fact, the one who has not acquired the Italian citizenship. However, we are unable to separate the impact of obtaining citizenship from the data. This may lead to slightly underestimating some foreign groups.

2.2 Methodology

Indeed, the cross-cutting character of the approach used to analyse the data is what distinguishes this study. The purpose is to provide a logical framework that identifies spatial concentration both as a demographic phenomenon and as an effectively geographic phenomenon, related to the concept of polarization (Benassi *et al.* 2023) of foreign groups. The approach that we employed is that of the Exponential Growth Model (EGM) applied to the foreign population resident in Italy in the years considered. The model explains how a population expands, given infinite supplies and no growth restrictions, at a constant rate all over time. Well, to gain a

deeper comprehension of the patterns of residential settlement an EGM is used. The model is so calculated on ten years ($EGM10$) and twenty years ($EGM20$). As a result, using the well-known formula for the exponential growth of a population, we may write for the generic foreigner population g and the generic municipality i:

$$EGM(k) = \frac{1}{\Delta t} LN\left(\frac{P_t}{P_{t-k}}\right) \quad (1)$$

where P_t is the foreigner population at time t; P_{t-k} is the foreigner population at time $t-k$ in the time span $\Delta t = P_t - P_{t-k}$. So, when we set: $t = 2023$ and $k = 10$ we obtain $EGM10$; when we set: $t = 2023$ and $k = 20$ we obtain $EGM20$.
In the first step, considering the formula (1), we calculate $EGM10$ and $EGM20$ for the entire national territory for the top ten foreign nationalities present in the year 2023 in Italy (Table 1). It is important to note that the model assumes constant growth rates, so it does not allow us to consider the effects of shocks caused by policy changes, economic conditions, and social issues. These shocks can cause significant and immediate declines in population size, which the model fails to predict. We will highlight in the next section the most important results we obtained by considering spatial cluster and outliers analysis.

Table 1 – *Total population[2], EGM20 and EGM10 for the top ten foreign communities.*

Citizenship	Total 2023	Total 2013	Total 2003	EGM20	EGM10
Romania	1081836	996526	143738	0.101	0.008
Albania	416829	483131	185933	0.040	-0.015
Morocco	415088	456890	188123	0.040	-0.010
China	307038	223405	57616	0.084	0.032
Ukraine	249613	203595	25700	0.114	0.020
Bangladesh	174058	92446	19566	0.109	0.063
India	167333	129977	33760	0.080	0.025
Philippines	158926	142607	56479	0.052	0.011
Egypt	147797	89768	29717	0.080	0.050
Pakistan	144129	84182	20232	0.098	0.054

It's important to keep in mind that, whereas geographic global statistics can determine whether spatial structure exists, they are unable to identify the locations of clusters or measure the degree to which spatial dependence changes between locations (Mucciardi 2012). Instead in a local index of spatial autocorrelation, each unit is characterized by one value of the index; it gives the individual contribution of that location in the global spatial autocorrelation measured on all n locations.

[2] The reader is warned that the data does not take into account the acquisition of citizenships.

Thus, after computing the $EGM10$ and $EGM20$, we start to calculate the Local Moran indices. Figure 1 shows the mapping of the significance of the indices by type of spatial autocorrelation, High-High (HH), Low-Low (LL), Low-High (LH) and High-Low (HL), for the main foreign communities applied to $EGM20$[3]. HH and LL mean that geographically close EGM values tend to be similar on a map: geographically close municipalities have high (H) EGM values, just as geographically close municipalities have low (L) EGM values. HL and LH mean that geographically close EGM values tend to be dissimilar on a map: in geographically close municipalities, high (H) EGM values tend to be close to low (L) EGM values and vice versa (LH)[4]. The figure shows the Local Moran indices and the spatial autocorrelation of four foreign communities habitually residing in Italy over the time considered: Romania, Albania, Egypt and China. Well, after outlining the methodological framework behind the present research, the next section will be devoted to a final discussion concerning the main implications obtained from a careful investigation about the main patterns of territorial settlement of foreigners.

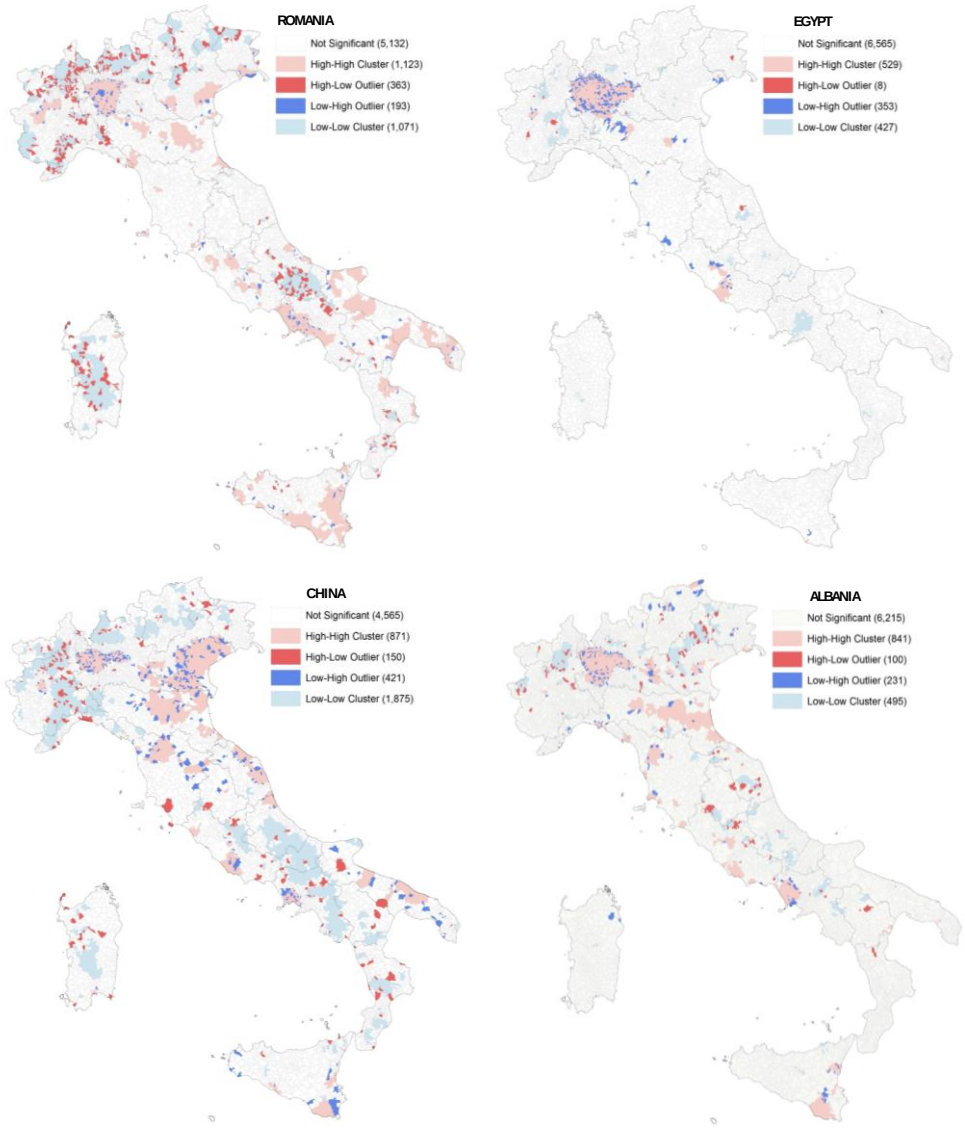
3 Discussion and final remarks

The aim of this research is to provide new keys that can explain the recent spatial settlement patterns of the main foreign communities, habitually residing in Italy in the years 2003, 2013 and 2023. Indeed, the originality of the present research, rests on the need to investigate and verify whether the increases in growth rates are spatially concentrated or whether they are uniformly distributed. The EGM approach is an excellent tool in demographic analysis, especially for examining foreign populations that are undergoing fast development as a result of immigration. Indeed, this research has deemed it appropriate to use the spatial approach to determine geographical pattern and clusters of the primary foreign communities in terms of growth. In fact, on the one hand, a global type of analysis is carried out using nationwide summary data (in absolute data): the global indices provided a summary of the temporal evolution of the main foreign communities in Italy. On the other hand, local spatial analysis techniques and the mentioned EGM are applied to municipal data. Specifically, the local spatial analysis applied to $EGM20$ at the municipal level indicates trends of stability over time for some resident foreign populations. Although the present research expands its field of observation to ten resident foreign groups, four were specifically chosen to be highlighted as representative of two precise and opposite patterns of foreign community settlement.

[3] We show maps for a select few communities due to space constraints. You may get all of the $EGM20$ maps for the ten foreign communities are available at the following link: supplementary file. $EGM10$ are available on request.
[4] See Anselin (1995) for further technical information on the four types of spatial autocorrelation.

In detail, Romania and Albania manifest a trend toward a "diffuse" type of pattern, which is also characteristic of the Moroccan population. On an opposite side, Egyptian and Chinese communities seem to reiterate a more concentrated type of territorial settlement pattern over time. In particular, for certain groups, such as the Chinese, spatial concentration becomes a real strategy positively linked to economic activities. As is also evident from the maps observed in Figure 1, the result of this mechanism is that of a phenomenon of real spatial clustering in strategic points of the nation, noting a strong concentration in Lombardy, Tuscany, Veneto, Emilia Romagna and Latium. This migration pattern, which takes into account the familiar and ethnic nature of the settlement process, results in a stable increase in the distribution of Chinese in the mentioned areas, thus reinforcing spatial patterns with Chinese enclaves (Zhou 1998). Whats more, cluster and outlier analysis shows different trends in exponential growth rates, especially in the four communities analysed. In fact, the results show that at the local level, High-High and Low-Low situations grow, so there is a growth in the level of positive spatial autocorrelation resulting in the growth of clustering phenomena along the national territory. The maps emphasize high values of the exponential growth phenomenon and high similarity (hot spots), that is, calculated at the municipal level, more inhomogeneous for the Albanian, Romanian and Chinese foreign communities. In opposition, for the Egyptian community the positive autocorrelation phenomena (hot spots) seems to link to a markedly metropolitan trend. It is true, in fact, that the maps related to clusters and outliers captured on the Italian territory, show an exponential growth especially in the North-Central regions compared to the Southern regions, probably due to attractiveness factors related to greater economic development. Despite the presence of a picture that seems to confirm what the most recent literature (Mucciardi *et al*. 2024) has already pointed out with reference to relative stable growth over time, two interesting results seem to emerge. First, there was a conspicuous increase in the exponential growth rate ($EGM20$) between 2013 and 2023 of the Ukrainian population (0,114), which is shown in Table 1. Second, the exponential growth rate calculated over 10 years ($EGM10$) is negative for the Albanian population (-0.015) and the Moroccan population (-0.010): results that are probably related to the citizenship acquisition process. However, the findings obtained must also be evaluated in light of the growth model chosen, which does not consider shock effects. Nonetheless, the results of this study provide a good starting point for investigating the drivers of the foreign settlement. Understanding the spatial positioning of the foreign groups in the Italian territory can be an excellent tool in building a policy agenda that takes into account different nationalities and related occupations. Therefore, the integration of EGM with spatial analysis has the potential to assist policy-makers in comprehending and forecasting demographic patterns.

Figure 1 – *EGM20*: *Significative maps of Local Moran (p<0.05) and cluster type (Municipalities that have non-significant statistical value are labelled as not significant).*



Spatial contiguity = inverse distance; Spatial weights = standardized; False Discovery Rate = yes

This, in turn, would facilitate more efficient planning and allocation of resources for urban areas experiencing growth. In conclusion, the present analysis is not limited to an annual snapshot of the investigated phenomenon, and the very peculiarity of the proposed methodology lies in the fact that it takes into account the 20-year growth and its spatial distribution. This crossover between the methodologies used and the different time intervals, thus enables future forecasts to be made, which are especially useful in terms of decision making in the policy sphere.

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