

Structure and dynamics of immigration in the municipalities of northwestern Italy

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1. Introduction

In less than a century, Italy has been characterized by profound changes in migration phenomena. From a country of origin to a country of destination of international migration flows, it has seen a strong and rapid intensification of incoming migration, and then reached a phase of stabilization. In the first phase, immigration mainly affects metropolitan areas and industrial zones. While in the second phase, the presence of foreigners becomes a structural phenomenon, characterized by a prolonged presence. In particular, there is a trend toward the territorial spread of the phenomenon and the increasing peripheral configuration of areas with a high concentration of foreigners (Costarelli and Mugnano, 2017; Bergamaschi et al. 2021), a consequence of a suburbanization process, that is, the progressive displacement of the foreign population from the center to the more peripheral areas of cities (Avallone and Torre, 2016) and in suburban municipalities around major cities and metropolitan areas (Borruso and Murgante, 2013). Although migration flows develop without planning and control, settlement regularities are observed, knowledge of which is crucial for the implementation of effective policies at the local level. Regularities that seem to depend mainly on the fact that specific patterns of residential settlement related to each ethnic group emerge, often shaped by vocational occupation (Costarelli and Mugnano, 2017). Specifically, three prevalent settlement patterns stand out: a metropolitan pattern, attributable to communities with a strong imbalance in gender structure, employed mostly in family services or commercial activities, such as the Filipino community, which has a substantial presence in the Milanese context; a diffuse pattern in the face of a greater range of employment opportunities, as in the case of three of the most widespread ethnic groups: Romanians, Albanians and Moroccans; and a border pattern, of communities coming from countries bordering Italy (Istat, 2022e). The aim is to identify the spatial pattern of the presence of foreigners in the Northwest, one of the Italian areas that most attracts migration flows. With this in mind, in the next section we introduce spatial autocorrelation data and techniques, while in the following paragraphs we focus on analyzing the share of foreigners at the municipal level both to observe current spatial concentrations and to outline the evolution of spatial clusters in recent decades. Concluding remarks close the paper.

2. Data and methods

The Istat census data dissemination system was used both for the latest available data (Istat, 2022a, 2022b, 2022c, 2022d) and for the years 2001 and 2011 (Istat, 2015). For the construction of the indicators, a spatial reconstruction was necessary, which in the first instance involved new municipalities established through mergers¹. Foreign population shares were used to study the

¹ Val di Chy, Valchiusa, Alto Sermenza, Cellio con Breia, Gattico-Veruno, Cassano Spinola, Alluvioni Piovera, Lu e Cuccaro Monferrato, Montalto Carpiasio, Maccagno con Pino e Veddasca, Cadrezzate con Osmate, Bellagio, Colverde, Tremezzina, Alta Valle Intelvi, Centro Valle Intelvi, Solbiate con Cagno, Vermezzo con Zelo, Torre de' Busi, Sant'Omobono Terme, Val Brembilla, Cornale e Bastida, Corteolona e Genzone, Colli Verdi, Piadena Drizzona, Borgo Virgilio, Borgo Mantovano, Borgocarbonara, Lessona, Campiglia Cervo, Quaregna Cerreto, Valdilana, Verderio, La Valletta Brianza, Valvarrone, Castelgerundo, Borgomezzavalle, Valle Cannobina.

phenomenon. Measurement of the dynamics at ten-year intervals was made possible by using the differences, in terms of percentage points, of the raw shares of foreigners in municipal territories.

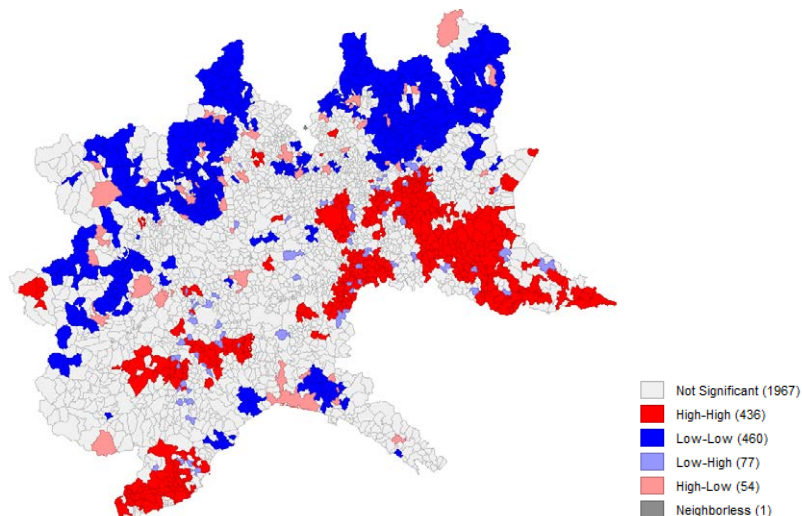
The identification of local clusters is crucial for the study and understanding of the spatial variability of the share of foreigners. A fundamental part of the clustering process is the measurement of spatial auto-correlation between the units studied, i.e. the degree to which the values of a variable are clustered or dispersed in space. Here we use LISA - Local Indicator of Spatial Association (Anselin, 1995) which is, in discursive terms, a measure of the similarity between the value of a variable measured in an areal unit of analysis (e.g. municipality) and the values of the same variable in neighbouring units, as defined by a spatial weighting matrix. A LISA value can be calculated for each spatial unit of analysis. Since the population varies across the areas under consideration, the precision of each share will also vary. For areas with small populations, the value of the share will be less reliable and, vice versa, the larger the population, the greater the reliability. Therefore, to avoid the risk of a false representation of the spatial distribution of the underlying phenomenon, the share of foreign population were corrected for this inherent instability by using Empirical Bayes (EB) technique (Anselin, Lozano-Gracia, and Koschinsky, 2006): a kind of smoothing approaches which improve on the precision of the raw rate by *borrowing strength* from the other observations. The EB technique consists of computing a weighted average between the raw share of foreign population for each municipality and the Northwest regional average, with weights proportional to the resident population in a municipality. Simply put, municipalities with a small population will tend to have their shares adjusted substantially, whereas for larger municipalities the share will hardly change. In the end, given the EB share values and the generic spatial weighting matrix element, for each municipality, a positive value of LISA indicates a high value surrounded by high values (high-high) or a low value surrounded by low values (low-low), while a negative value indicates a high value surrounded by low values (high-low) or a low value surrounded by high values (low-high).

The LISA Cluster Map is the most intuitive way to graphically represent the information provided by LISA values and to visualise local clusters and local spatial outliers. The Cluster Map is, in fact, a thematic map showing only those municipalities with statistically significant LISA values, classified according to five categories: i. Not Significant (areas that are not significant at the 0.05 level); ii. High-High (High indicator value and neighbouring municipalities with high indicator values); iii. Low-Low (Low indicator value and neighbouring municipalities with low indicator values); iv. Low-High (Low indicator value and neighbouring municipalities with high indicator values); v. High-Low (High indicator value and neighbouring municipalities with low indicator values). In addition, we will apply a LISA-based analysis technique called LISA Cluster Transitions Analysis, which studies the dynamics of the spatial distribution of the share of foreigners in Lombardy municipalities, grouping municipalities according to their changes or transitions of LISA values from one period to another (Anselin, 2018; Martin et al., 2016, Brooks, 2019). Simplifying, LISA Cluster Transitions Analysis, consists of classifying the different types of transitions present in a transition matrix between two states. For example, a municipality, which was High-High in both 1990 (high value surrounded by high values in the same period) and 2011, has the value 11 (alternately HH, HH); a municipality, which is Low-Low in both periods, is 22 (LL, LL); and a municipality, which has transitioned from Not Significant to High-High, is 01 (NS, HH). In this paper considering 2001 and 2011, twenty-five transitions between the LISA categories are possible, most of them with little substantive significance; as the literature suggests (Martin et al., 2016; Brooks, 2019), the focus must be on the ability of the transitions to show where the share is persistent over time and where it is changing, therefore the following transitions will be analysed: High-high in both periods; Low-low in both periods; from Non-significant to High-High; from Non-significant to Low-low; from High-High to Non-significant; Low-low to Non-significant. A thematic map of municipalities will be used in the presentation of results, associating different colors with different types of transitions.

3. Foreign presence in northwestern Italy

In 2020, the foreign population in northwestern Italy amounted to 1,766,425 residents: in Lombardy 1,190,889 people (with an average regional share of 11.9%), in Piedmont 417,279 people (9.8%), in Liguria 149,862 people (9.9%) and in Aosta Valley 8,395 people (6.8%). The picture of the resident foreign presence in the Northwest shows rather different concentrations. Starting with Liguria, it is evident how, at the end of the observed 20-year period, there is a high concentration of foreigners in the province of Imperia, the western area of the province of Savona, the regional capital. Although in Genoa the share does not exceed 10%, higher concentrations are observed in the province. In the eastern part of the region, only the provincial capital of La Spezia has a high share of foreign population (12.7%). As far as Piedmont is concerned, a greater concentration of foreign population can be observed in the provinces of Cuneo, Alessandria and Asti, in some localities in the eastern part of the province of Turin and in the capital itself (14.1%), as well as in Novara. Conversely, apart from a few exceptions, the foreign presence is more contained in the province of Verbano-Cusio-Ossola, in the upper Vercellese, in the Biella area and in municipalities along the western borders of the provinces of Cuneo and Turin, where the most notable singularity is the territory between Bardonecchia, Salza di Pinerolo and Claviere. In Aosta Valley, only three municipalities have a foreign population share above 10 percent (Challand-Saint-Anselme, Valtournenche and Verrès). In Lombardy, foreigners tend to be concentrated in the Milan area (18.2% in the capital municipality), in the southern area of the region - that is, in the provinces of Pavia, Lodi, Cremona and Mantua - and in the southernmost areas of the provinces of Bergamo and Brescia. A conspicuous presence is also recorded in Como and Lecco (in the two provincial capitals, the share is 14.4% and 10.7%, respectively). In contrast, the phenomenon appears less widespread in the northernmost parts of Lombardy, particularly in the province of Sondrio and northern areas of the provinces of Brescia and Bergamo, i.e. in the Alpine areas. The map of LISA clusters, highlights local clusters with significant information for both areas with the highest concentration and areas where the phenomenon is of low intensity (Figure 1).

Figure 1 - LISA representation of the EB share of foreigners, Northwest, 2020



4. Ethnic differences in migration movements in northwestern Italy

According to EESC (EESC, 2018), the absence of migrants in European countries would have negative consequences, especially in relation to population aging. "Population to grow in some MS,

to shrink in others... but to age in all" reads the presentation accompanying the European Commission's Ageing Report 2021 (EC, 2021). Economically and socially, in the countries of Southern Europe, migrants contribute to the functioning of health care systems and assistance in personal services. Also in the Northwest, immigration contributes to the labour force in agriculture and construction, helps counter depopulation in some territories and plays a positive role in the balance of pension systems. At the same time, as migratory pressure increases, so does the need to invest locally in integration, to avoid conflicts between host communities and migrant due to socio-cultural differences, including through implementation of policies aimed at countering risks related to the spread of undeclared work, territorial segregation, and discrimination. The migration flows of the past two decades have resulted in differentiated ethnic concentrations. Taking two provinces in the northwestern perimeter (Mantua and Imperia) as examples, significant differences emerge. In Mantua, a province still highly specialised in industrial production, the Asian component is notable (37.6%) with large shares of Indians (17.3%), Chinese (8.8%) Bangladeshi (4.1%) and Pakistani (4.0%). A completely different story is observed, however, in the province of Imperia, which as a strong tourist vocation, where foreigners are predominantly European. In addition to Romanians and Albanians, whose diffusion in fact covers the entire national territory, French and Germans, although they have seen their relative weight decrease (at the beginning of the century they represented a fifth of the foreign population overall) continue to have a significant presence.

5. The evolution of immigration in the last two decades in northwestern Italy

The evolution of the migration phenomenon over the past two decades in the Northwest is characterised by two phases that differ both quantitatively and qualitatively. In the first decade (2001-11), the population of foreigners increased significantly (about 1,000,000 more), tripling the total amount. The largest relative increase in the presence of foreigners is concentrated in southern Piedmont and south-central Lombardy. The areas of greatest attraction are the large urban centers (e.g. Milan) and more traditional industrialised areas and industrial districts characterised by the presence of small and medium-sized enterprises. In the second decade (2011-20), the increase is significantly smaller and is around 24% (in absolute terms it increases by 340 thousand foreign residents). At this stage, the expansion of immigration is spread over almost the entire Northwest, with a particularly large area of expansion in the Milanese hinterland, an outcome, in line with the literature on the suburbanization process. On the other hand, there is a marked slowdown in terms of the change in share in the eastern area of Lombardy (Brescia, Bergamo and Cremona).

Figure 2 - Dynamics of foreigners, Northwest, 2001-11 (change in percentage points of raw share)

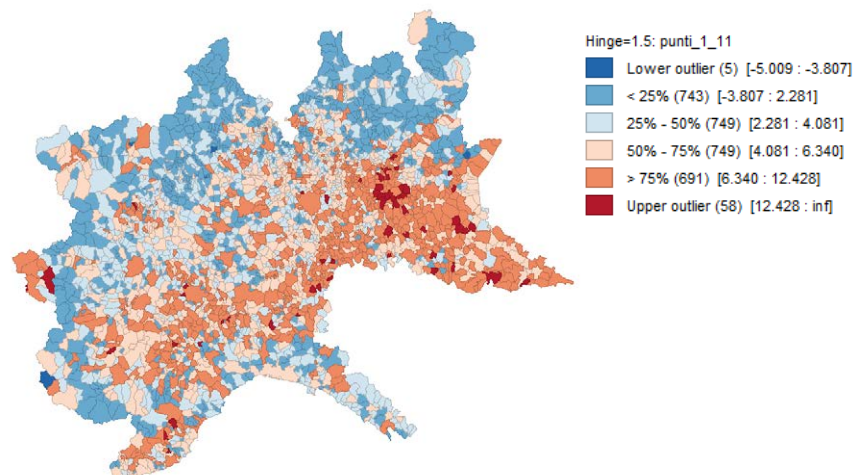
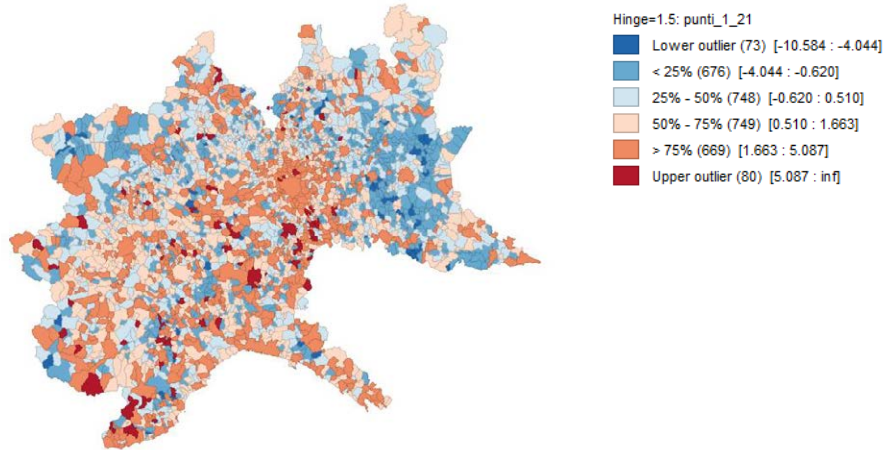


Figure 3 - Dynamics of foreigners, Northwest, 2011-20 (change in percentage points of raw share)

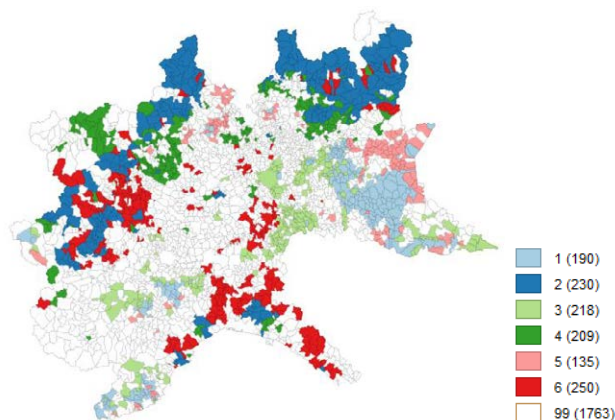


6. The spatial dynamics of clusters

Between 2001 and 2020 we can observe that clusters tend to strengthen and expand while at the same time, new places of concentration of foreigners appear (Figure 4). In particular there are:

- Areas of persistence with high share (Figure 4, 1. light blue). Extensive clusters in the border area between the provinces of Bergamo, Brescia, Cremona and Mantua; less extensive clusters in the Imperia province; clusters of interest also in the area between Asti and Cuneo;
- Expanding areas: i. non-significant to high share (Figure 4, 3. light green). This includes areas of new clusters (in the Milan province where the high share was initially limited to the provincial capital; municipalities in the Pavia and Lodi areas) and areas of expansion of already existing high share clusters (in the Mantua and Bergamo areas, which is an extension of the Brescia-Bergamo cluster; the area on the border between Imperia and Savona; the Asti-Alessandria area); ii. low share to not significant (Figure 4, 6. red). These are areas where the share increases and approaches the average value: discontinuous areas in the mountains of both Turin and Valtellina; Pavia area; several clusters in Liguria;
- Areas of persistence with low share (Figure 4, 2. blue). Cluster in the Genoa province; Alpine arc: mountain areas in Lombardy, Piedmont (especially Biella and Verbania) and Aosta Valley;

Figure 4 - Foreign location change, Northwest, 2001-20 (types based on LISA EB share of foreigners)



- Shrinking areas: i. non-significant to low share (Figure 4, 4. green): extensive cluster in Aosta Valley and in the mountainous border area between the provinces of Biella and Vercelli); ii. From high share to non-significant (Figure 4, 5. light pink): extended cluster in the province Brescia - North Mantua; cluster in the Varese area.

7. Concluding remarks

The study examined immigration in municipalities in northwestern Italy. Data from official statistics were considered in the analysis. In particular, foreign population shares based on ISTAT data for the past decades were used. The results, determined by the complementarity of different methods of spatial analysis, made it possible to identify clusters of municipalities and to understand both differences and migration dynamics. Areas of persistence of high share of foreigners, areas of expansion and areas of contractions emerged. The proposed analysis can be considered a useful reference for public policy development at the local level.

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