Urban Transformations and the Spatial Distribution of Foreign Immigrants in Messina

Francesca Bitonti, Angelo Mazza, Massimo Mucciardi, and Luigi Scrofani

Abstract Messina exhibits a fragmented urban structure, a consequence of past historical events, mainly the 1908 earthquake. After this tragic event, Messina experienced economic downturns and nowadays it passively suffers rather than managing its considerable mercantile traffics. The fragmented urban fabric affects the residential location of foreign migrants. Related literature distinguishes between two sources of spatial segregation: apparent contagion (i.e. economic inhomogeneities affecting the urban context) and true contagion (individual preference to live close to ethnically similar neighbors). We use point pattern analysis to assess residual clustering of migrant households while adjusting for economic inhomogeneity. We implement a case–control approach to avoid confounding between the two sources: migrant households represent cases, while a random sample of natives constitutes the controls. Results show that Sri Lankans, Filipinos (exceeding one kilometer), and Romanians exhibit the highest voluntary segregation, contributing to the creation of spatial clusters that boost the polycentric structure of Messina.

Keywords Territorial organization · Spatial analysis · Foreign immigration · Voluntary segregation

F. Bitonti · A. Mazza · L. Scrofani (✉)
Dipartimento di Economia e Impresa, Università Degli Studi di Catania, Catania, Italy
e-mail: scrofani@unict.it

F. Bitonti
e-mail: francesca.bitonti@phd.unict.it

A. Mazza
e-mail: amazza@unict.it

M. Mucciardi
Dipartimento di Scienze Cognitive, Psicologiche, Università Degli Studi di Messina, Pedagogiche e Degli Studi Culturali, Messina, Italy
e-mail: massimo.mucciardi@unime.it

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1 Introduction

In the present work, the authors study the settlements of foreign immigrants which have contributed to shape the urban dynamics of the metropolitan city of Messina during the last decades. The authors briefly investigate the history of Messina and its territorial and economic organization in relation to the transport infrastructure network and the population settlements. The historical analysis reveals the crucial role of the commercial areas and the old town, which also hosts the harbor, a symbol and flywheel of Messina. The historical borough corresponds also to the place of residence for the majority of foreign immigrants, relatively to the other neighborhoods. Subsequently, a spatial analysis of the distribution of foreign immigrants is carried out. The empirical application provides insights into how the presence of foreign immigrants can profoundly affect the urban development and the identity of Messina itself.

Spatial models have been implemented to study the flows and residential location of foreign immigrants in Messina, in particular those of the most numerous six ethnic groups, in order to highlight the phenomenon of voluntary segregation. Traditional studies in social research distinguish between two different determinants of residential segregation: the economic inhomogeneities characterizing the urban context (i.e. rent costs and job availability) and the spatial attraction between individuals who share the same identity and culture. Nevertheless, conventional indices of spatial segregation do not consider the different influences exerted by the two sources of spatial clustering. These indices generally rely on census tracts, i.e. aggregated scales, which do not allow for analyses at the individual household level. Therefore, the authors employ individual household data from the city's Population Register to measure the spatial distribution of foreign immigrants in Messina. The inhomogeneous K-function [1] is used to evaluate spatial attraction, ruling out the effects of spatial inhomogeneity. The distribution considers also group classification by work specialization, e.g. housework and caregiving, which are becoming increasingly widespread among migrants compared to business and retailing. The application of the models to the data shows a significant voluntary spatial segregation for Sri Lankans, Romanians, Moroccans, and Filipinos. Conversely, other ethnic groups are consistent with random allocation. The analysis of the spatial distribution of foreign immigrants highlights the presence of work specialization among migrants belonging to different nationalities. Some ethnic groups concentrate within the urban areas to comply with the work demand exhibited by the native population, as the demand for domestic work and for retailing. This mechanism finds explanation in the multipolar identity of Messina and its metropolitan role.

2 Urban Activities and Migrant Settlement Patterns

The current urban fabric of the municipality of Messina is highly heterogeneous and articulated in a substantial set of hill towns, hamlets, and seaside villages which extend for about sixty kilometers along the coast. Its development on several poles, connected by a complex network of roads, highways, railways and port areas, could not fail to affect its dynamic, multicultural, in transition, and therefore nuanced identity, which is of uncertain definition, open, like that of many crossroads (see the strategic plan in [2, 3], p. 20).

At the beginning of the fifteenth century, the city flourished thanks to the port area which sustained substantial commercial traffic, like the one related to the export of silk. The port also sustained portable maintenance activities to the numerous ships that landed there [4]. The period of prosperity granted the city even to issue its own coin [5, p. 43]. Messina experienced an economic ferment which was accompanied by a cultural dynamism and an urban development. The mid-August fair, which gathered the European and Asian producers and traders, the foundation of the Silk Consulate, the Greek School, and the University (1548) are only some pieces of evidence of the economic and cultural growth the city was experiencing. On the other hand, the construction of the San Salvatore fort at the entrance to the port, of the Palazzata (a magnificent build on the access to port: see [6], of a new arsenal, and new fortifications testified the urban expansion of the city. Messina became one of the most prominent crossroads of commerce between Europe, Asia, and Africa [7].

At the end of the seventeenth century, the Spanish repression against the Messina turmoil reversed the flourishing condition of the city leading to an economic and political, but also demographic downturn. As a consequence, Messina barely reached 40,000 inhabitants during the second half of the eighteenth century. During the nineteenth century, the renovated role of the city harbor as a strategic point of connection to the mainland proved to be insufficient to compete with the opening of the Suez Canal and the construction of roads to Palermo and the South. These events contributed to shaping the actual fragmented and disconnected structure of Messina [5, p. 89].

During the late sixties of the nineteenth century, a city plan known as the Spadaro plan constituted the first attempt to rationalize the urban fabric, supporting the development of the city activities along the coastline and mountain roads [8]. According to the 1861 census, the city of Messina had a population of 103,324 inhabitants distributed among the urban center (62,024) and other 48 villages included within the urban perimeter [9]. The renovated and incipient role of the city as a commercial and financial epicenter was undermined by the expansion of nearby ports (Milazzo to west, Riposto to east and Calabrian ports to the north), the abolition of the free port, the citrus monoculture practice, and the loss of the function of transit port for coal ships, replaced by new vessels fueled with liquid fuel which allowed for longer routes [10, pp. 63–65].

At the beginning of the twentieth century, Messina became port of departure of many migratory waves: firstly, to the Americas, later to Northern Italy and Europe. Messina was almost destroyed by an earthquake in 1908, after which the

city underwent a serious economic crisis [11]. Caminiti [12] reports that, above all, the forced displacement of the surviving population and its next return had disastrous implications on the identity not only of the city but also of the Unitary State.

The reconstruction city plan proposed by Borzì aimed at reorganizing the devastated urban fabric and boosting the urban extension to the north and south. It is clear, however, that in the urban reorganization of the anthropic activities natural elements, such as streams, acted as reference points and sometimes as limits [13, p. 21].

Cairoli square and the tangent Cannizzaro street became the northern urban boundary of the new expansion towards the south, where the new buildings of the areas adjacent to the San Filippo and Zafferia streams gathered. Other areas of expansion, starting in the late 1960s, affected the northern hilly areas along the ring road. Borzì's urban plan of 1911 remained largely unfulfilled due to the war events, favoring—when possible and in the absence of central spaces—the construction of an ultra-popular building in the poor neighborhoods of Gazzi and Camaro, where the wooden slums have not always been replaced by brick houses [14].

On one side, the earthquake allowed reviewing the social and economic hierarchies and their spatial organization, while it fostered the urban speculation on the other. Different centers benefited from the crisis of Messina, in particular the city of Catania which became the reference center of the Eastern Sicily [15, p. 424]. After the seismic event, Messina developed a polycentric spatial structure (confirmed also by Benito Mussolini during his visit to the city on August 10, 1937). The multipolar urban organization has persisted still today and has fragmented the identity of the city. The intentions of the current urban planners are those to regenerate the urban context to convert Messina from an emergency city to a center of hospitality and environmental protection, avoiding further soil exploitation [3, p. 42].

The aftermath of the Second World War compelled the city to rise again and to reconvert the economic activities from the production sector to the services one. Administrative activity, health service (General Hospital since the 1950s), tourism (cruise traffic), cultural and educational service, transport, and trade replaced the industrial and handicraft works. The production plants have been located indeed outside the urban center, except for the Industrial Area of Larderia. In particular, the transport network has become pain and pleasure for the current municipal economy. The contemporary urban fabric is a maze of streets which includes also two highways (A20 and A18) and the port arterial roads (relative to the ports of Messina Zona Falcata, Messina Tremestieri, and Messina Rada San Francesco). Today the Zona Falcata old harbor receives a significant inflow of cruise ships, besides the ferry trains, ferryboats, and wheeled transports managed by maritime carriers.

Today, the realization of the Tremestieri port contributes to lighten the city center from the heavy traffic heading and departing from Zona Falcata [16]. In particular, Tremestieri should convey the heavy Ro-Ro traffic, while the Rada San Francesco port should be reserved for the light Ro-Ro traffic [3, p. 9]. Nevertheless, Tremestieri harbor is frequently unserviceable because the seafloor requires continuous cleaning from the debris. As a consequence, during the closure periods, the traffic begins to congest again in the urban center.

To date, Messina represents a strategic hub of international and national trade, and people flows. As a consequence many thousand cars, trucks, and people pass through the districts, paralyzing the entire urban area [16]. During the last four decades, the unbearable urban congestion, the increasing youth emigration, and the population movement toward the neighboring villages are leading Messina to a demographic decline (for an analysis of the urbanization of Messina and other southern cities see [17]). Also, the Zona Falcata port keeps congesting the road traffic in the 4th district (see Fig. 1): the most critical urban area which hosts the traveler influx, holding also residential, touristic, and commercial roles [3, p. 11]. The 80% of the workforce of Messina, which has 232,555 individuals (Dec 31, 2018) and has been steadily decreasing for the last twenty years, is employed in trade, public administration, and other tertiary activities.

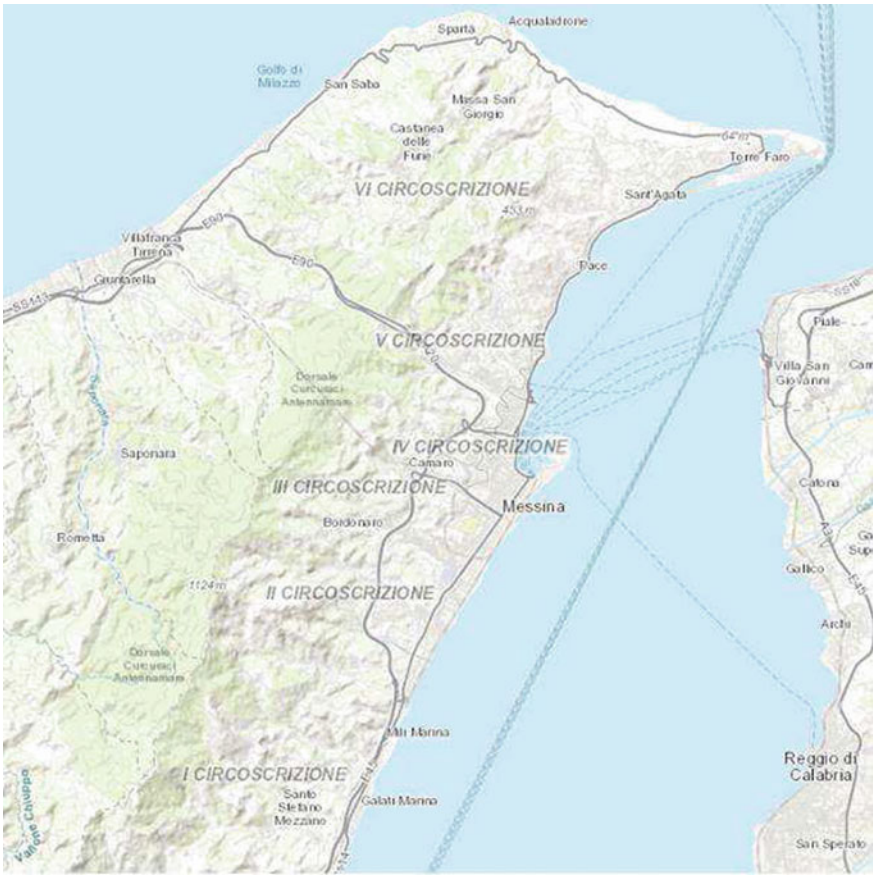

Fig. 1 Messina, the districts and the major transport connections by sea and land (*Source* http://www.comune.messina.sitr.it/)

The population structure has undergone a radical change during the last forty years. The city is inhabited by a large number of elderly and foreign migrants [18]. While in 1971 there was one old person per child, in 2011 the ratio amounted to four to one. Today the most populous district is the third one, with 55,450 residents, whereas the least is the first one, inhabited by 22,363 citizens. At the end of 2018, Messina counted 12,265 foreign inhabitants (equal to 5.27% of the total population) coming from 116 different countries, of which 13.67% born in the city (1,702 units). The majority of the foreign migrants come from Asia (57.4%), while the largest ethnic groups are Sri Lankans (4,048 units), Filipinos (2,365 units), and Romanians (1,629 units) according to official data, but irregular migrants account for a relevant share [19].

Messina attracted multiple waves of immigration due to economic, political, or family reasons pertaining to the various communities. The first wave dates back to the 1930s when an important influx of migrants came from Australia. The countries of departure of the second massive arrival occurred between the 1970s and the 1980s, were instead the European ones (especially Greek[1]). Starting from the 1980s, Messina has attracted Sri Lankans,

Filipinos, Chinese but also Polish and many Romanians.

The foreign residents of Messina are mostly unmarried because they are minors and young people, or cohabitants (http://www.strettoweb.com/foto/2020/01/interculturalfest-presentato-lo-studio-sugli-stranieria-messina/38895/).

The 4th district has the highest incidence of foreign citizens, equal to 10%, while the 2nd district has the lowest one, about 2% [20, p. 5]. The majority of foreign-born residents (80%) is allocated in the central areas of the city (3rd and 5th district). This particular concentration is attributable to the migrants' employment in domestic services or assistance to older people. Not surprisingly, the 4th district is characterized by the highest residents' mean age of Messina, despite the presence of young foreign inhabitants.

The housing emergency deriving from the post-earthquake reconstruction affects the city of Messina still today. A multitude of huts (3,000 units) dots the landscape of many neighborhoods (e.g. Giostra, Camaro, Gonzaga, and Fondo Fucile districts: see [21]). In 2011 the economical dwellings amounted to 47%, while the valuable ones accounted for slightly more than 3% [3, p. 31]. The housing issue has conditioned the public building programs and urban development but has also contributed to the birth of slums, both within the center and periphery [22]. For a long period, foreign immigrants have been massively supporting the demand for housing in the city [3, p. 31].

The heavy presence of foreign-born residents in the central urban areas depends on their work as housekeepers and caregivers, as mentioned before, but also as peddlers in the daily or weekly markets.

[1] The Greek community is particularly active and in 2010 has instituted the Hellenic Community of the Strait, seating in Messina; an association gathering Greeks and individuals with Greek origins, permanently or provisionally resident in the province of Messina, Reggio Calabria, Vibo Valentia, Catanzaro and Crotone, known also with the acronym C.E.D.S. The association is apolitical, nondenominational and non-profit; it organizes cultural events and free Greek language courses.

3 Data and Methods

A minority ethnic group is considered spatially clustered when its spatial arrangement diverges from the one expected under a random spatial distribution [23]. Broadly speaking, it is possible to identify two sources of spatial clustering: spatial inhomogeneity or apparent contagion, and spatial attraction or true contagion. The first one concerns inhomogeneities that might yield economic-based segregation: the accessibility to low-cost public facilities, the large variability in housing prices depending on the different urban areas, and the availability of specific work activities. In this sense, one might argue that the different ethnic groups would not be randomly allocated, even if ruling out the influence of ethnic discrimination on residential choices [24].

As to the second source of spatial segregation, Clark and Fosset [25] reported that each of the ethnic groups in the USA prefers living in neighborhoods where their own group represents the majority or near-majority. Foreign immigrants can benefit from positive spillovers in dwelling close to their compatriots, as reciprocal acceptance, common language, and support in general. Nevertheless, despite the reasons underlying individual preferences toward ethnic attraction, the two sources yield comparable configurations of residential segregation [25]. Therefore, it is relevant to disentangle true from apparent contagion. The "economy–induced" segregation provides some insights to understand the general level of segregation and raises issues of social equity. Conversely, the Schelling model shows how the individual voluntary intentions to live close to ethnically similar neighbors is a prominent cause of residential segregation [25, 26].

The spatial distribution of households may be represented by a point pattern on a map [27–29]. In the context of spatial analysis, the simplest theoretical model for spatial point pattern is that of complete randomness, called homogeneous Poisson process (HPP). In HPP the expected value of events (in our case resident households) occurring within a unitary region $u \in R$ follows a Poisson distribution, whose intensity λ is uniformly distributed over R [26]. This implies that the region is completely homogeneous in terms of its ability to attract households and that their residence choices are random and independent among them. Most often, the HPP is the standard null hypothesis of spatial analyses; however, within urban areas, the assumption of constant intensity λ of HPP is not suitable: potential residential density, for instance, renting prices or the availability of specific occupations may considerably vary across the different areas of the city. The inhomogeneous Poisson process (IPP) is a generalization of the HPP obtained replacing the constant intensity λ with a spatially varying intensity function $\lambda(u)$, $u \in R$.

Ripley's K-function [1], usually denoted by $K(d)$, is used to detect the presence of clustering (events gathering in specific areas, as shops in a mall) or dispersion (events following a regular pattern, as the gas stations along the highways or drugstores and tobacco shops in a city) with respect to a completely random allocation of events in the region of interest. The K-function counts the number of additional events occurring within a circle of radius d surrounding an arbitrary event; this number

is then compared with that expected in an HPP: if the observed number is similar, higher or lower than to an HPP, it is possible to infer random distribution, clustering or dispersion respectively. Letting d varying it is then possible to repeat the analysis at different geographic scales. Baddeley et al. [30] generalized the K-function to the inhomogeneous point process. The inhomogeneous K-function proposed denoted by $K_{inhom}(d)$ hereafter, allows measuring the concentration (or dispersion) surplus compared to the configuration yielded by random allocation, netting out the spatial inhomogeneities identified by variations in $\lambda(u)$.

When the analysis of a spatial point pattern detects a high level of concentration (or dispersion) it is challenging to distinguish whether it stems from variations in the characteristics of the territory (the cost of rents, for instance, may induce phenomena of economic segregation) or it depends on attractive (or repulsive) spatial dynamics [31]. This issue has been addressed by Mazza and Punzo [32], implementing a case–control approach. The data of a case–control study consist of the realizations of two distinct spatial point processes: the first representing cases of a condition of interest (e.g. possessing foreign citizenship), the second representing controls, a sample randomly drawn from the total population. Assuming that the sampling fraction of controls tends to zero compared to the population at risk, controls represent the realization of an IPP with intensity $\lambda^*(u)$. Where the population at risk tends to cluster, the number of observed controls will be higher on average. Cases, in turn, constitute a second independent point process with intensity $\lambda(u)$. Here, it is of relevance to verify whether cases form an IPP with intensity proportional to that of the controls, that is $\lambda(u) = \rho\lambda^*(u)$ (with $\rho = 1$ when the number of cases equals that of controls), or whether they present a different spatial structure. Diggle et al. [33] show that the ratio between the two intensity functions may be modeled depending on a vector of m explanatory spatial variables $z(u) = (z_1(u), ..., z_m(u))^j$, that is

$$\lambda(u) = \lambda^*(u) f(z(u); \theta) \tag{1}$$

where $f(\cdot)$ is any nonnegative function with parameters θ.

Here controls are a random sample of households drawn from all households with Italian citizenship, the explanatory variables employed are related to the price of rents.

Spatial intensity $\lambda(u)$ of cases is estimated by the model

$$\lambda(u) = \lambda^*(u)\exp\{\alpha + z(u)^j\beta\} \tag{2}$$

where $\beta = (\beta_1, \ldots, \beta_m)$ is the vector of regression coefficients and λ^* is the intensity of controls estimated applying kernel smoothing (see [34]). Let Y_j be equal to 1 or 0 according to whether the j-th household is a case or a control; under the assumption that both cases and controls are mutually independent IPP, conditionally to their location, we have

$$P\left(Y_j = 1|z_j\right) = \frac{\exp(\alpha + z_j{}'\beta)}{1 + \exp(\alpha + z_j{}'\beta)} \tag{3}$$

where z_j is the vector of spatial covariates on the location of the j-th household.

We consider the following spatial covariates:

- the overall population density, estimated using Tobler's pycnophylactic interpolation algorithm on census data [35]
- minimum rent cost per square meter for private residential properties

Data at hand come from the Population Register Office of Messina, as recorded on June 30, 2017. The dataset includes immigrants and their children/nephews born in their country of origin and who at birth acquired only the (foreign) citizenship of their parents. All addresses have been geocoded using the Google Maps Geocoding API. Minimum rent cost per square meter for private residential properties has been provided by the Italian Revenue Agency—OMI database (available at https://wwwt.agenziaentrate.gov.it/servizi/Consultazione/ricerca.htm). Computations have been executed using the *spatstat* package [34] for the R computing environment [36].

4 Results

Table 1 reports the distribution by nationality of foreign immigrant households in the city of Messina, corresponding to 5% of the global resident population (foreign citizens are individuals holding non-Italian citizenship and with habitual abode within Italy: https://www.tuttitalia.it/sicilia/38-messina/statistiche/cittadini-stranieri-2017/; accessed 23 Apr 2020). Asia is the prevalent continent of origin (59%), while the most numerous groups come from Sri Lanka, Philippines, and Romania. Foreign migrants satisfy the local labor demand for cheap, flexible, unqualified, and unprotected manpower: a type of work that even unemployed locals tend to avoid.[2] As several studies on other cities have demonstrated, a work specialization among migrants of different nationalities has developed also in Messina (e.g., [38, 39], Mucciardi et al. [40]) for the city of Catania; [41] for Palermo, [42] for Naples, [43] for a comparison of Sri Lankans' settlement patterns in the cities of Naples, Messina, Palermo and Catania). Sri Lankans, Filipinos, Romanians, and Poles are for the most part domestic workers in Italian families' residences. Romanians and Poles are almost entirely made up of women (see Table 1) who are mainly employed as caregivers for the elderly. Other groups coming from the Maghreb and sub-Saharan Africa, especially males coming from Morocco and Senegal, perceive housework as

[2] Individuals coming from non-EU countries have to acquire the visa. Once legally entered Italy, they have to apply for the residency permit for the same reason they received the visa. About 80% of the Italian visas is granted for tourism (after 3 months of legal permanence, the immigrants enter the world of illegality if they do not regularize their position). Business, family and subordinate work are the residuals motivations for visa [37, p. 46].

Table 1 Foreign immigrants residing in the Municipality of Messina on 01/01/2017 (*Source* Population Registry of the Municipality of Messina)

Country of origin	Males	Females	Total	% of total foreign immigrants (%)
Sri Lanka	2.072	1.824	3.896	32.9
Philippines	1.142	1.277	2.419	20.4
Romania	485	1.026	1.480	12.8
Morocco	712	420	1.132	10
Greece	335	59	394	3.3
People's Republic of China	189	193	382	3.2
Poland	50	259	309	2.7
Others			1835	14.7
Total			11.847	100

feminine and thus degrading, and prefer to work as peddlers. They usually sell counterfeit products, such as handbags, sunglasses, jewelry, and other seasonal items in the streets of the central shopping district (4th district), at open-air markets, at the main crossroads and, during summer, along the nearby beaches. Finally, the Chinese are mostly employed in import–export activities and retail. These specializations, considering the different logistic needs related to the occupational categories and considering the integration possibilities, have fostered the differentiation of the spatial distribution.

Figure 2 illustrates the distribution of foreign immigrant households in the city of Messina. Sub-figure (a) shows the smooth pycnophylactic interpolation of population counts for census tracts [35], while sub-figure (b) shows the minimum rent cost per square meter for private residential properties. As illustrated in Fig. 3, the six most numerous nationalities share a spatial trend, exhibiting high values in the central areas of the city (the central northern part of the maps) and low values in the peripheral areas. However, this spatial dynamics is stronger for the vendors' group than for the domestic workers' group. After estimating the intensities $\lambda(u)$ for each of the considered nationalities, we can estimate the values of the inhomogeneous K-function and compare the concentration level of the residential patterns for each nationality. The charts in Fig. 4 display the K-functions estimated using the intensities $\lambda(\mathrm{u}) = \lambda^*(\mathrm{u})\exp\{\alpha + \mathbf{z}(\mathrm{u})^j\beta\}$ (continuous blue lines) and the correspondent 95% confidence intervals under the null hypothesis of absence of interaction, based on 999 Monte Carlo simulations (dashed blue lines). The distances d are expressed in meters. Significant spatial concentration or dispersion emerges at the distances corresponding to the peaks of $\hat{K}_{inhom,i}(d)$ outside the envelopes. To highlight the relevance of the spatial covariates employed for the estimation of the intensities, the chart reports also the K-functions estimated by $\lambda(u) = \rho\lambda^*(u)$ (continuous black lines). Sri Lankans and Romanians exhibit significant spatial attraction. Conversely, the settlement models of Greeks and Poles prove to be coherent with a random allocation at all the considered distances. Further studies are required to evaluate the

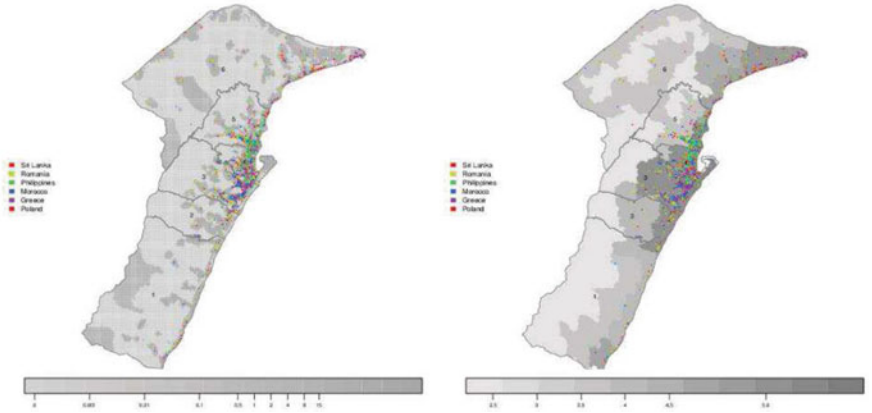

Fig. 2 Spatial distribution of foreign immigrant households in Messina

reasons underlying the different settlement patterns yielded by the various nationalities. Nevertheless, our results appear consistent with the implications of chain migration on the spatial attraction among foreign immigrants [44].

5 Conclusions

The picture emerging is that of a city that has become over time gateway to and from mainland Italy and hub of maritime traffics to some of the major Eurasian routes. An articulated infrastructural network, including the railway junction, the harbor areas, and the roadways to west and southwest, has profoundly shaped the urban arrangement of Messina. The historic reference facilities have been almost destroyed during the earthquake in 1908. The tragic event negatively affected the economic and demographic dynamics of the city since it fostered the development of the southern Etnean area and the region between Milazzo and Barcellona Pozzo di Gotto.

A significant concentration has been detected among the communities of Sri Lankans and Romanians, but also of Filipinos for distances greater than one kilometer. On the other end, the settlement patterns of Poles and Greeks appear compatible with random allocation. These results support the hypothesis of a link between chain migration and spatial attraction. A similar attraction results in clusters of foreign immigrant communities, especially within the 4th district, affecting the definition of a polycentric, heterogeneous urban identity. In addition to villages, hamlets, hill, and maritime centers that already shaped the morphology of Messina for a few centuries, clusters of foreign migrant communities currently add further elements of cultural and social pluralism. Our study corroborates the hypothesis that the most numerous foreign communities (Sri Lankans and Romanians) prefer to voluntarily segregate

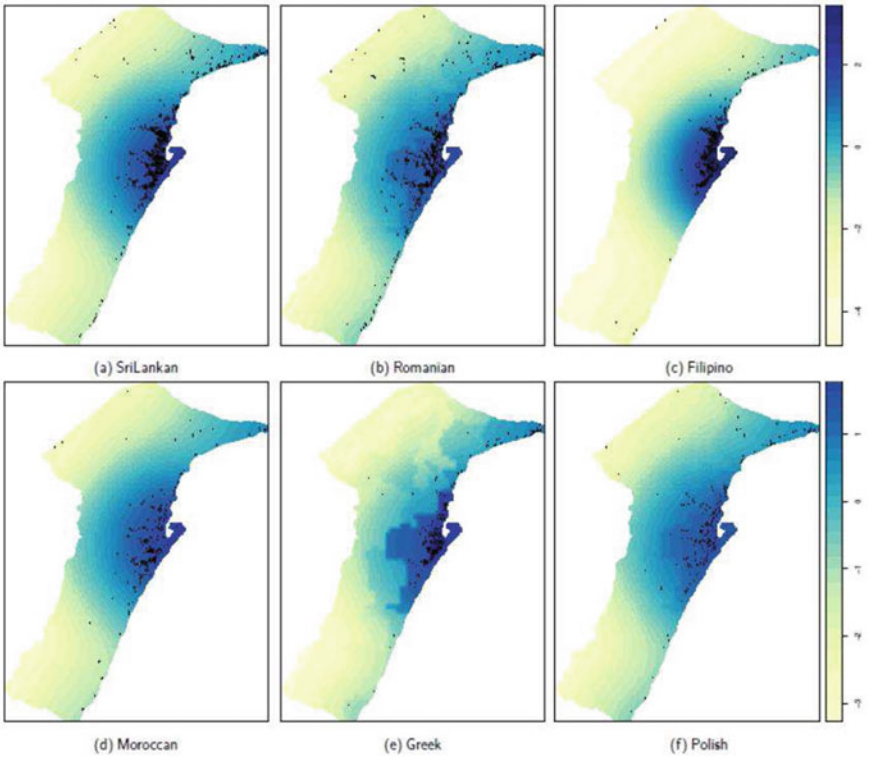

Fig. 3 Estimated spatial intensity $\widehat{\lambda}(u) = \lambda^*(u)\exp\left\{\alpha + z(u)'\beta\right\}$ for each nationality, in logarithmic scale (dots represent the household's location of the considered nationalities)

themselves within the central historic district (4th) because it represents their work area. They prefer indeed living in decrepit buildings, so to benefit from the proximity to the decent apartment blocks occupied by the middle class, where they as domestic workers or caregivers.

Messina is an intersection of stories and flows, open to the transit of travelers and goods carried by boats crossing the Strait. The city of the Strait lacks a plan aiming at realizing a new, cohesive version as a coordinating center of balanced metropolitan development. This is the reason why Messina passively suffers from its own flows and traffics instead of coordinating them. In this sense, the reinforcement of the role of Messina seems of primary interest: the real interlocutors of the city are not the neighboring hamlets and villages, but the city of Reggio Calabria to which the Sicilian city is particularly close also for the dialect having a typically Grecanic–Calabrian accent, rather than Sicilian.

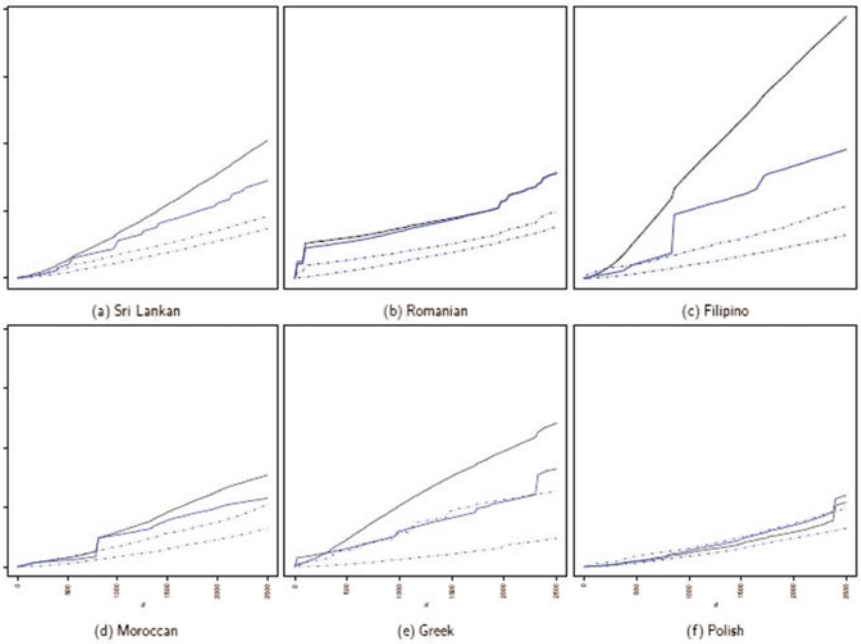

Fig. 4 Estimation of the inhomogeneous K-function

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