

Hellenic Observatory Research Calls Programme

Immigrant & Refugee Segregation Dynamics (InSert)

Research Report

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*This Project is part of the Hellenic Observatory Research Calls Programme,
funded by the A.C. Laskaridis Charitable Foundation and Dr Vassili G. Apostolopoulos.*

August 2020

Executive Summary

- The patterns of residential distribution of immigrants have been explored in two different urban settings in central Greece: Larisa, a large city where local authorities have an active, hands-on, role in refugee settlement, and Katerini, a smaller city with a community-based NGO coordinating the refugee housing provision.

Immigrants' segregation dynamics

- Since 1990 the country has experienced 2 waves of immigration of different incomer profiles: economic immigrants, coming mainly from Albania and the Balkans (1st wave) and refugees (RAS) coming mainly from Middle East (2nd wave).
- During the first two decades the intra-urban residential segregation of immigrants (of the 1st wave) was low showing a decreasing tendency in Larisa and an increasing tendency in Katerini.
- School segregation measures of the last years reveal that:
 - Immigrants' segregation is rather high, again with decreasing trends in Larisa and increasing trends in Katerini.
 - Refugee segregation is high in Larisa and medium in Katerini.
 - Refugees' location is differentiated from this of 1st wave immigrants, indicating the possible emergence of segregation between the two groups.
 - Both immigrant groups are located out of the areas where high-class natives reside.

The refugees experience and perspective

- Sporadic incidents of refugee harassment have been reported (especially during the early days of RAS settlement in the cities), along with cases of support both by local solidarity initiatives and by individuals on a personal /neighbourhood-based level.
- Neighbours and neighbourhood are an important determinant of the intra-urban location choice of refugees, whereas vicinity to co-ethnics is of lower importance, because it impedes interaction with natives and integration.
- Socialization in public space is a cultural aspect of the refugees which is less common to the local culture. It facilitates inter-group information flow, social contact and, eventually, identity reconstruction. Initially it aggravated xenophobia, but natives started to go along with it.
- Employment is a paramount determinant to refugees' location decisions. Although refugees indicate a preference for small/medium cities (due to increased security and life quality) and central locations (due to better accessibility), they are willing to move to big cities if this can ensure access to the labour market, especially related to their skills and qualifications.
- Western Europe countries remain the preferable destinations, partly due to the poor prospects of employment in Greece.

Policy reflections

- Local authorities have an important role to play towards refugee/immigrant integration.
- Yet, community-based organizations and initiatives could be quite successful in accommodating refugees and facilitating their integration. Their approach has not only been proactive, innovative and flexible but also socially acceptable and politically neutral.
- Cooperation between state-local authorities and community organizations is recommended. Allocating different tasks and responsibilities would lead to advancement of migrants' integration.
- Integration is a two-way process: host societies are also changing through engagement with refugees. It is important that the state/local authorities to understand these processes and how these dynamics affect social interaction, integration and urban transformation.
- Constant watch of the phenomenon and further studies are needed to shed light on these dynamic and complex processes.

1. Introduction

1.1 Migration context in Greece

Over the last thirty years or so, Greece has seen a substantial influx of immigrant populations. According to Word Bank (<https://data.worldbank.org/>), there were about 1.27 million immigrants (11.7% of the native population) in 2010, compared to about sixty thousand in 1991 (6.0% of the native population). Most of these people are 1st wave economic immigrants coming mainly from Europe, especially from Albania and to a lesser extent from other Balkan countries, the Central-eastern Europe, and the Republics of ex-USSR (Map 1). Asians and Africans represent a small percentage of such incomers (mostly non-nationals), whereas those from America and Oceania are largely repatriates who have returned to their homeland with their families.

Map 1: 1st wave immigrants in Greece



Source: Leonditsis et al (2020: 10)

The phenomenon has attracted increasing attention in the literature, giving rise to several studies examining the economic, social and spatial implications immigration has for the country (e.g. Lianos, 2001; Cavounidis, 2002; Lianos and Papakonstantinou, 2003; Baldwin-Edwards, 2005; Arapoglou, 2006; Rovolis and Tragaki, 2006; Maloutas, 2007b; Cavounidis et al, 2008; Kotzamanis, 2008; Arvanitidis and Skouras, 2009, Cholezas and Tsakoglou, 2009; Arvanitidis et al, 2013; Mylona, 2013). As regards its spatial impact, the general trend reported is that incomers move primarily into major urban areas, which offer anonymity and increased employment opportunities. Within the urban frame, immigrants seem to show a tendency to concentrate in the old city centres and other poor urban districts, which are characterized by low-quality, low-cost housing and lack of public facilities. This literature identifies two reasons that inform such decisions on the part of immigrants. The main explanation is economic, where incomers choose to take up residence in these areas simply because rents (or prices) are low and there is housing stock available. This is supported by cultural issues. Co-ethnics usually reside in these areas, and newcomers decide to settle there too, in order to take advantage of the social and kinship networks which offer social and emotional support and valuable information regarding the host institutions and opportunities.

In addition to the above, the country has recently, since 2012, received a substantial influx of a 2nd wave of immigrants, comprising mainly of Refugees and Asylum Seekers (RAS) coming from Afghanistan, Syria, Iraq and DR Kongo (as a result of the ongoing political instability and war in these areas) and having as ultimate destinations the countries of Northern and Western Europe (Map 2). These inflows peaked in 2015 to slow down in 2016, mainly due to the EU-Turkey Agreement (signed on March 2016) which managed to halt the flows of RAS towards the EU (Figure 1). At the same time, tight border controls and other acts taken by EU and Balkan neighbouring countries have substantially reduced uncontrolled RAS movements within the EU,

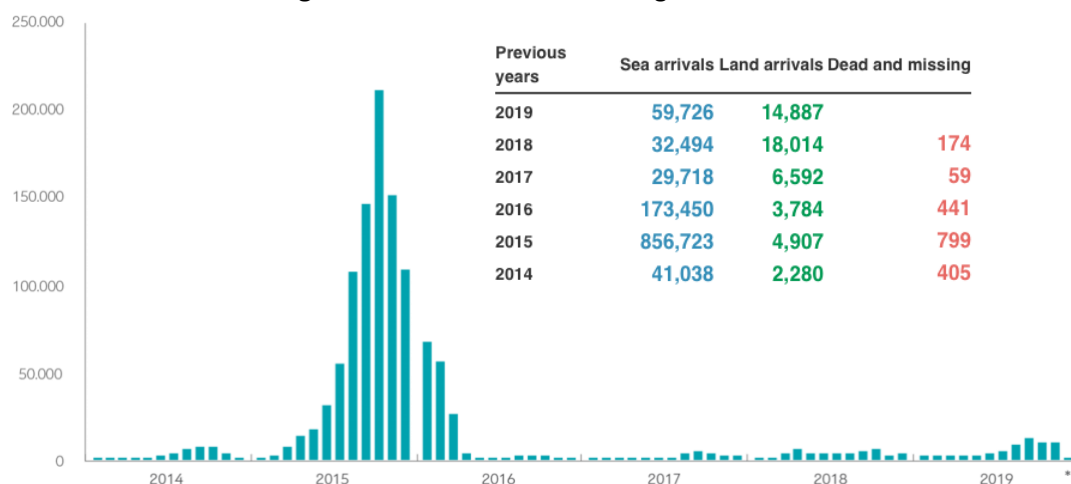
leaving sixty-one thousand RAS “trapped” in Greece for an indefinite period. This situation has given rise to concerns to both Greek citizens and the State authorities alike, regarding the spatial allocation and settlement of RAS, and the conditions of their living.

Map 2: 2nd wave immigrants in Greece



Source: Leonditsis et al (2020: 11)

Figure 1: Data of 2nd wave immigrant arrivals



Source: Adapted from Leonditsis et al (2020)

However, RAS rehabilitation, despite having a clear spatial dimension, has not become part of a solid and integrated spatial planning process on the part of the State. In fact, the criteria used for the choice of the hosting facilities were not clear and transparent to (not even discussed with) the native population, raising intense controversy both among the natives, and between the State and the local communities. This has also given rise to concerns among scholars, regarding the quality of life for both the natives and the new-comers, and the degree of their integration.

1.2 Research aim and objectives

What becomes clear from the above is the lack of knowledge regarding the overall picture of immigrants' and RAS' intraurban distribution and the complex spatial relations and dynamics among RAS, existing immigrant communities and the native populations. On these grounds, it becomes important to try to

delineate these dynamics and to shed light on the integration possibilities of all immigrants for the cohesion of the society as a whole.

By articulating the distinct experience of two typical cities in central Greece, Larisa and Katerini, the project aims to shed light on both the integration/segregation dynamics and challenges urban Greece is facing and on the complex spatial relations among RAS, existing immigrant communities and the native population.

In particular, the study sets off to:

1. assess the level and dynamics of spatial segregation of immigrants,
2. assess (and link) the spatial distribution patterns of RAS vis-à-vis the spatial patterns of both previous immigrants and the native population,
3. compare the pattern of immigrant distribution with reference to the socio-economic characteristics of native population, and
4. shed some light on the drivers and consequences of RAS locational behaviour.

1.3 Profile of the case study cities

The research examines the patterns of residential distribution of immigrants and newly arrived RAS housed through the ESTIA program (Emergency Support to Integration and Accommodation), in two different, yet typical, Greek urban settings. The one, Larisa, concerns a large city where local authorities have an active, hands-on role in refugee settlement, whereas the other, Katerini, is a small city with an NGO coordinating and managing the ESTIA scheme. Both case study cities, Larisa and Katerini, are located in central Greece, in the Region of Thessaly and Central Macedonia respectively. Key figures of the cities are provided in Table 1 and Figure 2 below.

Larisa is the largest city of the Thessaly Region and one of the five biggest cities in Greece. The city has 146,926 inhabitants, which account for more than 20% of the regional population (Hellenic Statistical Authority, 2011). Over the last two decades (1991-2011) the city experienced a steady population growth (almost 12%). Larisa is the principal agricultural area of Greece, and the administrative capital of the Thessaly Region. The regional GDP per capita is 13.638€ (at 2014) which is somewhat lower than the national average. The majority of the urban population works in the service provision and sales (26,1%); more than one fifth of the people (23,8%) are high-skilled professionals (engineers, medical doctors, teachers, lawyers) and others (19,1%) are engaged with intermediate and lower occupations (technicians and related professions, workers etc.) (EKKE-ELSTAT, 2015). Those who work in the primary sector comprise the 3,5% of the population. The percentage of non-Greeks living in the city is 4,8%, a figure that is lower compared to the regional and national average.

In 2018, under the supervision of the Municipality refugees were settled in apartments in the city of Larisa. This was part of the ESTIA programme funded by the EU Asylum, Migration and Integration Fund under the UNHCR Accommodation Scheme. Today the program supports 420 refugees. Additionally, at a close distance to the city (18 km), at Koutsohero, there is the Open Reception Facility for refugee accommodation, which has approximately 1500 people living in containers.

Katerini is a medium (in Greek terms) city of 85,851 inhabitants (Hellenic Statistical Authority, 2011). It is the capital of the Prefecture of Pieria and the second in terms of size urban area of the region of Macedonia, after Thessaloniki. A popular tourist destination, Katerini experienced steady population growth during the period 1991-2011. Most of the city's population are employed in the service provision and sales (24,5%), some (14,5%) are high-skilled professionals (engineers, medical doctors, teachers, lawyers) and others (10,3%) are engaged with intermediate and lower occupations (technicians and related professions, workers etc.) (EKKE-ELSTA, 2015). People who work in the primary sector comprise the 14,4% of the population. The percentage of non-Greeks living in the city is 5,8%, a figure which is lower than both the regional and national average.

In March 2016, when thousands of RAS were left stranded at Idomeni camp in the Northern Borders of Greece, local volunteers from Katerini, the majority of whom were people of the Evangelic Church, began to provide them with support, ending up in transferring the most vulnerable RAS into their own apartments in Katerini. After this, they established the NGO “Perichoresis” in order to support RAS people in need. The NGO operates under the auspices of the Greek Evangelic Church of Katerini and the General Synod of the Evangelical Church of Greece. At the beginning, the NGO offered shelters to a few RAS in need (about 20 apartments). Today (August 2019) it manages 137 apartments, accommodating more than 598 beneficiaries with the support of the ESTIA housing programme. Additionally, at a close distance to the city (13 km), at Kato Milia, there is the Open Reception Facility, which accommodates approximately 350 refugees.

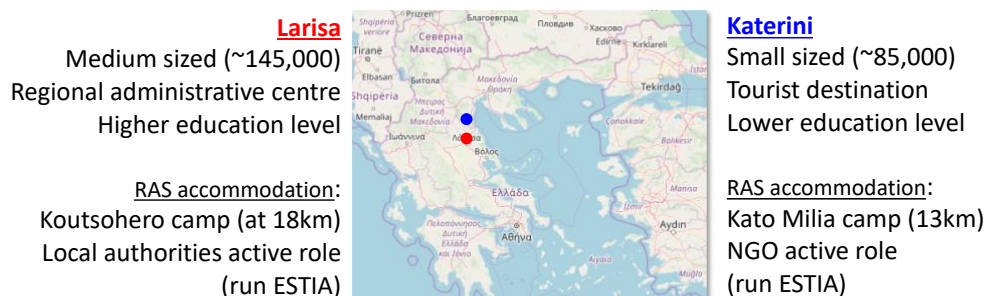
Table 1: Basic indicators of the case study cities (2011)

	Greece	Metropolitan area of Attica	Thessaly	Central Macedonia	Larisa	Katerini
Area (km ²)	131.960	3.025	14.037	18.811	88.167	112.9
Total population	10,816,286	3,793,066	732,762	1,882,108	146,926	85,851
Youth (5-19)	14.6%	13.8%	15.0%	15.3%	16.3%	17.2%
Working age population (20-64)	60.9%	67.0%	58.0%	59.8%	61.8%	61.6%
Seniors (>65)	19.5%	17.3%	22.0%	19.8%	16.0%	20.0%
Non-Greek nationals	8.4%	10.6%	6.1%	6.2%	4.8%	5.8%
Primary education; Persons 25 or over, without a school certificate, diploma or degree (ISCED 0-1) ¹	22.4%	13.9%	28.7%	22.1%	20.1%	28.5%
Lower secondary education (ISCED 2) ¹	11.4%	9.6%	11.7%	11.8%	10%	12.8%
Middle vocational education; upper secondary education (ISCED 3-4) ¹	40.5%	44.5%	36.2%	40.5%	39.0%	37.4%
Higher vocational education; tertiary education (ISCED 5-8) ¹	25.8%	32.2%	23.4%	25.7%	30.9%	21.3%
Unemployment rate	19.3%	18.0%	18.3%	20.7%	18.5%	20%
Average household income (Euro per inhabitant, 2010)	13,100	16,000	6,230	17,052	N/A	N/A
People at risk of poverty or social exclusion (2018)	31.8%	28.3%	33.6%	30.4%	N/A	N/A

¹ International Standard Classification of Education (ISCED). Among the 25- to 64-year-old population.

Source: EKKE-ELSTAT (2015), Eurostat (2018) and Alexandri et al (2017).

Figure 2: Key figures of the case studies



Source: own construction

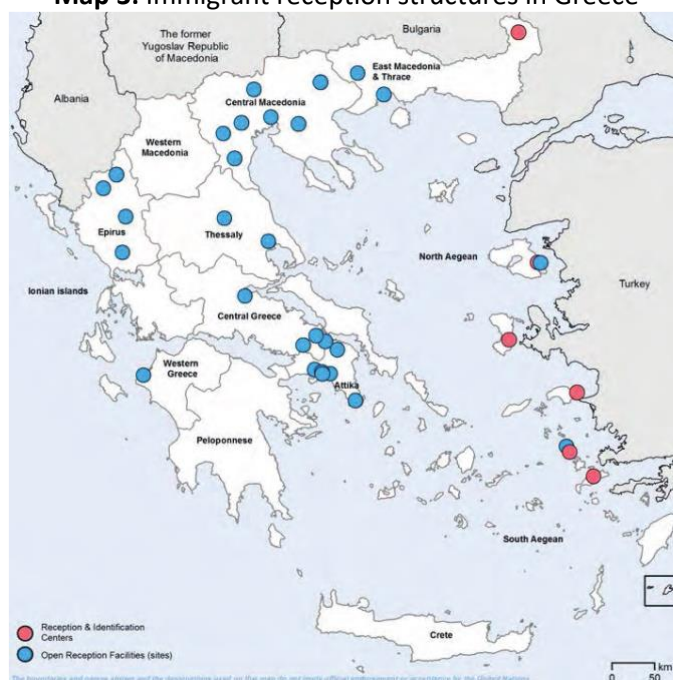
2. Immigrants' reception and accommodation policies in Greece

2.1 Laws and regulations

In response to the large refugee inflow, both the EU and Greece tightened the relevant regulations and developed a range of policies for their reception and accommodation. The new asylum law of 2016 (Greek Asylum Law 4375/2016)² established the procedure for asylum seekers and the frame for spatial allocation and accommodation of refugees. Those who arrived in Greece before 20.03.2016 were transferred from the islands to mainland accommodation facilities (under the international protection procedure), while those who arrived after the enactment of the law remain on the islands and follow another, fast-track procedure that regulates their residence in the country (Skleparis, 2018).

Overall the Greek state set up three kinds of reception and accommodation facilities for RAS (in accordance to Law 4375/2016). First, Reception and Identification Centres ('hotspots') located in the borders, for foreigners who enter Greece without documents (Map 3). They operate mainly on 5 islands of the Eastern Aegean (Lesvos, Chios, Samos, Kos, Leros), under the protection of the Greek army and the services of NGO's and International Organizations. Second, Open Reception Facilities on the mainland ('camps'), which are classified in Temporary Reception Facilities for Asylum Seekers (for persons who are exempted from the return procedure), and Temporary Accommodation Facilities (for persons subject to return procedures or whose return has been suspended). Today there are 28 Open Reception Facilities operating on the mainland and 2 on the islands of Lesvos and Leros (see Map 3).

Map 3: Immigrant reception structures in Greece



Source: UNHCR (2019)

2.2 The ESTIA housing program

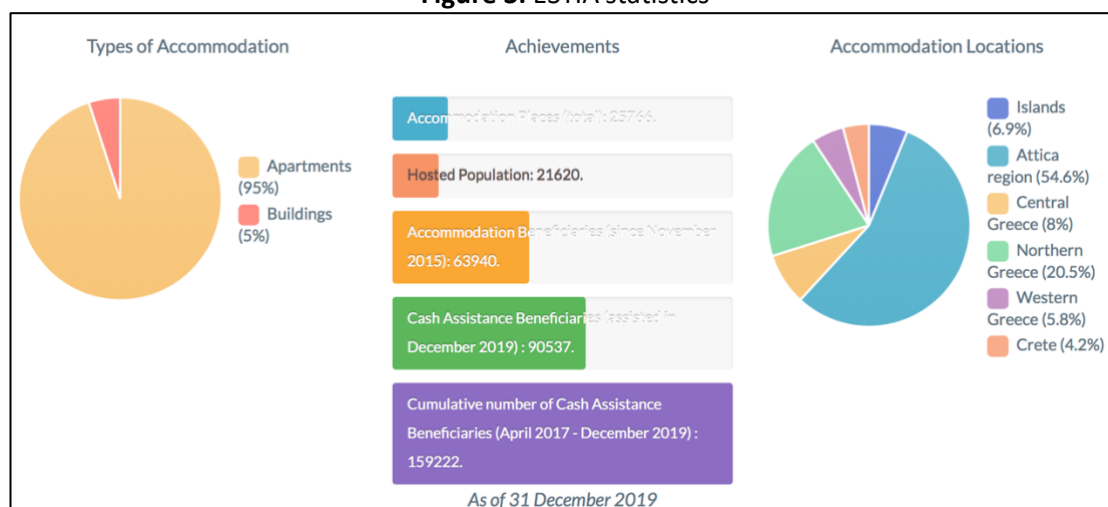
In October 2015, UNHCR in cooperation with the Greek government, municipalities and NGOs established the "ESTIA" (Emergency Support to Integration and Accommodation) program. The project provides temporary accommodation for relocation candidates and vulnerable asylum seekers through the rental of

² Formally, Law 4375/2016 on the Organization and Operation of the Asylum Service, the Appeals Authority, the Reception and Identification Service, the establishment of the General Secretariat for Reception, the transposition into Greek legislation of the provisions of Directive 2013/32/EC.

apartments and buildings (private houses, hotels). At the beginning such accommodation was provided to those RAS who were eligible for relocation or family reunification in other EU countries. Later on, the program expanded to cover the housing needs of vulnerable RAS (families with the average family size of five people, or people with serious medical condition, or single parents and people with disabilities) (Kandylis, 2019).

Since November 2015, 63,940 individuals in total have benefitted from the accommodation scheme of ESTIA program (Figure 3). As of January 2020, the program provides 26,186 accommodation places (bedrooms) of which 4,495 are apartments and 13 are buildings, in 14 cities and 7 islands across Greece. The population accommodated is 21,327 people, 6,314 of whom are recognized refugees and 14,989 are asylum seekers (50% of them are children). Currently the programme is being implemented by 11 municipalities and 12 national and international NGOs. In terms of geographical spread, over half of the accommodation places are in Attica (54%), 34% in the rest of mainland, and 12% on the islands. The occupancy rate of the programme is as high as 98 per cent (UNHCR, 2019).

Figure 3: ESTIA statistics



Source: <http://estia.unhcr.gr/en/home/>

The beneficiaries of the ESTIA accommodation scheme are families (average family size of five people), and more than one in three residents have at least one of the vulnerabilities that make them eligible for accommodation, such as a serious medical condition (11%), disability (3%), or are a single parent (3%). As regards their citizenship, the majority (88%) are Syrians, Iraqis, Afghans, Iranians or Congolese (DRC) and speak over 30 different languages as a mother tongue (UNHCR, 2019).

Between 2015 and 2018, out of the 189,851 people that applied for asylum (Asylum Service, 2019), only 57,145 were hosted in ESTIA social apartments (UNHCR, 2019). The majority of refugees received accommodation in hotspots, camps and other buildings that the state employed and runs for this purpose (such as warehouses, tourist facilities, ex-industrial buildings, etc.), most of which are located at a certain distance from the urban centres (and notably in proximity to main highways) and confront certain problems in their operation (Kreichauf, 2018). These conditions aggravated the social integration of RAS and according to Kourachanis (2019) had negative implications for the implementation of the ESTIA programme.

2.2 The HELIOS integration program

Some of the critiques of the ESTIA housing program were that it didn't provide any other actions for the social integration of RAS, e.g. Greek-language lessons, preparation for entering labour market, etc. (Kourachanis, 2019). In order to combat social exclusion and promote the integration processes, the Greek state, in cooperation with IOM (International Organization for Migration) and with the support of the Asylum,

Migration and Integration Fund of the European Union, established in June 2019 the 'Hellenic Integration Support for Beneficiaries of International Protection - HELIOS' project (IOM, 2019).

The duration of the project is from June 2019 to November 2020 and it aims to promote integration of beneficiaries into the Greek society and enhance their independent living through integration courses, accommodation and employability support of RAS, currently residing in temporary accommodation schemes. The programme is still in its infancy and it remains to be seen how it will be applied in practice and the results it will have.

2.3 Refugee education

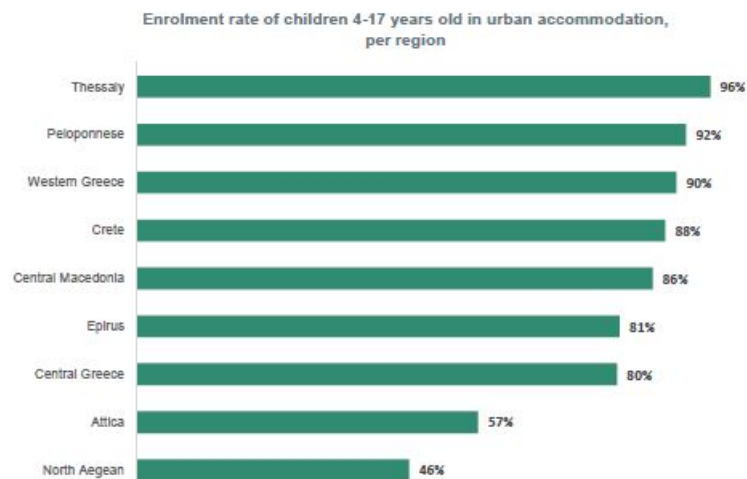
The concentration of refugee children of school age in the accommodation facilities gave rise to concerns regarding the education of these people. This is because, according to Greek Law, all children, regardless of their legal status, have a right to education. As such, a new law (Law 4415/2016) enacted in 2016 to regulate the intercultural and refugee education in the country, aiming to build relationships between different cultural groups and to eliminate inequalities and social exclusion. According to it, special preparatory reception classes (Reception Structures for Refugee Education - ΔΥΕΠ) were established either within the camps or in existing public-school facilities located close to them (assigned by the Ministry of Education, in cooperation with the local authorities and the local Directorates of Education), for refugee children aged between 6 and 15 to acquire basic education. Children of 4 to 5 years old are eligible to kindergarten facilities provided within the accommodation areas with the support of UNHCR and NGO's.

In most cases, classes take place in evenings, and thus RAS children are not mixed with native students. On these grounds they are not only de facto segregated at the intra-urban level, but the situation is expected to remain unchanged due to the spatial segregation of the refugee accommodation and the temporary character of their residence in the country. Yet, there are schools which operate reception classes (in Zones of Educational Priority - ZEP) where RAS students are mixed with natives. This results in high integration dynamics.

As of August 2019, the number of refugee and immigrant children was about 34,800, including more than 4,000 who were unaccompanied and separated, an increase from 27,000 in December 2018. Of these, 58% live in urban areas (apartments, hotels, shelters, self-settled, etc.); 25% live in accommodation sites or reception centres and 1% live in safe zones for unaccompanied children. A further 16% are in Reception and Identification Centres on the islands.

As of June 2019, 12,800 refugee and migrant children of 4-17 years old were enrolled in schools across Greece (Figure 4). The majority of them were on the mainland. In contrast, the education provision in Eastern Aegean islands (as well as in Attica) remains problematic. According to a Human Rights Watch report only 15% of migrant children on the Greek islands were enrolled in formal education at the end of the 2017-2018 school year (Council of Europe, 2018).

Figure 4: Enrolment of RAS children 4-17 years old (June 2019).



Source: Education Sector Working Group-UNHCR (2019)

3. Research methodology

3.1 Spatial segregation

The location preferences of immigrants, as well as any minority group in general, and the spatial patterns that result from their decisions have been discussed in the literature under the theme of spatial or residential or ethnic 'segregation', defined as the unequal distribution of minority groups across space (Musterd, 2005). This is because segregation is usually associated with prejudice, discrimination and isolation, especially in an ethno-cultural context. Moreover, spatial segregation has important implications for minorities' quality of living, employment opportunities, education, access to services and amenities (health, social), exposure to crime, etc. (Peterson and Krivo, 1993).

Segregation process and the reproduction of spatial disparities can be described also, as a series of casual systemic relations which mediated through institutional interventions and the local historical environments. These systemic relations take the form of the socio-spatial structures of the cities which include social relations and the ideology of the host society (Maloutas, 2018). In this framework, different formal arrangements (state and institutional) take place for social regulation: First, state intervention for the regulation of the economic inequality which is produced by the labour market and the ethno-racial discrimination, which may ultimately lead to spatial differentiation between relatively unequal and less unequal cities. Second, in the access to affordable housing, as a regulation measure of unequal access to housing due to class and ethno-racial segregation. These interventions affected the degree and the form of segregation in cities and sometimes lead to undesirable results (e.g. massive residential complexes in West and North Europe) (Marcuse and van Kempen, 2002). Third, institutional intervention is connected to positive or negative neighbourhood effects and the characteristics of specific residential areas. In these areas, interventions, for example in mixed neighbourhoods, mitigated or enhanced social segregation, in different ways (Maloutas, 2018). Moreover, welfare state arrangements are crucial in the analysis of the spatial dimension of social exclusion and integration and of state interventions (see *inter alia*: Musterd and Ostendorf, 1998, Hamnett, 1996, Musterd et al, 2006). More recently, Maloutas and Fujita (2012) developed a framework (analysing the economic, the state and the social spheres) used in an international comparative segregation study, to explore the relationship between socio-economic inequalities and spatial segregation at city level.

Two major streams of explanation have been put forward with regard to the reasons behind the development of the various patterns of spatial segregation: socio-cultural and economic (Kempen and Ozueken, 1998; Musterd, 2005; Brown and Chung, 2008; Musterd and van Kempen, 2009). Socio-cultural explanations argue that immigrants tend to locate close to each other in order to take advantage of their closely-integrated social

networks and to retain valued elements of their cultural heritage, such as language and religion (Boal, 1976; Hugo, 1996; Dunn, 1998; Cutler et al, 1999; Floyd, 1999). These pull factors are reinforced by natives' discrimination and reluctance to live next to immigrants (Yinger, 1995; Semyonov and Glikman, 2009; Cutler et al, 1999; Charles, 2000) and their decisions to fly out of, or avoid, areas of high immigrant concentration (Charles, 2006; Krysan and Bader, 2007; Pais et al, 2009; Crowder et al, 2011).

Economic explanations draw attention to the functioning of both the labour and the housing markets, asserting that immigrants tend to concentrate in specific areas of the city, usually the least expensive or even deprived ones (Arbaci, 2007; Tammaru et al, 2015; Magante and Luca, 2018), due to income and information limitations (Massey, 1985; Bartel, 1989; Boal 1996; Cassiers and Kesteloot, 2012). These arise, first, because immigrants are usually low-skilled, low-paid, unemployment-prone workers (Tripier, 1990; Ulrich, 1994), and, second because they are faced with both restricted access to housing and other information regarding the institutional mechanisms of the host society (Yinger, 1986; Kesteloot, 1995; Petsimeris, 1995; Pacione, 1996; Floyd, 1999; Clark, 2002; Semyonov and Glikman, 2009; Cassiers and Kesteloot, 2012).

Relations between native and migrant communities have been discussed by "intergroup contact" and "group threat" theories (Eger and Bohman, 2016). The former support that interpersonal interactions with migrant communities will decrease prejudice, whereas the latter suggest that the dispute between natives and immigrants is a result of the competition for scarce resources, employment, welfare/social benefits and political power. However, the question of which theory is more appropriate depends on the level of the analysis and the perspective by which the researcher approaches the issue (Weber, 2015).

3.2 School segregation

School segregation refers to uneven distribution of pupils across schools on the basis of differentiation with regard to socioeconomic, ethnic or other characteristics (Ball, 2003). School segregation not only reflects existing social-spatial inequalities but also generates mechanism which maintain and reproduce them (Boterman et al, 2019). There are different educational systems and ways that children are distributed to schools and thus different mechanisms of such inequalities reproduction.

According to the literature, segregation patterns in schools reflect the distribution of ethnic or other minority groups across city neighbourhoods (Boterman, 2018; Burgess et al, 2005). Yet, this relation is not always so straightforward and it is mediated by a number of factors such as, the characteristics of the education system, the institutional arrangements in each city, the overall urban dynamics and the qualities of the housing market (Boterman et al, 2019).

The behaviour of high and middle-class families with regard to the joint consumption of housing and education is a key mediator of these socio-spatial dynamics with profound implications for both the education system and the segregation dynamics in the cities. These behaviours take many forms, such as avoiding certain schools and residential locations (Van Zanten, 2001), transferring, through a school-bus system, their children in private schools at affluent neighbourhoods (Fernandez Enguita, 2005; Maloutas, 2007a) or choosing another public school outside their residential area though, for example, the use of false addresses (Vergou, 2017, 2019).

These strategies are less evident in Greek cities because the system of school catchment areas obligatorily allocates children to schools that are at the immediate vicinity of their residence. School enrolments, therefore, are controlled by the state and mirror the local population characteristics and environment (its ethnic and socio-economic composition). This means that there is a strong correlation between school segregation and socio-residential segregation.

3.3 Measuring segregation

There is a massive literature (going back to the '50s) that has discussed the issue of spatial segregation and developed a range of measures to assess it (Arvanitidis and Skouras, 2009). Massey and Denton (1988) explored this literature and classified the indices developed under specific dimensions which reflect different aspects of segregation. Of the dimensions they identified, three are deemed most relevant to the current project: evenness, exposure and concentration, which are discussed next.

Evenness indicates the differential distribution of the subject population, specifying the extent to which its members prefer to locate close to each other (i.e. to cluster together). If all spatial units have the same relative number of people under examination, segregation is the minimum. The most common used indicator of this dimension is the dissimilarity index (Duncan and Duncan, 1955a, 1955b).

$$\text{Dissimilarity (D)} = \frac{1}{2} \sum_{i=1}^n \left| \frac{X_i}{X} - \frac{Y_i}{Y} \right|$$

where X_i is the minority population of the area i , X is the total minority population, Y_i the majority population of the area i , and Y is the total majority population of the area. The index varies from 0 to 1, whereas 1 indicates the highest dissimilarity.

Exposure denotes the likelihood of interaction between groups. More specifically, it refers to the extent that people belonging to one group are mixed with people of other groups or remain spatially isolated in their local spatial environments. On these grounds, the two common measures of residential exposure are the isolation and the interaction indices (Bell, 1954). Both measures range from 0 to 1 and are calculated as follows:

$$\text{Isolation (I)} = \sum_{i=1}^n \left(\frac{X_i}{X} \right) \left(\frac{X_i}{T_i} \right) \quad \text{Interaction} = \sum_{i=1}^n \left(\frac{X_i}{X} \right) \left(\frac{Y_i}{T_i} \right)$$

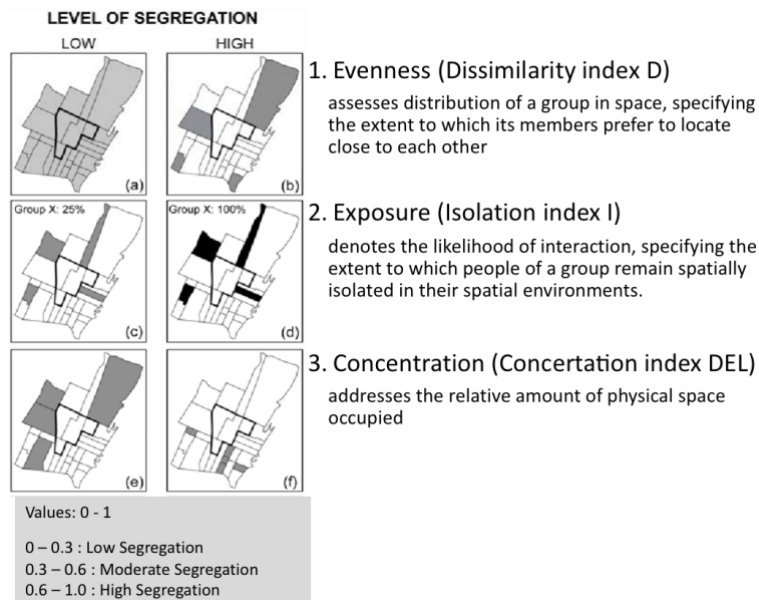
where X_i is the minority population of the area i , X is the total minority population, T_i is the total population in the area i and Y_i is the majority population of the area i . As can be seen, the isolation index is the probability of a member of a minority group to meet a member of the same group, whereas the interaction index is the probability of a member of the majority group to share an area with a member of the majority group.

Concentration describes segregation in terms of the relative amount of physical space the minority group occupies. In these terms high concentration of a group exists when its members are closely located in a small area. The main concentration index is the one called "Delta" (Duncan et al, 1961; Hoover, 2011), calculated as follows:

$$\text{Delta (DEL)} = \frac{1}{2} \sum_{i=1}^n \left| \frac{X_i}{X} - \frac{A_i}{A} \right|$$

where X_i is the minority population of the area i , X is the total minority population, A_i is the acreage of the land area i , and A the total acreage of the study area. The values of this index range from 0 to 1, where the higher the value, the more concentrated the group under examination is.

Figure 5: Classic segregation indices



Source: own elaboration

All the above, now classic, indices of spatial segregation (concisely provided in Figure 5, above) are in a sense a-spatial because they deal with space implicitly. They equate segregation with some organizational unit that has a spatial substance (e.g. a city, a neighbourhood, a school catchment area, etc.) ignoring the real and relative location of the members of populations examined. This urged scholars to seek approaches that take into explicit account the locational character of segregation. As a result, several spatial indices have been developed (e.g. Feitosa et al, 2004) incorporating the physical distance between members of groups at various spatial units. Yet, these techniques cannot be used in the current study since there is no such information available for immigrants in Greece (see also the discussion on data limitations below).

Apart from the indices, other means of portraying segregation at the local level are simple measures of relative magnitude of the phenomenon and cartographic techniques and measures. Due to data limitations, we used simple measures of local relative magnitude and we mapped it with regard to the school catchment areas.

The simple cartographic display of segregation was accompanied with the assessment and mapping of another, more advanced, cartographic metric called Standard Deviational Ellipse (SDE). This is a measure of directional distribution, which depicts in a two-dimensional space the dispersion or spread of the phenomenon under study. In particular, the technique calculates the standard deviation of the x-coordinates and y-coordinates from the mean centre, to define the axes of the ellipse (or ellipsoid). This allows us to see if the distribution of features is elongated and hence has a particular orientation.

Other measures that sometimes are used to assess spatial phenomena are Global Moran's I measure of spatial autocorrelation, Hot Spot Analysis and Optimized Hot Spot Analysis. These, however, cannot be employed in the current study due to the limited number of spatial units that were available (less than the 30 required for a reliable such analysis).

3.4 Levels of analysis, data and limitations

Segregation in general can be thought of as the extent to which different groups of people occupy or experience different socio-spatial environments (Reardon and O'Sullivan, 2004). Thus, in order to specify the phenomenon, we have to quantify the spatial behaviour of the group we are interested in (immigrants, RAS, etc.) with reference to the socio-spatial context under study (residence, education, etc.) and the spatial unit used as the focus of reference (whole city, neighbourhood, school area, etc.).

Data availability and constraints informed our decision of the measures to be used at different spatial scales. At the intra-urban level two sources of data are available in Greece. The national Census, conducted every decade, provides population data per ethnic group at the very low level of census track. These data are available for the years 2001 and 2011. In addition, school enrolment data per ethnic group were acquired for all primary schools of the two case-study cities. These data were made available for academic years 2014-2015, 2015-2016, 2016-2017, 2017-2018 and 2018-2019.

As can be seen, census data are quite detailed (get into low spatial levels) but they are today (almost ten years later) rather outdated. We used these data to assess the segregation level and dynamics of various immigrant groups (see Table 2) for the whole city. School enrolment data, on the other hand, exists at one spatial level and are available for just a few recent years. We used them to assess segregation at local level and as a spatial unit for the mapping of the phenomenon in space.

Table 2: Immigrant groups examined (origin of immigrants)

Balkans	Albania, Bulgaria, Romania, Serbia, Kosovo, Montenegro, Bosnia-Herzegovina, Croatia, Slovenia, Republic of North Macedonia
EU Balkans	Bulgaria, Romania, Croatia, Slovenia
Non-EU Balkans	Albania, Republic of North Macedonia, Serbia, Kosovo, Montenegro, Bosnia-Herzegovina
Ex-USSR, non-EU	Russia, Ukraine, Uzbekistan, Kazakhstan, Azerbaijan, Belarus, Tadjikistan, Turkmenistan, Georgia, Armenia, Moldova, Kirgizstan
Refugee Countries	Syria, Afghanistan, Iraq (Mostly) (Asylum Service, 2019).
Middle East	Egypt, United Arab Emirates, Jordan, Iraq, Iran, Qatar, Kuwait, Lebanon, Bahrein, Palestinian Territories, Saudi Arabia, Syria, Oman, Yemen, Turkey
Wider Middle East	Egypt, United Arab Emirates, Jordan, Iraq, Iran, Qatar, Kuwait, Lebanon, Bahrein, Palestinian Territories, Saudi Arabia, Syria, Oman, Yemen, Turkey, Algeria, Libya, Morocco, Tunisia, Soudan, Somalia, Eritrea, Afghanistan
Latin America	Argentina, Bolivia, Brazil, Chile, Colombia, Equator, Falkland Islands, French Guinea, Guinea, Paraguay, Peru, Suriname, Uruguay, Venezuela
North Africa	Egypt, Algeria, West Sahara, Libya, Morocco, Soudan, Tunisia
Rest Africa	Africa minus North Africa
Africa (all)	Egypt, Ethiopia, Ivory Coast, Algeria, Gambia, Gabon, Ghana, Guinea, Guinea-Bissau, Eritrea, Eswatini, Zambia, Zimbabwe, Equatorial Guinea, Cameroon, Central African Republic, Kenya, Comoros, Republic Congo, Democratic Republic of Congo, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Benin, Botswana, Burkina Faso, Burundi, Namibia, Niger, Nigeria, South Africa, South Sudan, Uganda, Cape Verde, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Soudan, Tanzania, Djibouti, Tongo, Chad, Tunisia
South Asia	Afghanistan, Pakistan, India, Bangladesh, Nepal, Butane, Sri Lanka, Maldives
East Asia	China, North Korea, Japan, Taiwan
Southeast Asia	Burma, Thailand, Malaysia, Singapore, Cambodia, Laos, Vietnam, Brunei, Indonesia, Philippines
Asia (all)	Afghanistan, Pakistan, India, Bangladesh, Nepal, Butane, Sri Lanka, Maldives, China, North Korea, Japan, Taiwan, Burma, Thailand, Malaysia, Singapore, Cambodia, Laos, Vietnam, Brunei, Indonesia, Philippines

Source: own elaboration

3.4 Interviews

In order to explore in depth the drivers of RAS behaviour and the experiences so far, we used qualitative techniques whereas relevant information was collected through interviews with refugees and key local policy informants (i.e. local government officials, officials from the Directorates of Primary Education, the regional

Coordinators for the Education of Refugees, and representatives of local agencies and the NGOs involved) in both cities under study (see Appendix). The interviews were conducted in June, July, and September 2019, at dates where respondents made themselves available to the research team.

As regards specifically the refugees, we carried out 13 interviews in total with people accommodated through the ESTIA programme. These were presented to us by the agents who run the programme in each city: that is DIKEL (a municipality enterprise) in Larisa and the NGO 'Perichoresis' in Katerini. In Larisa, interviews were conducted with 9 beneficiaries of the 1st phase of ESTIA, whereas in Katerini, interviews were conducted with 4 individuals benefited by the 2nd phase of ESTIA.

As regards the interview process, initially the organizers (DIKEL and Perichoresis) contacted the relevant individuals, informed them about the research aims and obtained their consent to participate in the study. Moreover, prior to the interview the research team informed each interviewee of the purpose of the study and the institutions involved (University of Thessaly and Hellenic Observatory of LSE), acquiring also their oral consent to participate. The Larisa refugees were not able to communicate efficiently in English and official translators were used. These were made available by DIKEL. In Katerini, all respondents were interviewed in English. All interviews took place on the premises of the agencies that organised the meetings and were conducted jointly by two members of the research team (always a pair of female and male) in order to maximise the information we could get, to enhance familiarity and to increase the accuracy and reliability of the approach. Yet, both the intermediation of the translators, in Larisa, and the use of English (not the native language of the interviewees) in Katerini, might have influenced the answers acquired. Despite the language limitations, the interviews provide useful insights about the settlement trajectories of the individuals and their experiences in the local society.

The basic interview structure and the questions asked to RAS were the same to all interviews. All questions were open-ended and the interviews conducted in a relaxed conversational manner. Permission for recording the interviews was asked but since in most of the cases people felt rather uncomfortable with this, we did not proceed with the recording. In turn, extensive notes were taken by both researchers and typed up soon after the interviews. The questions and the information acquired from the interviewees were the following:

- Personal data: their gender and age, place of origin, refugee status, education level, profession and employment in the home country, and family composition.
- Their moving trajectories (since their entrance in Greece).
- Demographic information about their children (number, gender and age), especially of those attending school, and the problems they have encountered there (e.g. isolation from teachers, classmates, or incidents with native parents) or elsewhere.
- The characteristics and the conditions of their housing, in terms of its size, quality, facilities and location.
- Their criteria for choosing both a house in general and residential location. In particular we asked them to rank the following parameters in terms of importance in such decisions: vicinity with co-ethnics, location accessibility, friendly neighbours, house of good quality/facilities.
- Their current networks and socializing practices. These include questions like: if they meet and how regularly with people from their own country, other refugees, people of the same religion, or with Greeks, and if they attend or participate in any kind of social activities (football clubs, associations, etc.).
- Their current and prospect employment. These questions were exploring if they are currently employed and in what kind of job, if they are looking for a job or are willing to get a job in this country; if so, what kind of job they are looking for, if they encounter obstacles in this endeavour and what kind.
- Issues, aspects, problems, etc. that are deemed they put an obstacle in their integration process.
- How they see their mid- to long-term prospects in terms of place of residence; whether they think that they will go back to their country, stay in Greece (and if yes, whether they will stay in the city they live now, or not), or they will move to another country and if so which one.

As regards the profile of the refugees interviewed, they were 3 females and 10 males and their age ranged from 26 to 49 years old. In terms of country of origin, the largest group was from Syria (9), two self-identified as Kurdish from Syria and two came from Iraq. The education level ranged from middle to high and their

previous employment was mainly in services, ranging from technical (plumber, electronics) to high (pharmacist, architect, judge). Their length of stay in the Greece varied from one to three years. Four people were currently employed while the others were unemployed, and some have enrolled in educational language courses.

Interviews were also conducted with key people of the agencies engaged with the settlement and education of RAS in each city (Municipality representatives, NGO's, and coordinators of refugee education). In the city of Larisa, they were the deputy mayor of Social Policy and Educational Activities, the head of the Directorate of Primary Education and the regional Coordinator for the Education of Refugees. In the city of Katerini they were the Mayor, the municipality Coordinator for Refugee Issues, the regional Coordinator for the Education of Refugees and representatives of the NGO Perichoresis.

As regards the interview process, a slightly different (to RAS) approach was followed. Although we had set a basic interview structure with a number of key questions, in practice it was proved difficult to constrain informants within this frame. On these grounds the structure and the flow of the interviews were much looser and more conversational, leaving the interviewees to express freely their views and experiences on the issues under study (especially regarding the dynamics of socio-spatial segregation of RAS). The questions we posed concerned how local populations perceive the immigrants and especially the newcomers, what problems RAS encounter in their settlement, what strategies and relevant policies have been deployed by their agencies (in terms of RAS housing and education) and how effective these have been.

All collected information was analysed in a qualitative manner. Following the typical protocol for such studies (Bryman, 2004), content analysis and corresponding coding was used, allowing cross-referencing between the profile data and key categories that emerged through the fieldwork.

4. Residential and school segregation of immigrants in Larisa

4.1 Ethnic composition and residential segregation

Table 3 outlines the ethnic composition in Larisa, as it is depicted in the last two national censuses. We see that between 2001 and 2011 the total population of the city increased by about 12% whereas the immigrant population increased by about 30%. The immigrant population constituted 4.12% of the total in 2001, while there has been a slight increase ten years after (4.77%). Both in 2001 and 2011, the major immigrant group are Albanians. In 2011 they comprised 76.8% of the total number of immigrants, followed by Romanians (7.6%), Bulgarians (3.5%) and Russians and Ukrainians (2.1%).

Immigrants from the Wider Middle East increased from 27 to 266 people between 2001 and 2011, whereas people from Refugee Countries (Syria, Afghanistan, Iraq) also increased from 10 to 170. However, they remain a small percentage of the total and the immigrant population of the city. So do Asians who comprise 0.15% of the total population.

Table 3: Population of ethnic groups in Larisa

Group	2001		2011		Change between 2011-2001
	Absolut number	% in total population	Absolut number	% in total population	
Total Population	127302	100%	142693	100%	12.1%
Natives	120956	95.015%	133838	93.794%	10.7%
Immigrants	5246	4.121%	6814	4.775%	29.9%
Albania	4663	3.663%	5234	3.668%	12.3%
Refugee Countries	10	0.008%	170	0.119%	1600.0%
Middle East	21	0.016%	108	0.076%	414.3%
Wider Middle East	27	0.021%	266	0.186%	885.2%

Source: EKKE-ELSTAT (2015) and authors' elaboration (Number of Spatial Units = 125)

Table 4 shows the levels and change of residential segregation indices for selected immigrant groups between 2001 and 2011. The overall picture is that segregation in the city is generally low and reducing. Given that Albanians comprise the majority of immigrants (88.9% in 2001 and 76.8% in 2011) it is not surprising that their index levels are similar. Moreover, the index values of “Refugee Countries” and “Wider Middle East” are somewhat extreme, and to a degree, less reliable, due to the fact that the actual number of these people is very small.

As regards the dissimilarity index we observe that its values for the totality of immigrants (and Albanians) is generally low, whereas for RAS from “Refugee Countries” and “Wider Middle East” the index is high. Yet, for all immigrant groups dissimilarity is reduced from 2001 to 2011. In turn, isolation is very low but increases both for “all immigrants” and for immigrants of the 2nd wave (coming from “Wider Middle East” or the “Refugee Countries” in particular). Concentration shows a similar to dissimilarity pattern: relative low-medium for all immigrants, high for RAS countries and reducing over time for all groups.

Table 4: Residential segregation indices in Larisa

Group	Evenness			Exposure			Concentration		
	Dissimilarity Index (D)			Isolation Index (I)			Delta Index (DEL)		
	2001	2011	change	2001	2011	change	2001	2011	change
All Immigrants	0.299	0.262	-12.2%	0.080	0.087	8.8%	0.573	0.457	-20.3%
Albania	0.306	0.260	-14.8%	0.072	0.055	-22.8%	0.574	0.485	-15.5%
Refugee Countries	0.961	0.826	-14.1%	0.002	0.025	825.0%	0.963	0.813	-15.5%
Wider Middle East	0.890	0.750	-15.7%	0.002	0.056	1917.6%	0.916	0.751	-18.1%
Russia & Ukraine	0.583	0.463	-20.6%	0.004	0.003	-2.8%	0.738	0.524	-29.0%

Source: EKKE-ELSTAT (2015) and authors' elaboration

4.2 School composition and segregation

Table 5 outlines the ethnic composition of primary-school pupils in Larisa. As we see, immigrants comprise about 1.5% of all pupils, with most being Albanians. RAS pupils appear just in 2017 and a year later come to comprise about one third (28.06%) of the immigrant students. They come from Syria, Iraq, and Afghanistan and a few from Lebanon.

Table 5: Pupil ethnic composition in Larisa (Spatial Units=30)

Group	2014-15	2015-16	2016-17	2017-18	2018-19(Feb)	2018-2019
Total pupils	9671	9903	9963	9752	9636	9589
Natives	9415	9815	9875	9622	9410	9411
Immigrants	256	88	88	126	120	139
Albanians	238	85	81	119	111	130
Refugees	0	0	0	4	106	39
<i>Balkans</i>	251	87	84	126	116	136
<i>Middle East</i>	0	0	0	2	96	33
<i>Wider Middle East</i>	1	0	0	4	106	39

Source: own elaboration

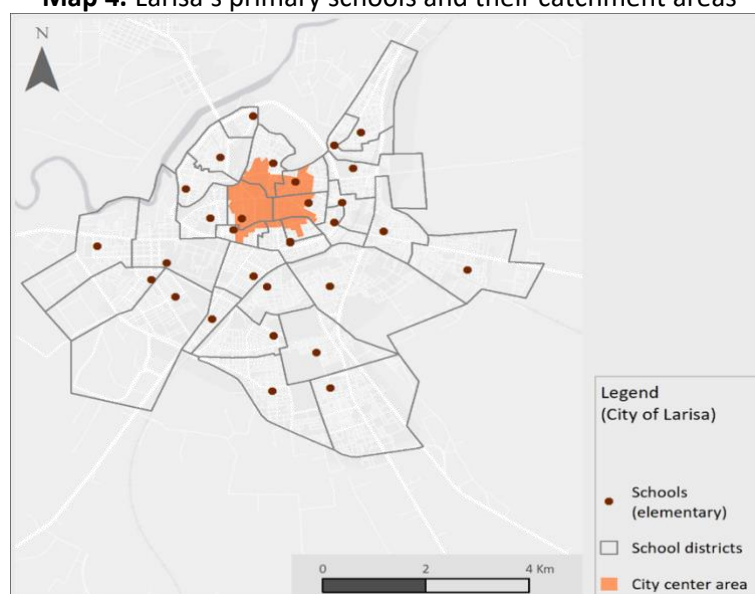
Table 6 provides the school segregation indices for the whole city. For all immigrant, as well as for Albanians, dissimilarity and concentration is high, whereas isolation is very low. Up to 2017 dissimilarity and concentration indices for these two groups increased and started to drop over the last two years. Exactly the opposite seems to be the case of their isolation. As regards the segregation of RAS pupils, dissimilarity and concentration are very high and slightly decreasing, whereas isolation is very low. The overall picture is that student segregation of all groups is rather high showing trends of stabilization or reduction over the last years.

Table 6. School segregation indices in Larisa

	2014-15	2015-16	2016-17	2017-18	2018-19
Dissimilarity index (D)					
All immigrants	0.499	0.770	0.795	0.732	0.695
Albanians	0.519	0.770	0.795	0.731	0.693
Refugees	-	-	-	0.939	0.812
Isolation index (I)					
All immigrants	0.062	0.054	0.043	0.052	0.055
Albanians	0.059	0.051	0.041	0.051	0.052
Refugees	-	-	-	0.009	0.046
Delta index (DEL)					
All immigrants	0.646	0.777	0.859	0.794	0.779
Albanians	0.665	0.777	0.859	0.794	0.779
Refugees	-	-	-	0.935	0.890

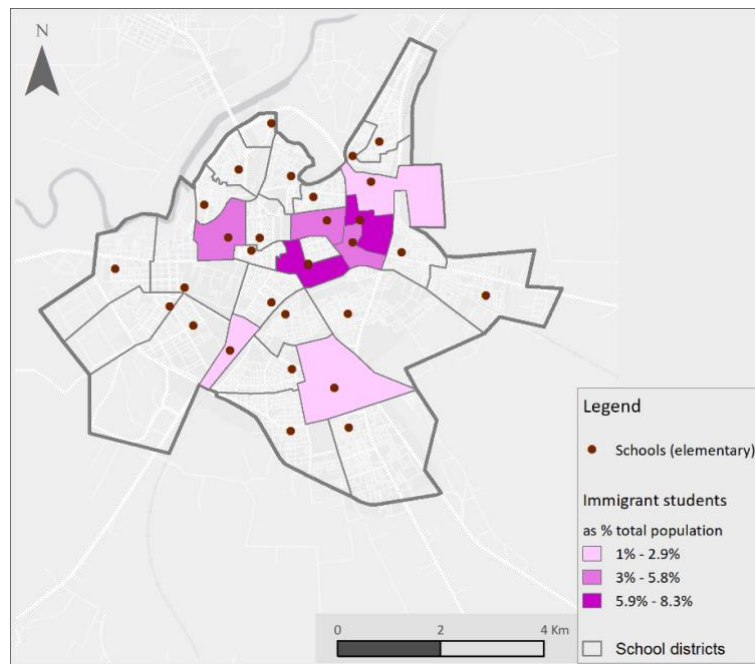
Source: own elaboration

In order to depict the school segregation within the city we used simple cartographic techniques. Map 4 displays school catchment areas (our unit of analysis) along with the location of primary schools and the downtown area of the city, whereas Maps 5 and 6 display the 1st and the 2nd wave immigrant pupils as percentages of the whole school population for the last examined year (2018-19). As becomes evident, the 2 groups are differentiated in space, occupying different locations. Whereas 1st wave immigrants are rather concentrated at the centre-east part of the city, the RAS pupils (and consequently, their families) are more dispersed and are located at the north-west part of the Larisa.

Map 4. Larisa's primary schools and their catchment areas

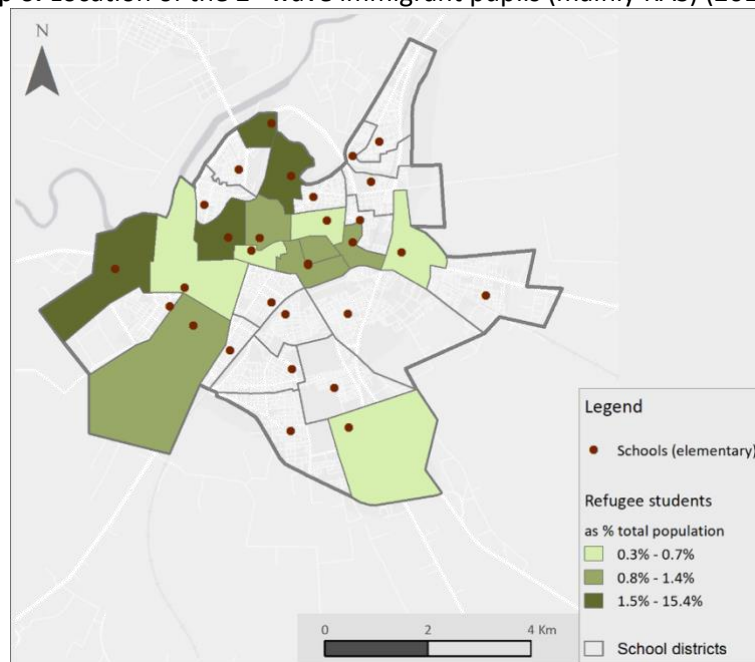
Source: own elaboration

Map 5: Location of the 1st wave immigrant pupils (mainly Albanians) (2018-19)



Source: own elaboration

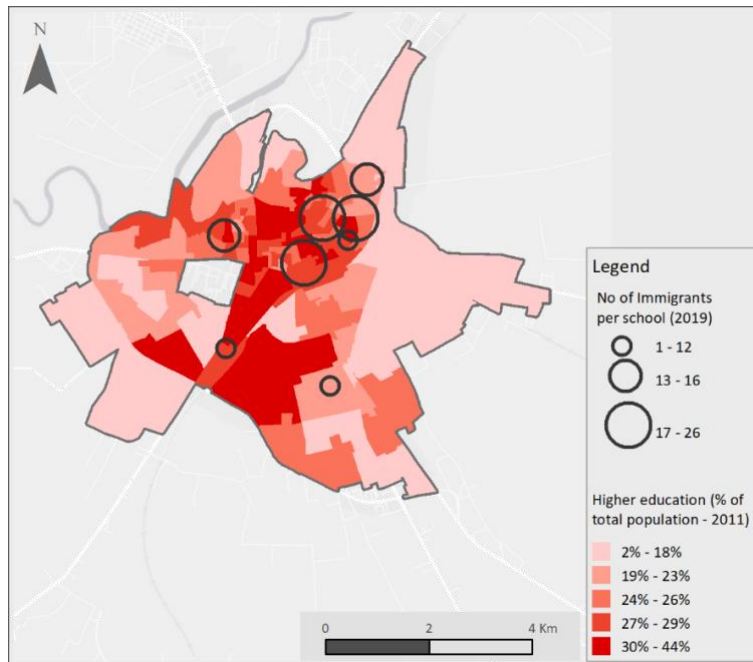
Map 6: Location of the 2st wave immigrant pupils (mainly RAS) (2018-19)



Source: own elaboration

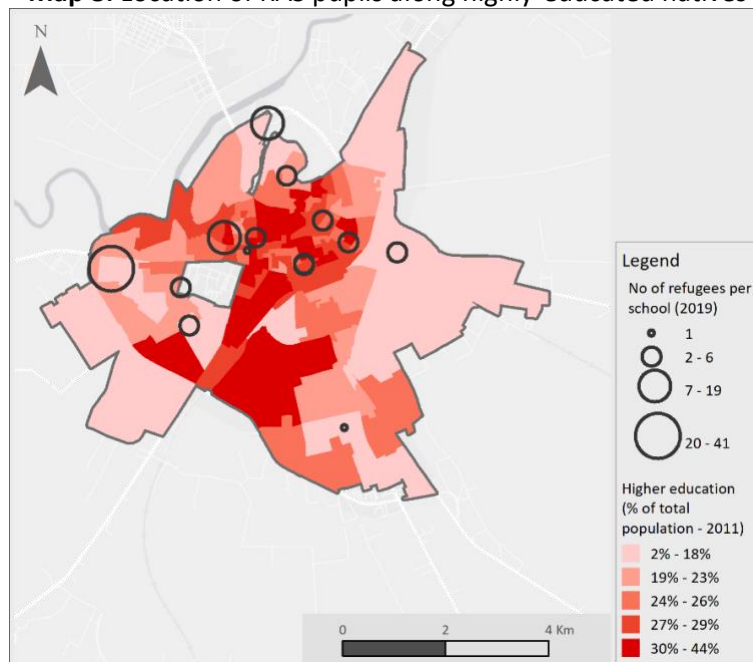
We next examined the location pattern of immigrants with reference to the distribution of the natives within the city. Maps 7 and 8 depict the relative size of 1st and 2nd wave of immigrant pupils (mapped in circles) along the location of natives with high educational level (the darker the colour, the higher the educational level). As can be seen, 1st wave immigrants tend to concentrate close to (or around) schools of high-educated natives, whereas RAS pupils and families are away from both high-education natives and 1st wave immigrants. Interestingly, the areas with high-educated (arguably, high-class too) natives have neither 1st wave immigrants nor RAS.

Map 7: Location of 1st wave immigrant pupils along highly-educated natives



Source: own elaboration

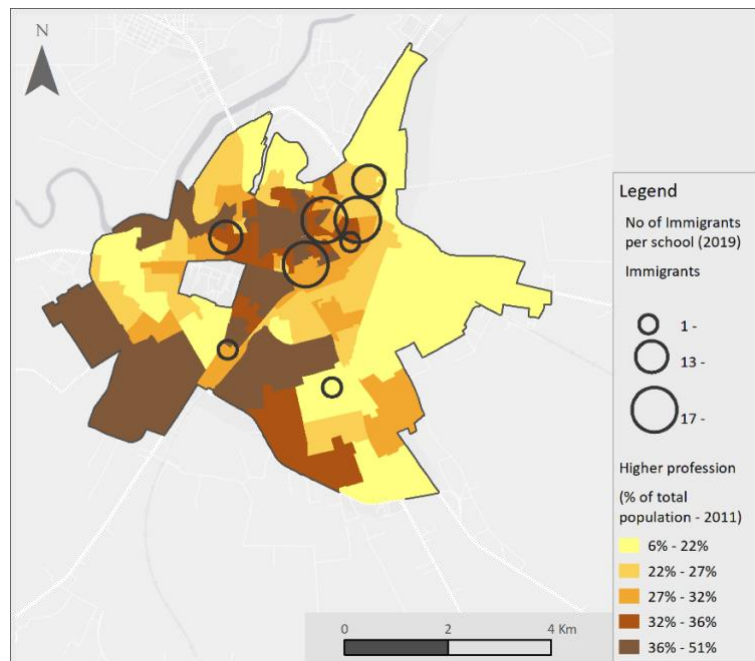
Map 8: Location of RAS pupils along highly-educated natives



Source: own elaboration

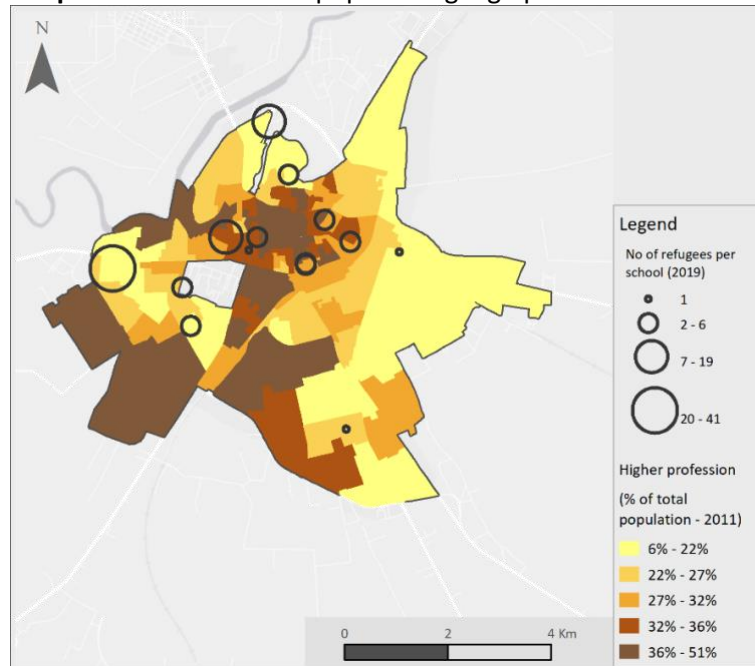
Similarly, Maps 9 and 10 depict the relative size of 1st and 2nd wave of immigrant pupils (mapped in circles) along the location of natives of high professional level (e.g. senior officials, medical doctors, lawyers, etc.). A similar picture emerges: 1st wave immigrants tend to concentrate close to (or around) natives of higher professional level, whereas RAS are away from both high-professional natives and 1st wave immigrants. Moreover, the areas with high-professional natives have neither 1st wave immigrants nor RAS.

Map 9: Location of 1st wave immigrant pupils along high professional natives



Source: own elaboration

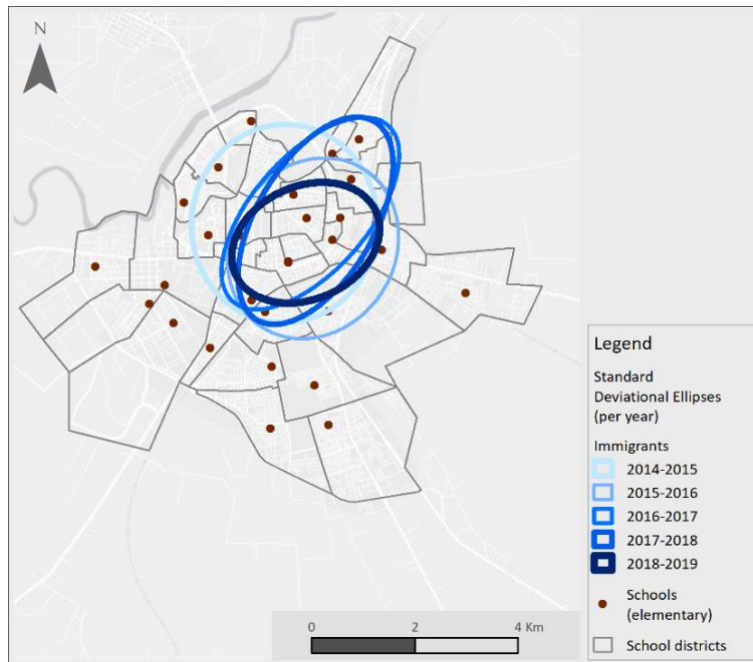
Map 10: Location of RAS pupils along high professional natives



Source: own elaboration

We conclude the presentation of immigrant segregation dynamics by displaying the evolution of the SDEs of both 1st wave and RAS pupils (see Maps 11 and 12 respectively). As can be seen, the SDE of 1st wave immigrants' shrinkages over time and moves to the city centre, indicating the spatial concertation around central locations of this minority group. In addition, a change of the SDE direction is also apparent, indicating the movement of this group towards the North-East part of the city.

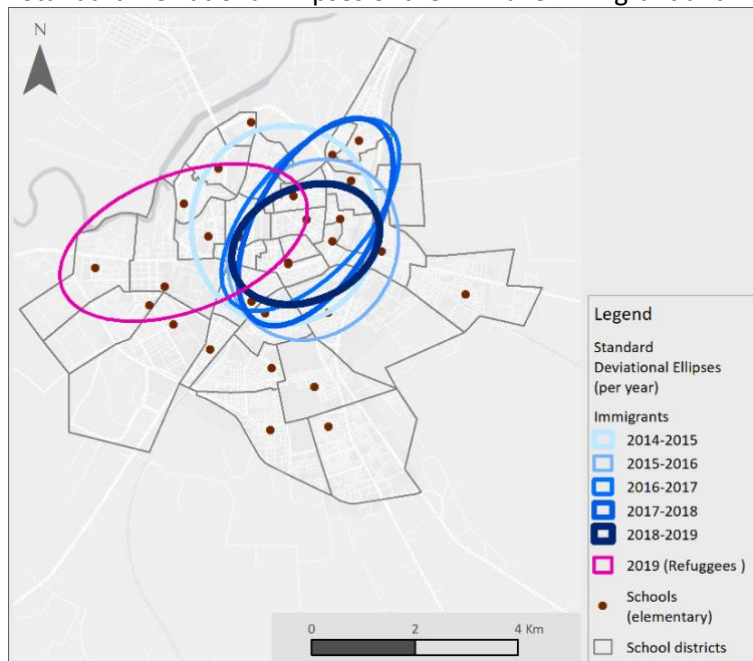
Map 11: Standard Deviatonal Ellipses of the 1st wave immigrant pupils



Source: own elaboration

In turn, Map 12 displays the RAS's SDE over the SDE's of 1st wave immigrants. Clearly, we see that the two groups not only reside in different locations but that they exhibit different deployment dynamics: whereas the 1st wave immigrants are concentrated towards North-East, the refugees are rather scattered towards the South-West part of the city.

Map 12: Standard Deviation Ellipses of the 1st wave immigrant and RAS pupils



Source: own elaboration

5. Residential and school segregation of immigrants in Katerini

5.1 Ethnic composition and residential segregation

The ethnic composition of Katerini is provided in Table 7. We see that between 2001 and 2011 the total population of the city increased by about 10% whereas the immigrant population increased by 53%. The immigrant population constituted 4.16% of the total population in 2001 and increased to 5.79% ten years after. Both in 2001 and 2011, the major immigrant group were Albanians. In 2011 they comprised 66.07% of the total number of immigrants, followed by Romanians (7.60%) and Russians and Ukrainians (6.15%). There was a very low number of immigrants, both in 2001 and 2011, from Middle East and Refugee Countries.

Table 7: Population of ethnic groups in Katerini

Group	2001		2011		Change between 2011-2001
	Absolut number	% in total population	Absolut number	% in total population	
Total Population	50783	100%	55813	100%	9.9%
Natives	47885	94.293%	51351	92.005%	7.2%
Immigrants	2114	4.163%	3234	5.794%	53.0%
Albania	1309	2.578%	2222	3.981%	69.7%
Refugee Countries	4	0.008%	9	0.016%	125.0%
Middle East	13	0.026%	7	0.013%	-46.2%
Wider Middle East	13	0.026%	15	0.027%	15.4%

Source: EKKE-ELSTAT (2015) and authors' elaboration (Number of Spatial Units = 41)

The dynamics of ethnic residential segregation in Katerini are shown in Table 8. The overall picture is that segregation in the city is generally low but increasing. Similarly to Larisa, the index values of "Refugee Countries" and "Wider Middle East" are somewhat extreme, and to a degree, less reliable, due to the fact that the actual numbers of these people are very small.

As regards the dissimilarity index we observe that its values for the totality of immigrants (and Albanians) is generally low, whereas for RAS the index is high. Yet, for all immigrant groups dissimilarity increases from 2001 to 2011. In turn, isolation is very low but increases both for "all immigrants" and for immigrants of the 2nd wave (coming from "Wider Middle East" in particular). Concentration is medium for all immigrants as well as for Albanians, high for RAS and figures are rather stable over time.

Table 8: Residential segregation indices in Katerini

Group	Evenness			Exposure			Concentration		
	Dissimilarity Index (D)			Isolation Index (I)			Delta Index (DEL)		
	2001	2011	change	2001	2011	change	2001	2011	change
All Immigrants	0.159	0.176	10.7%	0.047	0.068	44.5%	0.625	0.638	2.1%
Albania	0.202	0.208	3.1%	0.031	0.048	56.5%	0.663	0.672	1.4%
Refugee Countries	0.896	0.905	0.9%	0.001	0.003	0.2%	0.982	0.976	-0.6%
Wider Middle East	0.771	0.775	0.6%	0.002	0.002	11.8%	0.856	0.951	11.1%
Russia & Ukraine	0.257	0.314	22.4%	0.007	0.006	-6.0%	0.661	0.560	-9.3%

Source: EKKE-ELSTAT (2015) and authors' elaboration

5.2 School composition and segregation

Table 9 outlines Katerini's ethnic composition of primary-school pupils. Immigrants comprise on average about 2.6% of all pupils, with Albanians being the majority up to 2016. RAS pupils appear in 2016-17 and a year later their number is multiplied by 3.6 to bypass in number the Albanian pupils. Over the last 2 years RAS become the majority of the immigrant students (constituting the 95% and 85% of the immigrant pupils for 2017-18 and 2018-19, respectively). The countries that refugee students come from are Syria, Iraq, Afghanistan, and Iran.

Table 9: Pupil ethnic composition in Katerini (Spatial Units=30)

Group	2014-15	2015-16	2016-17	2017-18	2018-2019
Total pupils	3968	3947	4033	3976	3855
Natives	3854	3845	3914	3797	3687
Immigrants	114	102	119	92	91
Albanians	103	88	102	74	69
Refugees	0	0	24	87	77
<i>Balkans</i>	107	94	112	86	86

Source: own elaboration

Ethnic segregation in primary schools during the years 2015-2019 is depicted in Table 10. For all immigrants dissimilarity and concentration are high, whereas isolation is low. Yet, all indices show an upward trend. Overall, Albanians' (1st wave immigrants) segregation was medium and increasing, whereas RAS's (2st wave immigrants) segregation was initially high but decreased to medium.

Table 10. School segregation indices in Katerini

	2015-16	2016-17	2017-18	2018-19
Dissimilarity index (D)				
All immigrants	0.606	0.653	0.689	0.722
Albanians	0.607	0.642	0.702	0.728
Refugees	-	0.862	0.502	0.602
Isolation index (I)				
All immigrants	0.073	0.090	0.105	0.107
Albanians	0.065	0.079	0.094	0.099
Refugees	-	0.044	0.055	0.056
Delta index (DEL)				
All immigrants	0.586	0.654	0.696	0.717
Albanians	0.604	0.649	0.727	0.725
Refugees	-	0.850	0.596	0.633

Source: own elaboration

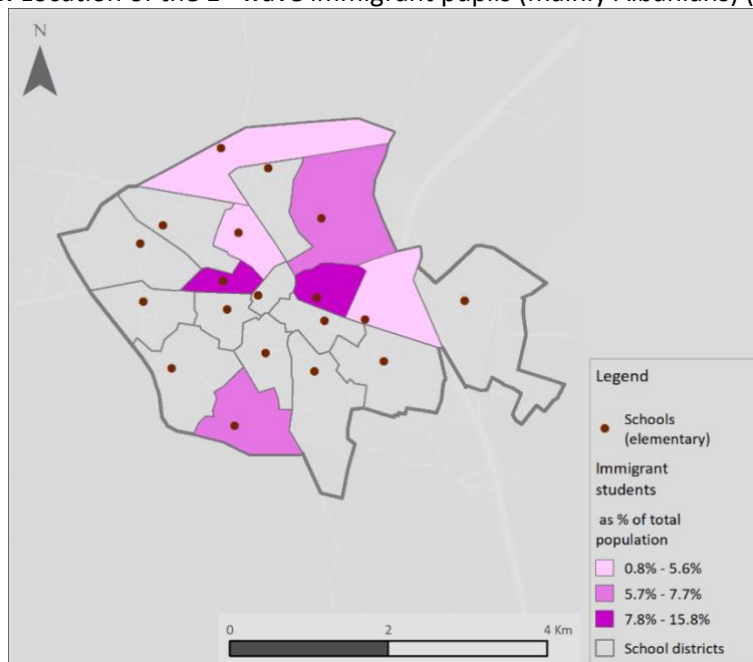
Simple cartographic techniques depict the school segregation within the city. Map 13 displays school catchment areas (our unit of analysis) along with the location of primary schools and the urban centre of Katerini, whereas Maps 14 and 15 display the 1st and the 2nd wave immigrant pupils as percentages of the whole school population for the last examined year (2018-19). As becomes evident, the 2 groups occupy similar locations; they concentrate around the city centre (though neither of them in the city centre). The 1st wave immigrants prefer the north-east and south-west part of the city and RAS pupils and their families the north-east and south-east locations.

Map 13: Katerini's primary schools and their catchment areas



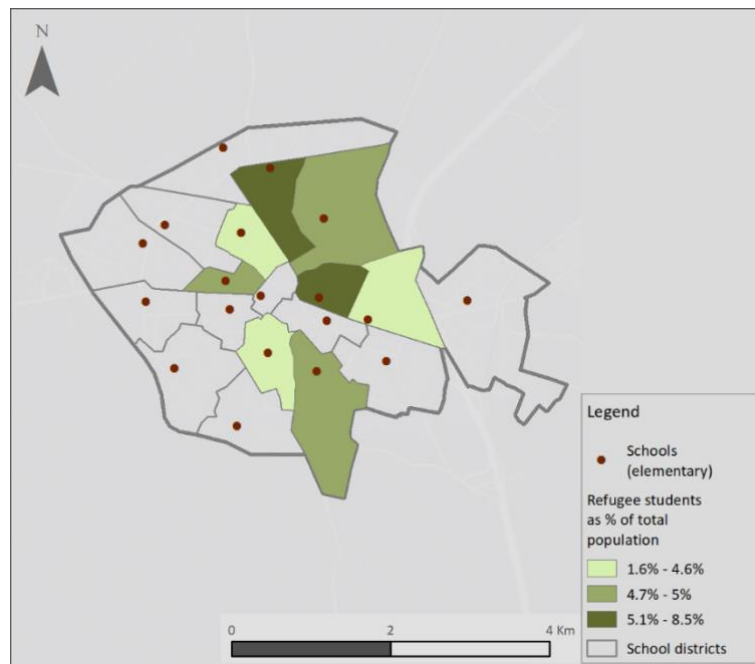
Source: own elaboration

Map 14: Location of the 1st wave immigrant pupils (mainly Albanians) (2018-19)



Source: own elaboration

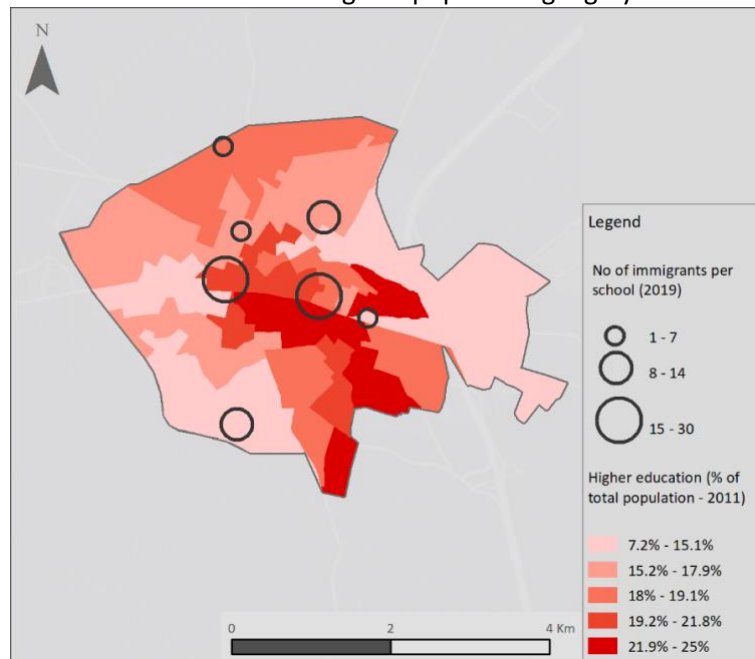
Map 15: Location of the 2nd wave immigrant pupils (mainly RAS) (2018-19)



Source: own elaboration

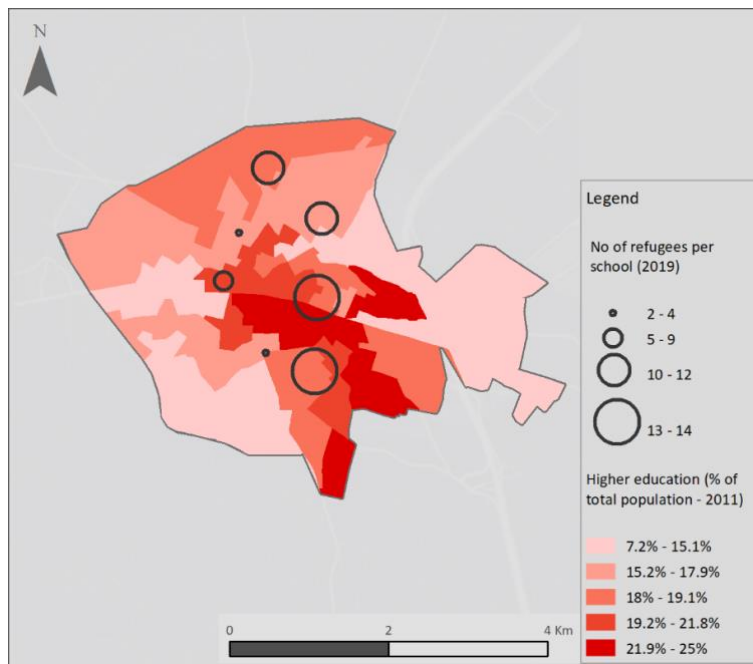
The location pattern of immigrants vis-à-vis the distribution of the natives within the city was also explored. Maps 16 and 17 depict the relative size of 1st and 2nd wave of immigrant pupils (mapped in circles) along the location of highly educated natives. As can be seen, both 1st wave immigrant and RAS pupils are located away from schools of high-educated natives. This means that high-educated natives have neither immigrants nor RAS close to them. Similar is the case when we depict the relative size of 1st and 2nd wave of immigrant pupils along the location of natives of high professional level (see Maps 18 and 19).

Map 16: Location of 1st wave immigrant pupils along highly-educated natives



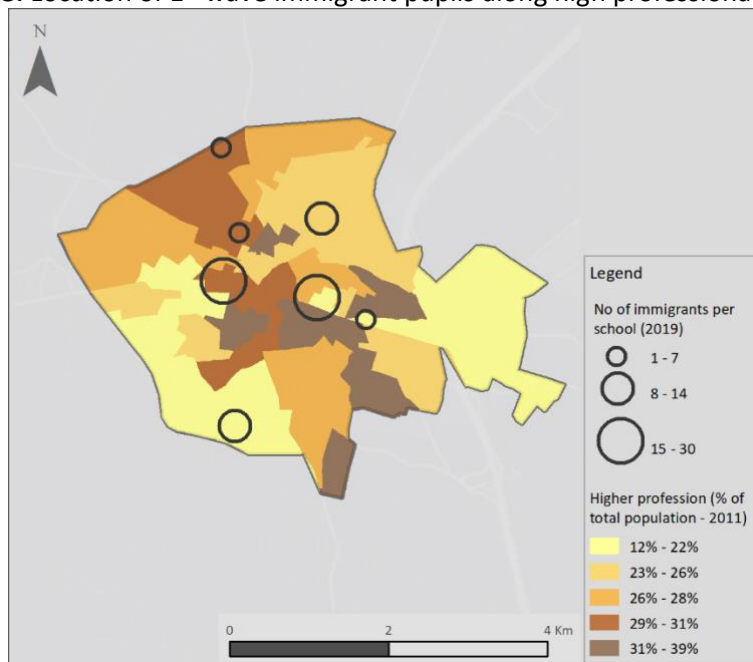
Source: own elaboration

Map 17: Location of RAS pupils along highly-educated natives



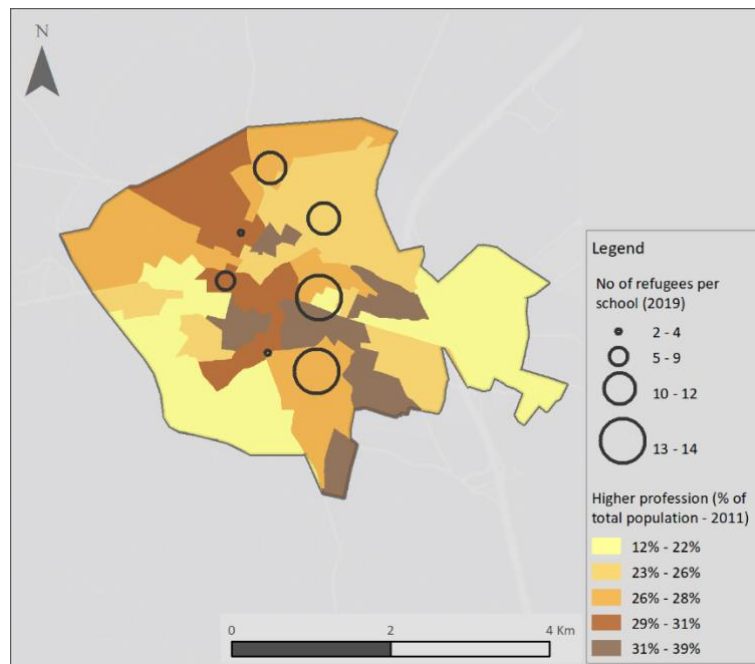
Source: own elaboration

Map 18: Location of 1st wave immigrant pupils along high professional natives



Source: own elaboration

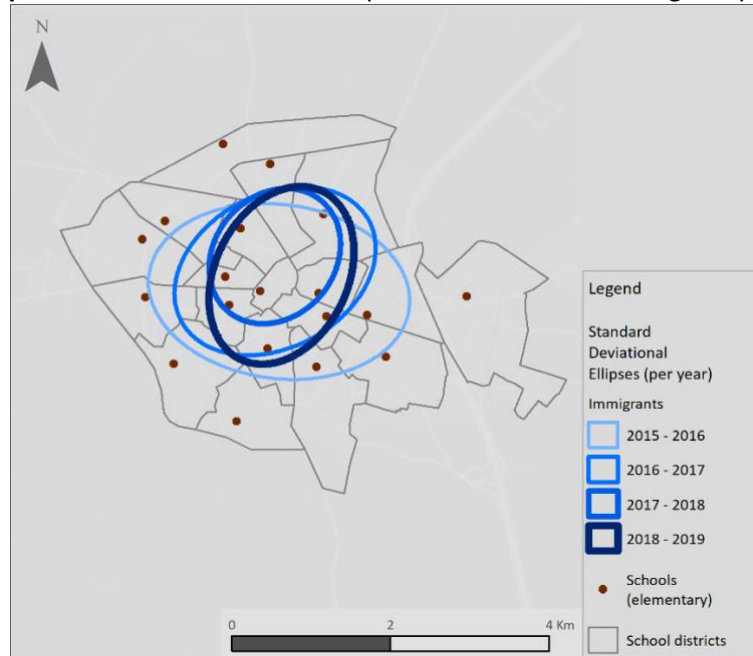
Map 19: Location of RAS pupils along high professional natives



Source: own elaboration

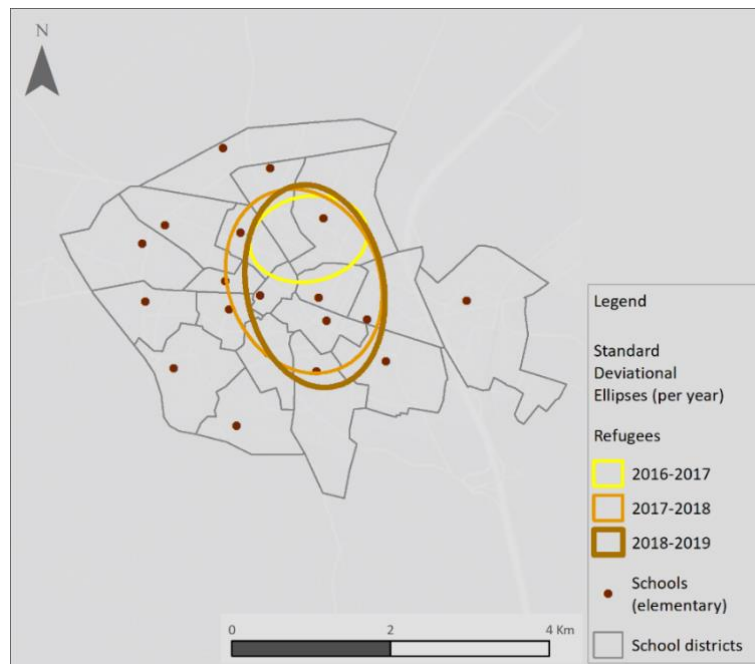
Maps 20 and 21 display the SDEs of 1st wave and RAS pupils (respectively) and give an indication of the dynamics of their segregation. As can be seen, the SDE of 1st wave immigrants' shrinkages over time and moves to the centre, indicating the spatial concertation around central locations of this group. In addition, the change of the SDE direction shows a movement from East-West towards the North-South part of the city. Slightly different is the picture for RAS (Map 21). The dynamics of SDE indicate a dispersion of the group towards the southern part of Katerini.

Map 20: Standard Deviation Ellipses of the 1st wave immigrant pupils



Source: own elaboration

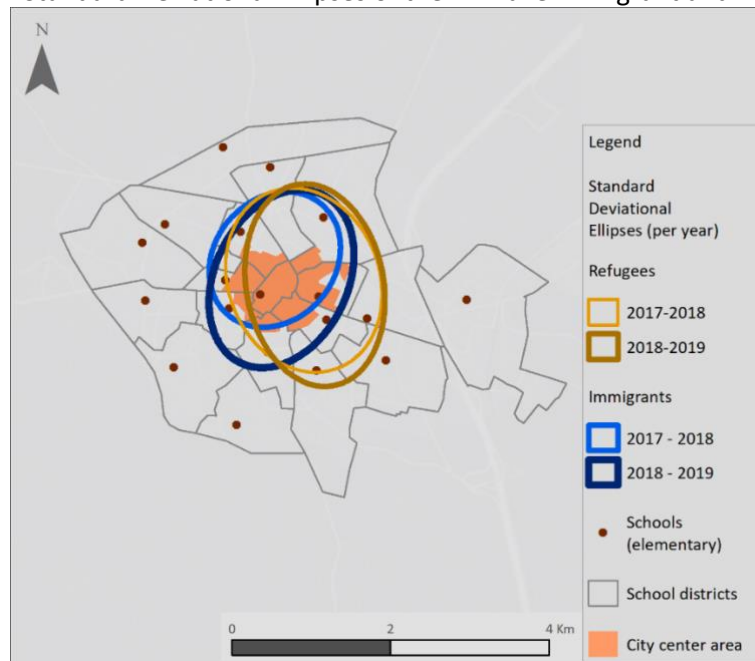
Map 21: Standard Deviation Ellipses of RAS immigrant pupils



Source: own elaboration

Finally Map 22 displays the RAS's SDE vis-a-vis these of 1st wave immigrants for the last two years. We see a different direction of dispersion for the two groups: the 1st wave immigrants move towards South-West and RAS towards the South-East, raising questions of possible increase of segregation between the two groups.

Map 22: Standard Deviation Ellipses of the 1st wave immigrant and RAS pupils



Source: own elaboration

6. Qualitative research - Interviews with refugees

6.1 Settlement, housing and location

Interviews in Larisa revealed that refugees are quite satisfied with their current accommodation of the ESTIA programme. A few interviewees (with large families) mentioned that the size of their apartment is rather small, but all acknowledged that conditions are much better than expected. This was partly attributed to the fact that before they were accommodated in Open Reception Facilities (camps) or in Reception and Identification Centres (hotspots) where the conditions of living were hard and free movement was restricted.

Refugees' satisfaction with their current accommodation was also strongly related to their perceptions and experiences of the neighbours and neighbourhood. Thus, while refugees expressed similar to the majority population preferences for housing (such as proximity to health care and educational facilities and transportation hubs, centrality of location, etc.), the location criterion which scored first for almost all interviewees was "good neighbours" and a friendly environment. To underline the significance of neighbours and neighbourhood one interviewee quoted an old Syrian proverb:

"In the beginning of the day, the first you meet is your neighbours and then everyone else" [L06].

In a similar spirit another interviewee noted:

"Friendly neighbours is security, because these people can help you if something bad happens" [L02].

Similar findings have been documented by other researchers (Netto, 2011; Netto and Beider, 2019), reporting safety to be a key factor for immigrants making housing choices. In this context, neighbourhood as a relational setting enhances the sentiment of security and belonging and creates a sense of community which is necessary for refugees to seek a new life (Blokland, 2017). Researchers also highlight that residents in neighbourhoods where people share strong social ties can find support through social networks (Wellman and Leighton, 1979). In that sense, neighbourhood ties and social-spatial proximity can benefit newcomers' integration into the Greek society.

The above also reveals that individuals' perceptions of how they are viewed and treated by others is closely linked to the commonly-acknowledged fear of racial harassment. Indeed, fear of or actual experience of harassment was the main reason underlying the finding that the majority of those interviewed considered that the most important factor in choosing accommodation was "a friendly neighbour", rather than good location and accessibility, employment opportunities, quality of housing facilities and vicinity to public transport or even to co-ethnics.

This might be related to the statement that refugees have, during their settlement in Larisa, experienced incidents of racial harassment, such as acts of verbal or physical abuse, making them sometimes feel unwelcomed by the local society. Moral panic and the fear of "otherness" were the main reasons behind locals' reactions, especially in the mainland cities. As one of our interviewees reported:

"People in the Central Square took off the headscarf from a refugee woman. They fear that Syrians are terrorists. People don't want us" [L03].

And someone else mentioned:

"In the school, a woman started to shout at my daughter and the teacher didn't involve, although she was present at the incident" [L02].

However, many interviewees expressed their positive experiences of friendly neighbours who help and supported them in various ways: taking them to the hospital when needed, giving toys and presents for their children, babysitting and taking care of their children and inviting them for having dinner together.

Finally, another interesting finding that came out of our interviews with both the refugees and the local actors was that vicinity to co-ethnics or to others of the same or other minority group is not a strong criterion for the location choices of RAS. Most of the interviewees stated that they do not prefer to live too close to co-

ethnics or other RAS because this becomes a barrier to interaction and integration with the local population. As one respondent highlighted with regard to his accommodation:

"...In the specific block of houses we live together 4-5 families from Syria. It is not so good because we are isolated and is difficult to learn the Greek language. Also, neighbours keep us at a distance" [L05].

6.2 Employment

Interviews revealed that refugees have major difficulties in obtaining employment related to their education, skills and professional qualifications (which are not recognised officially from the Greek state, admittedly due to lack of supporting documentation on the part of RAS). The delay of the public services to establish an evaluation system of the refugees' professional and educational qualifications not only frustrated RAS but also raises issues of possible discrimination and exclusion from the labour market placing immigrants into lower positions of the market. In these terms, most of them are really eager to attend courses, do vocational training or even go back to the university classes, in order to get their qualifications properly recognised.

Knowledge of the local language was deemed as a very important factor for their employability, as well as for getting private accommodation in the future. *"Language is very important to find a job... and a house"* one [L02] characteristically reported. Yet, the majority of interviewees admitted that they do not attend lessons of Greek language, due to lack of well organised such courses (in Larisa) or due to lack of free time on their part (in Katerini). Some expressed their eagerness to learn Greek through online courses, but these were a few people.

The above answer indicates that some RAS are willing to stay permanently in Greece and that language skills are a significant element not only for social integration but mainly for employment acquisition. However, some individuals attributed the lack of employment opportunities to the economic crisis the country has experienced. One said:

"Language is not such a big problem, but there are no jobs in Greece. Even Greeks can't find a job". [L05]

And someone else added:

"There are no jobs even for the Greeks, how can we [refugees] find a job..." [L03]

Although, many individuals clearly acknowledged the favourable characteristics of Larisa for permanent residence (such as: adequate urban size, quality environment, high safety, quality of education and health care facilities), they also highlighted that employment prospects in small and medium cities are rather limited. On these grounds they conclude *"We have nowhere else to go. I have to go to a big city, Athens or Thessaloniki, in order to find a job" [L07]*

6.3 Socialization practices and networks

As noted above, interviewees reported that refugees have been reluctant to stay with or live close to other refugees (even of the same country) on the basis that this impedes integration and interaction with natives. Such a practice *"... is not so good because we are isolated and is difficult to learn the Greek language. Also, neighbours keep us at a distance" [L05].* In addition, their "open-door house policy" culture means that uninvited visitors (usually co-ethnics) can stay as long as they want (usually all day), raising issues of nuisance to the neighbours.

As regards the contact with the locals, a few interviewees reported of having regular social relations with neighbours or with other natives, where links were created usually through their kids' association (mates at school or sports).

In both cities, central plazas and parks are used by immigrants and become places of refugee "identity (re-)construction" as well as hubs of communication, social support and information flow (about their situation,

news from home, about relatives, etc.). These practices produce social space and a sense of belonging created through experiences (Blokland, 2017; Rishbeth et al, 2019) which play a crucial role in influencing housing preferences and pathways. One interviewee notes:

"We don't meet in houses; we prefer to sit in the plaza. We don't want to make noise in the house because of the neighbours" [L01].

And another one expands:

"Women and men go to the central plaza and talk not only their situation but also chat, drinking tea and eating snacks. We chat with other women and we talk about our situation and our life" [L08].

However, according to local agents this practice of gathering in public spaces, aggravated the fear of locals, especially at the beginning when the newcomers settled in the cities. Local communities were not familiar with the habits and social practises of RAS and felt uncomfortable with this behaviour. Xenophobia and hostility towards RAS might have increased as a response (Blokland, 2017). Local authorities and service providers highlight that housing provision helps mitigate both such social practices and locals' xenophobia.

"The local community can see now that refugees have a house and they become integrated. So, they don't feel fear. They [refugees] wear headscarves, but when they have a house and a job they do not gather all the time at the park. When they have a house and a job, they don't feel excluded or create problems. In contrast, in big cities like Thessaloniki, there are many violent incidents with refugees" ... "Of course, integration is more than housing provision" [Agency, Larisa, Edu3]

But also, local agencies concerned about the reactions of local society and the "special" treatment of refugees over the poor and vulnerable local people. For that reason, in Katerini, the community-based NGO established a new project where vulnerable Greek families can also benefit from subsidized housing.

"The integration of vulnerable Greek families within the same project of housing for refugees was very important for the local society" [Agency, Katerini, NGO]

6.4 Future prospects and mobility

More than two-thirds of the individuals interviewed reported that they would like to "stay in Larisa/Katerini" or "in a small city" for permanent residence, due to advantages in life quality and their positive experiences so far. One interviewee noted:

"Here [in Larisa] is very good. We finally have a home" [L06].

In a similar spirit, others appreciated the security the city affords due to the urban size as well as the size of the immigrant community. Big cities, like Athens, seems to be less preferable destinations for many refugees due to high numbers of refugees and the associated social problems. One said:

"After what I saw and experienced I prefer a quiet and secure environment like this in Larisa" [L01],

and someone else added:

"Here [in Larisa] we are few and this is good. In big cities there are many problems because there are many refugees" [L08].

When asked whether they would choose to move to another neighbourhood of the city if they had the opportunity, the majority replied negatively, saying that they are happy where they are and they would stay in the same accommodation, the same neighbourhood and the same city.

Yet, employment was a key issue; people has been willing to stay in Larisa but their main concern was the need to find a job. Thus, it has been reported:

"I would like to stay in the city, but first I must find a job" [L03].

In Katerini, the majority of the individuals interviewed reported that they wish to stay in the city but if they have the opportunity to choose another country, they would probably go to the Western Europe. Countries such as Germany, Belgium, and Sweden or the Netherlands that are deemed to offer more opportunities for employment and proximity to relatives and friends, have been reported as preferable destinations, especially

by those who were experiencing social isolation. Interestingly nobody was willing to go back to their home country, due to the experiences they had and the need to look forward in their life now.

6.5 RAS integration and local solidarity initiatives

The local agents reported that local solidarity groups have been quite active in providing informal support to the newcomers' settlement process in the cities. Along the small (in terms of size) solidarity groups other active citizens and organised groups, such as teachers' associations, join forces to help society mitigate tensions in the process of refugee settlement and enrolment of refugee pupils to schools, especially in cases where strong negative feelings and xenophobic behaviour on the part of natives were expressed.

As Robinson et al. (2007) note, places with limited experience in accommodating people from other ethnic groups, exhibit increased cases of racial harassment and abuse and local reactions are more extreme. In this context, the area in which the newcomer RAS are housed, impacts significantly on the overall settlement experience and the integration dynamics. In our study, we understand that the NGO 'Perichoresis' in Katerini (of the Evangelical Church) played a crucial role in overcoming tensions between locals and newcomers in the 'spatial arena' and supported the smooth integration of refugees within the local community. Not only did it undertake the responsibility of running the ESTIA housing program (accommodating more than 598 beneficiaries), but in addition it established a number of other projects and activities to promote refugee integration and access to employment, such as: an intercultural cooking club (where locals and refugees cook together and exchange food recipes), a sewing club and workshops, group therapy sessions for women and children, sport activities, English and Greek language lessons, and more recently, a Social Cooperative Enterprise (called Peri-ergon) where natives and refugees make and sell bags, wallets, aprons, key rings, etc. made of recyclable materials or materials from refugee boats crossing the Aegean (see, <https://periergon.gr>).

7. Conclusions

Since 1990 Greece has experienced two major waves of immigration of different incomer profiles. During the 1990s and early 2000s incomers were mainly economic immigrants coming from Albania and the Balkans (1st wave), whereas in the 2010s incomers have been refugees (RAS) coming mainly from Afghanistan, Syria and Iraq (2nd wave) who were "trapped" in Greece in their way to the Western Europe. InSert aimed to shed light on the intraurban segregation/integration dynamics of immigrant, exploring the patterns of their residential distribution in two different urban settings in central Greece: Larisa, a large city where local authorities have an active, hands-on, role in refugee settlement, and Katerini, a smaller city with a community-based NGO coordinating the refugee housing provision. Employing both quantitative and qualitative methods, the project gave rise to a number of findings that lead to various conclusions and reflections for policy.

First, we found that in the 1990s and 2000s residential segregation of 1st wave immigrants was rather low, showing a decreasing tendency in Larisa and an increasing tendency in Katerini. Yet, in the last years, school segregation (and presumably residential segregation as well) of 1st wave immigrants was found high, again with decreasing trends in Larisa and increasing trends in Katerini. In turn, refugees' (2nd wave immigrants') school segregation was recorded high in Larisa but medium in Katerini. Moreover, refugees' location (in both cities, but to a less degree in Katerini) seems to differentiate from this of 1st wave immigrants, indicating the possible emergence of segregation between the two groups. Interestingly, it was also found that both immigrant groups are located out of the areas where natives of high educational and professional background reside.

It should be noted here that various factors played a role towards the development of the aforementioned social and spatial diversities in each city. The readiness of the local societies to accept refugees in specific locations, the local (spatio-temporal) housing market conditions (house availabilities, prices, etc.), the specific housing strategies for the spatial distribution of refugees that each municipality followed and the

availability of relevant funding, were some of the key elements that informed the different paths and outcomes of RAS spatial allocation and distribution to different neighbourhoods within the cities. Moreover, with regard to the legal - rental framework, there weren't any specific arrangements for such leases. Lease contracts were signed between local landlords and the managing local authority (municipality or NGO) and the criteria set for qualifying such places were typical and minimum standards of housing quality (Siatista, 2019). The choice of the specific beneficiaries of the ESTIA accommodation scheme (mainly families, vulnerable people and single parents) was made by the managing authority in cooperation with the UNHCR.

Second, our qualitative (interview-based) research recorded incidents of refugee harassment (mainly during the early days of their settlement in the cities) as well as of support both by local solidarity initiatives and by individuals on a personal /neighbourhood-based level. Thus, good neighbours and a friendly neighbourhood emerged as important determinants of the intra-urban location choice of refugees, whereas vicinity to co-ethnics was deemed as of lower importance, due to its impediments in the interaction and integration with the natives. Inter-group contact and information flow between refugees is achieved in public places. Thus, urban parks and plazas become places of daily socialization enabling RAS to dynamically reconstruct their identity in their new life. Initially, refugee (long-hour) gatherings in public spaces aggravated xenophobia, but natives started to go along with it. Employment was found, as expected, to be of paramount importance to refugees' location decisions. Although a preference for residence in small/medium cities (due to increased security and life quality) was reported, RAS also underlined their willingness (mainly out of necessity) to move to big cities if this can ensure access to the labour market, especially related to their skills and qualifications. Western European countries remained the preferable destinations; a choice supported to a degree due to the poor employment opportunities that are available in Greece.

Third, immigrants' segregation and integration dynamics are filtered through contextual and compositional factors related to the specific urban setting and the institutional responses undertaken at the local level. Certainly, local authorities have an important role to play in these processes and outcomes. Yet, community-based organizations and initiatives have been quite successful in accommodating refugees and facilitating their integration. Their approach has not only been proactive, innovative and flexible but also socially acceptable and politically neutral. On these grounds, cooperation between state-local authorities and community organizations is recommended. Allocating different tasks and responsibilities would lead to advancement of migrants' integration. Last but not least, immigrant integration should be seen as a two-way process: host societies are also changing through engagement with refugees. It is important for the state-local authorities to understand these processes and how these dynamics affect social interaction, integration and urban transformation. Constant watch of the phenomenon and further studies are needed to shed light on these dynamic and complex processes.

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Acknowledgments

This work could not have been concluded without the help and assistance of a number of people. These included city officials, administrative staff, and many other individuals and volunteers engaged with refugees and asylum-seekers (RAS) in the cities of Larisa and Katerini who supported us at various stages of this research.

In particular, we are indebted to Dimitrios Deligiannis, Deputy Mayor of Social Policy and Educational Activities of Larisa, and Maria Kalfa, responsible for the ESTIA Program (DIKEL) in Larisa, as well as to Paris Papageorgiou and Alexandra Nikolara, representatives of the NGO 'Perichoresis' which runs the ESTIA programme in Katerini, who provided us access and their resources to speak with a number of RAS in both cities.

We are also grateful to Sotirios Voulgaris and Aggeliki Katsigianni, Director and Data Officer, respectively, of the Department of Primary Education in Larisa, and Mariana Papathanasiou Director, respectively, of the Department of Primary Education in Katerini, for spending time discussing with us and providing us with required data.

We would like also to thank Dimitra Makri and Katerina Xilantzidou, coordinators for the education of RAS in Larisa and Katerini respectively, for the time and knowledge they afforded to us on the interviews we had.

We also gratefully acknowledge the translators and the social workers of the municipality of Larisa (DIKEL) and Zoi Makridou in Katerini, who provided us with valuable assistance in conducting the interviews with the RAS of the ESTIA programme.

A special mention should be made to the RAS in both cities, who talked with us and generously shared their experiences and thoughts. We hope that we have accurately conveyed their views in this report.

Last, but not least, we gratefully acknowledge financial support for this research provided by the Hellenic Observatory of London School of Economics. Mr Laliotis Ioannis and Mr Philipp Katsinas deserve special mention for their assistance in reading and revising the text.

Appendix

	Actors	
	Larisa	Katerini
Education	Department of Primary Education of Larisa-Ministry of Education (Sotirios Voulgaris, Aggeliki Katsigianni) Department of Secondary Education of Larisa-Ministry of Education (Ioannis Kapsalis) Coordinator for the education of refugees-Ministry of Education (Dimitra Makri)	Department of Primary Education of Larisa (Papathanasiou Marianna) Coordinator for the education of refugees-Ministry of Education (Katerina Xailantzidou)
Municipality	Deputy Mayor of Social Policy and Educational Activities of Larisa (Deligiannis Dimitrios) DIKEL- Public Agency responsible for the ESTIA Program (Maria Kalfa)	Mayor of Katerini (Konstantinos Koukodimos) Coordinator for refugees (Katanas Nikolaos)
NGOs	Danish Refugee Council (DRC)- Camp Koutsohero (Thodoros Karakoulalis)	NGO Perichoresis-Housing project and ESTIA program (Paris Papageorgiou, Alexandra Nikolara)

Case id	Pseudonym	Gender	Age	Refugee status	Self-defined ethnicity	Education	Employment in country of origin	Household situation	Current housing tenure	Economic Activity/employment status
L01	Yass	F	28	Refugee recognised	Syrian	High School	Housewife	Living with husband and 4 kids	ESTIA	Unemployed -housewife
L02	Im	M	34	Refugee recognised	Syrian	High School	Soldier	Living with wife and 4 kids (Husband)	ESTIA	Unemployed
L03	Nt	M	27	Refugee recognised	Syrian	School of Nursing	Nurse	Living with wife and 3 kids	ESTIA	Unemployed
L04	Has	M	27	Refugee recognised	Syrian-Kurdish	University	Pharmacist	Single	ESTIA	Unemployed
L05	Br	M	26	Refugee recognised	Syrian	High School	Worker in small industry	Living with wife, 2 brothers and a parent	ESTIA	Unemployed
L06	Moh	M	49	Refugee recognised	Syrian	University	Civil Engineering	Living with wife and 5 kids	ESTIA	Unemployed
L07	Mane	M	35	Refugee recognised	Iraq	High School	Electrician	Living with wife and 4 kids	ESTIA	Unemployed
L08	Han	F	40	Refugee recognised	Iraq	Elementary school	housewife	Living with husband and 4 kids	ESTIA	Unemployed -housewife
L09	Man	M	33	Refugee recognised	Syrian	High School	Decorator	Living with wife and 4 kids	ESTIA	Unemployed
K10	Zor	F	40	Refugee recognised	Syrian	University	Lawyer	Single parent with 2 kids	Later phase housing-half-financed rental costs	Translator F-T (full time)
K11	Lv	M	33	Refugee recognised	Syrian-Kurdish	High School	Student-part time in a shop	Single parent with 2 kids	Later phase housing-half-financed rental costs	Translator F-T (full time)
K12	Rod	M	28	Refugee recognised	Syrian	Technical School	Electronic engineer	Living with his brother	Later phase housing-half-financed rental costs	Translator F-T (full time)